Specifications, Proposal, and Contract Documents for:

TOTEM LAKE PARK – PHASE 1

Cl P No. PKC1390200
Job No. 38-19-PW

City of Kirkland
Department of Public Works
123 Fifth Avenue
Kirkland, Washington 98033
CITY OF KIRKLAND
DEPARTMENT OF PUBLIC WORKS

TOTEM LAKE PARK – PHASE 1
CIP NO. PKC1390200
JOB NO. 38-19-PW

Certificate of Engineer:
The Special Provisions and drawings contained herein have been prepared by or under the direction of the undersigned, whose seal as a Professional Engineer licensed to practice in the State of Washington, is affixed below.

Note the certifications above are only applicable to the Specification Sections listed below:

[Berger] Andy Mitton only applies to division 01, sections 03 30 00, 05 50 00, 06 83 16, 11 68 13, 32 18 16.12, 32 31 00, 32 32 00, 32 33 00, 32 40 00, 32 91 13, 32 92 19, 32 93 00, 32 93 10.
[2426] Jason Anderson only applies to section 32 84 00.
[Jacobs] Jesse Williams only applies to section 01 50 00, 01 57 13, 02 41 00, 26 05 33, division 31, sections 32 11 23, 32 12 16, 32 16 00, 32 17 23 and division 33.
[Innova] Paul B McCormick only applies to division 04, division 05, division 06, division 07, division 08, division 09, division 10.
[Hood River] Marcia L Karr only applies to division 22, division 23.
[NAC] Mark Adrian McMicheal only applies to division 26.
Approved for Construction:

Rod Steitzer, P.E.
Capital Projects Manager
CITY OF KIRKLAND
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City of Kirkland
INVITATION TO BID
INVITATION TO BID

Notice is hereby given that the City of Kirkland will receive sealed bids in the office of the Purchasing Agent, City Hall, 123 Fifth Avenue, Kirkland, Washington, at 1:00 P.M. local time on January 24, 2020 for the project hereinafter referred to as:

Totem Lake Park – Phase 1
JOB NO. 38-19-PW

At said time all bids will be opened and publicly read aloud. Each bid shall be accompanied by a bid proposal deposit in the form of a cashier’s check or a bond issued on a form acceptable to your surety made payable to the City of Kirkland for a sum of not less than five percent (5%) of the total bid amount. No bid shall be considered unless accompanied by such bid proposal deposit. Incomplete proposals and proposals received after the time stated above will not be considered. Faxed or emailed responses are not acceptable.

The work to be performed under these specifications consists of furnishing all labor, tools, materials, and equipment necessary for construction of the Totem Lake Park – Phase 1 Project. Specific work includes, demolition of an approximate 6,000 SF wood framed building, site demolition and clearing, earthwork, asphalt paving, concrete paving, curbs and walls, storm drainage utilities, vegetated retaining wall, play area and safety surfacing installation, boardwalk construction on pipe piles, boardwalk resurfacing, site furnishing installation, construct a new 440 SF restroom building, irrigation and landscape installation, and wetland mitigation planting. The estimated cost range for this project is $5,000,000 to $6,000,000.

The City will not sell bid packages. Plans, specifications, and addenda may be viewed and obtained online at www.bxwa.com. Click on: “Posted Projects,” “Public Works,” “City of Kirkland.” The Bidders List is maintained by the Builder's Exchange of Washington, Inc. Registration for the bidder’s list may be made online, by phoning (425) 258-1303, or at Builder’s Exchange of Washington located at 2607 Wetmore Ave, Everett, WA.

The City of Kirkland in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 USC 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally-Assisted Programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises as defined at 49 CFR Part 26 will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin, or sex in consideration for an award.

Questions regarding this project shall be submitted in writing to Brian Baker, via fax (425) 587-3844. Questions via phone or email will not be accepted. Bidders shall submit questions no later than January 17, 2020.

The City reserves the right to reject any and all bids, and to waive any informalities in the bidding, and to make the award to the lowest, responsive, responsible bidder as best serves the interests of the City.

No bids may be withdrawn within forty-five (45) days after the actual date of the bid opening.

CITY OF KIRKLAND

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CITY OF KIRKLAND
INFORMATION FOR BIDDERS

Bidders must bid on all items contained in the proposal.

The omission or deletion of any bid item will be considered non-responsive and shall be cause for rejection of the bid.

Submit your proposal on the Bid Proposal and other forms which are enclosed, or make a copy of the required forms and submit these documents.

The following forms must be executed in full with submittal of the bid:

1. **BIDDER RESPONSIBILITY CRITERIA CHECKLIST**
2. **SUBCONTRACTOR RESPONSIBILITY CRITERIA CHECKLIST**
3. **PROPOSAL**
   - The lump sum or unit prices must be shown in the spaces provided on the bid schedule.
   - Show total bid price in both words and figures on the Proposal.
   - The Proposal form must be completed in full, signed and dated.
4. **BID BOND**
   - A surety issued bid bond must be executed by the bidder and its surety company. The amount of the bid bond shall be not less than five percent (5%) of the total amount bid and may be shown in dollars or on a percentage basis. (A cashier’s check payable to the City of Kirkland and issued for an amount not less than 5% of the total bid may be submitted in lieu of a bid bond.)
5. **NONCOLLUSION AFFIDAVIT - Notarized**
6. **STATEMENT OF BIDDER'S QUALIFICATIONS**
   - This form must be filled in and signed. The owner reserves the right to check all statements and to judge the adequacy of the bidder's qualifications.
7. **SUBCONTRACTOR IDENTIFICATION LIST**
   - This form must be completed for HVAC, plumbing, and electrical subcontractors if the estimate exceeds $1,000,000.

The following forms are to be executed after the contract is awarded:

1. **CONTRACT**
   - This agreement is to be executed by the successful bidder.
2. **PERFORMANCE AND PAYMENT BOND**
   - To be executed by the successful bidder and its surety company.
3. **CONTRACTOR'S DECLARATION OF OPTION FOR MANAGEMENT OF STATUTORY RETAINED PERCENTAGE; RETAINED PERCENTAGE ESCROW AGREEMENT**
   - To be executed by the successful bidder based on bidder’s selection of option.
4. **CERTIFICATES OF INSURANCE**
   - To be executed by the successful bidder and by an acceptable insurance company. The City of Kirkland must be named as an additional insured.
5. **STATEMENT(S) OF INTENT TO PAY PREVAILING WAGES**
   - Affidavit certifying all employees of Contractor and Subcontractor shall be paid no less than the Prevailing Wage Rate(s) as determined by the Industrial Statistician of the Washington State Department of Labor and Industries.

**SPECIAL NOTE:** Prior to commencing work, the contractor and all subcontractors must have applied and paid for a City of Kirkland business license.
CITY OF KIRKLAND
BIDDER RESPONSIBILITY CRITERIA

It is the intent of City to award a contract to the low responsible bidder. Before award, the bidder must meet the following bidder responsibility criteria to be considered a responsible bidder. The bidder may be required by the City to submit documentation demonstrating compliance with the criteria. The bidder must:

1. Have a current certificate of registration as a contractor in compliance with chapter 18.27 RCW, which must have been in effect at the time of bid submittal;

2. Have a current Washington Unified Business Identifier (UBI) number;

3. Have:
   a. Industrial Insurance (workers’ compensation) coverage for the bidder’s employees working in Washington, as required in Title 51 RCW;
   b. A Washington Employment Security Department number, as required in Title 50 RCW;
   c. A Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW;

4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3). Meet responsibility criteria in RCW 39.04.350

5. Until December 31, 2017, not have violated more than one time the off-site, prefabricated, non-standard, project specific items reporting requirements of RCW 39.04.370.

6. For public works projects subject to the apprenticeship utilization requirements of RCW 39.04.320, not have been found out of compliance by the Washington state apprenticeship and training council for working apprentices out of ratio, without appropriate supervision, or outside their approved work processes as outlined in their standards of apprenticeship under chapter 49.04 RCW for the one-year period immediately preceding the first date of advertising for the project.
CITY OF KIRKLAND
SUBCONTRACTOR RESPONSIBILITY CRITERIA

☐ A. The Contractor shall include the language of this section in each of its first tier subcontracts, and shall require each of its subcontractors to include the same language of this section in each of their subcontracts, adjusting only as necessary the terms used for the contracting parties. Upon request of the Owner, the Contractor shall promptly provide documentation to the Owner demonstrating that the subcontractor meets the subcontractor responsibility criteria below. The requirements of this section apply to all subcontractors regardless of tier.

☐ B. At the time of subcontract execution, the Contractor shall verify that each of its first tier subcontractors meets the following bidder responsibility criteria:

☐ 1. Have a current certificate of registration in compliance with chapter 18.27 RCW, which must have been in effect at the time of subcontract bid submittal;

☐ 2. Have a current Washington Unified Business Identifier (UBI) number;

☐ 3. Have:
   a) Industrial Insurance (workers’ compensation) coverage for the subcontractor’s employees working in Washington, as required in Title 51 RCW;
   b) A Washington Employment Security Department number, as required in Title 50 RCW;
   c) A Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW;
   d) An electrical contractor license, if required by Chapter 19.28 RCW;
   e) An elevator contractor license, if required by Chapter 70.87 RCW.

☐ 4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065 (3). Meet responsibility criteria in RCW 39.04.350

☐ 5. Until December 31, 2017, not have violated more than one time the off-site, prefabricated, non-standard, project specific items reporting requirements of RCW 39.04.370.

☐ 6. For public works projects subject to the apprenticeship utilization requirements of RCW 39.04.320, not have been found out of compliance by the Washington state apprenticeship and training council for working apprentices out of ratio, without appropriate supervision, or outside their approved work processes as outlined in their standards of apprenticeship under chapter 49.04 RCW for the one-year period immediately preceding the first date of advertising for the project.
CITY OF KIRKLAND
BID PROPOSAL

TOTEM LAKE PARK – PHASE 1
CIP NO. PKC1390200
JOB NO. 38-19-PW

To: Director of Finance
   City of Kirkland
   123 Fifth Avenue
   Kirkland, Washington 98033

The undersigned, hereinafter called the Bidder, declares that the only persons or parties interested in this proposal are those named herein; that this proposal is in all respects fair and without fraud; that it is made without collusion with any official or employee of the City of Kirkland, hereinafter called the Owner; and that the proposal is made without any connection or collusion with any person making another proposal on this contract.

The bidder further declares that it has carefully examined the contract documents for the construction of the project; that it has personally inspected the site; that it has satisfied itself as to the quantities involved, including materials and equipment and conditions of work involved, including the fact that the description of the quantities of work materials, as included herein, is brief and is intended only to indicate the general nature of the work and to identify the said quantities with the detailed requirements of the contract documents; and that this proposal is made according to the provisions and under the terms of the contract documents, which documents are hereby made a part of this proposal.

The bidder further agrees that it has exercised its own judgment regarding the interpretation of subsurface information and has utilized all data which it believes pertinent from the engineer-architect, owner, and other sources in arriving at its conclusions.

The bidder agrees to hold its bid proposal open for 45 days after the actual date of bid opening and to accept the provisions of the Instructions to Bidders regarding disposition of bid bond.

The bidder agrees that if this proposal is accepted, it will, within ten (10) calendar days after notification of acceptance, execute the contract with the Owner in the form of contract included in the contract documents, and will, at the time of execution of the contract, deliver to the Owner the Performance and Payment Bond and all Certificates of Insurance required therein, and will, to the extent of its proposals, furnish all machinery, tools, apparatus, and other means of construction and do the work in the manner, in the time, and according to the methods as specified in the contract documents and required by the engineer or other project manager designated thereunder.

The bidder further agrees, if awarded the contract, to begin work within ten (10) calendar days after the date of the execution of the contract and to complete the construction within the time specified in Section 1-08.5 of the Special Provisions.

In the event the bidder is awarded the contract and shall fail to complete the work within the time limit or extended time limit agreed upon as more particularly set forth in the contract documents, liquidated damages shall be paid to the Owner per the specifications contained in the contract documents.
The bidder further proposes to accept as full payment for the work proposed herein, the amounts computed under the provisions of the contract documents and based upon the lump sum and unit price amounts entered by the bidder for the various bid items included in the Bid Schedule. The bidder further agrees the lump sum and unit prices entered for the various bid items included in the Bid Schedule include all use taxes, overhead, profit, bond premiums, insurance premiums and all other miscellaneous and incidental expenses as well as all costs of materials, labor, tools and equipment required to perform and complete the work.

Within the three-year period immediately preceding the date of the bid solicitation for this Project, bidder has not been determined by a final and binding citation and notice of assessment issued by the department of labor and industries or through a civil judgment entered by a court of limited or general jurisdiction to have willfully violated, as defined in RCW 49.48.082, any provision of chapter 49.46, 49.48, or 49.52 RCW.

The undersigned bids and agrees to complete all construction of the TOTEM LAKE PARK – PHASE 1; JOB NO. 38-19-PW for the following:

Total Computed Price *(in figures)*: $__________

Washington State Sales Tax 10.1% *(in figures)*: $__________

Total Bid *(in figures)*: $__________

Total Bid *(in words)*: __________________________________________

Receipt of Addenda No(s). ________________ is hereby acknowledged.

I certify (or declare) under penalty of perjury under the laws of the State of Washington that the foregoing is true and correct:

________________________________________________________________________

CONTRACTOR (Firm Name) 

Location or Place Executed: (City, State)  

________________________________________________________________________

By ____________________________  

Name and title of person signing

________________________________________________________________________

(Indicate whether Contractor is Partnership, Corporation, or Sole Proprietorship) 

Date ____________________________

________________________________________________________________________

Washington State Contractor's Registration Number  

Contractor's Industrial Insurance Account Number
** Bid proposal to be submitted in a sealed envelope marked "Bid Enclosed" for TOTEM LAKE PARK – PHASE 1, JOB NO. 38-19-PW.
CITY OF KIRKLAND
BID SCHEDULE

TOTEM LAKE PARK – PHASE 1
JOB NO. 38-19-PW

ALL BASE BID WORK

Note: Unit prices for all items, all extensions, and the total amount of the bid must be shown. All entries must be typed or entered in ink.

Schedule A

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item Description</th>
<th>Est. Qty.</th>
<th>Unit</th>
<th>Unit Price</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>All Base Bid Work</td>
<td>1</td>
<td>LS</td>
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</tbody>
</table>

TOTAL COMPUTED PRICE: $________________________

UNIT PRICE BID WORK

Note: Unit price bid items, shall be used for adjusting the contract price when differing site conditions are encountered. All entries must be typed or entered in ink.

Schedule B

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item Description</th>
<th>Est. Qty.</th>
<th>Unit</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>Contaminated Soils and Creosote Pilingings – Excavation, Haul, and Disposal</td>
<td>150</td>
<td>Ton</td>
<td>Subtotal:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>WA St. Sales Tax (10.1%):</td>
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<td></td>
<td></td>
<td>Total Unit Price B1:</td>
</tr>
<tr>
<td>B2</td>
<td>Pea Gravel backfill for areas of Contaminated Soil and Creosote Piling Removal</td>
<td>150</td>
<td>Ton</td>
<td>Subtotal:</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>WA St. Sales Tax (10.1%):</td>
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<td></td>
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<td></td>
<td>Total Unit Price B2:</td>
</tr>
<tr>
<td>B3</td>
<td>2 inch Diameter Pipe Piles – Boardwalk Deep Foundation Installation</td>
<td>1239</td>
<td>EA (10' Length)</td>
<td>Subtotal:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td>WA St. Sales Tax (10.1%):</td>
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<td>Total Unit Price B3:</td>
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<tr>
<td>B4</td>
<td>4 inch Diameter Pipe Piles – Miscellaneous Park Elements Deep Foundation Installation</td>
<td>170</td>
<td>EA (10' Length)</td>
<td>Subtotal:</td>
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<td>WA St. Sales Tax (10.1%):</td>
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<td>Total Unit Price B4:</td>
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<tr>
<td>B5</td>
<td>6 inch Diameter Pipe Piles – Restroom Building Deep Foundation Installation</td>
<td>57</td>
<td>EA (10' length)</td>
<td>Subtotal:</td>
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<td>WA St. Sales Tax (10.1%):</td>
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<td>Total Unit Price B5:</td>
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MUST BE SUBMITTED WITH PROPOSAL

BID DEPOSIT

Herewith find deposit in the form of a cashier’s check or certified check in the amount of
$__________________ which amount is not less than five percent (5%) of the total bid.

SIGN HERE__________________________________

BID BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, ______________________________________________________________, as Principal, and  
______________________________________________________________________, as Surety, are  
held and firmly bound unto the City of Kirkland, as Obligee, in the penal sum of  __________________
_________________________________________________ dollars, for the payment of which the  
Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns,  
jointly and severally, by these presents.

The condition of this obligation is such that if the Obligee shall make any award to the Principal for  

Project Name___________________________________________  Job Number__________________________

according to the terms of the proposal or bid made by the Principal therefor, and the Principal shall duly  
make and enter into a contract with the Obligee in accordance with the terms of said proposal or bid and  
award and shall give bond for faithful performance thereof, with Surety or Sureties approved by the Obligee;  
or if the Principal shall, in case of failure to do so, pay and forfeit to the Obligee the penal amount of the  
deposit specified in the call for bids, then this obligation shall be null and void; otherwise it shall be and  
remain in full force and effect and the Surety shall forthwith pay and forfeit to the Obligee, as penalty and  
liquidated damages, the amount of this bond.

SIGNED, SEALED AND DATED THIS _______________ DAY OF ________________, 20______.

PRINCIPAL:                                                                                     SURETY:

__________________________________________________________________________________________

__________________________________________________________________________________________

Note:  If a Bid Bond is provided, it must be accompanied by a power of attorney which appoints the  - 
Surety’s true and lawful attorney-in-fact to make, execute, seal and deliver this Bid Bond.

BID PROPOSAL - 9 -
CITY OF KIRKLAND
NONCOLLUSION AFFIDAVIT
TOTEM LAKE PARK – PHASE 1
CIP NO. PKC1390200
JOB NO. 38-19-PW

STATE OF WASHINGTON )
COUNTY OF KING ) SS

The undersigned, being duly sworn, on oath deposes and says that the person(s), firm, association, partnership or corporation herein named has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with the project for which this proposal is submitted.

Firm Name

Authorized Signature

Type Name

Title

Sworn to before me, this _____ day of _____________________, 20__.  

Notary Public in and for the State of Washington
Residing at ______________________________
My Commission Expires ____________________

NOTICE TO ALL BIDDERS
To report bid rigging activities call: 1-800-424-9071

The U.S. Department of Transportation (USDOT) operates the above toll-free "hotline" Monday through Friday, 8:00 a.m. to 5:00 p.m., ET. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the "hotline" to report such activities.

The "hotline" is part of USDOT's continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the USDOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.
CITY OF KIRKLAND
STATEMENT OF BIDDER’S QUALIFICATIONS

Contractor Name: ____________________________  Contact: ____________________________

Business Address: ________________________________________________________________

Business phone: ____________________________  Fax: ____________________________

Number of years the Contractor has been engaged in the construction business under the present firm name: ____________________________

Describe the general character of work performed by your company: ____________________________

List five projects of a similar nature which Contractor has completed within the last 10 years. Include contract amount and contact information for references:

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Amount</th>
<th>Owner/Agency</th>
<th>Contact</th>
<th>Phone</th>
<th>Year Completed</th>
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List major equipment anticipated to be used on this project; indicate whether Contractor-owned or to be leased from others: ____________________________

Bank reference(s): ____________________________

Washington State Contractor Registration No.: ____________________________

Uniform Business Identification No.: ____________________________

I certify that other contracts now in progress or hereafter obtained will not interfere with timely performance of the City of Kirkland project should I become the successful bidder.

Authorized Signature: ____________________________

Print Name: ____________________________  Title: ____________________________
CITY OF KIRKLAND
SUBCONTRACTOR IDENTIFICATION FOR CONTRACTS ESTIMATED TO BE IN EXCESS OF ONE MILLION DOLLARS ($1,000,000.00)

RCW 39.30.060 requires the following:

“Every invitation to bid on a prime contract that is expected to cost one million dollars or more for the construction, alteration, or repair of any public building or public work of the state or a state agency or municipality as defined under RCW 39.04.010 … shall require each prime contract bidder to submit as part of the bid, or within one hour after the published bid submittal time [see note below], the names of the subcontractors with whom the bidder, if awarded the contract, will subcontract for performance of the work of: HVAC (heating, ventilation, and air conditioning); plumbing as described in chapter 18.106 RCW; and electrical as described in chapter 19.28 RCW, or to name itself for the work. The prime contract bidder shall not list more than one subcontractor for each category of work identified, unless subcontractors vary with bid alternates, in which case the prime contract bidder must indicate which subcontractor will be used for which alternate. Failure of the prime contract bidder to submit as part of the bid the names of such subcontractors or to name itself to perform such work or the naming of two or more subcontractors to perform the same work shall render the prime contract bidder's bid non-responsive and, therefore, void.”

NOTE: The City of Kirkland has elected not to allow bidders to submit the information required by RCW 39.30.060 after the published bid submittal time. A proposal will be considered irregular and will be rejected if the bidder does not provide the above list as part of its proposal when submitting its bid.

Each bidder shall submit a list of:

1. HVAC, plumbing, and electrical subcontractors; and

2. The specific items of work those subcontractors will perform on the contract; and

3. The specific items of work that will be performed by the bidder on the contract.
CITY OF KIRKLAND
SUBCONTRACTOR IDENTIFICATION LIST

*REQUIRED IF ESTIMATE AMOUNT EXCEEDS $1,000,000 (Reference RCW 39.30.060 RCW)

**Proposed Subcontractors and items of work to be performed:**

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- *make additional pages if necessary*

**Work to be performed by Prime Contractor:**

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CITY OF KIRKLAND
BIDDER’S CHECKLIST

1. Have you reviewed the Bidder Responsibility and Subcontractor Responsibility Criteria?
2. Have you enclosed a bid bond or certified check with your bid? (Must be at least 5% of the total amount bid)
3. Have you entered a bid amount for all items and all schedules?
4. Do the written amounts of the proposal agree with the amounts shown in the figures?
5. Have you acknowledged receipt of addenda?
6. Has the proposal been properly completed and signed?
7. Have you completed the Statement of Bidder’s Qualifications?
8. Have you completed the City of Kirkland Non-collusion Affidavit?
9. Have you completed the Subcontractor Identification List? (This is to be completed for HVAC, plumbing, and electrical subcontractors if the estimate amount exceeds $1,000,000.)
10. Bid proposal to be submitted in a sealed envelope marked "Bid Enclosed" for: TOTEM LAKE PARK – PHASE 1; JOB No. 38-19-PW
CONTRACT

INFORMATION ONLY

The following forms must be executed and submitted by the successful bidder within ten (10) calendar days following Notice of Award.
<table>
<thead>
<tr>
<th>Document Type</th>
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<tbody>
<tr>
<td>Contract</td>
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<tr>
<td>Performance and Payment Bond</td>
<td>3</td>
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<tr>
<td>Labor and Material Payment Bond</td>
<td>4</td>
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<tr>
<td>Contractor’s Declaration of Option for Management of Statutory Retained Percentage</td>
<td>6</td>
</tr>
<tr>
<td>Retainage Bond</td>
<td>7</td>
</tr>
<tr>
<td>Retained Percentage Escrow Agreement</td>
<td>8</td>
</tr>
<tr>
<td>Retainage Release Requirements</td>
<td>11</td>
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</table>
This agreement is made and entered into this ___ day of ______________, 20___, by and between CONTRACTOR NAME, hereinafter called the "Contractor" and the City of Kirkland, hereinafter called the "Owner."

W I T N E S S E T H:

Whereas, pursuant to the invitation of the Owner extended through an officially published "Invitation to Bid," the Contractor did, in accordance therewith, file with the Owner a proposal containing an offer which was invited by said notice, and

Whereas, the Owner has heretofore determined that said offer was the lowest responsible bid submitted; now, therefore, it is agreed:

Section 1. That Contractor shall comply in every way with the requirements of those certain specifications entitled: “PROJECT NAME, Job No. 38-19-PW”

The further terms, conditions and covenants of the contract are set forth in the following contract documents which are hereby made a part of this agreement by actual attachment or by this reference thereto as follows:

A. Any Invitation to Bid, as published by the Owner.

B. Any Specifications prepared for this project by the Owner and named above by title.

C. Any detailed Plans listed and described in said Specifications, together with those which may be issued as supplements thereof.

D. The bid proposals submitted by the Contractor as to those items and/or alternatives accepted by the Owner.

E. Any change orders, additions or deletions, if any, issued by the Owner.

Section 2. In consideration of faithful compliance with the terms and conditions of this agreement, whether set forth herein or incorporated by reference, the Owner shall pay to the Contractor, at the times and in the manner provided in said specifications, the total sum of __________________________ dollars ($__________) which sum is subject, however, to increase or decrease in such proportion as the quantities named in said proposal are so changed, all as in said specifications and proposal provided.

In witness whereof, said Contractor and said Owner have caused this agreement to be executed on the day and year first written above.

______________________________
CONTRACTOR (Firm Name)

Signature of authorized officer __________________ Name and title of officer (print or type)
On this day before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared ____________________________, to me known to be the __________________________ of __________________________, the legal entity that executed the foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said legal entity, for the uses and purposes therein set forth, and on oath stated that he/she was authorized to sign said instrument.

Given under my hand and official seal this _____ day of ________________, 2____.

__________________________________
Print Name: ________________________
NOTARY PUBLIC in and for the State of Washington, residing __________
Commission expires:  __________

(For individuals and d/b/a’s)

On this day before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared ____________________________, and __________________________, to me known to be the individual(s) described herein and who executed the foregoing instrument, and acknowledged that he/she/they signed the same as his/her/their free and voluntary act and deed, for the uses and purposes therein mentioned.

Given under my hand and official seal this _____ day of ________________, 2____.

__________________________________
Print Name: ________________________
NOTARY PUBLIC in and for the State of Washington, residing __________
Commission expires:  _________

CITY OF KIRKLAND

BY: ____________________________
Tracey Dunlap, Deputy City Manager
PERFORMANCE BOND
Surety to have an A.M. Best rating of A-:VII or better.

Bond No. __________________________

KNOW ALL PERSONS BY THESE PRESENTS, that CONTRACTOR NAME, as Principal, and ________________________, (insert name of surety), as Surety, a corporation duly organized under the laws of the State of __________________, (insert Surety’s state of incorporation), and authorized to do business as a surety in the State of Washington, are held and firmly bound unto the City of Kirkland (City) in the sum of __________________ dollars ($____________), lawful money of the United States of America, plus the total amount of extra orders issued by the City to the Principal pursuant to the terms of the Contract referred to in the next succeeding paragraph hereof, for the payment whereof Principal and Surety bind ourselves, and our heirs, executors, administrators, representatives, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has been awarded, and is about to enter into, a written Contract with the City for TOTEM LAKE PARK – PHASE 1, Job #38-19-PW, which is hereby made a part of this bond as if fully set forth herein;

NOW, THEREFORE, the condition of this bond is such that:

1. If the Principal shall completely and faithfully perform all of its obligations under the Contract, including any warranties required thereunder, and all modifications, amendments, additions, and alterations thereto, including modifications which increase the contract price or time for completion, with or without notice to the surety; and

2. If the Principal shall indemnify and hold the City harmless from any and all losses, liability, damages, claims, judgments, liens, costs, and fees of any type that the City may be subject to because of the failure or default of the Principal in the performance of any of the terms, conditions, or obligations of the Contract, including all modifications, amendments, additions, and alterations thereto, and any warranties required thereunder;

THEN THIS obligation shall be null and void; otherwise to remain in full force and effect. If the City shall declare Principal to be in default of the Contract, and shall so notify Surety, Surety shall, within a reasonable time which shall not exceed 14 days, except for good cause shown, notify the City in writing of the manner in which surety will satisfy its obligations under this Bond.

Nonpayment of the Bond premium will not invalidate this Bond nor shall the City be obligated for the payment thereof. The Surety hereby waives notice of any modification of the Contract or extension of time made by the City.

Signed this _________ day of _____________________, 2____.

Principal: _________________________________ Surety: _________________________________

By: _________________________________ By: _________________________________

Title: _________________________________ Title: _________________________________

Address: _________________________________ Address: _________________________________

City/Zip: _________________________________ City/Zip: _________________________________

Telephone: ( ) ____________________________ Telephone: ( ) ____________________________

Note: A power of attorney must be provided which appoints the Surety’s true and lawful attorney-in-fact to make, execute, seal and deliver this performance bond.
LABOR, MATERIAL AND TAXES PAYMENT BOND
Surety to have an A.M. Best rating of A-:VII or better.

Bond No. __________________________________________

KNOW ALL PERSONS BY THESE PRESENTS, that, CONTRACTOR NAME, as Principal, and __________________________________________, (insert name of surety), as Surety, a corporation duly organized under the laws of the State of ________________ (insert Surety’s state of incorporation), and authorized to do business as a surety in the State of Washington, are held and firmly bound unto the City of Kirkland (City) for the use and benefit of claimants as hereinafter defined, in the sum of _____________________________ Dollars ($__________), lawful money of the United States of America, plus the total amount of any extra orders issued by the City, for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, representatives, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has been awarded, and is about to enter into, a Contract with City of Kirkland for TOTEM LAKE PARK – PHASE 1, Job #38-19-PW, which contract is by this reference made a part hereof;

WHEREAS, the contract is a public works contract, subject to the provisions of RCW Titles 39 and 60;

NOW, THEREFORE, the conditions of this obligation are such that, if the Principal shall promptly make payment to all claimants as hereinafter defined, for (a) all labor and material used or reasonably required for use in the performance of the contract and (b) all taxes, increases, and penalties incurred on the above-referenced contract under Titles 50, 51, and 82 RCW which may be due, then this obligation shall be void; otherwise, it shall remain in full force and effect, subject, however, to the following conditions: A claimant is defined as and includes (a) a person claiming to have supplied labor or materials for the prosecution of the work provided for in the contract, including any person having direct contractual relationship with the contractor furnishing the bond or direct contractual relationship with any subcontractor, or an assignee of such person, (b) the state with respect to taxes incurred on the above-referenced contract under Titles 50, 51, and 82 RCW which may be due and (c) any other person or entity as allowed or required by law.

3. The Principal and Surety hereby jointly and severally agree with the City that every claimant as herein defined, who has not been paid in full prior to Final Acceptance of the project, or materials were furnished by such claimant, has an action on this bond for such sum or sums as may be justly due claimant, and may have execution thereon. The City shall not be liable for the payment of any costs or expenses of any such suit or action.

(Form continues on next page)
4. No suit or action shall be commenced hereunder by any claimant (except the state with respect to taxes, increases, and penalties incurred on the above-referenced contract under Titles 50, 51, and 82 RCW which may be due) unless the claimant has sent the written notice required under RCW Title 39 to the Principal and to the City’s Purchasing Agent by registered or certified mail, or by hand delivery, no later than 30 days after Final Acceptance of the Project.

The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed of record against the improvement, whether or not claim for the amount of such lien be presented under and against this bond.

The Surety hereby waives notice of any modification of the contract or extension of time made by the City.

Signed this __________________ day of __________________ , 2____
Principal: _______________________________ Surety: _______________________________
By: _______________________________ By: _______________________________
Title: _______________________________ Title: _______________________________
Address: _______________________________ Address: _______________________________
City/Zip: _______________________________ City/Zip: _______________________________
Telephone: ( ) ___________________________ Telephone: ( ) ___________________________

Note: A power of attorney must be provided which appoints the Surety's true and lawful attorney-in-fact to make, execute, seal and deliver this performance bond.

END OF LABOR, MATERIAL AND TAXES PAYMENT BOND FORM
CITY OF KIRKLAND
CONTRACTOR’S DECLARATION OF OPTION FOR MANAGEMENT
OF STATUTORY RETAINED PERCENTAGE
TOTEM LAKE PARK – PHASE 1
CIP NO. PKC1390200
JOB NO. 38-19-PW

Monies reserved under provisions of Chapter 60.28 RCW, at the option of the Contractor, shall be:

Select One
[  ] (1) Retained in a fund by the City. No interest will be earned on the retained percentage amount under this election.

[  ] (2) Retainage Bond

[  ] (3) Placed in escrow with a bank or trust company by the City. When the monies reserved are to be placed in escrow, the City will issue a check representing the sum of the monies reserved payable to the bank or trust company and the Contractor jointly. Such check shall be converted into bonds and securities chosen by the Contractor and approved by the City and the bonds and securities held in escrow. (For the convenience of those Contractors choosing option (3) a City approved Form of Escrow Agreement is included on the next page and should be completed and submitted with the executed contract.)

The Contractor in choosing option (3) agrees to assume full responsibility to pay all costs which may accrue from escrow services, brokerage charges or both, and further agrees to assume all risks in connection with the investment of the retained percentages in securities.

[  ] (4) Deposited by the City in an interest-bearing account at the FDIC insured bank currently providing contracted banking services to the City of Kirkland. Interest on such account shall be paid to the contractor. Any fees incurred shall be the responsibility of the contractor.

CONTRACTOR:

Signature: _________________________________

Print or Type Name: ________________________

Title: _________________________________

Date: _________________________________
RETAINAGE BOND
RETURN THIS FORM IF RETAINAGE BOND OPTION IS SELECTED

<table>
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<tr>
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<tr>
<td>Contractor Name</td>
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The Undersigned, ________________________________, existing under and by virtue of the laws of the State of Washington and authorized to do business in the State of Washington as Principal, and ________________________________ organized and existing under the laws of the State of ________________ and authorized to transact business in the State of Washington as Surety, are jointly and severally held and bound unto ____________________, hereinafter called Obligee, and are similarly held and bound unto the beneficiaries of the trust fund created by RCW 60.28, in the penal sum of ($_______________), Which is 5% of the principal’s price on Contract ID______________.

WHEREAS, on the _____________ day of ____________, 2______, the said principal herein executed a contract with the Obligee, for the Contract specified above, Contract ID Number__________.

WHEREAS, said contract and RCW 60.28 require the Obligee to withhold from the Principal the sum of ___% from monies earned on estimates during the progress of the construction, herein after referred to as earned retained funds.

NOW WHEREAS, Principal has requested that the Obligee not retain any earned retained funds as allowed under RCW 60.28.

NOW THEREFORE, the condition of the obligation is such that the Principal and Surety are held and bound unto the beneficiaries of the trust fund created by RCW 60.28 in the penal sum of __ percent (___%) of the final contract cost which shall include any increases due to change orders, increases in quantities of work or the addition of any new item of work. If the Principal shall use the earned retained funds, which will not be retained, for the trust fund purposes of RCW 60.28, then this obligation shall be null and void; otherwise, it shall remain in full force and effect until release is authorized in writing by the Obligee. This bond and any proceeds therefrom shall be made subject to all claims and liens and in the same manner and priority as set forth for retained percentages in RCW 60.28.

PROVIDED HOWEVER, that:

1. The liability of the surety under this bond shall not exceed 5% or 50% of the total amount earned by the Principal if no monies are retained by the Obligee on estimates during the progress of construction.

2. Any suit under this bond must be instituted within the time provided by applicable law.

Witness our hands this __________ day of ________________, 2______.

SURETY

By: ________________________________
Name/Title ________________________________
OF: ________________________________

Surety Name and Local Office of Agent: ________________________________
Surety Address and Phone of Local Office and Agent: ________________________________

PRINCIPAL

By: ________________________________
Name/Title ________________________________
OF: ________________________________

H:\IPwCIP\group\Project Files\PK\CPK-0139 Totem Lake Phase 1\05_Design\15_Scope\191210 - working specs\01 00 06.2_TLP - Contract Documents - Need Update.docx

CONTRACT - Page 7
CITY OF KIRKLAND
RETAI NED PERCENTAGE ESCROW AGREEMENT
TOTEM LAKE PARK – PHASE 1
CIP NO. PKC1390200
JOB NO. 38-19-PW

Escrow No. __________________________

City of Kirkland
123 Fifth Avenue
Kirkland, Washington  98033

Contractor: __________________________
Address: __________________________

Project Description: __________________________

TO: Escrow Bank or Trust Company:
Name: __________________________
Address: __________________________
Attention: __________________________

The undersigned, _____________________________________________, herein referred to as the Contractor, has directed the City of Kirkland to deliver to you its warrants, which shall be payable to you and the Contractor jointly. Such warrants are to be held and disposed of by you in accordance with the following instructions and upon the terms and conditions hereinafter set forth.

INSTRUCTIONS

1. Warrants or checks made payable to you and the Contractor jointly upon delivery to you shall be endorsed by you and forwarded for collection. The moneys will then be used by you to purchase, as directed by the Contractor, bonds or other securities chosen by the Contractor and approved by the City of Kirkland. Attached is a list of such bonds, or other securities approved by the City of Kirkland. Other bonds or securities, except stocks, may be selected by the Contractor, subject to the express written approval of the City of Kirkland. Purchase of such bonds or other securities shall be in a form which shall allow you alone to reconvert such bonds or other securities into money if you are required to do so at the direction of the City of Kirkland and Contractor.

2. When and as interest on the securities held by you pursuant to this agreement accrues and is paid, you shall collect such interest and forward it to the Contractor at its address designated below unless otherwise directed by the Contractor.
3. You are not authorized to deliver to the Contractor all or any part of the securities held by you pursuant to this agreement (or any moneys derived from the sale of such securities, or the negotiation of the City of Kirkland’s warrants) except in accordance with written instructions from the City of Kirkland. Compliance with such instructions shall relieve you of any further liability related thereto. The estimated completion date on the contract underlying this Escrow Agreement is ______________________.

4. The Contractor agrees to pay you as compensation for your services hereunder as follows:

Payment of all fees shall be the sole responsibility of the Contractor and shall not be deducted from any property placed with you pursuant to this agreement until and unless the City of Kirkland directs the release to the Contractor of the securities and moneys held hereunder whereupon you shall be granted a first lien upon such property released and shall be entitled to reimburse yourself from such property for the entire amount of your fees as provided for hereinabove. In the event that you are made a party to any litigation with respect to the property held by you hereunder, or in the event that the conditions of this escrow are not promptly fulfilled or that you are required to render any service not provided for in these instructions, or that there is any assignment of the interests of this escrow or any modification hereof, you shall be entitled to reasonable compensation for such extraordinary services from the Contractor and reimbursement from the Contractor for all costs and expenses, including attorneys fees occasioned by such default, delay, controversy, or litigation.

5. This agreement shall not be binding until executed by the Contractor and the City of Kirkland and accepted by you.

6. This instrument contains the entire agreement between you, the Contractor and the City of Kirkland, with respect to this escrow and you are not a part nor bound by any instrument or agreement other than this; you shall not be required to take notice of any default or any other matter nor be bound by nor required to give notice or demand, nor required to take any action whatever, except as herein expressly provided; you shall not be liable for any loss or damage not caused by your own negligence or willful misconduct.

7. The foregoing provisions shall be binding upon the assigns, successors, personal representatives, and heirs of the parties hereto.

8. The Contractor's Federal Income Tax Identification number is ________________________.

** Please note: Written release will be issued by the Director of Finance & Administration. For further information, contact the Purchasing Agent at (425) 587-3123.
The undersigned have read and hereby approve the instructions as given above governing the administration of this escrow and do hereby execute this agreement on this _____ day of ____________________, 2____.

CONTRACTOR: 

By: 

Signature

Print or Type Name

Title

Address: ____________________________

123 Fifth Avenue

Kirkland, Washington  98033

The above escrow instructions received and accepted this _____ day of ____________________, 2____.

SECROW BANK OR TRUST CO:

By: 

Authorized Signature

Print or Type Name

Title

Securities Authorized by City of Kirkland (select one):

1.  Bills, certificates, notes or bonds of the United States;
2.  Other obligations of the United States or its agencies;
3.  Obligations of any corporation wholly-owned by the government of the United States;
4.  Indebtedness of the Federal National Mortgage Association; and
5.  Time deposits in commercial banks.

RETURN THIS SIGNED AGREEMENT TO:

City of Kirkland
Attn: Purchasing Agent
123 Fifth Avenue
Kirkland, Washington  98033
CITY OF KIRKLAND
RETAINAGE RELEASE REQUIREMENTS

DOCUMENTS REQUIRED TO BE ON FILE PRIOR TO RELEASE OF RETAINAGE

1. Intent to Pay Prevailing Wage (Contractor must generate including for subcontractors)
   Department of Labor/Industries
   Employment Standards Division
   General Administration Building
   Olympia, Washington  98504
   (360) 956-5335

2. Notice of Completion of Public Works Contract (City generates)
   Department of Revenue
   Excise Tax Division
   Olympia, Washington  98504

3. Affidavit of Wages Paid (Contractor must generate including for subcontractors)
   Department of Labor/Industries

4. Certificate of Release - State Excise Tax by Public Works Contractor (Letter from State to City)
   Department of Revenue
   Department of Labor and Industries
   Employment Security Department

5. Receipt for Payment in full or Release of Lien signed by Lien Claimant and filed with City (Responsibility of Contractor to obtain)
   Claims against retainage or Payment Bond filed with City by any such subcontractor, workman, or material supplier.

6. Current insurance certificate through retainage release (Contractor generates)
7. Produce final invoice for retainage if bond is not selected (Contractor generates)
AMENDMENTS TO THE STANDARD SPECIFICATIONS
INTRO.AP1
INTRODUCTION

The following Amendments and Special Provisions shall be used in conjunction with the 2018 Standard Specifications for Road, Bridge, and Municipal Construction.

AMENDMENTS TO THE STANDARD SPECIFICATIONS

The following Amendments to the Standard Specifications are made a part of this contract and supersede any conflicting provisions of the Standard Specifications. For informational purposes, the date following each Amendment title indicates the implementation date of the Amendment or the latest date of revision.

Each Amendment contains all current revisions to the applicable section of the Standard Specifications and may include references which do not apply to this particular project.

1-01.AP1

Section 1-01, Definitions and Terms
August 6, 2018

1-01.3 Definitions
The following new term and definition is inserted before the definition for “Shoulder”:

Sensitive Area – Natural features, which may be previously altered by human activity, that are present on or adjacent to the project location and protected, managed, or regulated by local, tribal, state, or federal agencies.

The following new term and definition is inserted after the definition for “Working Drawings”:

WSDOT Form – Forms developed and maintained by WSDOT that are required or available for use on a project. These forms can be downloaded from the forms catalogue at:

http://wsdot.wa.gov/forms/pdfForms.html

1-02.AP1

Section 1-02, Bid Procedures and Conditions
June 3, 2019

1-02.4(1) General
This section is supplemented with the following:

Prospective Bidders are advised that the Contracting Agency may include a partially completed Washington State Department of Ecology (Ecology) Transfer of Coverage (Ecology Form ECY 020-87a) for the Construction Stormwater General Permit (CSWGP) as part of the Bid Documents. When the Contracting Agency requires the transfer of coverage of the CSWGP to the Contractor, an informational copy of the Transfer of Coverage and the associated CSWGP will be included in the appendices. As a condition of Section 1-03.3, the Contractor is required to complete sections I, III, and VIII of the Transfer of Coverage and return the form to the Contracting Agency.
The Contracting Agency is responsible for compliance with the CSWGP until the end of day that the Contract is executed. Beginning on the day after the Contract is executed, the Contractor shall assume complete legal responsibility for compliance with the CSWGP and full implementation of all conditions of the CSWGP as they apply to the Contract Work.

1-02.5 Proposal Forms

The first sentence of the first paragraph is revised to read:

At the request of a Bidder, the Contracting Agency will provide a physical Proposal Form for any project on which the Bidder is eligible to Bid.

1-02.6 Preparation of Proposal

Item number 1 of the second paragraph is revised to read:

1. A unit price for each item (omitting digits more than two places to the right of the decimal point),

In the third sentence of the fourth paragraph, “WSDOT Form 422-031” is revised to read “WSDOT Form 422-031U”.

The following new paragraph is inserted before the last paragraph:

The Bidder shall submit with their Bid a completed Contractor Certification Wage Law Compliance form (WSDOT Form 272-009). Failure to return this certification as part of the Bid Proposal package will make this Bid Nonresponsive and ineligible for Award. A Contractor Certification of Wage Law Compliance form is included in the Proposal Forms.

1-02.13 Irregular Proposals

Item 1(h) is revised to read:

h. The Bidder fails to submit Underutilized Disadvantaged Business Enterprise Good Faith Effort documentation, if applicable, as required in Section 1-02.6, or if the documentation that is submitted fails to demonstrate that a Good Faith Effort to meet the Condition of Award was made;

Item 1(i) is revised to read the following three items:

i. The Bidder fails to submit a UDBE Bid Item Breakdown form, if applicable, as required in Section 1-02.6, or if the documentation that is submitted fails to meet the requirements of the Special Provisions;

j. The Bidder fails to submit UDBE Trucking Credit Forms, if applicable, as required in Section 1-02.6, or if the documentation that is submitted fails to meet the requirements of the Special Provisions; or

k. The Bid Proposal does not constitute a definite and unqualified offer to meet the material terms of the Bid invitation.
1-03.AP1

Section 1-03, Award and Execution of Contract
January 2, 2018

1-03.3 Execution of Contract
The first paragraph is revised to read:

Within 20 calendar days after the Award date, the successful Bidder shall return the
signed Contracting Agency-prepared Contract, an insurance certification as required by
Section 1-07.18, a satisfactory bond as required by law and Section 1-03.4, the Transfer
of Coverage form for the Construction Stormwater General Permit with sections I, III,
and VIII completed when provided, and shall be registered as a contractor in the state of
Washington.

1-03.5 Failure to Execute Contract
The first sentence is revised to read:

Failure to return the insurance certification and bond with the signed Contract as
required in Section 1-03.3, or failure to provide Disadvantaged, Minority or Women’s
Business Enterprise information if required in the Contract, or failure or refusal to sign
the Contract, or failure to register as a contractor in the state of Washington, or failure to
return the completed Transfer of Coverage for the Construction Stormwater General
Permit to the Contracting Agency when provided shall result in forfeiture of the proposal
bond or deposit of this Bidder.

1-05.AP1

Section 1-05, Control of Work
August 6, 2018

1-05.5 Vacant
This section, including title, is revised to read:

1-05.5 Tolerances
Geometrical tolerances shall be measured from the points, lines, and surfaces defined
in Contract documents.

A plus (+) tolerance increases the amount or dimension to which it applies, or raises a
devation from level. A minus (-) tolerance decreases the amount or dimension to which
it applies, or lowers a deviation from level. Where only one signed tolerance is specified
(+ or -), there is no specified tolerance in the opposing direction.

Tolerances shall not be cumulative. The most restrictive tolerance shall control.

Tolerances shall not extend the Work beyond the Right of Way or other legal
boundaries identified in the Contract documents. If application of tolerances causes the
extension of the Work beyond the Right of Way or legal boundaries, the tolerance shall
be reduced for that specific instance.

Tolerances shall not violate other Contract requirements. If application of tolerances
causes the Work to violate other Contract requirements, the tolerance shall be reduced
for that specific instance. If application of tolerances causes conflicts with other
components or aspects of the Work, the tolerance shall be reduced for that specific instance.

1-05.9 Equipment

The following new paragraph is inserted before the first paragraph:

Prior to mobilizing equipment on site, the Contractor shall thoroughly remove all loose dirt and vegetative debris from drive mechanisms, wheels, tires, tracks, buckets and undercarriage. The Engineer will reject equipment from the site until it returns clean.

This section is supplemented with the following:

Upon completion of the Work, the Contractor shall completely remove all loose dirt and vegetative debris from equipment before removing it from the job site.

1-06.AP1

Section 1-06, Control of Material
January 7, 2019

1-06.1(3) Aggregate Source Approval (ASA) Database

This section is supplemented with the following:

Regardless of status of the source, whether listed or not listed in the ASA database the source owner may be asked to provide testing results for toxicity in accordance with Section 9-03.21(1).

1-06.2(2)D Quality Level Analysis

This section is supplemented with the following new subsection:

1-06.2(2)D5 Quality Level Calculation – HMA Compaction

The procedures for determining the quality level and pay factor for HMA compaction are as follows:

1. Determine the arithmetic mean, $X_m$, for compaction of the lot:

   $$X_m = \frac{\sum x}{n}$$

   Where:
   
   $x =$ individual compaction test values for each sublot in the lot.
   
   $\sum x =$ summation of individual compaction test values
   
   $n =$ total number test values

2. Compute the sample standard deviation, “$S$”, for each constituent:

   $$S = \left[ \frac{n \sum x^2 - (\sum x)^2}{n(n-1)} \right]^{1/2}$$

   Where:
\[ \sum x^2 = \text{summation of the squares of individual compaction test values} \]
\[ (\sum x)^2 = \text{summation of the individual compaction test values squared} \]

3. Compute the lower quality index \((Q_L)\):

\[ Q_L = \frac{X_m - LSL}{S} \]

Where:

\[ LSL = 92.0 \]

4. Determine \(P_L\) (the percent within the lower Specification limit which corresponds to a given \(Q_L\)) from Table 1. For negative values of \(Q_L\), \(P_L\) is equal to 100 minus the table \(P_L\). If the value of \(Q_L\) does not correspond exactly to a figure in the table, use the next higher value.

5. Determine the quality level (the total percent within Specification limits):

\[ \text{Quality Level} = P_L \]

6. Using the quality level from step 5, determine the composite pay factor (CPF) from Table 2.

7. If the CPF determined from step 6 is 1.00 or greater: use that CPF for the compaction lot; however, the maximum HMA compaction CPF using an \(LSL = 92.0\) shall be 1.05.

8. If the CPF from step 6 is not 1.00 or greater: repeat steps 3 through 6 using an \(LSL = 91.5\). The value thus determined shall be the HMA compaction CPF for that lot; however, the maximum HMA compaction CPF using an \(LSL = 91.5\) shall be 1.00.

1-06.2(2)D1 Quality Level Analysis

The following new sentence is inserted after the first sentence:

The quality level calculations for HMA compaction are completed using the formulas in Section 1-06.2(2)D5.

1-06.2(2)D4 Quality Level Calculation

The first paragraph (excluding the numbered list) is revised to read:

The procedures for determining the quality level and pay factors for a material, other than HMA compaction, are as follows:

1-06.6 Recycled Materials

The first three sentences of the second paragraph are revised to read:

The Contractor shall submit a Recycled Material Utilization Plan on WSDOT Form 350-075A within 30 calendar days after the Contract is executed. The plan shall provide the Contractor’s anticipated usage of recycled concrete aggregates for meeting the requirements of these Specifications. The quantity of recycled concrete aggregate will
be provided in tons and as a percentage of the Plan quantity for eligible material listed
in Section 9-03.21(1)E Table on Maximum Allowable percent (By Weight) of Recycled
Material.

The last paragraph is revised to read:

Within 30 calendar days after Physical Completion, the Contractor shall report the
quantity of recycled concrete aggregates that were utilized in the construction of the
project for each eligible item listed in Section 9-03.21(1)E. The Contractor’s report shall
be provided on WSDOT Form 350-075A, Recycled Materials Reporting.

1-06.6(1)A General
Item 1(a) in the second paragraph is revised to read:

a. The estimated costs for the Work for each material with 25 percent recycled
concrete aggregate. The cost estimate shall include for each material a
documented price quote from the supplier with the lowest total cost for the Work.

1-07.AP1
Section 1-07, Legal Relations and Responsibilities to the Public
April 1, 2019

1-07.5 Environmental Regulations
This section is supplemented with the following new subsections:

1-07.5(5) U.S. Army Corps of Engineers
When temporary fills are permitted, the Contractor shall remove fills in their entirety and
the affected areas returned to pre-construction elevations.

If a U.S. Army Corps of Engineers permit is noted in Section 1-07.6 of the Special
Provisions, the Contractor shall retain a copy of the permit or the verification letter (in
the case of a Nationwide Permit) on the worksite for the life of the Contract. The
Contractor shall provide copies of the permit or verification letter to all subcontractors
involved with the authorized work prior to their commencement of any work in waters of
the U.S.

1-07.5(6) U.S. Fish/Wildlife Services and National Marine Fisheries Service
The Contracting Agency will provide fish exclusion and handling services if the Work
dictates. However, if the Contractor discovers any fish stranded by the project and a
Contracting Agency biologist is not available, they shall immediately release the fish into
a flowing stream or open water.

1-07.5(1) General
The first sentence is deleted and replaced with the following:

No Work shall occur within areas under the jurisdiction of resource agencies unless
authorized in the Contract.

The third paragraph is deleted.

1-07.5(2) State Department of Fish and Wildlife
This section is revised to read:
In doing the Work, the Contractor shall:

1. Not degrade water in a way that would harm fish, wildlife, or their habitat.
2. Not place materials below or remove them from the ordinary high water line except as may be specified in the Contract.
3. Not allow equipment to enter waters of the State except as specified in the Contract.
4. Revegetate in accordance with the Plans, unless the Special Provisions permit otherwise.
5. Prevent any fish-threatening silt buildup on the bed or bottom of any body of water.
7. Dispose of any project debris by removal, burning, or placement above high-water flows.
8. Immediately notify the Engineer and stop all work causing impacts, if at any time, as a result of project activities, fish are observed in distress or a fish kill occurs.

If the Work in (1) through (3) above differs little from what the Contract requires, the Contracting Agency will measure and pay for it at unit Contract prices. But if Contract items do not cover those areas, the Contracting Agency will pay pursuant to Section 1-09.4. Work in (4) through (8) above shall be incidental to Contract pay items.

1-07.5(3) State Department of Ecology

This section is revised to read:

In doing the Work, the Contractor shall:

2. Perform Work in such a manner that all materials and substances not specifically identified in the Contract documents to be placed in the water do not enter waters of the State, including wetlands. These include, but are not limited to, petroleum products, hydraulic fluid, fresh concrete, concrete wastewater, process wastewater, slurry materials and waste from shaft drilling, sediments, sediment-laden water, chemicals, paint, solvents, or other toxic or deleterious materials.
3. Use equipment that is free of external petroleum-based products.
4. Remove accumulations of soil and debris from drive mechanisms (wheels, tracks, tires) and undercarriage of equipment prior to using equipment below the ordinary high water line.
5. Clean loose dirt and debris from all materials placed below the ordinary high water line. No materials shall be placed below the ordinary high water line without the Engineer’s concurrence.

6. When a violation of the Construction Stormwater General Permit (CSWGP) occurs, immediately notify the Engineer and fill out WSDOT Form 422-011, Contractor ECAP Report, and submit the form to the Engineer within 48 hours of the violation.

7. Once Physical Completion has been given, prepare a Notice of Termination (Ecology Form ECY 020-87) and submit the Notice of Termination electronically to the Engineer in a PDF format a minimum of 7 calendar days prior to submitting the Notice of Termination to Ecology.

8. Transfer the CSWGP coverage to the Contracting Agency when Physical Completion has been given and the Engineer has determined that the project site is not stabilized from erosion.

9. Submit copies of all correspondence with Ecology electronically to the Engineer in a PDF format within four calendar days.

1-07.5(4) Air Quality

This section is revised to read:

The Contractor shall comply with all regional clean air authority and/or State Department of Ecology rules and regulations.

The air quality permit process may include additional State Environment Policy Act (SEPA) requirements. Contractors shall contact the appropriate regional air pollution control authority well in advance of beginning Work.

When the Work includes demolition or renovation of any existing facility or structure that contains Asbestos Containing Material (ACM) and/or Presumed Asbestos-Containing Material (PACM), the Contractor shall comply with the National Emission Standards for Hazardous Air Pollutants (NESHAP).

Any requirements included in Federal and State regulations regarding air quality that applies to the “owner or operator” shall be the responsibility of the Contractor.

1-07.7(1) General

The first sentence of the third paragraph is revised to read:

When the Contractor moves equipment or materials on or over Structures, culverts or pipes, the Contractor may operate equipment with only the load-limit restrictions in Section 1-07.7(2).

The first sentence of the last paragraph is revised to read:

Unit prices shall cover all costs for operating over Structures, culverts and pipes.

1-07.9(1) General

The last sentence of the sixth paragraph is revised to read:
Generally, the Contractor initiates the request by preparing standard form 1444 Request for Authorization of Additional Classification and Rate, available at https://www.dol.gov/whd/recovery/dbsurvey/conformance.htm, and submitting it to the Engineer for further action.

1-07.9(2) Posting Notices
The second sentence of the first paragraph (up until the colon) is revised to read:

The Contractor shall ensure the most current edition of the following are posted:

The revision dates are deleted from all items in the numbered list.

The following new items are inserted after item number 1:


Item number 2 through 12 are renumbered to 4 through 14, respectively.

1-07.11(2) Contractual Requirements
In this section, “creed” is revised to read “religion”.

Item numbers 1 through 9 are revised to read 2 through 10, respectively.

After the preceding Amendment is applied, the following new item number 1 is inserted:

1. The Contractor shall maintain a Work site that is free of harassment, humiliation, fear, hostility and intimidation at all times. Behaviors that violate this requirement include but are not limited to:

   a. Persistent conduct that is offensive and unwelcome.

   b. Conduct that is considered to be hazing.

   c. Jokes about race, gender, or sexuality that are offensive.

   d. Unwelcome, unwanted, rude or offensive conduct or advances of a sexual nature which interferes with a person’s ability to perform their job or creates an intimidating, hostile, or offensive work environment.

   e. Language or conduct that is offensive, threatening, intimidating or hostile based on race, gender, or sexual orientation.

   f. Repeating rumors about individuals in the Work Site that are considered to be harassing or harmful to the individual’s reputation.

1-07.11(5) Sanctions
This section is supplemented with the following:
Immediately upon the Engineer’s request, the Contractor shall remove from the Work site any employee engaging in behaviors that promote harassment, humiliation, fear or intimidation including but not limited to those described in these specifications.

1-07.11(6) Incorporation of Provisions

The first sentence is revised to read:

The Contractor shall include the provisions of Section 1-07.11(2) Contractual Requirements (1) through (5) and the Section 1-07.11(5) Sanctions in every subcontract including procurement of materials and leases of equipment.

1-07.15(1) Spill Prevention, Control, and Countermeasures Plan

The last sentence of the first paragraph is revised to read:


1-07.16(2)A Wetland and Sensitive Area Protection

The first sentence of the first paragraph is revised to read:

Existing wetland and other sensitive areas, where shown in the Plans or designated by the Engineer, shall be saved and protected through the life of the Contract.

1-07.18 Public Liability and Property Damage Insurance

Item number 1 is supplemented with the following new sentence:

This policy shall be kept in force from the execution date of the Contract until the Physical Completion Date.

1-08.AP1

Section 1-08, Prosecution and Progress

1-08.1 Subcontracting

The first sentence of the seventh paragraph is revised to read:

All Work that is not performed by the Contractor will be considered as subcontracting except: (1) purchase of sand, gravel, crushed stone, crushed slag, batched concrete aggregates, ready-mix concrete, off-site fabricated structural steel, other off-site fabricated items, and any other materials supplied by established and recognized commercial plants; or (2) delivery of these materials to the Work site in vehicles owned or operated by such plants or by recognized independent or commercial hauling companies hired by those commercial plants.

The following new paragraph is inserted after the seventh paragraph:

The Contractor shall not use businesses (material suppliers, vendors, subcontractors, etc.) with federal purchasing exclusions. Businesses with exclusions are identified using the System for Award Management web page at www.SAM.gov.
1-08.5 Time for Completion
Item number 2 of the sixth paragraph is supplemented with the following:

f. A copy of the Notice of Termination sent to the Washington State Department of Ecology (Ecology); the elapse of 30 calendar days from the date of receipt of the Notice of Termination by Ecology; and no rejection of the Notice of Termination by Ecology. This requirement will not apply if the Construction Stormwater General Permit is transferred back to the Contracting Agency in accordance with Section 8-01.3(16).

1-08.7 Maintenance During Suspension
The fifth paragraph is revised to read:

The Contractor shall protect and maintain all other Work in areas not used by traffic. All costs associated with protecting and maintaining such Work shall be the responsibility of the Contractor.

1-09.AP1 Section 1-09, Measurement and Payment
August 6, 2018

1-09.2(1) General Requirements for Weighing Equipment
The last paragraph is supplemented with the following:

When requested by the Engineer, the Contractor's representative shall collect the tickets throughout the day and provide them to the Engineer's designated receiver, not later than the end of shift, for reconciliation. Tickets for loads not verified as delivered will receive no pay.

1-09.2(2) Specific Requirements for Batching Scales
The last sentence of the first paragraph is revised to read:

Batching scales used for concrete or hot mix asphalt shall not be used for batching other materials.

1-09.10 Payment for Surplus Processed Materials
The following sentence is inserted after the first sentence of the second paragraph:

For Hot Mix Asphalt, the Plan quantity and quantity used will be adjusted for the quantity of Asphalt and quantity of RAP or other materials incorporated into the mix.

2-01.AP2 Section 2-01, Clearing, Grubbing, and Roadside Cleanup
April 1, 2019

2-01.2(3) Disposal Method No. 3 – Chipping
Item number 2 of the first paragraph is revised to read:

2. Chips shall be disposed outside of sensitive areas, and in areas that aren't in conflict with permanent Work.
2-02.AP2
Section 2-02, Removal of Structures and Obstructions
April 2, 2018

2-02.3(3) Removal of Pavement, Sidewalks, Curbs, and Gutters
In item number 3 of the first paragraph, the second sentence is revised to read:
For concrete pavement removal, a second vertical full depth relief saw cut offset 12 to 18 inches from and parallel to the initial saw cut is also required, unless the Engineer allows otherwise.

2-03.AP2
Section 2-03, Roadway Excavation and Embankment
April 1, 2019

2-03.3(14)F Displacement of Unsuitable Foundation Materials
This section, including title, is revised to read:

2-03.3(14)F Vacant

2-09.AP2
Section 2-09, Structure Excavation
April 1, 2019

2-09.2 Materials
In the first paragraph, the references to “Portland Cement” and “Aggregates for Portland Cement Concrete” are revised to read:

Cement 9-01
Fine Aggregate for Concrete 9-03.1(2)

2-09.3(3)B Excavation Using Open Pits – Extra Excavation
The last two paragraphs are deleted and replaced with the following:
The excavation height (Ht) shall be calculated within a vertical plane as the difference between the lowest elevation in the excavation and the highest elevation of the ground surface immediately adjacent to the excavation. Pavement thickness and other surface treatments existing at the time of the excavation shall be included in the height calculation.

Submittals and Design Requirements
Excavations 4-feet and less in height do not require design and submittals. The Contractor shall provide a safe work environment and shall execute the work in a manner that does not damage adjacent pavements, utilities, or structures. If the Engineer determines the Contractor’s work may potentially affect adjacent traffic, pavements, utilities, or structures, the Engineer may request a Type 1 Working Drawing from the Contractor. The Contractor shall explain in the Type 1 Working Drawing how the Engineer’s concerns will be addressed, why infrastructure will not be damaged by the work, and how worker safety will be preserved.
For excavations that have soil types and slope geometries defined in WAC 296-155 part N and are between 4-feet and 20-feet in height, the Contractor shall submit Type 2 Working Drawings. Required submittal elements include, at a minimum, the following:

1. A plan view showing the limits of the excavation and its relationship to traffic, structures, utilities and other pertinent project elements. If the stability of the excavation requires no-load zones or equipment setback distances, those shall be shown on the plan view.

2. A typical or controlling cross section showing the proposed excavation, original ground line, and locations of traffic, existing structures, utilities, site constraints, surcharge loads, or other conditions that could affect the stability of the slope. If the stability of the excavation requires no-load zones or equipment setback distances, those shall be shown in cross section.

3. A summary clearly describing subsurface conditions, soil type for WAC 296-155 part N, and groundwater conditions, sequencing considerations, and governing assumptions.

Where WAC 296-155 part N requires an engineer’s design, the Contractor shall submit Type 2E Working Drawings. Required submittal elements include, at a minimum, the three items above and the following additional items:

4. Supporting calculations for the design of the excavation, the soil and material properties selected for design, and the justification for the selection for those properties, in accordance with the WSDOT Geotechnical Design Manual M 46-03.

5. Safety factors, or load and resistance factors used, and justification for their selection, in accordance with the WSDOT Geotechnical Design Manual M 46-03, and referenced AASHTO design manuals.

6. A monitoring plan to evaluate the excavation performance throughout its design life.

7. Any supplemental subsurface explorations made by the Contractor to meet the requirements for geotechnical design of excavation slopes, in accordance with the WSDOT Geotechnical Design Manual M 46-03.

2-09.3(3)D Shoring and Cofferdams

The first sentence of the sixth paragraph is revised to read:

Structural shoring and cofferdams shall be designed for conditions stated in this Section using methods shown in Division I Section 5 of the AASHTO Standard Specifications for Highway Bridges Seventeenth Edition – 2002 for allowable stress design, or the AASHTO LRFD Bridge Design Specifications for load and resistance factor design.
3-01.AP3
Section 3-01, Production from Quarry and Pit Sites
April 2, 2018

3-01.1 Description
The first paragraph is revised to read:

This Work shall consist of manufacturing and producing crushed and screened aggregates including pit run aggregates of the kind, quality, and grading specified for use in the construction of concrete, hot mix asphalt, crushed surfacing, maintenance rock, ballast, gravel base, gravel backfill, gravel borrow, riprap, and bituminous surface treatments of all descriptions.

4-04.AP4
Section 4-04, Ballast and Crushed Surfacing
April 2, 2018

4-04.3(5) Shaping and Compaction
This section is supplemented with the following new paragraph:

When using 100% Recycled Concrete Aggregate, the Contractor may submit a written request to use a test point evaluation for compaction acceptance testing in lieu of compacting to 95% of the standard density as determined by the requirements of Section 2-03.3(14)D. The test point evaluation shall be performed in accordance with SOP 738.

5-01.AP5
Section 5-01, Cement Concrete Pavement Rehabilitation
January 7, 2019

5-01.2 Materials
The reference for Concrete Patching Material is revised to read:

Concrete Patching Material, Grout, and Mortar 9-20.1

5-01.3(1)A1 Concrete Patching Materials
In this section, each reference to “9-20” is revised to read “9-20.1”.

5-01.3(4) Replace Cement Concrete Panel
This section’s content is deleted and replaced with the following new subsections:

5-01.3(4)A General
Curing, cold weather work, concrete pavement construction in adjacent lines, and protection of pavement shall meet the requirements of Section 5-05.3(13) through Section 5-05.3(15). The Contractor, at no cost to the Contracting Agency, shall repair any damage to existing pavement caused by the Contractor’s operations.

5-01.3(4)B Sawing and Dimensional Requirements
Concrete slabs to be replaced as shown in the Plans or staked by the Engineer shall be at least 6.0 feet long and full width of an existing pavement panel. The portion of the panel to remain in place shall have a minimum dimension of 6 feet in length and full
panel width; otherwise the entire panel shall be removed and replaced. There shall be no new joints closer than 3.0 feet to an existing transverse joint or crack. A vertical full depth saw cut is required along all longitudinal joints and at transverse locations and, unless the Engineer allows otherwise, an additional vertical full depth relief saw cut located 12 to 18 inches from and parallel to the initial longitudinal and transverse saw cut locations is also required. Removal of existing cement concrete pavement shall not cause damage to adjacent slabs that are to remain in place. In areas that will be ground, slab replacements shall be performed prior to pavement grinding.

Side forms shall meet the requirements of Section 5-05.3(7)B whenever a sawed full depth vertical face cannot be maintained.

5-01.3(4)C Dowel Bars and Tie Bars

For the half of a dowel bar or tie bar placed in fresh concrete, comply with the requirements of Section 5-05.

For the half of a dowel bar or tie bar placed in hardened concrete, comply with the Standard Plans and the following.

After drilling, secure dowel bars and tie bars into the existing pavement with either an epoxy bonding agent Type I or IV as specified in Section 9-26.1, or a grout Type 2 for non-shrink applications as specified in Section 9-20.3.

Dowel bars shall be placed at the mid depth of the concrete slab, centered over the transverse joint, and parallel to the centerline and to the roadway surface, within the tolerances in the table below. Dowel bars may be adjusted to avoid contact with existing dowel bars in the transverse joint at bridge approach slabs or existing panels provided the adjusted dowel bars meet the tolerances below.

Tie bars shall be placed at the mid depth of the concrete slab, centered over the joint, perpendicular to centerline, and parallel to the roadway surface, within the tolerances in the table below. The horizontal position of tie bars may be adjusted to avoid contact with existing tie bars in the longitudinal joint where panel replacement takes place, provided the adjusted tie bars meet the tolerances below.

<table>
<thead>
<tr>
<th>Placement Tolerances</th>
<th>Dowel Bars</th>
<th>Tie Bars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical: Center of Bar to Center of Slab Depth</td>
<td>± 1.00 inch max</td>
<td>± 1.00 inch max</td>
</tr>
<tr>
<td>Dowel Bar Centered Over the Transverse Joint</td>
<td>± 1.00 inch max</td>
<td>N/A</td>
</tr>
<tr>
<td>Tie Bar Centered Over the Longitudinal Joint</td>
<td>N/A</td>
<td>± 1.00 inch max</td>
</tr>
<tr>
<td>Parallel to Centerline Over the Length of the Dowel Bar</td>
<td>± 0.50 inch max</td>
<td>N/A</td>
</tr>
<tr>
<td>Perpendicular to Longitudinal Joint Over the Length of the Tie Bar</td>
<td>N/A</td>
<td>± 1.00 inch max</td>
</tr>
<tr>
<td>Parallel to Roadway Surface Over the Length of the Bar</td>
<td>± 0.50 inch max</td>
<td>± 1.00 inch max</td>
</tr>
</tbody>
</table>

Dowel bars and tie bars shall be placed according to the Standard Plan when multiple panels are placed. Panels shall be cast separately from the bridge approach slab.
Dowel bars to be drilled into existing concrete or at a new transverse contraction joint shall have a parting compound, such as curing compound, grease, or other Engineer accepted equal, applied to them prior to placement.

Clean the drilled holes in accordance with the epoxy or grout manufacturer's instructions. Holes shall be clean and dry at the time of placing the epoxy, or grout and tie bars. Completely fill the void between the tie bar and the outer limits of the drilled hole with epoxy or grout. Use retention rings to prevent leakage of the epoxy or grout and support the tie bar to prevent movement until the epoxy or grout has cured the minimum time recommended by the manufacturer.

5-01.3(4)D Foundation Preparation
The Contractor shall smooth the surfacing below the removed panel and compact it to the satisfaction of the Engineer. Crushed surfacing base course, or hot mix asphalt may be needed to bring the surfacing to grade prior to placing the new concrete.

If the material under the removed panel is uncompactable and the Engineer requires it, the Contractor shall excavate the Subgrade 2 feet, place a soil stabilization construction geotextile meeting the requirements of Section 9-33, and backfill with crushed surfacing base course. This Work may include:

1. Furnishing and hauling crushed surfacing base course to the project site.
2. Excavating uncompactable material.
3. Furnishing and placing a soil stabilization construction geotextile.
4. Backfilling and compacting crushed surfacing base course.
5. Removing, hauling and restocking any unused crushed surfacing base course.

5-01.3(4)E Concrete Finishing
Grade control shall be the responsibility of the Contractor.

All panels shall be struck off level with the adjacent panels and floated to a smooth surface.

Final finish texturing shall meet the requirements of Section 5-05.3(11).

In areas where the Plans do not require grinding, the surface smoothness will be measured with a 10-foot straightedge by the Engineer in accordance with Section 5-05.3(12). If the replacement panel is located in an area that will be ground as part of concrete pavement grinding in accordance with Section 5-01.3(9), the surface smoothness shall be measured, by the Contractor, in conjunction with the smoothness measurement done in accordance with Section 5-01.3(10).

5-01.3(4)F Joints
All transverse and longitudinal joints shall be sawed and sealed in accordance with Section 5-05.3(8). The Contractor may use a hand pushed single blade saw for sawing joints.
5-01.3(4)G Cracked Panels
Replacement panels that crack shall be repaired as specified in Section 5-05.3(22) at no cost to the Contracting Agency. When repairing replacement panels that have cracked, epoxy-coated dowel bars meeting the requirements of Section 9-07.5(1) may be substituted for the corrosion resistant dowel bars specified.

5-01.3(4)H Opening to Traffic
Opening to traffic shall meet the requirements of Section 5-05.3(17).

5-01.3(5) Partial Depth Spall Repair
The second sentence of the third paragraph is revised to read:

All sandblasting residue shall be removed.

5-01.3(7) Sealing Existing Concrete Random Cracks
The second sentence of the second paragraph is revised to read:

Immediately prior to sealing, the cracks shall be clean.

5-01.3(8) Sealing Existing Longitudinal and Transverse Joint
The first sentence of the fifth paragraph is revised to read:

Immediately prior to sealing, the cracks shall be clean.

5-01.3(10) Pavement Smoothness
This section is revised to read:

Pavement surface smoothness for cement concrete pavement grinding on this project will include International Roughness Index (IRI) testing. Ride quality will be evaluated using the Mean Roughness Index (MRI) calculated by averaging the IRI data for the left and right wheel path within the section.

Smoothness Testing Equipment and Operator Certification
Use an inertial profiler and operator that meet the requirements of Section 5-05.3(3)E.

Surface Smoothness
Operate the inertial profiler in accordance with AASHTO R 57. Collect two longitudinal traces, one in each wheel path. Collect the control profile at locations designated in Table 2 prior to any pavement rehabilitation Work on the areas to be tested. Collect an acceptance profile at locations designated in Table 2 after completion of all cement concrete pavement grinding on the project. Profiles shall be collected in a continuous pass including areas excluded from pay adjustments. Provide notice to the Engineer a minimum of seven calendar days prior to testing.

| Table 2 |
| Locations Requiring MRI Testing |
| Travel lanes where cement concrete grinding is shown in the plans | Control profile |
| Additional locations designated by the Engineer | Control profile |
Within 30 calendar days after the Contractor’s testing, the Engineer may perform verification testing. If the verification testing shows a difference in MRI greater than the 10 percent, the following resolution process will be followed:

1. The profiles, equipment and procedures will be evaluated to determine the cause of the difference.

2. If the cause of the discrepancy cannot be resolved the pavement shall be retested with both profilers at a mutually agreed time. The two profilers will test the section within 30 minutes of each other. If the retest shows a difference in MRI equal or greater than the percentages shown in Table 2 of AASHTO R 54 the Engineer’s test results will be used for pavement smoothness acceptance.

The Contractor shall evaluate profiles for acceptance or corrective action using the current version of ProVAL and provide the results including the profile data in unfiltered electronic Engineering Research Division (ERD) file format to the Engineer within 3 calendar days of completing each days profile testing. If the profile data files are created using an export option in the manufacturer’s software where filter settings can be specified, use the filter settings that were used to create data files for certification.

Analyze the entire profile. Exclude areas listed in Table 3.

<table>
<thead>
<tr>
<th>Table 3</th>
<th>Areas Excluded from MRI Acceptance Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Exclude</td>
</tr>
<tr>
<td>Beginning and end of grinding</td>
<td>Pavement within 0.02 mile</td>
</tr>
<tr>
<td>Bridges and approach slabs</td>
<td>The bridge and approach slab and 0.02 mile from the ends of the bridge or approach slab</td>
</tr>
<tr>
<td>Defects in the existing roadway identified by the Contractor that adversely affect the MRI such as dips, depressions and wheel path longitudinal joints.</td>
<td>0.01-mile section containing the defect and the 0.01-mile section following the section with the defect.</td>
</tr>
</tbody>
</table>

1 The presence of defects is subject to verification by the Engineer.

Report the MRI results in inches per mile for each 0.01-mile section and each 0.10-mile section. Do not truncate 0.10-mile sections for areas excluded from MRI acceptance requirements. MRI requirements will not apply to 0.10-mile sections with more than three 0.01 mile-sections excluded. MRI requirements for the individual 0.01-mile sections shall still apply. The Engineer will verify the analysis.
The MRI for each 0.10 mile of ground lane will comply with the following:

<table>
<thead>
<tr>
<th>Control Profile MRI per 0.10 Mile</th>
<th>Maximum MRI of Acceptance Profile per 0.10 Mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤130 inches/mile</td>
<td>78 inches/mile</td>
</tr>
<tr>
<td>&gt;130 inches/mile</td>
<td>0.6 x Control Profile MRI</td>
</tr>
</tbody>
</table>

The MRI for each 0.01 mile of the completed cement concrete grinding shall not exceed 160 inches/mile.

All Work is subject to parallel and transverse 10-foot straightedge requirements, corrective work and disincentive adjustments.

Surface smoothness of travel lanes including areas subject to MRI testing shall not vary more than ⅛ inch from the lower edge of a 10-foot straightedge placed on the surface parallel to the centerline.

The smoothness perpendicular to the centerline will be measured with a 10-foot straightedge within the lanes. There shall be not vertical elevation difference of more than a ¼ inch between lanes.

Pavement that does not meet these requirements will be subject to corrective work. All corrective work shall be completed at no additional expense, including traffic control, to the Contracting Agency. Pavement shall be repaired by one or more of the following methods:

1. Diamond grinding.
2. By other method accepted by the Engineer.

Repair areas shall be re-profiled to ensure they no longer require corrective work. With concurrence of the Engineer, a 10-foot straight edge may be used in place of the inertial profiler.

If correction of the roadway as listed above either will not or does not produce satisfactory results as to smoothness or serviceability the Engineer may accept the completed pavement and a credit will be calculated in accordance with Section 5-01.5. Under these circumstances, the decision whether to accept the completed pavement or to require corrective work as described above shall be vested entirely in the Engineer.

### 5-01.5 Payment

This section is supplemented with the following:

“Grinding Smoothness Compliance Adjustment”, by calculation.

Grinding Smoothness Compliance Adjustments will be based on the requirements in Section 5-01.3(10) and the following calculations:

A smoothness compliance adjustment will be calculated in the sum of minus $100 for each and every section of single traffic lane 0.01 mile in length and $1,000 for each and every section of single traffic lane 0.10 mile in length that does not meet the requirements in Section 5-01.3(10) after corrective work.
5-02.AP5
Section 5-02, Bituminous Surface Treatment
April 1, 2019

5-02.3(5) Application of Aggregates
The first sentence of the eleventh paragraph is revised to read:

The Contractor shall use a pickup broom in all curbed areas, on all bridges, within city limits, within sensitive areas, and where shown in the Plans both before the application of emulsified asphalt and during the final brooming operation.

5-04.AP5
Section 5-04, Hot Mix Asphalt
April 1, 2019

5-04.1 Description
The last sentence of the first paragraph is revised to read:

The manufacture of HMA may include additives or processes that reduce the optimum mixing temperature (Warm Mix Asphalt) or serve as a compaction aid in accordance with these Specifications.

5-04.2 Materials
The reference to “Warm Mix Asphalt Additive” is revised to read “HMA Additive”.

5-04.2(1) How to Get an HMA Mix Design on the QPL
The last bullet in the first paragraph is revised to read:

• Do not include HMA additives that reduce the optimum mixing temperature or serve as a compaction aid when developing a mix design or submitting a mix design for QPL evaluation. The use of HMA additives is not part of the process for obtaining approval for listing a mix design on the QPL. Refer to Section 5-04.2(2)B.

In the table, “WSDOT Standard Practice QC-8” is revised to read “WSDOT Standard Practice QC-8 located in the WSDOT Materials Manual M 46-01”.

5-04.2(1)C Mix Design Resubmittal for QPL Approval
Item number 3 of the first paragraph is revised to read:

3. Changes in modifiers used in the asphalt binder.

5-04.2(2)B Using Warm Mix Asphalt Processes
This section, including title, is revised to read:

5-04.2(2)B Using HMA Additives
The Contractor may, at the Contractor’s discretion, elect to use additives that reduce the optimum mixing temperature or serve as a compaction aid for producing HMA. Additives include organic additives, chemical additives and foaming processes. The use of Additives is subject to the following:
• Do not use additives that reduce the mixing temperature in accordance with Section 5-04.3(6) in the production of High RAP/Any RAS mixtures.

• Before using additives, obtain the Engineer’s approval using WSDOT Form 350-076 to describe the proposed additive and process.

5-04.3(3)A Mixing Plant
Item number 5 of the first paragraph is revised to read:

5. Provide HMA sampling equipment that complies with FOP for AASHTO T 168:

• Use a mechanical sampling device accepted by the Engineer, or

• Platforms or devices to enable sampling from the truck transport without entering the truck transport for sampling HMA.

5-04.3(4) Preparation of Existing Paved Surfaces
The first sentence of the fourth paragraph is revised to read:

Unless otherwise allowed by the Engineer, use cationic emulsified asphalt CSS-1, CSS-1h, or Performance Graded (PG) asphalt for tack coat.

5-04.3(6) Mixing
The first paragraph is revised to read:

The asphalt supplier shall introduce recycling agent and anti-stripping additive, in the amount designated on the QPL for the mix design, into the asphalt binder prior to shipment to the asphalt mixing plant.

The seventh paragraph is revised to read:

Upon discharge from the mixer, ensure that the temperature of the HMA does not exceed the optimum mixing temperature shown on the accepted Mix Design Report by more than 25°F, or as allowed by the Engineer. When an additive is included in the manufacture of HMA, do not heat the additive (at any stage of production including in binder storage tanks) to a temperature higher than the maximum recommended by the manufacturer of the additive.

5-04.3(7) Spreading and Finishing
The last row of the table is revised to read:

| 3/8 inch | 0.25 feet | 0.30 feet |

5-04.3(8) Aggregate Acceptance Prior to Incorporation in HMA
The following new paragraph is inserted after the first paragraph:

The Contracting Agency’s combined aggregate bulk specific gravity (Gsb) blend as shown on the HMA Mix Design will be used for VMA calculations until the Contractor submits a written request for a Gsb test. The new Gsb will be used in the VMA calculations for HMA from the date the Engineer receives the written request for a Gsb retest. The Contractor may request aggregate specific gravity (Gsb) testing be performed by the Contracting Agency twice per project. The Gsb blend of the combined
stockpiles will be used to calculate voids in mineral aggregate (VMA) of any HMA produced after the new Gsb is determined.

5-04.3(9)A1 Test Section – When Required, When to Stop
The following new row is inserted after the second row in Table 9:

<table>
<thead>
<tr>
<th>VMA</th>
<th>Minimum PF, of 0.95 based on the criteria in Section 5-04.3(9)B4²</th>
<th>None⁴</th>
</tr>
</thead>
</table>

5-04.3(9)A2 Test Section – Evaluating the HMA Mixture in a Test Section
In Table 9a, the test property “Gradation, Asphalt Binder, and \( V_a \)” is revised to read “Gradation, Asphalt Binder, VMA, and \( V_a \)”.

In Table 9a, the first column of the third row is revised to read:

Aggregates:
- Sand Equivalent
- Uncompacted Void Content
- Fracture

5-04.3(9)B3 Mixture Statistical Evaluation – Acceptance Testing
In Table 11, “\( V_a \)” is revised to read “VMA and \( V_a \)”.

5-04.3(9)B5 Mixture Statistical Evaluation – Composite Pay Factors (CPF)
The following new row is inserted above the last row in Table 12:

| Voids in Mineral Aggregate (VMA) | 2 |

5-04.3(9)B7 Mixture Statistical Evaluation – Retests
The second to last sentence is revised to read:

The sample will be tested for a complete gradation analysis, asphalt binder content, VMA and \( V_a \), and the results of the retest will be used for the acceptance of the HMA mixture in place of the original mixture sublot sample test results.

5-04.3(10)A HMA Compaction – General Compaction Requirements
The last paragraph is revised to read:

On bridge decks and on roadway approaches within five feet of a bridge/back of pavement seat, rollers shall not be operated in a vibratory mode, defined as a mode in which the drum vibrates vertically. However, unless otherwise noted on the plans, rollers may be operated in an oscillatory mode, defined as a mode in which the drum vibrates in the horizontal direction only.

5-04.3(10)C1 HMA Compaction Statistical Evaluation – Lots and Sublots
The bulleted item in the fourth paragraph is revised to read:

• For a compaction lot in progress with a compaction CPF less than 0.75 using an LSL = 91.5, a new compaction lot will begin at the Contractor’s request after the
Engineer is satisfied that material conforming to the Specifications can be produced. See also Section 5-04.3(11)F.

5-04.3(10)C2 HMA Compaction Statistical Evaluation – Acceptance Testing
In the table, “WSDOT FOP for AASHTO T 355” is revised to read “FOP for AASHTO T 355”.

5-04.3(10)C3 HMA Statistical Compaction – Price Adjustments
In the first paragraph, “WSDOT FOP for AASHTO T 355” is revised to read “FOP for AASHTO T 355”.

The first sentence in the second paragraph is revised to read:

For each HMA compaction lot (that is accepted by Statistical Evaluation) which does not meet the criteria in the preceding paragraph, the compaction lot shall be evaluated in accordance with Section 1-06.2(2)D5 to determine the appropriate Composite Pay Factor (CPF).

The last two paragraphs are revised to read:

Determine the Compaction Price Adjustment (CPA) from the table below, selecting the equation for CPA that corresponds to the value of CPF determined above.

<table>
<thead>
<tr>
<th>Calculating HMA Compaction Price Adjustment (CPA)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Value of CPF</strong></td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>When CPF &gt; 1.00</td>
</tr>
<tr>
<td>When CPF = 1.00</td>
</tr>
<tr>
<td>When CPF &lt; 1.0</td>
</tr>
</tbody>
</table>

Where
CPA = Compaction Price Adjustment for the compaction lot ($)
CPF = Composite Pay Factor for the compaction lot (maximum is 1.05)
Q = Quantity in the compaction lot (tons)
UP = Unit price of the HMA in the compaction lot ($/ton)

5-04.3(10)C4 HMA Statistical Compaction – Requests for Retesting
The first sentence is revised to read:

For a compaction sublot that has been tested with a nuclear density gauge that did not meet the minimum of 91.5 percent of the theoretical maximum density in a compaction lot with a CPF below 1.00 and thus subject to a price reduction or rejection, the Contractor may request that a core, taken at the same location as the nuclear density test, be used for determination of the relative density of the compaction sublot.

5-04.3(13) Surface Smoothness
The second to last paragraph is revised to read:

When concrete pavement is to be placed on HMA, the surface tolerance of the HMA shall be such that no surface elevation lies above the Plan grade minus the specified Plan depth of concrete pavement. Prior to placing the concrete pavement, bring any
such irregularities to the required tolerance by grinding or other means allowed by the Engineer.

5-04.5 Payment
The paragraph following the Bid item “Crack Sealing-LF”, per linear foot is revised to read:

The unit Contract price per linear foot for “Crack Sealing-LF” shall be full payment for all costs incurred to perform the Work described in Section 5-04.3(4)A.

5-05.AP5
Section 5-05, Cement Concrete Pavement
April 1, 2019

5-05.1 Description
In the first paragraph, “portland cement concrete” is revised to read “cement concrete”.

5-05.2 Materials
In the first paragraph, the reference to “Portland Cement” is revised to read:

Cement 9-01

In the first paragraph, the section reference for Concrete Patching Material is revised to read “9-20.1”.

The second paragraph is revised to read:

Cementitious materials are considered to be the following: portland cement, blended hydraulic cement, fly ash, ground granulated blast furnace slag and microsilica fume.

5-05.3(1) Concrete Mix Design for Paving
The table title in item number 4 is revised to read Concrete Batch Weights.

In item 4a, “Portland Cement” is revised to read “Cement”.

5-05.3(3)E Smoothness Testing Equipment
This section is revised to read:

Inertial profilers shall meet all requirements of AASHTO M 328 and be certified in accordance with AASHTO R 56 within the preceding 12 months.

The inertial profiler operator shall be certified as required by AASHTO R 56 within three years preceding profile measurement.

Equipment or operator certification by other states or a profiler certification facility will be accepted provided the certification meets the requirements of AASHTO R 56. Documentation verifying certification by another state shall be submitted to the Engineer a minimum of 14 calendar days prior to profile measurement. Equipment certification documentation shall include the information required by part 8.5 and 8.6 of AASHTO R 56. Operator documentation shall include a statement from the certifying state that indicates the operator is certified to operate the inertial profiler to be used on the project. The decision whether another state’s certification meets the requirements of AASHTO R 56 shall be vested entirely in the Engineer.
5-05.3(4) Measuring and Batching Materials

Item number 2 is revised to read:

2. **Batching Materials** – On all projects requiring more than 2,500 cubic yards of concrete for paving, the batching plant shall be equipped to proportion aggregates and cement by weight by means of automatic and interlocked proportioning devices of accepted type.

5-05.3(4)A Acceptance of Portland Cement Concrete Pavement

This section’s title is revised to read:

**Acceptance of Portland Cement or Blended Hydraulic Cement Concrete Pavement**

The first sentence is revised to read:

Acceptance of portland cement or blended hydraulic cement concrete pavement shall be as provided under statistical or nonstatistical acceptance.

5-05.3(7) Placing, Spreading, and Compacting Concrete

This section’s content is deleted.

5-05.3(10) Tie Bars and Corrosion Resistant Dowel Bars

The first sentence of the last paragraph is revised to read:

The tie bar holes shall be clean before grouting.

5-05.3(12) Surface Smoothness

This section is revised to read:

Pavement surface smoothness for this project will include International Roughness Index (IRI) testing. The Contractor shall perform IRI testing on each through lane, climbing lane, and passing lane, greater than 0.25 mile in length and these lanes will be subject to incentive/disincentive adjustments. Ride quality will be evaluated using the Mean Roughness Index (MRI) calculated by averaging the IRI data for the left and right wheel path within the section.

Ramps, shoulders and tapers will not be included in MRI testing for pavement smoothness and will not be subject to incentive adjustments. All Work is subject to parallel and transverse 10-foot straightedge requirements, corrective work and disincentive adjustments.

Operate the inertial profiler in accordance with AASHTO R 57. Collect two longitudinal traces, one in each wheel path. Collect profile data after completion of all concrete paving on the project in a continuous pass including areas excluded from pay adjustments. Provide notice to the Engineer a minimum of seven calendar days prior to testing.

Within 30 calendar days after the Contractor’s testing, the Engineer may perform verification testing. If the verification testing shows a difference in MRI greater than the percentages shown in Table 2 of AASHTO R 54 the following resolution process will be followed:
1. The profiles, equipment and procedures will be evaluated to determine the cause of the difference.

2. If the cause of the discrepancy cannot be resolved the pavement shall be retested with both profilers at a mutually agreed time. The two profilers will test the section within 30 minutes of each other. If the retest shows a difference in MRI equal or greater than the percentages shown in Table 2 of AASHTO R 54 the Engineer’s test results will be used to establish pay adjustments.

Surface smoothness of travel lanes not subject to MRI testing will be measured with a 10-foot straightedge no later than 5:00 p.m. of the day following the placing of the concrete. The completed surface of the wearing course shall not vary more than ½ inch from the lower edge of a 10-foot straightedge placed on the surface parallel to the centerline.

Smoothness perpendicular to the centerline will be measured with a 10-foot straightedge across all lanes with the same cross slope, including shoulders when composed of cement concrete pavement. The overlapping 10-foot straightedge measurement shall be discontinued at a point 6 inches from the most extreme outside edge of the finished cement concrete pavement. The completed surface of the wearing course shall not vary more than ¼ inch from the lower edge of a 10-foot straightedge placed on the surface perpendicular to the centerline. Any deviations in excess of the above tolerances shall be corrected.

The Contractor shall evaluate profiles for acceptance, incentive payments, disincentive payments, or corrective action using the current version of ProVAL and provide the results including the profile data in unfiltered electronic Engineering Research Division (ERD) file format to the Engineer within 2 calendar days of completing testing each section of pavement. If the profile data files are created using an export option in the manufacturer’s software where filter settings can be specified, use the filter settings that were used to create data files for certification. Analyze the entire profile. Exclude any areas specifically identified in the Contract. Exclude from the analysis the first 100 feet after the start of the paving operations and last 100 feet prior to the end of the paving operation, the first 100 feet on either side of bridge Structures and bridge approach slab. Report the MRI results in inches per mile for each 52.8 foot section and horizontal distance measurements in project stationing to the nearest foot. Include pay adjustments in the results. The Engineer will verify the analysis.

Corrective work for pavement smoothness may be taken by the Contractor prior to MRI testing. After completion of the MRI testing the Contractor shall measure the smoothness of each 52.8-foot section with an MRI greater than 125 inches per mile with a 10-foot straightedge within 14 calendar days or as allowed by the Engineer. The Contractor shall identify all locations that require corrective work and provide the straight edge measurements at each location that exceeds the allowable limit to the Engineer. If all measurements in a 52.8-foot section comply with smoothness requirements, the Contractor shall provide the maximum measurement to the Engineer and a statement that corrective work is not required. Unless allowed by the Engineer, corrective work shall be taken by the Contractor for pavement identified by the Contractor or Engineer that does not meet the following requirements:
1. The completed surface shall be of uniform texture, smooth, uniform as to crown and grade, and free from defects of all kinds.

2. The completed surface shall not vary more than \( \frac{1}{8} \) inch from the lower edge of a 10-foot straightedge placed on the surface parallel to the centerline.

3. The completed surface shall vary not more than \( \frac{1}{4} \) inch in 10 feet from the rate of transverse slope shown in the Plans.

All corrective work shall be completed at no additional expense, including traffic control, to the Contracting Agency. Corrective work shall not begin until the concrete has reached its design strength unless allowed by the Engineer. Pavement shall be repaired by one or more of the following methods:

1. Diamond grinding; repairs shall not reduce pavement thickness by more than \( \frac{1}{4} \) inch less than the thickness shown in the Plans. When required by the Engineer, the Contractor shall verify the thickness of the concrete pavement by coring. Thickness reduction due to corrective work will not be included in thickness measurements for calculating the Thickness Deficiency in Section 5-05.5(1A).

2. Removal and replacement of the cement concrete pavement.

3. By other method allowed by the Engineer.

For repairs following MRI testing the repaired area shall be checked by the Contractor with a 10-foot straightedge to ensure it no longer requires corrective work. With concurrence of the Engineer an inertial profiler may be used in place of the 10-foot straight edge.

If correction of the roadway as listed above either will not or does not produce satisfactory results as to smoothness or serviceability the Engineer may accept the completed pavement and a credit will be calculated in accordance with Section 5-05.5. The credit will be in addition to the price adjustment for MRI. Under these circumstances, the decision whether to accept the completed pavement or to require corrective work as described above shall be vested entirely in the Engineer.

5-05.3(22) Repair of Defective Pavement Slabs

The last sentence of the fourth paragraph is revised to read:

All sandblasting residue shall be removed.

5-05.4 Measurement

Item number 3 of the second paragraph is revised to read:

3. The depth shall be determined in accordance with Section 5-05.5(1). The depth utilized to calculate the volume shall not exceed the Plan depth plus 0.04 feet.

The third paragraph is revised to read:

The volume of cement concrete pavement in each thickness lot shall equal the measured length \( \times \) width \( \times \) thickness measurement.
The last paragraph is revised to read:

The calculation for cement concrete compliance adjustment is the volume of concrete represented by the CPF and the Thickness deficiency adjustment.

5-05.5 Payment

The paragraph following the Bid item “Cement Conc. Pavement”, per cubic yard is supplemented with the following:

All costs associated with performing the magnetic pulse induction thickness testing shall be included in the unit Contract price per cubic yard for “Cement Conc. Pavement”.

The Bid item “Ride Smoothness Compliance Adjustment”, by calculation, and the paragraph following this bid item are revised to read:

“Ride Smoothness Compliance Adjustment”, by calculation.

Smoothness Compliance Adjustments will be based on the requirements in Section 5-05.3(12) and the following calculations:

1. Final MRI acceptance and incentive/disincentive payments for pavement smoothness will be calculated as the average of the ten 52.8-foot sections in each 528 feet in accordance with the price adjustment schedule.

   a. For sections of a lane that are a minimum of 52.8 feet and less than 528 feet, the price adjustment will be calculated using the average of the 52.8 foot MRI values and the price adjustment prorated for the length of the section.

   b. MRI values per 52.8-feet that were measured prior to corrective work will be included in the 528 foot price adjustment for sections with corrective work.

2. In addition to the price adjustment for MRI a smoothness compliance adjustment will be calculated in the sum of minus $1000.00 for each and every section of single traffic lane 52.8 feet in length in that does not meet the 10-foot straight edge requirements in Section 5-05.3(12) after corrective work.

<table>
<thead>
<tr>
<th>MRI for each 528 ft. section</th>
<th>Pay Adjustment Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>in. / mi.</td>
<td>$ / 0.10 mi.</td>
</tr>
<tr>
<td>&lt; 30</td>
<td>2400</td>
</tr>
<tr>
<td>30</td>
<td>2400</td>
</tr>
<tr>
<td>31</td>
<td>2320</td>
</tr>
<tr>
<td>32</td>
<td>2240</td>
</tr>
<tr>
<td>33</td>
<td>2160</td>
</tr>
<tr>
<td>34</td>
<td>2080</td>
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<td>36</td>
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<tr>
<td>37</td>
<td>1840</td>
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<td>72</td>
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<tr>
<td>86</td>
<td>-880</td>
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<td>87</td>
<td>-960</td>
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</tbody>
</table>
The bid item “Portland Cement Concrete Compliance Adjustment”, by calculation, and the paragraph following this bid item are revised to read:

“Cement Concrete Compliance Adjustment”, by calculation.

Payment for “Cement Concrete Compliance Adjustment” will be calculated by multiplying the unit Contract price for the cement concrete pavement, times the volume for adjustment, times the percent of adjustment determined from the calculated CPF and the Deficiency Adjustment listed in Section 5-05.5(1)A.

5-05.5(1) Pavement Thickness

This section is revised to read:
Cement concrete pavement shall be constructed in accordance with the thickness requirements in the Plans and Specifications. Tolerances allowed for Subgrade construction and other provisions, which may affect thickness, shall not be construed to modify such thickness requirements.

Thickness measurements in each lane paved shall comply with the following:

<table>
<thead>
<tr>
<th>Thickness Testing of Cement Concrete Pavement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness Lot Size</td>
</tr>
<tr>
<td>Thickness test location determined by</td>
</tr>
<tr>
<td>Sample method</td>
</tr>
<tr>
<td>Sample preparation performed by</td>
</tr>
<tr>
<td>Measurement method</td>
</tr>
<tr>
<td>Thickness measurement performed by</td>
</tr>
</tbody>
</table>

¹Reflectors shall be located at within 0.5 feet of the center of the panel. The Contractor shall supply a sufficient number of 300 mm-diameter round reflectors meeting the requirements of AASHTO T 359 to accomplish the required testing.

²The Contractor shall provide all equipment and materials needed to perform the testing.

Thickness measurements shall be rounded to the nearest 0.01 foot.

Each thickness test location where the pavement thickness is deficient by more than 0.04 foot, shall be subject to price reduction or corrective action as shown in Table 2.

<table>
<thead>
<tr>
<th>Table 2 Thickness Deficiency</th>
<th>0.04’ &lt; Thickness Deficiency ≤ 0.06’</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.06’ &lt; Thickness deficiency ≤ 0.08’</td>
<td>25</td>
</tr>
<tr>
<td>Thickness deficiency &gt; 0.08’</td>
<td>Remove and replace the panels or the panels may be accepted with no payment at the discretion of the Engineer.</td>
<td></td>
</tr>
</tbody>
</table>

The price reduction shall be computed by multiplying the percent price reduction in Table 2 by the unit Contract price by the volume of pavement represented by the thickness test lot.

Additional cores may be taken by the Contractor to determine the limits of an area that has a thickness deficiency greater than 0.04 feet. Cores shall be taken at the approximate center of the panel. Only the panels within the limits of the deficiency area as determined by the cores will be subject to a price reduction or corrective action. The cores shall be taken in the presence of the Engineer and delivered to the Engineer for measurement. All costs for the additional cores including filling the core holes with patching material meeting the requirements of Section 9-20 will be the responsibility of the Contractor.

5-05.5(1)A Thickness Deficiency of 0.05 Foot or Less

This section, including title, is revised to read:
5-05.5(1)A Vacant

5-05.5(1)B Thickness Deficiency of More Than 0.05 Foot
This section, including title, is revised to read:

5-05.5(1)B Vacant

6-01.AP6

Section 6-01, General Requirements for Structures
January 7, 2019

This section is supplemented with the following new subsections:

6-01.16 Repair of Defective Work

6-01.16(1) General
When using repair procedures that are described elsewhere in the Contract Documents, the Working Drawing submittal requirements of this Section shall not apply to those repairs unless noted otherwise.

Repair procedures for defective Work shall be submitted as Type 2 Working Drawings. Type 2E Working Drawings shall be submitted when required by the Engineer. As an alternative to submitting Type 2 or 2E Working Drawings, defective Work within the limits of applicability of a pre-approved repair procedure may be repaired using that procedure. Repairs using a pre-approved repair procedure shall be submitted as a Type 1 Working Drawing.

Pre-approved repair procedures shall consist of the following:

- The procedures listed in Section 6-01.16(2)
- For precast concrete, repair procedures in the annual plant approval process documents that have been approved for use by the Contracting Agency.

All Working Drawings for repair procedures shall include:

- A description of the defective Work including location, extent and pictures
- Materials to be used in the repair. Repairs using manufactured products shall include written manufacturer recommendations for intended uses of the product, surface preparation, mixing, aggregate extension (if applicable), ambient and surface temperature limits, placement methods, finishing and curing.
- Construction procedures
- Plan details of the area to be repaired
- Calculations for Type 2E Working Drawings

Material manufacturer’s instructions and recommendations shall supersede any conflicting requirements in pre-approved repair procedures.
The Engineer shall be notified prior to performing any repair procedure and shall be
given an opportunity to inspect the repair work being performed.

6-01.16(2) Pre-Approved Repair Procedures

6-01.16(2)A Concrete Spalls and Poor Consolidation (Rock Pockets, Honeycombs, Voids, etc.)

This repair shall be limited to the following areas:

- Areas that are not on top Roadway surfaces (with or without an
  overlay) including but not limited to concrete bridge decks, bridge
  approach slabs or cement concrete pavement

- Areas that are not underwater

- Areas that are not on precast barrier, except for the bottom 4 inches
  (but not to exceed 1 inch above blockouts)

- Areas that do not affect structural adequacy as determined by the
  Engineer.

The repair procedure is as follows:

1. Remove all loose and unsound concrete. Impact breakers shall not
   exceed 15 pounds in weight when removing concrete adjacent to
   reinforcement or other embedments and shall not exceed 30 pounds
   in weight otherwise. Operate impact breakers at angles less than 45
   degrees as measured from the surface of the concrete to the tool and
   moving away from the edge of the defective Work. Concrete shall be
   completely removed from exposed surfaces of existing steel
   reinforcing bars. If half or more of the circumference of any steel
   reinforcing bar is exposed, if the reinforcing bar is loose or if the bond
   to existing concrete is poor then concrete shall be removed at least ¾
   inch behind the reinforcing bar. Do not damage any existing
   reinforcement. Stop work and allow the Engineer to inspect the repair
   area after removing all loose and unsound concrete. Submit a
   modified repair procedure when required by the Engineer.

2. Square the edges of the repair area by cutting an edge perpendicular
   to the concrete surface around the repair area. The geometry of the
   repair perimeter shall minimize the edge length and shall be
   rectangular with perpendicular edges, avoiding reentrant corners. The
   depth of the cut shall be a minimum of ¾ inch, but shall be reduced if
   necessary to avoid damaging any reinforcement. For repairs on
   vertical surfaces, the top edge shall slope up toward the front at a 1-
   vertical-to-3-horizontal slope.

3. Remove concrete within the repair area to a depth at least matching
   the cut depth at the edges. Large variations in the depth of removal
   within short distances shall be avoided. Roughen the concrete
   surface. The concrete surface should be roughened to at least
   Concrete Surface Profile (CSP) 5 in accordance with ICRI Guideline
No. 310.2R, unless a different CSP is recommended by the patching material manufacturer.

4. Inspect the concrete repair surface for delaminations, debonding, microcracking and voids using hammer tapping or a chain drag. Remove any additional loose or unsound concrete in accordance with steps 1 through 3.

5. Select a patching material in accordance with Section 9-20.2 that is appropriate for the repair location and thickness. The concrete patching material shall be pumpable or self-consolidating as required for the type of placement that suits the repair. The patching material shall have a minimum compressive strength at least equal to the specified compressive strength of the concrete.

6. Prepare the concrete surface and reinforcing steel in accordance with the patching material manufacturer’s recommendations. At a minimum, clean the concrete surfaces (including perimeter edges) and reinforcing steel using oil-free abrasive blasting or high-pressure (minimum 5,000 psi) water blasting. All dirt, dust, loose particles, rust, laitance, oil, film, microcracked/bruised concrete or foreign material of any sort shall be removed. Damage to the epoxy coating on steel reinforcing bars shall be repaired in accordance with Section 6-02.3(24)H.

7. Construct forms if necessary, such as for patching vertical or overhead surfaces or where patching extends to the edge or corner of a placement.

8. When recommended by the patching material manufacturer, saturate the concrete in the repair area and remove any free water at the concrete surface to obtain a saturated surface dry (SSD) substrate. When recommended by the patching material manufacturer, apply a primer, scrub coat or bonding agent to the existing surfaces. Epoxy bonding agents, if used, shall be Type II or Type V in accordance with Section 9-26.1.

9. Place and consolidate the patching material in accordance with the manufacturer’s recommendations. Work the material firmly into all surfaces of the repair area with sufficient pressure to achieve proper bond to the concrete.

10. The patching material shall be textured, cured and finished in accordance with the patching material manufacturer’s recommendations and/or the requirements for the repaired component. Protect the newly placed patch from vibration in accordance with Section 6-02.3(6)D.

11. When the completed repair does not match the existing concrete color and will be visible to the public, a sand and cement mixture that is color matched to the existing concrete shall be rubbed, brushed, or applied to the surface of the patching material and the concrete.
6-01.10 Utilities Supported by or Attached to Bridges
In the third paragraph, “Federal Standard 595” is revised to read “SAE AMS Standard 595”.

6-01.12 Final Cleanup
The second sentence of the first paragraph is revised to read:
Structure decks shall be clean.
The second paragraph is deleted.

6-02.AP6 Section 6-02, Concrete Structures
April 1, 2019

6-02.1 Description
The first sentence is revised to read:
This Work consists of the construction of all Structures (and their parts) made of portland cement or blended hydraulic cement concrete with or without reinforcement, including bridge approach slabs.

6-02.2 Materials
In the first paragraph, the references to “Portland Cement” and “Aggregates for Portland Cement Concrete” are revised to read:
Cement 9-01
Aggregates for Concrete 9-03.1
The reference to metakaolin is deleted.

6-02.3(2) Proportioning Materials
The second paragraph is revised to read:
Unless otherwise specified, the Contractor shall use Type I or II portland cement or blended hydraulic cement in all concrete as defined in Section 9-01.2(1).
The last sentence of the fifth paragraph is revised to read:
With the Engineer’s written concurrence, microsilica fume may be used in all classifications of Class 4000, Class 3000, and commercial concrete and is limited to a maximum of 10 percent of the cementitious material.

6-02.3(2)A Contractor Mix Design
The last sentence of the last paragraph is revised to read:
For all other concrete, air content shall be a minimum of 4.5 percent and a maximum of 7.5 percent for all concrete placed above the finished ground line unless noted otherwise.
6-02.3(2)A1 Contractor Mix Design for Concrete Class 4000D

Item number 5 of the first paragraph is deleted.

Item number 6 of the first paragraph (after the preceding Amendment is applied) is renumbered to 5.

6-02.3(2)B Commercial Concrete

The second paragraph is revised to read:

Where concrete Class 3000 is specified for items such as, culvert headwalls, plugging culverts, concrete pipe collars, pipe anchors, monument cases, Type PPB, PS, I, FB and RM signal standards, pedestals, cabinet bases, guardrail anchors, fence post footings, sidewalks, concrete curbs, curbs and gutters, and gutters, the Contractor may use commercial concrete. If commercial concrete is used for sidewalks, concrete curbs, curbs and gutters, and gutters, it shall have a minimum cementitious material content of 564 pounds per cubic yard of concrete, shall be air entrained, and the tolerances of Section 6-02.3(5)C shall apply.

6-02.3(4) Ready-Mix Concrete

The first sentence of the first paragraph is revised to read:

All concrete, except lean concrete, shall be batched in a prequalified manual, semi-automatic, or automatic plant as described in Section 6-02.3(4)A.

6-02.3(4)D Temperature and Time For Placement

The following is inserted after the first sentence of the first paragraph:

The upper temperature limit for placement for Class 4000D concrete may be increased to a maximum of 80°F if allowed by the Engineer.

6-02.3(5)C Conformance to Mix Design

Item number 1 of the second paragraph is revised to read:

1. Cement weight plus 5 percent or minus 1 percent of that specified in the mix design.

6-02.3(6)A1 Hot Weather Protection

The first paragraph is revised to read:

The Contractor shall provide concrete within the specified temperature limits. Cooling of the coarse aggregate piles by sprinkling with water is permitted provided the moisture content is monitored, the mixing water is adjusted for the free water in the aggregate and the coarse aggregate is removed from at least 1 foot above the bottom of the pile. Sprinkling of fine aggregate piles with water is not allowed. Refrigerating mixing water or replacing all or part of the mixing water with crushed ice is permitted, provided the ice is completely melted by placing time.

The second sentence of the second paragraph is revised to read:

These surfaces include forms, reinforcing steel, steel beam flanges, and any others that touch the concrete.
6-02.3(7) Vacant
This section, including title, is revised to read:

6-02.3(7) Tolerances
Unless noted otherwise, concrete construction tolerances shall be in accordance with this section. Tolerances in this section do not apply to cement concrete pavement.

Horizontal deviation of roadway crown points, cross-slope break points, and curb, barrier or railing edges from alignment or work line: ±1.0 inch

Deviation from plane: ±0.5 inch in 10 feet

Deviation from plane for roadway surfaces: ±0.25 inch in 10 feet

Deviation from plumb or specified batter: ±0.5 inch in 10 feet, but not to exceed a total of ±1.5 inches

Vertical deviation from profile grade for roadway surfaces: ±1 inch

Vertical deviation of top surfaces (except roadway surfaces): ±0.75 inch

Thickness of bridge decks and other structural slabs not at grade: ±0.25 inch

Length, width and thickness of elements such as columns, beams, crossbeams, diaphragms, corbels, piers, abutments and walls, including dimensions to construction joints in initial placements: +0.5 inch, -0.25 inch

Length, width and thickness of spread footing foundations: +2 inches, -0.5 inch

Horizontal location of the as-placed edge of spread footing foundations: The greater of ±2% of the horizontal dimension of the foundation perpendicular to the edge and ±0.5 inch. However, the tolerance shall not exceed ±2 inches.

Location of opening, insert or embedded item at concrete surface: ±0.5 inch

Cross-sectional dimensions of opening: ±0.5 inch

Bridge deck, bridge approach slab, and bridge traffic barrier expansion joint gaps with a specified temperature range, measured at a stable temperature: ±0.25 inch

Horizontal deviation of centerline of bearing pad, oak block or other bearing assembly: ±0.125 inch

Horizontal deviation of centerline of supported element from centerline of bearing pad, oak block or other bearing assembly ±0.25 inch

Vertical deviation of top of bearing pad, oak block or other bearing assembly: ±0.125 inch

6-02.3(10)C Finishing Equipment
The first paragraph is revised to read:
The finishing machine shall be self-propelled and be capable of forward and reverse movement under positive control. The finishing machine shall be equipped with augers and a rotating cylindrical single or double drum screed. The finishing machine shall have the necessary adjustments to produce the required cross section, line, and grade. The finishing machine shall be capable of raising the screeds, augers, and any other parts of the finishing mechanical operation to clear the screeded surface, and returning to the specified grade under positive control. Unless otherwise allowed by the Engineer, a finishing machine manufacturer technical representative shall be on site to assist the first use of the machine on the Contract.

The first sentence of the second paragraph is revised to read:

For bridge deck widening of 20 feet or less, and for bridge approach slabs, or where jobsite conditions do not allow the use of the conventional configuration finishing machines, or modified conventional machines as described above; the Contractor may submit a Type 2 Working Drawing proposing the use of a hand-operated motorized power screed such as a “Texas” or “Bunyan” screed.

6-02.3(10)D4  Monitoring Bridge Deck Concrete Temperature After Placement
This section, including title, is revised to read:

6-02.3(10)D4  Vacant

6-02.3(10)D5  Bridge Deck Concrete Finishing and Texturing
In the third subparagraph of the first paragraph, the last sentence is revised to read:

The Contractor shall texture the bridge deck surface to within 3-inches minimum and 24-inches maximum of the edge of concrete at expansion joints, within 1-foot minimum and 2-feet maximum of the curb line, and within 3-inches minimum and 9-inches maximum of the perimeter of bridge drain assemblies.

6-02.3(10)F  Bridge Approach Slab Orientation and Anchors
The second to last paragraph is revised to read:

The compression seal shall be a 2½ inch wide gland and shall conform to Section 9-04.1(4).

The last paragraph is deleted.

6-02.3(13)A  Strip Seal Expansion Joint System
In item number 3 of the third paragraph, “Federal Standard 595” is revised to read “SAE AMS Standard 595”.

6-02.3(13)B  Compression Seal Expansion Joint System
The first paragraph is revised to read:

Compression seal glands shall conform to Section 9-04.1(4) and be sized as shown in the Plans.

6-02.3(14)C  Pigmented Sealer for Concrete Surfaces
This section is supplemented with the following new paragraph:
Pigmented Sealer Materials shall be a product listed in the current WSDOT Qualified Products List (QPL). If the pigmented sealer material is not listed in the current WSDOT QPL, a sample shall be submitted to the State Materials Laboratory in Tumwater for evaluation and acceptance in accordance with Section 9-08.3.

6-02.3(20) Grout for Anchor Bolts and Bridge Bearings

The second, third and fourth paragraphs are revised to read:

Grout shall be a workable mix with a viscosity that is suitable for the intended application. Grout shall not be placed outside of the manufacturer recommended range of thickness. The Contractor shall receive concurrence from the Engineer before using the grout.

Field grout cubes and cylinders shall be fabricated and tested in accordance with Section 9-20.3 when requested by the Engineer, but not less than once per bridge pier or once per day.

Before placing grout, the substrate on which it is to be placed shall be prepared as recommended by the manufacturer to ensure proper bonding. The grout shall be cured as recommended by the manufacturer. The grout may be loaded when a minimum of 4,000 psi compressive strength is attained.

The fifth paragraph is deleted.

6-02.3(23) Opening to Traffic

This section is supplemented with the following new paragraph:

After curing bridge approach slabs in accordance with Section 6-02.3(11), the bridge approach slabs may be opened to traffic when a minimum compressive strength of 2,500 psi is achieved.

6-02.3(24)C Placing and Fastening

This section is revised to read:

The Contractor shall position reinforcing steel as the Plans require and shall ensure that the steel is set within specified tolerances. Adjustments to reinforcing details outside of specified tolerances to avoid interferences and for other purposes are acceptable when approved by the Engineer.

When spacing between bars is 1 foot or more, they shall be tied at all intersections. When spacing is less than 1 foot, every other intersection shall be tied. If the Plans require bundled bars, they shall be tied together with wires at least every 6 feet. All epoxy-coated bars in the top mat of the bridge deck shall be tied at all intersections, however they may be tied at alternate intersections when spacing is less than 1 foot in each direction and they are supported by continuous supports meeting all other requirements of supports for epoxy-coated bars. Other epoxy-coated bars shall also be tied at all intersections, but shall be tied at alternate intersections when spacing is less than 1 foot in each direction. Wire used for tying epoxy-coated reinforcing steel shall be plastic coated. **Tack welding is not permitted on reinforcing steel.**
Abrupt bends in the steel are permitted only when one steel member bends around another. Vertical stirrups shall pass around main reinforcement or be firmly attached to it.

For slip-formed concrete, the reinforcing steel bars shall be tied at all intersections and cross braced to keep the cage from moving during concrete placement. Cross bracing shall be with additional reinforcing steel. Cross bracing shall be placed both longitudinally and transversely.

After reinforcing steel bars are placed in a traffic or pedestrian barrier and prior to slip-form concrete placement, the Contractor shall check clearances and reinforcing steel bar placement. This check shall be accomplished by using a template or by operating the slip-form machine over the entire length of the traffic or pedestrian barrier. All clearance and reinforcing steel bar placement deficiencies shall be corrected by the Contractor before slip-form concrete placement.

Precast concrete supports (or other accepted devices) shall be used to maintain the concrete coverage required by the Plans. The precast concrete supports shall:

1. Have a bearing surface measuring not greater than 2 inches in either dimension, and

2. Have a compressive strength equal to or greater than that of the concrete in which they are embedded.

In slabs, each precast concrete support shall have either: (1) a grooved top that will hold the reinforcing bar in place, or (2) an embedded wire that protrudes and is tied to the reinforcing steel. If this wire is used around epoxy-coated bars, it shall be coated with plastic.

Precast concrete supports may be accepted based on a Manufacturer’s Certificate of Compliance.

In lieu of precast concrete supports, the Contractor may use metal or all-plastic supports to hold uncoated bars. Any surface of a metal support that will not be covered by at least ½ inch of concrete shall be one of the following:

1. Hot-dip galvanized after fabrication in keeping with AASHTO M232 Class D;

2. Coated with plastic firmly bonded to the metal. This plastic shall be at least 3/32 inch thick where it touches the form and shall not react chemically with the concrete when tested in the State Materials Laboratory. The plastic shall not shatter or crack at or above -5°F and shall not deform enough to expose the metal at or below 200°F; or

3. Stainless steel that meet the requirements of ASTM A493, Type 302. Stainless steel chair supports are not required to be galvanized or plastic coated.

In lieu of precast concrete supports, epoxy-coated reinforcing bars may be supported by one of the following:
1. Metal supports coated entirely with a dielectric material such as epoxy or plastic,

2. Other epoxy-coated reinforcing bars, or

3. All-plastic supports.

Damaged coatings on metal bar supports shall be repaired prior to placing concrete.

All-plastic supports shall be lightweight, non-porous, and chemically inert in concrete. All-plastic supports shall have rounded seatings, shall not deform under load during normal temperatures, and shall not shatter or crack under impact loading in cold weather. All-plastic supports shall be placed at spacings greater than 1 foot along the bar and shall have at least 25 percent of their gross place area perforated to compensate for the difference in the coefficient of thermal expansion between plastic and concrete. The shape and configuration of all-plastic supports shall permit complete concrete consolidation in and around the support.

A “mat” is two adjacent and perpendicular layers of reinforcing steel. In bridge decks, top and bottom mats shall be supported adequately enough to hold both in their proper positions. If bar supports directly support, or are directly supported on No. 4 bars, they shall be spaced at not more than 3-foot intervals (or not more than 4-foot intervals for bars No. 5 and larger). Wire ties to girder stirrups shall not be considered as supports. To provide a rigid mat, the Contractor shall add other supports and tie wires to the top mat as needed.

Unless noted otherwise, the minimum concrete cover for main reinforcing bars shall be:

3 inches to a concrete surface deposited against earth without intervening forms.

2½ inches to the top surface of a concrete bridge deck or bridge approach slab.

2 inches to a concrete surface when not specified otherwise in this section or in the Contract documents.

1½ inches to a concrete barrier or curb surface.

Except for top cover in bridge decks and bridge approach slabs, minimum concrete cover to ties and stirrups may be reduced by ½ inch but shall not be less than 1 inch. Minimum concrete cover shall also be provided to the outermost part of mechanical splices and headed steel reinforcing bars.

Reinforcing steel bar location, concrete cover and clearance shall not vary more than the following tolerances from what is specified in the Contract documents:

Reinforcing bar location for members 12 inches or less in thickness: ±0.25 inch

Reinforcing bar location for members greater than 12 inches in thickness: ±0.375 inch
Reinforcing bar location for bars placed at equal spacing within a plane: the greater of either ±1 inch or ±1 bar diameter within the plane. The total number of bars shall not be fewer than that specified.

The clearance between reinforcement shall not be less than the greater of the bar diameter or 1 inch for unbundled bars. For bundled bars, the clearance between bundles shall not be less than the greater of 1 inch or a bar diameter derived from the equivalent total area of all bars in the bundle.

Longitudinal location of bends and ends of bars: ±1 inch

Embedded length of bars and length of bar lap splices:

No. 3 through No. 11: -1 inch

No. 14 through No. 18: -2 inches

Concrete cover measured perpendicular to concrete surface (except for the top surface of bridge decks, bridge approach slabs and other roadway surfaces): ±0.25 inch

Concrete cover measured perpendicular to concrete surface for the top surface of bridge decks, bridge approach slabs and other roadway surfaces: +0.25 inch, -0 inch

Before placing any concrete, the Contractor shall:

1. Clean all mortar from reinforcement, and

2. Obtain the Engineer’s permission to place concrete after the Engineer has inspected the placement of the reinforcing steel. (Any concrete placed without the Engineer’s permission shall be rejected and removed.)

6-02.3(25)H Finishing

The last paragraph is revised to read:

The Contractor may repair defects in prestressed concrete girders in accordance with Section 6-01.16.

6-02.3(25)I Fabrication Tolerances

Item number 12 of the first paragraph is revised to read:

12. Stirrup Projection from Top of Girder:

Wide flange thin deck and slab girders: ± ½ inch

All other girders: ± ¾ inch

6-02.3(27) Concrete for Precast Units

The last sentence of the first paragraph is revised to read:
Type III portland cement or blended hydraulic cement is permitted to be used in precast concrete units.

6-02.3(28)B Casting
In the second paragraph, the reference to Section 6-02.3(25)B is revised to read Section 6-02.3(25)C.

6-02.3(28)D Contractors Control Strength
In the first paragraph, “WSDOT FOP for AASHTO T 23” is revised to read “FOP for AASHTO T 23”.

6-02.3(28)E Finishing
This section is supplemented with the following:

The Contractor may repair defects in precast panels in accordance with Section 6-01.16.

6-03.AP6
Section 6-03, Steel Structures
January 7, 2019

6-03.2 Materials
In the first paragraph, the material reference for Paints is revised to read:

Paints and Related Materials 9-08

6-03.3(25)A3 Ultrasonic Inspection
The first paragraph (up until the colon) is revised to read:

Complete penetration groove welds on plates 5/16 inch and thicker in the following welded assemblies or Structures shall be 100 percent ultrasonically inspected:

6-03.3(33) Bolted Connections
The first paragraph is supplemented with the following:

After final tightening of the fastener components, the threads of the bolts shall at a minimum be flush with the end of the nut.

The following is inserted after the third sentence of the fourth paragraph:

When galvanized bolts are specified, tension-control galvanized bolts are not permitted.
For prestressed concrete piles, the allowable driving stress in kips per square inch shall be $0.095 \cdot \sqrt{f'_{c}}$ plus prestress in tension, and $0.85f'_{c}$ minus prestress in compression, where $f'_{c}$ is the concrete compressive strength in kips per square inch.

Section 6-07, Painting
January 7, 2019

6-07.1 Description
The first sentence is revised to read:

This work consists of containment, surface preparation, shielding adjacent areas from work, testing and disposing of debris, furnishing and applying paint, and cleaning up after painting is completed.

6-07.2 Materials
The material reference for Paint is revised to read:

Paint and Related Materials 9-08

6-07.3(1)A Work Force Qualifications for Shop Application of Paint
This section is supplemented with the following new sentence:

The work force may be accepted based on the approved facility.

6-07.3(1)B Work Force Qualifications for Field Application of Paint
The first two paragraphs are revised to read:

The Contractor preparing the surface and applying the paint shall be certified under SSPC-QP 1 or NACE International Institute Contractor Accreditation Program (NIICAP) AS 1.

The Contractor removing and otherwise disturbing existing paint containing lead and other hazardous materials shall be certified under SSPC-QP 2, Category A or NIICAP AS 2.

The third paragraph (up until the colon) is revised to read:

In lieu of the above SSPC or NIICAP certifications, the Contractor performing the specified work shall complete both of the following actions:

Item number 2 of the third paragraph is revised to read:

2. The Contractor’s quality control inspector(s) for the project shall be NACE-certified CIP Level 3 or SSPC Protective Coating Inspector (PCI) Level 3.

6-07.3(2) Submittals
The first paragraph is supplemented with the following:

Each component of the plan shall identify the specification section it represents.
6-07.3(2)B Contractor’s Quality Control Program Submittal Component

The numbered list in the first paragraph is revised to read:

1. Description of the inspection procedures, tools, techniques and the acceptance criteria for all phases of work.
2. Procedure for implementation of corrective action for non-conformance work.
3. The paint system manufacturer’s recommended methods of preventing defects.
4. The Contractor’s frequency of quality control inspection for each phase of work.
5. Example of each completed form(s) of the daily quality control report used to document the inspection work and tests performed by the Contractor’s quality control personnel.

6-07.3(2)C Paint System Manufacturer and Paint System Information Submittal Component

Item number 1 is revised to read:

1. Product data sheets and Safety Data Sheets (SDS) on the paint materials, paint preparation, and paint application, as specified by the paint manufacturer, including:
   a. All application instructions, including the mixing and thinning directions.
   b. Recommended spray nozzles and pressures.
   c. Minimum and maximum drying time between coats.
   d. Restrictions on temperature and humidity.
   e. Repair procedures for shop and field applied coatings.
   f. Maximum dry film thickness for each coat.
   g. Minimum wet film thickness for each coat to achieve the specified minimum dry film thickness.

6-07.3(2)D Hazardous Waste Containment, Collection, Testing, and Disposal Submittal Component

The first paragraph (up until the colon) is revised to read:

The hazardous waste containment, collection, testing, and disposal shall meet all Federal and State requirements, and the submittal component of the painting plan shall include the following:

6-07.3(2)E Cleaning and Surface Preparation Submittal Component

Item 1(b) of the first paragraph is revised to read:

b. Type, manufacturer, and brand of abrasive blast material and all associated additives, including Safety Data Sheets (SDS).
6-07.3(3)B Quality Control and Quality Assurance for Field Application of Paint

The last sentence of the first paragraph (excluding the numbered list) is revised to read:

The Contractor’s quality control operations shall include a minimum monitoring and documenting the following for each working day:

Item number 1 in the fourth paragraph is revised to read:

1. Environmental conditions for painting in accordance with ASTM E 337.

Item number 4 in the fourth paragraph is revised to read:

4. Pictorial of surface preparation guides in accordance with SSPC-VIS 1, 3, 4, and 5.

Item number 5 in the fourth paragraph is revised to read:

5. Surface profile by Keanne-Tator comparator in accordance with ASTM D 4417 and SSPC PA17.

6-07.3(4) Paint System Manufacturer’s Technical Representative

This section is revised to read:

The paint system manufacturer’s representative shall be present at the jobsite for the pre-painting conference and for the first day of paint application, and shall be available to the Contractor and Contracting Agency for consultation for the full project duration.

6-07.3(5) Pre-Painting Conference

The second paragraph is revised to read:

If the Contractor’s key personnel change between any work operations, an additional conference shall be held if requested by the Engineer.

6-07.3(6)A Paint Containers

In item number 2 of the first paragraph, “Federal Standard 595” is revised to read “SAE AMS Standard 595”.

6-07.3(6)B Paint Storage

Item number 2 of the second paragraph is revised to read:

2. The Contractor shall monitor and document daily the paint material storage facility with a high-low recording thermometer device.

6-07.3(7) Paint Sampling and Testing

The first two paragraphs are revised to read:

The Contractor shall provide the Engineer 1 quart of each paint representing each lot. Samples shall be accompanied with a Safety Data Sheet.

If the quantity of paint required for each component of the paint system for the entire project is 20 gallons or less, then the paint system components will be accepted as specified in Section 9-08.1(7).
6-07.3(8)A Paint Film Thickness Measurement Gages
The first paragraph is revised to read:

Paint dry film thickness measurements shall be performed with either a Type 1 pull-off gage or a Type 2 electronic gage as specified in SSPC Paint Application Specification No. 2, Procedure for Determining Conformance to Dry Coating Thickness Requirements.

6-07.3(9) Painting New Steel Structures
The last sentence of the second paragraph is revised to read:

Welded shear connectors are not required to painted.

The last paragraph is revised to read:

Temporary attachments or supports for scaffolding, containment or forms shall not damage the paint system.

6-07.3(9)A Paint System
The first paragraph is revised to read:

The paint system applied to new steel surfaces shall consist of the following:

Option 1 (component based paint system):

- Primer Coat – Inorganic Zinc Rich 9-08.1(2)C
- Intermediate Coat – Moisture Cured Polyurethane 9-08.1(2)G
- Intermediate Stripe Coat – Moisture Cured Polyurethane 9-08.1(2)G
- Top Coat – Moisture Cured Polyurethane 9-08.1(2)H

Option 2 (performance based paint system):

- Primer Coat – Inorganic Zinc Rich 9-08.1(2)M
- Intermediate Coat – Epoxy 9-08.1(2)M
- Intermediate Stripe Coat – Epoxy 9-08.1(2)M
- Top Coat – Polyurethane 9-08.1(2)M

The following new paragraph is inserted after the first paragraph:

Paints and related materials shall be products listed in the current WSDOT Qualified Products List (QPL). Component based paint systems shall be listed on the QPL in the applicable sections of Section 9-08. Performance based systems shall be listed on the current Northeast Protective Coatings Committee (NEPCOAT) Qualified Products List “A” as listed on the WSDOT QPL in Section 9-08.1(2)M. If the paint and related materials for the component based system is not listed in the current WSDOT QPL, a sample shall be submitted to the State Materials Laboratory in Tumwater for evaluation and acceptance in accordance with Section 9-08.

6-07.3(9)C Mixing and Thinning Paint
This section is revised to read:
The Contractor shall thoroughly mix paint in accordance with the manufacturer’s written recommendations and by mechanical means to ensure a uniform and lump free composition. Paint shall not be mixed by means of air stream bubbling or boxing. Paint shall be mixed in the original containers and mixing shall continue until all pigment or metallic powder is in suspension. Care shall be taken to ensure that the solid material that has settled to the bottom of the container is thoroughly dispersed. After mixing, the Contractor shall inspect the paint for uniformity and to ensure that no unmixed pigment or lumps are present.

Catalysts, curing agents, hardeners, initiators, or dry metallic powders that are packaged separately may be added to the base paint in accordance with the paint manufacturer’s written recommendations and only after the paint is thoroughly mixed to achieve a uniform mixture with all particles wetted. The Contractor shall then add the proper volume of curing agent to the correct volume of base and mix thoroughly. The mixture shall be used within the pot life specified by the manufacturer. Unused portions shall be discarded at the end of each work day. Accelerants are not permitted except as allowed by the Engineer.

The Contractor shall not add additional thinner at the application site except as allowed by the Engineer. The amount and type of thinner, if allowed, shall conform to the manufacturer’s specifications. If recommended by the manufacturer and allowed by the Engineer, a measuring cup shall be used for the addition of thinner to any paint with graduations in ounces. No unmeasured addition of thinner to paint will be allowed. Any paint found to be thinned by unacceptable methods will be rejected.

When recommended by the manufacturer, the Contractor shall constantly agitate paint during application by use of paint pots equipped with mechanical agitators.

The Contractor shall strain all paint after mixing to remove undesirable matter, but without removing the pigment or metallic powder.

Paint shall be stored and mixed in a secure, contained location to eliminate the potential for spills into State waters and onto the ground and highway surfaces.

**6-07.3(9)D Coating Thickness**

This section is revised to read:

Dry film thickness shall be measured in accordance with SSPC Paint Application Specification No. 2, *Procedure for Determining Conformance to Dry Coating Thickness Requirements*.

The minimum dry film thickness of the primer coat shall not be less than 2.5 mils.

The minimum dry film thickness of each coat (combination of intermediate and intermediate stripe, and top) shall be not less than 3.0 mils.

The dry film thickness of each coat shall not be thicker than the paint manufacturer’s recommended maximum thickness.

The minimum wet film thickness of each coat shall be specified by the paint manufacturer to achieve the minimum dry film thickness.
Film thickness, wet and dry, will be measured by gages conforming to Section 6-07.3(8)A.

Wet measurements will be taken immediately after the paint is applied in accordance with ASTM D4414. Dry measurements will be taken after the coating is dry and hard in accordance with SSPC Paint Application Specification No. 2.

Each painter shall be equipped with wet film thickness gages and shall be responsible for performing frequent checks of the paint film thickness throughout application.

Coating thickness measurements may be made by the Engineer after the application of each coat and before the application of the succeeding coat. In addition, the Engineer may inspect for uniform and complete coverage and appearance. One hundred percent of all thickness measurements shall meet or exceed the minimum wet film thickness. In areas where wet film thickness measurements are impractical, dry film thickness measurements may be made. If a question arises about an individual coat’s thickness or coverage, it may be verified by the use of a Tooke gage in accordance with ASTM D4138.

If the specified number of coats does not produce a combined dry film thickness of at least the sum of the thicknesses required per coat, if an individual coat does not meet the minimum thickness, or if visual inspection shows incomplete coverage, the coating system will be rejected and the Contractor shall discontinue painting and surface preparation operations and shall submit a Type 2 Working Drawing of the repair proposal. The repair proposal shall include documentation demonstrating the cause of the less-than-minimum thickness, along with physical test results, as necessary, and modifications to Work methods to prevent similar results. The Contractor shall not resume painting or surface preparation operations until receiving the Engineer’s acceptance of the completed repair.

6-07.3(9)E Surface Temperature Requirements Prior to Application of Paint

This section, including title, is revised to read:

6-07.3(9)E Environmental Condition Requirements Prior to Application of Paint

Paint shall be applied only during periods when:

1. Air and steel temperatures are in accordance with the paint manufacturer’s recommendations but in no case less than 35°F nor greater than 115°F.
2. Steel surface temperature is a minimum of 5°F above the dew point.
3. Steel surface is not wet.
4. Relative humidity is within the manufacturer’s recommended range.
5. The anticipated ambient temperature will remain above 35°F or the manufacturer’s minimum temperature, whichever is greater, during the paint drying and curing period.

Application will not be allowed if conditions are not favorable for proper application and performance of the paint.
Paint shall not be applied when weather conditions are unfavorable to proper curing. If a paint system manufacturer’s recommendations allow for application of a paint under environmental conditions other than those specified, the Contractor shall submit a Type 2 Working Drawing consisting of a letter from the paint manufacturer specifying the environmental conditions under which the paint can be applied. Application of paint under environmental conditions other than those specified in this section will not be allowed without the Engineer’s concurrence.

6-07.3(9)F Shop Surface Cleaning and Preparation
The last sentence is revised to read:
The entire steel surface to be painted, including surfaces specified in Section 6-07.3(9)G to receive a mist coat of primer, shall be cleaned to a near white condition in accordance with SSPC-SP 10, Near-white Metal Blast Cleaning, and shall be in this condition immediately prior to paint application.

6-07.3(9)G Application of Shop Primer Coat
The first paragraph is supplemented with the following:
Repairs of the shop primer coat shall be prepared in accordance with the painting plan. Shop primer coat repair paint shall be selected from the approved component based or performance based paint system in accordance with Section 6-07.3(10)H.

6-07.3(9)H Containment for Field Coating
This section is revised to read:
The Contractor shall use a containment system in accordance with Section 6-07.3(10)A for surface preparation and prime coating of all uncoated areas remaining, including bolts, nuts, washers, and splice plates.
During painting operations of the intermediate, stripe and top coats the Contractor shall furnish, install, and maintain drip tarps below the areas to be painted to contain all spilled paint, buckets, brushes, and other deleterious material, and prevent such materials from reaching the environment below or adjacent to the structure being painted. Drip tarps shall be absorbent material and hung to minimize puddling. The Contractor shall evaluate the project-specific conditions to determine the specific type and extent of containment needed to control the paint emissions and shall submit a containment plan in accordance with Section 6-07.3(2).

6-07.3(9)I Application of Field Coatings
This section is revised to read:
An on-site supervisor shall be present for each work shift at the bridge site.
Upon completion of erection Work, all uncoated or damaged areas remaining, including bolts, nuts, washers, and splice plates, shall be prepared in accordance with Section 6-07.3(9)F, followed by a field primer coat of a zinc-rich primer and final coats of paint selected from the approved component or performance based paint system in accordance with Section 6-07.3(10)H. The intermediate, intermediate stripe, and top coats shall be applied in accordance with the manufacturer’s written recommendations.
Upon completion of erection Work, welds for steel column jackets may be prepared in accordance with SSPC-SP 15, Commercial Grade Power Tool Cleaning.

The minimum drying time between coats shall be as shown in the product data sheets, but not less than 12 hours. The Contractor shall determine whether the paint has cured sufficiently for proper application of succeeding coats.

The maximum time between intermediate and top coats shall be in accordance with the manufacturer's written recommendations. If the maximum time between coats is exceeded, all newly coated surfaces shall be prepared to SSPC-SP 7, Brush-off Blast Cleaning, and shall be repainted with the same paint that was cleaned, at no additional cost to the Contracting Agency.

Each coat shall be applied in a uniform layer, completely covering the preceding coat. The Contractor shall correct runs, sags, skips, or other deficiencies before application of succeeding coats. Such corrective work may require re-cleaning, application of additional paint, or other means as determined by the Engineer, at no additional cost to the Contracting Agency.

Dry film thickness measurements will be made in accordance with Section 6-07.3(9)D.

All paint damage that occurs shall be repaired in accordance with the manufacturer's written recommendations. On bare areas or areas of insufficient primer thickness, the repair shall include field-applied zinc-rich primer and the final coats of paint selected from the approved component or performance based paint system in accordance with Section 6-07.3(10)H. On areas where the primer is at least equal to the minimum required dry film thickness, the repair shall include the application of the final two coats of the paint system. All paint repair operations shall be performed by the Contractor at no additional cost or time to the Contracting Agency.

6-07.3(10)A Containment

The first sentence of the third paragraph is revised to read:

Emissions shall be assessed by Visible Emission Observations (Method A) in SSPC Technology Update No. 7, Conducting Ambient Air, Soil, and Water Sampling of Surface Preparation and Paint Disturbance Activities, Section 6.2 and shall be limited to the Level A Acceptance Criteria Option Level 0 Emissions standard.

6-07.3(10)D Surface Preparation Prior to Overcoat Painting

The first paragraph is revised to read:

The Contractor shall remove any visible oil, grease, and road tar in accordance with SSPC-SP 1, Solvent Cleaning.

The second paragraph is revised to read:

Following any preparation by SSPC-SP1, all steel surfaces to be painted shall be prepared in accordance with SSPC-SP 7, Brush-off Blast Cleaning. Surfaces inaccessible to brush-off blast shall be prepared in accordance with SSPC-SP 3, Power Tool Cleaning, as allowed by the Engineer.

The first sentence of the third paragraph is revised to read:
Following brush-off blast cleaning, the Contractor shall perform spot abrasive blast cleaning in accordance with SSPC-SP 6, *Commercial Blast Cleaning*.

The second to last sentence of the third paragraph is revised to read:

For small areas, as allowed by the Engineer, the Contractor may substitute cleaning in accordance with SSPC-SP 15, *Commercial Grade Power Tool Cleaning*.

### 6-07.3(10)G Treatment of Pack and Rust Gaps

The second paragraph is revised to read:

Pack rust forming a gap between steel surfaces of ⅛ to ¼ inch shall be cleaned to a depth of at least one half of the gap width. The gaps shall be cleaned and prepared in accordance with SSPC-SP6. The cleaned gap shall be treated with rust penetrating sealer, prime coated, and then caulked to form a watertight seal along the top edge and the two sides of the steel pieces involved, using the rust penetrating sealer and caulk as accepted by the Engineer. The bottom edge or lowest edge of the steel pieces involved shall not be caulked.

The third paragraph is supplemented with the following:

Caulk shall be a single-component urethane sealant conforming to Section 9-08.7.

The fifth paragraph is revised to read:

At locations where gaps between steel surfaces exceed ¼ inch, the Contractor shall clean and prepare the gap in accordance SSPC-SP6, apply the rust penetrating sealer, apply the prime coat, and then fill the gap with foam backer rod material as accepted by the Engineer. The foam backer rod material shall be of sufficient diameter to fill the crevice or gap. The Contractor shall apply caulk over the foam backer rod material to form a watertight seal.

This section is supplemented with the following new paragraph:

Caulk and backer rod, if needed, shall be placed prior to applying the top coat. The Contractor, with the concurrence of the Engineer, may apply the rust penetrating sealer after application of the prime coat provided the primer is removed in the areas to be sealed. The areas to be sealed shall be re-cleaned and re-prepared in accordance with SSPC-SP6.

### 6-07.3(10)H Paint System

The first paragraph is revised to read:

The paint system applied to existing steel surfaces shall consist of the following five-coat system:

**Option 1 (component based system):**

- Primer Coat – Zinc-filled Moisture Cured Polyurethane 9-08.1(2)F
- Primer Stripe Coat - Moisture Cured Polyurethane 9-08.1(2)F
- Intermediate Coat - Moisture Cured Polyurethane 9-08.1(2)G
Option 2 (performance based system):

1. Primer Coat – Zinc-rich Epoxy
2. Primer Stripe Coat – Epoxy
3. Intermediate Coat – Epoxy
4. Intermediate Stripe Coat – Epoxy
5. Top Coat – Polyurethane

The following new paragraph is inserted after the first paragraph:

Paints and related materials shall be a product listed in the current WSDOT Qualified Products List (QPL). Component based paint systems shall be listed on the QPL in the applicable sections of Section 9-08. Performance based systems shall be listed on the current Northeast Protective Coatings Committee (NEPCOAT) Qualified Products List “B” as listed on the WSDOT QPL in Section 9-08.1(2)N. If the paint and related material for the component based system is not listed in the current WSDOT QPL, a sample shall be submitted to the State Materials Laboratory in Tumwater for evaluation and acceptance in accordance with Section 9-08.

6-07.3(10)J Mixing and Thinning Paint
This section is revised to read:

Mixing and thinning paint shall be in accordance with Section 6-07.3(9)C.

6-07.3(10)K Coating Thickness
This section is revised to read:

Coating thickness shall be in accordance with Section 6-07.3(9)D except the minimum dry film thickness of each coat (combination of primer and primer stripe, combination of intermediate and intermediate stripe, and top) shall not be less than 3.0 mils.

6-07.3(10)L Environmental Condition Requirements Prior to Application of Paint
This section is revised to read:

Environmental conditions shall be in accordance with Section 6-07.3(9)E.

6-07.3(10)M Steel Surface Condition Requirements Prior to Application of Paint
The third paragraph is revised to read:

Edges of existing paint shall be feathered in accordance with SSPC-PA 1, Shop, Field, and Maintenance Coating of Metals, Note 15.20.

6-07.3(10)N Field Coating Application Methods
The third sentence is revised to read:

The Contractor may apply stripe coat paint using spray or brush but shall follow spray application using a brush to ensure complete coverage around structural geometric
irregularities and to push the paint into gaps between existing steel surfaces and around rivets and bolts.

6-07.3(10)O Applying Field Coatings
The second to last paragraph is revised to read:

Each application of primer, primer stripe, intermediate, intermediate stripe, and top coat shall be considered as separately applied coats. The Contractor shall not use a preceding or subsequent coat to remedy a deficiency in another coat. The Contractor shall apply the top coat to at least the minimum specified top coat thickness, to provide a uniform appearance and consistent finish coverage.

6-07.3(10)P Field Coating Repair
The second sentence is revised to read:

Repair areas shall be cleaned of all damaged paint and the system reapplied using all coats typical to the paint system and shall meet the minimum coating thickness.

6-07.3(11)A Painting of Galvanized Surfaces
This section is revised to read:

All galvanized surfaces receiving paint shall be prepared for painting in accordance with the ASTM D 6386. The method of preparation shall be brush-off in accordance with SSPC-SP16 Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals or as otherwise allowed by the Engineer. The Contractor shall not begin painting until receiving the Engineer’s acceptance of the prepared galvanized surface. For galvanized bolts used for replacement of deteriorated existing rivets, the Contractor, with the concurrence of the Engineer and after successful demonstration testing, may prepare galvanized surfaces in accordance with SSPC-SP1 followed by SSPC-SP2, Hand Tool Cleaning or SSPC-SP3, Power Tool Cleaning. The demonstration testing shall include adhesion testing of the first coat of paint over galvanized bolts, nuts, and washers or a representative galvanized surface. Adhesion testing shall be performed in accordance with ASTM D 4541 for 600 psi minimum adhesion. A minimum of 3 successful tests shall be performed on the galvanized surface prepared and painted using the same methods and materials to be used on the galvanized bolts, nuts and washers in the field.

6-07.3(11)A2 Paint Coat Materials
This section is revised to read:

The Contractor shall paint the dry surface as follows:

1. The first coat over a galvanized surface shall be an epoxy polyamide conforming to Section 9-08.1(2)E. In the case of galvanized bolts used for replacement of deteriorated existing rivets and for small surface areas less than or equal to one square foot, an intermediate moisture cured polyurethane conforming to Section 9-08.1(2)G may be used as a first coat. In both cases the first coat shall be compatible with galvanizing and as recommended by the top coat manufacturer.

2. The second coat shall be a top coat moisture cured aliphatic polyurethane conforming to Section 9-08.1(2)H or a top coat polyurethane conforming to
Each coat shall be dry before the next coat is applied. All coats applied in the shop shall be dried hard before shipment.

6-07.3(11)B Powder Coating of Galvanized Surfaces

This section is revised to read:

Powder coating of galvanized surfaces shall consist of the following coats:

1. The first coat shall be an epoxy powder primer coat conforming to Section 9-08.2.

2. The second coat shall be a polyester finish coat conforming to Section 9-08.2.

6-07.3(11)B3 Galvanized Surface Cleaning and Preparation

The first three paragraphs are revised to read:

Galvanized surfaces receiving the powder coating shall be cleaned and prepared for coating in accordance with ASTM D 7803, and the project-specific powder coating plan.

Assemblies conforming to the ASTM D 7803 definition for newly galvanized steel shall receive surface smoothing and surface cleaning in accordance with ASTM D 7803, Section 5, and surface preparation in accordance with ASTM D 7803, Section 5.1.3.

Assemblies conforming to the ASTM D 7803 definition for partially weathered galvanized steel shall be checked and prepared in accordance with ASTM D 7803, Section 6, before then receiving surface smoothing and surface cleaning in accordance with ASTM D 7803, Section 5, and surface preparation in accordance with ASTM D 7803, Section 5.1.3.

The fourth paragraph (up until the colon) is revised to read:

Assemblies conforming to the ASTM D 7803 definition for weathered galvanized steel shall be prepared in accordance with ASTM D 7803, Section 7 before then receiving surface smoothing and surface cleaning in accordance with ASTM D 7803, Section 5, and surface preparation in accordance with ASTM D 7803, Section 5.3 except as follows:

6-07.3(11)B5 Testing

Item number 4 in the first paragraph is revised to read:

4. Adhesion testing in accordance with ASTM D 4541 for 600 psi minimum adhesion for the complete two-component system.

The second sentence of the fourth paragraph is revised to read:

Rejected assemblies shall be repaired or recoated by the Contractor, at no additional expense to the Contracting Agency, in accordance with the powder coating
manufacturer’s recommendation as detailed in the project-specific powder coating plan, until the assemblies satisfy the acceptance testing requirements.

6-07.3(12) Painting Ferry Terminal Structures
This section is revised to read:

Painting of ferry terminal Structures shall be in accordance with Section 6-07.3 as supplemented below.

This section is supplemented with the following new subsections:

6-07.3(12)A Painting New Steel Ferry Terminal Structures
Painting of new steel Structures shall be in accordance with Section 6-07.3(9) except that all coatings (primer, intermediate, intermediate stripe, and top) shall be applied in the shop with the following exceptions:

1. Steel surfaces to be field welded.

2. Steel surfaces to be greased.

3. The length of piles designated in the Plans not requiring painting.

The minimum drying time between coats shall be as shown in the product data sheets, but not less than 12 hours. The Contractor shall determine whether the paint has cured sufficiently for proper application of succeeding coats.

6-07.3(12)A1 Paint Systems
Paint systems for Structural Steel, which includes vehicle transfer spans and towers, pedestrian overhead loading structures and towers, upland structural steel and other elements as designated in the Special Provisions shall be as specified in Section 6-07.3(9)A.

Paint systems for Piling, Landing Aids and Life Ladders shall be as specified in the Special Provisions.

6-07.3(12)A2 Paint Color
Paint colors shall be as specified in the Special Provisions.

6-07.3(12)A3 Coating Thickness
Coating thicknesses shall be as specified in the Special Provisions.

6-07.3(12)A4 Application of Field Coatings
An on-site supervisor shall be present for each work shift at the project site.

Upon completion of erection Work, all uncoated or damaged areas remaining, including bolts, nuts, washers, splice plates, and field welds shall be prepared in accordance with SSPC-SP 1, Solvent Cleaning, followed by SSPC-SP 11, Power Tool Cleaning to Bare Metal. Surface preparation shall be measured according to SSPC-VIS 3. SSPC-SP 11 shall be performed for a minimum distance of 1 inch from the uncoated or damaged area. In addition, intact shop-applied coating surrounding the area shall be abraded or sanded for a distance of 6 inches out from the properly prepared clean/bare metal areas to provide adequate roughness for
application of field coatings. All sanding dust and contamination shall be removed prior to application of field coatings.

Field applied paint for Structural Steel shall conform to Section 6-07.3(10)H, as applicable. Field applied paint for Piling, Landing Aids and Life Ladders shall be as specified in the Special Provisions.

For areas above the tidal zone, the minimum drying time between coats shall be as shown in the product data sheets, but not less than 12 hours. For areas within the tidal zone, the minimum drying time between coats shall be as recommended by the paint system manufacturer. The Contractor shall determine whether the paint has cured sufficiently for proper application of succeeding coats.

The maximum time between intermediate and top coats shall be in accordance with the manufacturer’s written recommendations. If the maximum time between coats is exceeded, all newly coated surfaces shall be prepared to SSPC-SP 3, Power Tool Cleaning, and shall be repainted with the same paint that was cleaned, at no additional cost to the Contracting Agency.

Each coat shall be applied in a uniform layer, completely covering the preceding coat. The Contractor shall correct runs, sags, skips, or other deficiencies before application of succeeding coats. Such corrective work may require re-cleaning, application of additional paint, or other means as determined by the Engineer, at no additional cost to the Contracting Agency.

Surface preparation for underwater locations shall consist of removing all dirt, oil, grease, loose paint, loose rust, and marine growth from the area that is to be repaired. The sound paint surrounding the damaged area shall be roughened to meet the requirements of the manufacturer. Paint for underwater applications shall be as specified in the Special Provisions and shall be applied in accordance with the manufacturer’s recommendations.

6-07.3(12)B Painting Existing Steel Ferry Terminal Structures

Painting of existing steel structures shall be in accordance with Section 6-07.3(10) as supplemented by the following.

6-07.3(12)B1 Containment

Containment for full removal shall be in accordance with Section 6-07.3(10)A. Containment for overcoat systems shall be in accordance with all applicable Permits as required in the Special Provisions.

Prior to cleaning the Contractor shall enclose all exposed electrical and mechanical equipment to seal out dust, water, and paint. Non-metallic surfaces shall not be abrasive blasted or painted. Unless otherwise specified, the following metallic surfaces shall not be painted and shall be protected from abrasive blasting and painting:

1. Galvanized and stainless steel surfaces not previously painted,
2. Non-skid surfaces,
3. Unpainted intentionally greased surfaces,
4. Equipment labels, identification plates, tags, etc.,
5. Fire and emergency containers or boxes,
6. Mechanical hardware such as hoist sheaves, hydraulic cylinders, gear boxes, wire rope, etc.

The Contractor shall submit a Type 2 Working Drawing consisting of materials and equipment used to shield components specified to not be cleaned and painted.

The Contractor shall shut off the power prior to working around electrical equipment. The Contractor shall follow the lock-out/tag-out safety provisions of the WAC 296-803 and all other applicable safety standards.

6-07.3(12)B2 Surface Preparation

For applications above high water and within the tidal zone, surface preparation for overcoat painting shall be in accordance with SSPC-SP 1, Solvent Cleaning, followed by SSPC-SP 3, Power Tool Cleaning. Use of wire brushes is not allowed.

After SP 3 cleaning has been completed all surfaces exhibiting coating failure down to the steel substrate, and those exhibiting visible corrosion, shall be prepared down to clean bare steel in accordance with SSPC-SP 15, Commercial Grade Power Tool Cleaning. Surface preparation shall be measured according to SSPC-VIS 3. SSPC-SP 15 shall be performed for a minimum distance of 1 inch from the area exhibiting failure or visible corrosion. In addition, intact shop-applied coating surrounding the repair area shall be abraded or sanded for a distance of 6 inches out from the properly prepared clean/bare metal areas to provide adequate roughness for application of repair coatings. All sanding dust and contamination shall be removed prior to application of repair coatings. Surface preparation for full paint removal shall be in accordance with Section 6-07.3(10)E except SSPC-SP 11 will be permitted as detailed in the Contractor’s painting plan and as allowed by the Engineer.

Surface preparation for underwater locations shall consist of removing all dirt, oil, grease, loose paint, loose rust, and marine growth from the area that is to be repaired. The sound paint surrounding the damaged area shall be roughened as required by the coating manufacturer.

Removed marine growth may be released to state waters provided the marine growth is not mixed with contaminants (paint, oil, rust, etc.) and it shall not accumulate on the sea bed. All marine growth containing contaminants shall be collected for proper disposal.

Surface preparation for the underside of bridge decks (consisting of either a steel grid system of main bars or tees and a light gauge metal form, in-filled with concrete or a corrugated light gauge metal form, infilled with concrete) shall be in accordance with SSPC-SP 2, Hand Tool Cleaning or SSPC-SP 3, Power Tool Cleaning with the intent of not causing further damage to the light gauge metal form. Following removal of any pack rust and corroded sections from the underside of the bridge deck, cleaning and flushing to remove salts and prior to applying the primer coat, the Contractor shall seal the entire underside of the deck system with rust-penetrating sealer. Damage to galvanized metal forms and/or grids shall be
repaired in accordance with ASTM A 780, with the preferred method of repair using paints containing zinc dust.

**6-07.3(12)B3 Paint Systems**

Paint systems for Structural Steel, which includes vehicle transfer spans and towers, pedestrian overhead loading structures and towers, upland structural steel and other elements as designated in the Special Provisions shall be as specified in Section 6-07.3(10)H.

Paint systems for Piling, Landing Aids, Life Ladders, underside of vehicle transfer span bridge decks, non-skid surface treated areas, and anti-graffiti coatings shall be as specified in the Special Provisions.

**6-07.3(12)B4 Paint Color**

Paint colors shall be as specified in the Special Provisions.

**6-07.3(12)B5 Coating Thickness**

Coating thicknesses shall be as specified in the Special Provisions.

**6-07.3(12)B6 Application of Field Coatings**

Application of field coatings shall be in accordance with Section 6-07.3(10)O and Section 6-07.3(12)A2 except for the following:

1. All coatings applied in the field shall be applied using a brush or roller. Spray application methods may be used if allowed by the Engineer.
2. Applied coatings shall not be immersed until the coating has been cured as required by the coating manufacturer.
3. Non-skid surface treatment products shall be applied in accordance with the manufacturer’s recommendations.
4. Anti-graffiti coatings shall be applied in one coat following application of the top coat, where specified in the Plans.

**6-07.3(14)B Reference Standards**

The second standard reference (to SSPC CS 23.00), and its accompanying title, is revised to read:

SSPC CS 23.00 Specification for the Application of Thermal Spray Coatings (Metallizing) of Aluminum, Zinc, and Their Alloys and Composites for the Corrosion Protection of Steel

**6-08.3(7)A Concrete Deck Preparation**

The first sentence of the first paragraph is revised to read:

The Contractor, with the Engineer, shall inspect the exposed concrete deck to establish the extent of bridge deck repair in accordance with Section 6-09.3(6).
6-08.3(8)A Structure Deck Preparation
The second sentence of the last paragraph is revised to read:

Prior to applying the primer or sheet membrane, all dust and loose material shall be
removed from the Structure Deck.

6-09.AP6
Section 6-09, Modified Concrete Overlays
January 7, 2019

6-09.3 Construction Requirements
This section is supplemented with the following new subsection:

6-09.3(15) Sealing and Texturing Concrete Overlay
After the requirements for checking for bond have been met, all joints and visible cracks
shall be filled and sealed with a high molecular weight methacrylate resin (HMWM).
Cracks 1/16 inch and greater in width shall receive two applications of HMWM.
Immediately following the application of HMWM, the wetted surface shall be coated with
sand for abrasive finish.

After all cracks have been filled and sealed and the HMWM resin has cured, the
concrete overlay surface shall receive a longitudinally sawn texture in accordance with
Section 6-02.3(10)D5.

Traffic shall not be permitted on the finished concrete until it has reached a minimum
compressive strength of 3,000 psi as verified by rebound number determined in
accordance with ASTM C805 and the longitudinally sawn texture is completed.

6-09.3(1)B Rotary Milling Machines
This section is revised to read:

Rotary milling machines used to remove an upper layer of existing concrete overlay,
when present, shall have a maximum operating weight of 50,000 pounds and conform
to Section 6-08.3(5)B.

6-09.3(1)C Hydro-Demolition Machines
The first sentence of this section is revised to read:

Hydro-demolition machines shall consist of filtering and pumping units operating in
conjunction with a remote-controlled robotic device, using high-velocity water jets to
remove sound concrete to the nominal scarification depth shown in the Plans with a
single pass of the machine, and with the simultaneous removal of deteriorated concrete.

6-09.3(1)D Shot Blasting Machines
This section, including title, is revised to read:

6-09.3(1)D Vacant

6-09.3(1)E Air Compressor
This section is revised to read:
Air compressors shall be equipped with oil traps to eliminate oil from being blown onto the bridge deck.

6-09.3(1)J Finishing Machine
This section is revised to read:

The finishing machine shall meet the requirements of Section 6-02.3(10) and the following requirements:

The finishing machine shall be equipped with augers, followed by an oscillating, vibrating screed, vibrating roller tamper, or a vibrating pan, followed by a rotating cylindrical double drum screed. The vibrating screed, roller tamper or pan shall be of sufficient length and width to properly consolidate the mixture. The vibrating frequency of the vibrating screed, roller tamper or pan shall be variable with positive control.

6-09.3(2) Submittals
Item number 1 and 2 are revised to read:

1. A Type 1 Working Drawing consisting of catalog cuts and operating parameters of the hydro-demolition machine selected by the Contractor for use in this project to scarify concrete surfaces.

2. A Type 1 Working Drawing consisting of catalog cuts, operating parameters, axle loads, and axle spacing of the rotary milling machine (if used to remove an upper layer of existing concrete overlay when present).

The first sentence of item number 3 is revised to read:

A Type 2 Working Drawing of the Runoff Water Disposal Plan.

6-09.3(5)A General
The first sentence of the fourth paragraph is revised to read:

All areas of the deck that are inaccessible to the selected scarifying machine shall be scarified to remove the concrete surface matrix to a maximum nominal scarification depth shown in the Plans by a method acceptable to the Engineer.

This section is supplemented with the following:

Concrete process water generated by scarifying concrete surface and removing existing concrete overlay operations shall be contained, collected, and disposed of in accordance with Section 5-01.3(11) and Section 6-09.3(5)C, and the Section 6-09.3(2) Runoff Water Disposal Plan.

6-09.3(5)B Testing of Hydro-Demolition and Shot Blasting Machines
This section’s title is revised to read:

Testing of Hydro-Demolition Machines

The second paragraph is revised to read:
In the “sound” area of concrete, the equipment shall be programmed to remove concrete to the nominal scarification depth shown in the Plans with a single pass of the machine.

6-09.3(5)D Shot Blasting
This section, including title, is revised to read:

6-09.3(5)D Vacant

6-09.3(5)E Rotomilling
This section, including title, is revised to read:

6-09.3(5)E Removing Existing Concrete Overlay Layer by Rotomilling
When the Contractor elects to remove the upper layer of existing concrete overlay, when present, by rotomilling prior to final scarifying, the entire concrete surface of the bridge deck shall be milled to remove the surface matrix to the depth specified in the Plans with a tolerance as specified in Section 6-08.3(5)B. The operating parameters of the rotary milling machine shall be monitored in order to prevent the unnecessary removal of concrete below the specified removal depth.

6-09.3(6) Further Deck Preparation
The first paragraph is revised to read::

Once the lane or strip being overlaid has been cleaned of debris from scarifying, the Contractor, with the Engineer, shall perform a visual inspection of the scarified surface. The Contractor shall mark those areas of the existing bridge deck that are authorized by the Engineer for further deck preparation by the Contractor.

Item number 4 of the second paragraph is deleted.

The first sentence of the third paragraph is deleted.

6-09.3(6)A Equipment for Further Deck Preparation
This section is revised to read:

Further deck preparation shall be performed using either power driven hand tools conforming to Section 6-09.3(1)A, or hydro-demolition machines conforming to Section 6-09.3(1)C.

6-09.3(6)B Deck Repair Preparation
The second paragraph is deleted.

The last sentence of the second paragraph (after the preceding Amendment is applied) is revised to read:

In no case shall the depth of a sawn vertical cut exceed ¾ inch or to the top of the top steel reinforcing bars, whichever is less.

The first sentence of the third to last paragraph is revised to read:
Where existing steel reinforcing bars inside deck repair areas show deterioration greater than 20-percent section loss, the Contractor shall furnish and place steel reinforcing bars alongside the deteriorated bars in accordance with the details shown in the Standard Plans.

The last paragraph is deleted.

**6-09.3(7) Surface Preparation for Concrete Overlay**

The first seven paragraphs are deleted and replaced with the following:

Following the completion of any required further deck preparation the entire lane or strip being overlaid shall be cleaned to be free from oil and grease, rust and other foreign material that may still be present. These materials shall be removed by detergent-cleaning or other method accepted by the Engineer followed by sandblasting.

After detergent cleaning and sandblasting is completed, the entire lane or strip being overlaid shall be cleaned in final preparation for placing concrete.

Hand tool chipping, sandblasting and cleaning in areas adjacent to a lane or strip being cleaned in final preparation for placing concrete shall be discontinued when final preparation is begun. Scarifying and hand tool chipping shall remain suspended until the concrete has been placed and the requirement for curing time has been satisfied. Sandblasting and cleaning shall remain suspended for the first 24 hours of curing time after the completion of concrete placing.

Scarification, and removal of the upper layer of concrete overlay when present, may proceed during the final cleaning and overlay placement phases of the Work on adjacent portions of the Structure so long as the scarification and concrete overlay removal operations are confined to areas which are a minimum of 100 feet away from the defined limits of the final cleaning or overlay placement in progress. If the scarification and concrete overlay removal impedes or interferes in any way with the final cleaning or overlay placement as determined by the Engineer, the scarification and concrete overlay removal Work shall be terminated immediately and the scarification and concrete overlay removal equipment removed sufficiently away from the area being prepared or overlaid to eliminate the conflict. If the grade is such that water and contaminants from the scarification and concrete overlay removal operation will flow into the area being prepared or overlaid, the scarification and concrete overlay removal operation shall be terminated and shall remain suspended for the first 24 hours of curing time after the completion of concrete placement.

**6-09.3(11) Placing Concrete Overlay**

The first sentence of item number 3 in the fourth paragraph is revised to read:

Concrete shall not be placed when the temperature of the concrete surface is less than 45°F or greater than 75°F, and wind velocity at the construction site is in excess of 10 mph.

**6-09.3(12) Finishing Concrete Overlay**

The third paragraph is deleted.

The last paragraph is deleted.
6-09.3(13) Curing Concrete Overlay
The first sentence of the first paragraph is revised to read:

As the finishing operation progresses, the concrete shall be immediately covered with a single layer of clean, new or used, wet burlap.

The last sentence of the second paragraph is deleted.

The following two new paragraphs are inserted after the second paragraph:

As an alternative to the application of burlap and fog spraying described above, the Contractor may propose a curing system using proprietary curing blankets specifically manufactured for bridge deck curing. The Contractor shall submit a Type 2 Working Drawing consisting of details of the proprietary curing blanket system, including product literature and details of how the system is to be installed and maintained.

The wet curing regimen as described shall remain in place for a minimum of 42-hours.

The last paragraph is deleted.

6-09.3(14) Checking for Bond
The first sentence of the first paragraph is revised to read:

After the requirements for curing have been met, the entire overlaid surface shall be sounded by the Contractor, in a manner accepted by and in the presence of the Engineer, to ensure total bond of the concrete to the bridge deck.

The last sentence of the first paragraph is deleted.

The second paragraph is deleted.

6-10.2 Materials
In the first paragraph, the reference to “Portland Cement” is revised to read:

Cement 9-01

6-10.3(6) Placing Concrete Barrier
The first two sentences of the first paragraph are revised to read:

Precast concrete barriers Type 2, Type 4, Type F, precast single slope barrier, and transitions shall rest on a paved foundation shaped to a uniform grade and section. The foundation surface for precast concrete barriers Type 2, Type 4, Type F, precast single slope barrier, and transitions shall meet this test for uniformity: When a 10-foot straightedge is placed on the surface parallel to the centerline for the barrier, the surface shall not vary more than ¼ inch from the lower edge of the straightedge.
Section 6-11, Reinforced Concrete Walls
April 2, 2018

6-11.2 Materials
In the first paragraph, the reference to “Aggregates for Portland Cement Concrete” is revised to read:

Aggregates for Concrete 9-03.1

Section 6-12, Noise Barrier Walls
August 6, 2018

6-12.2 Materials
In the first paragraph, the reference to “Aggregates for Portland Cement Concrete” is revised to read:

Aggregates for Concrete 9-03.1

The first paragraph is supplemented with the following new material reference:

Noise Barrier Wall Access Door 9-06.17

6-12.3(9) Access Doors and Concrete Landing Pads
The second paragraph is deleted and replaced with the following:

All frame and door surfaces, except stainless steel surfaces, shall be painted in accordance with Section 6-07.3(9). Primer shall be applied to all non-stainless steel surfaces. All primer coated exposed metal surfaces shall be field painted with the remaining Section 6-07.3(9)A paint system coats. The top coat, when dry, shall match the color specified in the Plans or Special Provisions.

This section is supplemented with the following:

Access door deadbolt locks shall be capable of accepting a Best CX series core. The Contractor shall furnish and install a spring-loaded construction core lock with each lock. The Engineer will furnish the permanent Best CX series core for the Contractor to install at the conclusion of the project.

Section 6-13, Structural Earth Walls
August 6, 2018

6-13.2 Materials
In the first paragraph, the reference to “Aggregates for Portland Cement Concrete” is revised to read:

Aggregates for Concrete 9-03.1
6-13.3(4) Precast Concrete Facing Panel and Concrete Block Fabrication

Item number 1 of the sixth paragraph is revised to read:

1. Vertical dimensions shall be $\pm \frac{1}{16}$ inch of the Plan dimension, and the rear height shall not exceed the front height.

Item number 3 of the sixth paragraph is revised to read:

3. All other dimensions shall be $\pm \frac{1}{4}$ inch of the Plan dimension.

6-14.AP6
Section 6-14, Geosynthetic Retaining Walls
April 2, 2018

6-14.2 Materials
In the first paragraph, the references to “Portland Cement” and “Aggregates for Portland Cement Concrete” are revised to read:

Cement 9-01
Aggregates for Concrete 9-03.1

6-15.AP6
Section 6-15, Soil Nail Walls
January 7, 2019

6-15.3(7) Shotcrete Facing
The last paragraph is supplemented with the following:

After final tightening of the nut, the threads of the soil nail shall at a minimum be flush with the end of the nut.

6-16.AP6
Section 6-16, Soldier Pile and Soldier Pile Tieback Walls
April 2, 2018

6-16.2 Materials
In the first paragraph, the reference to “Aggregates for Portland Cement Concrete” is revised to read:

Aggregates for Concrete 9-03.1

6-18.AP6
Section 6-18, Shotcrete Facing
April 1, 2019

6-18.2 Materials
The reference to metakaolin is deleted.

6-18.3(3) Testing
In the last sentence of the first paragraph, “AASHTO T 24” is revised to read “ASTM C1604”.

AMENDMENTS TO THE 2018 STANDARD SPECIFICATIONS BOOK
Revised: 6/3/19
6-18.3(3)B Production Testing
In the last sentence, “AASHTO T 24” is revised to read “ASTM C1604”.

6-18.3(4) Qualifications of Contractor’s Personnel
In the last sentence of the second paragraph, “AASHTO T 24” is revised to read “ASTM C1604”.

6-19.2 Materials
In the first paragraph, the references to “Portland Cement” and “Aggregates for Portland Cement Concrete” are revised to read:
- Cement 9-01
- Aggregates for Concrete 9-03.1

6-19.3(1)A Shaft Construction Tolerances
The last paragraph is supplemented with the following:
The elevation of the top of the reinforcing cage for drilled shafts shall be within +6 inches and -3 inches from the elevation shown in the Plans.

6-19.3(2)D Nondestructive QA Testing Organization and Personnel
Item number 4 in the first paragraph is revised to read:
- 4. Personnel preparing test reports shall be a Professional Engineer, licensed under Title 18 RCW, State of Washington, and shall seal the report in accordance with WAC 196-23-020.

6-19.3(3)C Conduct of Shaft Casing Installation and Removal and Shaft Excavation Operations
The first paragraph is supplemented with the following:
- In no case shall shaft excavation and casing placement extend below the bottom of shaft excavation as shown in the Plans.

6-19.3(6)E Thermal Wire and Thermal Access Point (TAPS)
The third sentence of the third paragraph is revised to read:
The thermal wire shall extend from the bottom of the reinforcement cage to the top of the shaft, with a minimum of 5-feet of slack wire provided above the top of shaft.
The following new sentence is inserted after the third sentence of the third paragraph:
- All thermal wires in a shaft shall be equal lengths.

6-19.3(9)D Nondestructive QA Testing Results Submittal
The last sentence of the first paragraph is revised to read:
Results shall be a Type 2E Working Drawing presented in a written report.

7-02.AP7

**Section 7-02, Culverts**

**April 2, 2018**

7-02.2 Materials

In the first paragraph, the references to “Portland Cement” and “Aggregates for Portland Cement Concrete” are revised to read:

Cement 9-01
Aggregates for Concrete 9-03.1

7-02.3(6)A4 Excavation and Bedding Preparation

The first sentence of the third paragraph is revised to read:

The bedding course shall be a 6-inch minimum thickness layer of culvert bedding material, defined as granular material either conforming to Section 9-03.12(3) or to AASHTO Grading No. 57 as specified in Section 9-03.1(4)C.

7-05.AP7

**Section 7-05, Manholes, Inlets, Catch Basins, and Drywells**

**August 6, 2018**

7-05.3 Construction Requirements

The fourth sentence of the third paragraph is deleted.

7-08.AP7

**Section 7-08, General Pipe Installation Requirements**

**April 2, 2018**

7-08.3(3) Backfilling

The fifth sentence of the fourth paragraph is revised to read:

All compaction shall be in accordance with the Compaction Control Test of Section 2-03.3(14)D except in the case that 100% Recycled Concrete Aggregate is used.

The following new sentences are inserted after the fifth sentence of the fourth paragraph:

When 100% Recycled Concrete Aggregate is used, the Contractor may submit a written request to use a test point evaluation for compaction acceptance. Test Point evaluation shall be performed in accordance with SOP 738.

8-01.AP8

**Section 8-01, Erosion Control and Water Pollution Control**

**April 1, 2019**

8-01.1 Description

This section is revised to read:
This Work consists of furnishing, installing, maintaining, removing and disposing of best management practices (BMPs), as defined in the Washington Administrative Code (WAC) 173-201A, to manage erosion and water quality in accordance with these Specifications and as shown in the Plans or as designated by the Engineer.

The Contracting Agency may have a National Pollution Discharge Elimination System Construction Stormwater General Permit (CSWGP) as identified in the Contract Special Provisions. The Contracting Agency may or may not transfer coverage of the CSWGP to the Contractor when a CSWGP has been obtained. The Contracting Agency may not have a CSWGP for the project but may have another water quality related permit as identified in the Contract Special Provisions or the Contracting Agency may not have water quality related permits but the project is subject to applicable laws for the Work. Section 8-01 covers all of these conditions.

This section is supplemented with the following new subsection:

8-01.1(1) Definitions

1. pH Affected Stormwater
   a. Stormwater contacting green concrete (concrete that has set/stiffen but is still curing), recycled concrete, or engineered soils (as defined in the Construction Stormwater General Permit (CSWGP)) as a natural process
   b. pH monitoring shall be performed in accordance with the CSWGP, or Water Quality Standards (WQS in accordance with WAC 173-201A (surface) or 173-200C (ground)) when the CSWGP does not apply
   c. May be neutralized and discharged to surface waters or infiltrated

2. pH Affected Non-Stormwater
   a. Conditionally authorized in accordance with CSWGP Special Condition S.1.C., uncontaminated water contacting green concrete, recycled concrete, or engineered soils (as defined in the CSWGP)
   b. Shall not be categorized as cementitious wastewater/concrete wastewater, as defined below
   c. Shall be managed and treated in accordance with the CSWGP, or WQS when the CSWGP does not apply
   d. pH adjustment and dechlorination may be necessary, as specified in the CSWGP or in accordance with WQS when the CSWGP does not apply
   e. May be neutralized, treated, and discharged to surface waters in accordance with the CSWGP, with the exception of water-only shaft drilling slurry. Water-only shaft drilling slurry may be treated, neutralized, and infiltrated but not discharged to surface waters (Refer to Special Conditions S1.C. Authorized Discharges and S1.d Prohibited Discharges of the CSWGP)

3. Cementitious Wastewater/Concrete Wastewater
a. Any water that comes into contact with fine cementitious particles or slurry; any water used in the production, placement and/or clean-up of cementitious products; any water used to cut, grind, wash, or otherwise modify cementitious products

b. When any water, including stormwater, commingles with cementitious wastewater/concrete wastewater, the resulting water is considered cementitious wastewater/concrete wastewater and shall be managed to prevent discharge to waters of the State, including ground water

c. CSWGP Examples include: water used for or resulting from concrete truck/mixer/pumper/tool/chute rinsing or washing, concrete saw cutting and surfacing (sawing, coring, grinding, roughening, hydro-demolition, bridge and road surfacing)

d. Cannot be neutralized and discharged or infiltrated

8-01.2 Materials

The first paragraph is revised to read:

Materials shall meet the requirements of the following sections:

Corrugated Polyethylene Drain Pipe 9-05.1(6)
Quarry Spalls and Permeable Ballast 9-13
Erosion Control and Roadside Planting 9-14
Construction Geotextile 9-33

The second paragraph is deleted.

8-01.3(1) General

This section is revised to read:

Adaptive management shall be employed throughout the duration of the project for the implementation of erosion and water pollution control permit requirements for the current condition of the project site. The adaptive management includes the selection and utilization of BMPs, scheduling of activities, prohibiting unacceptable practices, implementing maintenance procedures, and other managerial practices that when used singularly or in combination, prevent or reduce the release of pollutants to waters of the State. The adaptive management shall use the means and methods identified in this section and means and methods identified in the Washington State Department of Transportation’s Temporary Erosion and Sediment Control Manual or the Washington State Department of Ecology’s Stormwater Management Manuals for construction stormwater.

The Contractor shall install a high visibility fence along the lines shown in the Plans or as instructed by the Engineer.

Throughout the life of the project, the Contractor shall preserve and protect the delineated preservation area, acting immediately to repair or restore any high visibility fencing damaged or removed.
All discharges to surface waters shall comply with surface water quality standards as defined in Washington Administrative Code (WAC) Chapter 173-201A. All discharges to groundwater shall comply with groundwater quality standards WAC Chapter 173-200. The Contractor shall comply with the CSWGP when the project is covered by the CSWGP.

Work, at a minimum, shall include the implementation of:

1. Sediment control measures prior to ground disturbing activities to ensure all discharges from construction areas receive treatment prior to discharging from the site.

2. Flow control measures to prevent erosive flows from developing.

3. Water management strategies and pollution prevention measures to prevent contamination of waters that will be discharged to surface waters or the ground.

4. Erosion control measures to stabilize erodible earth not being worked.

5. Maintenance of BMPs to ensure continued compliant performance.

6. Immediate corrective action if evidence suggests construction activity is not in compliance. Evidence includes sampling data, olfactory or visual evidence such as the presence of suspended sediment, turbidity, discoloration, or oil sheen in discharges.

To the degree possible, the Contractor shall coordinate this Work with permanent drainage and roadside restoration Work the Contract requires.

Clearing, grubbing, excavation, borrow, or fill within the Right of Way shall never expose more erodible earth than as listed below:

<table>
<thead>
<tr>
<th>Western Washington (West of the Cascade Mountain Crest)</th>
<th>Eastern Washington (East of the Cascade Mountain Crest)</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 1 through September 30</td>
<td>November 1 through March 31</td>
</tr>
<tr>
<td>October 1 through April 30</td>
<td>April 1 through October 31</td>
</tr>
<tr>
<td>17 Acres</td>
<td>17 Acres</td>
</tr>
<tr>
<td>5 Acres</td>
<td>5 Acres</td>
</tr>
</tbody>
</table>

The Engineer may increase or decrease the limits based on project conditions.

Erodible earth is defined as any surface where soils, grindings, or other materials may be capable of being displaced and transported by rain, wind, or surface water runoff.

Erodible earth not being worked, whether at final grade or not, shall be covered within the specified time period (see the table below), using BMPs for erosion control.
When applicable, the Contractor shall be responsible for all Work required for compliance with the CSWGP including annual permit fees.

If the Engineer, under Section 1-08.6, orders the Work suspended, the Contractor shall continue to comply with this division during the suspension.

8-01.3(1)A Submittals
This section’s content is deleted.

This section is supplemented with the following new subsection:

8-01.3(1)A1 Temporary Erosion and Sediment Control Plan
Temporary Erosion and Sediment Control (TESC) Plans consist of a narrative section and plan sheets that meets the Washington State Department of Ecology’s Stormwater Pollution Prevention Plan (SWPPP) requirement in the CSWGP. For projects that do not require a CSWGP but have the potential to discharge to surface waters of the state, an abbreviated TESC plan shall be used, which may consist of a narrative and/or plan sheets and shall demonstrate compliance with applicable codes, ordinances and regulations, including the water quality standards for surface waters; Chapter 173-201A of the Washington Administrative Code (WAC) and water quality standards for groundwaters in accordance with Chapter 173-200 WAC.

The Contractor shall either adopt the TESC Plan in the Contract or develop a new TESC Plan. If the Contractor adopts the TESC Plan in scenarios in which the CSWGP is transferred to the Contractor, the Contractor shall modify the TESC Plan to match the Contractor’s schedule, method of construction, and to include all areas that will be used to directly support construction activity such as equipment staging yards, material storage areas, or borrow areas. TESC Plans shall include all high visibility fence shown in the Plans. All TESC Plans shall meet the requirements of the current edition of the WSDOT Temporary Erosion and Sediment Control Manual M 3109 and be adaptively managed throughout construction based on site inspections and required sampling to maintain compliance with the CSWGP, or WQS when no CSWGP applies. The Contractor shall develop a schedule for implementation of the TESC work and incorporate it into the Contractor’s progress schedule.

The Contractor shall submit their TESC Plan (either the adopted plan or new plan) as Type 2 Working Drawings. At the request of the Engineer, updated TESC Plans shall be submitted as Type 1 Working Drawings.

8-01.3(1)B Erosion and Sediment Control (ESC) Lead
This section is revised to read:
The Contractor shall identify the ESC Lead at the preconstruction discussions and in the TESC Plan. The ESC Lead shall have, for the life of the Contract, a current Certificate of Training in Construction Site Erosion and Sediment Control from a course approved by the Washington State Department of Ecology. The ESC Lead must be onsite or on call at all times throughout construction. The ESC Lead shall be listed on the Emergency Contact List required under Section 1-05.13(1).

The ESC Lead shall implement the TESC Plan. Implementation shall include, but is not limited to:

1. Installing, adaptively managing, and maintaining temporary erosion and sediment control BMPs to assure continued performance of their intended function. Damaged or inadequate BMPs shall be corrected immediately.

2. Updating the TESC Plan to reflect current field conditions.

3. Discharge sampling and submitting Discharge Monitoring Reports (DMRs) to the Washington State Department of Ecology in accordance with the CSWGP.

4. Develop and maintain the Site Log Book as defined in the CSWGP. When the Site Log Book or portion thereof is electronically developed, the electronic documentation must be accessible onsite. As a part of the Site Log Book, the Contractor shall develop and maintain a tracking table to show that identified TESC compliance issues are fully resolved within 10 calendar days. The table shall include the date an issue was identified, a description of how it was resolved, and the date the issue was fully resolved.

The ESC Lead shall also inspect all areas disturbed by construction activities, all on-site erosion and sediment control BMPs, and all stormwater discharge points at least once every calendar week and within 24-hours of runoff events in which stormwater discharges from the site. Inspections of temporarily stabilized, inactive sites may be reduced to once every calendar month. The Washington State Department of Ecology’s Erosion and Sediment Control Site Inspection Form, located at https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Stormwater-general-permits/Construction-stormwater-permit, shall be completed for each inspection and a copy shall be submitted to the Engineer no later than the end of the next working day following the inspection.

8-01.3(1)C Water Management
This section is supplemented with the following new subsections:

8-01.3(1)C5 Water Management for In-Water Work Below Ordinary High Water Mark (OHWM)
Work over surface waters of the state (defined in WAC 173-201A-010) or below the OHWM (defined in RCW 90.58.030) shall comply with water quality standards for surface waters of the State of Washington.

8-01.3(1)C6 Environmentally Acceptable Hydraulic Fluid
All equipment containing hydraulic fluid that extends from a bridge deck over surface waters of the state or below the OHWM, shall be equipped with a biodegradable hydraulic fluid. The fluid shall achieve either a Pw1 Environmental Persistence Classification stated in ASTM D6046 (≥60% biodegradation in 28 days) or equivalent.
standard. Alternatively, hydraulic fluid that meets International Organization for Standardization (ISO 15380), the European Union Ecolabel, or equivalent certification will also be accepted.

The Contractor shall submit a Type 1 Working Drawing consisting of a manufacturer catalog cut of the hydraulic fluid used.

The designation of biodegradable hydraulic fluid does not mean fluid spills are acceptable. The Contractor shall respond to spills to land or water in accordance with the Contract, the associated SPCC Plan, and all applicable local, state, and federal regulations.

**8-01.3(1)C7 Turbidity Curtain**
All Work for the turbidity curtain shall be in accordance with the manufacturer’s recommendations for the site conditions. Removal procedures shall be developed and used to minimize silt release and disturbance of silt. The Contractor shall submit a Type 2 Working Drawing, detailing product information, installation and removal procedures, equipment and workforce needs, maintenance plans, and emergency repair/replacement plans.

Turbidity curtain materials, installation, and maintenance shall be sufficient to comply with water quality standards.

The Contractor shall notify the Engineer 10 days in advance of removing the turbidity curtain. All components of the turbidity curtain shall be removed from the project.

**8-01.3(1)C1 Disposal of Dewatering Water**
This section is revised to read:

When uncontaminated groundwater is encountered in an excavation on a project it may be infiltrated within vegetated areas of the right of way not designated as Sensitive Areas or incorporated into an existing stormwater conveyance system at a rate that will not cause erosion or flooding in any receiving surface water.

Alternatively, the Contractor may pursue independent disposal and treatment alternatives that do not use the stormwater conveyance system provided it is in compliance with the applicable WACs and permits.

**8-01.3(1)C2 Process Wastewater**
This section is revised to read:

Wastewater generated on-site as a byproduct of a construction process shall not be discharged to surface waters of the State. Some sources of process wastewater may be infiltrated in accordance with the CSWGP. Some sources of process wastewater may be disposed via independent disposal and treatment alternatives in compliance with the applicable WACs and permits.

**8-01.3(1)C3 Shaft Drilling Slurry Wastewater**
This section is revised to read:

Wastewater generated on-site during shaft drilling activity shall be managed and disposed of in accordance with the requirements below. No shaft drilling slurry
wastewater shall be discharged to surface waters of the State. Neither the sediment nor liquid portions of the shaft drilling slurry wastewater shall be contaminated, as detectable by visible or olfactory indication (e.g., chemical sheen or smell).

1. Water-only shaft drilling slurry or water slurry with accepted flocculants may be infiltrated on-site. Flocculants used shall meet the requirements of Section 9-14.5(1) or shall be chitosan products listed as General Use Level Designation (GULD) on the Washington State Department of Ecology’s stormwater treatment technologies webpage for construction treatment. Infiltration is permitted if the following requirements are met:

a. Wastewater shall have a pH of 6.5 – 8.5 prior to discharge.

b. The amount of flocculant added to the slurry shall be kept to the minimum needed to adequately settle out solids. The flocculant shall be thoroughly mixed into the slurry.

c. The slurry removed from the shaft shall be contained in a leak proof cell or tank for a minimum of 3 hours.

d. The infiltration rate shall be reduced if needed to prevent wastewater from leaving the infiltration location. The infiltration site shall be monitored regularly during infiltration activity. All wastewater discharged to the ground shall fully infiltrate and discharges shall stop before the end of each work day.

e. Drilling spoils and settled sediments remaining in the containment cell or tank shall be disposed of in accordance with Section 6-19.3(4)F.

f. Infiltration locations shall be in upland areas at least 150 feet away from surface waters, wells, on-site sewage systems, aquifer sensitive recharge areas, sole source aquifers, well head protection areas, and shall be marked on the plan sheets before the infiltration activity begins.

g. Prior to infiltration, the Contractor shall submit a Shaft Drilling Slurry Wastewater Management and Infiltration Plan as a Type 2 Working Drawing. This Plan shall be kept on-site, adapted if needed to meet the construction requirements, and updated to reflect what is being done in the field. The Working Drawing shall include, at a minimum, the following information:

i. Plan sheet showing the proposed infiltration location and all surface waters, wells, on-site sewage systems, aquifer-sensitive recharge areas, sole source aquifers, and well-head protection areas within 150 feet.

ii. The proposed elevation of soil surface receiving the wastewater for infiltration and the anticipated phreatic surface (i.e., saturated soil).

iii. The source of the water used to produce the slurry.

iv. The estimated total volume of wastewater to be infiltrated.
v. The accepted flocculant to be used (if any).

vi. The controls or methods used to prevent surface wastewater runoff from leaving the infiltration location.

vii. The strategy for removing slurry wastewater from the shaft and containing the slurry wastewater once it has been removed from the shaft.

e.

viii. The strategy for monitoring infiltration activity and adapting methods to ensure compliance.

ix. A contingency plan that can be implemented immediately if it becomes evident that the controls in place or methods being used are not adequate.

x. The strategy for cleaning up the infiltration location after the infiltration activity is done. Cleanup shall include stabilizing any loose sediment on the surface within the infiltration area generated as a byproduct of suspended solids in the infiltrated wastewater or soil disturbance associated with BMP placement and removal.

2. Shaft drilling mineral slurry, synthetic slurry, or slurry with polymer additives not allowed for infiltration shall be contained and disposed of by the Contractor at an accepted disposal facility in accordance with Section 2-03.3(7)C. Spoils that have come into contact with mineral slurry shall be disposed of in accordance with Section 6-19.3(4)F.

8-01.3(1)C4 Management of Off-Site Water

This section is revised to read:

Prior to clearing and grubbing, the Contractor shall intercept all sources of off-site surface water and overland flow that will run-on to the project. Off-site surface water run-on shall be diverted through or around the project in a way that does not introduce construction related pollution. It shall be diverted to its preconstruction discharge location in a manner that does not increase preconstruction flow rate and velocity and protects contiguous properties and waterways from erosion. The Contractor shall submit a Type 2 Working Drawing consisting of the method for performing this Work.

8-01.3(1)E Detention/Retention Pond Construction

This section is revised to read:

Permanent or temporary ponds shall be constructed before beginning other grading and excavation Work in the area that drains into that pond. Detention/retention ponds may be constructed concurrently with grading and excavation when allowed by the Engineer. Temporary conveyances shall be installed concurrently with grading in accordance with the TESC Plan so that newly graded areas drain to the pond as they are exposed.

8-01.3(2) Seeding, Fertilizing, and Mulching

This section’s title is revised to read:
8-01.3(2) Temporary Seeding and Mulching

8-01.3(2)A Preparation for Application
This section is revised to read:

A cleated roller, crawler tractor, or similar equipment, which forms longitudinal depressions at least 2 inches deep shall be used for compaction and preparation of the surface to be seeded. The entire area shall be uniformly covered with longitudinal depressions formed perpendicular to the natural flow of water on the slope. The soil shall be conditioned with sufficient water so the longitudinal depressions remain in the soil surface until completion of the seeding.

8-01.3(2)A1 Seeding
This section is deleted in its entirety.

8-01.3(2)A2 Temporary Seeding
This section is deleted in its entirety.

8-01.3(2)B Seeding and Fertilizing
This section, including title, is revised to read:

8-01.3(2)B Temporary Seeding
Temporary grass seed shall be a commercially prepared mix, made up of low growing grass species that will grow without irrigation at the project location, and accepted by the Engineer. The application rate shall be two pounds per 1000 square feet.

The Contractor shall notify the Engineer not less than 24 hours in advance of any seeding operation and shall not begin the Work until areas prepared or designated for seeding have been accepted. Following the Engineer’s acceptance, seeding of the accepted slopes shall begin immediately.

Temporary seeding may be sown at any time allowed by the Engineer. Temporary seeding shall be sown by one of the following methods:

1. A hydro seeder that utilizes water as the carrying agent, and maintains continuous agitation through paddle blades. It shall have an operating capacity sufficient to agitate, suspend, and mix into a homogeneous slurry the specified amount of seed and water or other material. Distribution and discharge lines shall be large enough to prevent stoppage and shall be equipped with a set of hydraulic discharge spray nozzles that will provide a uniform distribution of the slurry.

2. Blower equipment with an adjustable disseminating device capable of maintaining a constant, measured rate of material discharge that will ensure an even distribution of seed at the rates specified.

3. Power-drawn drills or seeders.

4. Areas in which the above methods are impractical may be seeded by hand methods.
When seeding by hand, the seed shall be incorporated into the top ¼ inch of soil by hand raking or other method that is allowed by the Engineer.

Seed applied using a hydroseeder shall have a tracer added to visibly aid uniform application. This tracer shall not be harmful to plant, aquatic, or animal life. If Short-Term Mulch is used as a tracer, the application rate shall not exceed 250 pounds per acre.

Seed and fertilizer may be applied in one application provided that the fertilizer is placed in the hydroseeder tank no more than 1 hour prior to application.

8-01.3(2)D Mulching
This section, including title, is revised to read:

8-01.3(2)D Temporary Mulching
Temporary mulch shall be straw, wood strand, or HECP mulch and shall be used for the purpose of erosion control by protecting bare soil surface from particle displacement. Mulch shall not be applied below the anticipated water level of ditch slopes, pond bottoms, and stream banks. HECP mulch shall not be used within the Ordinary High Water Mark. Non-HECP mulches applied below the anticipated water level shall be removed or anchored down so that it cannot move or float, at no additional expense to the Contracting Agency.

Straw or wood strand mulch shall be applied at a rate to achieve at least 95 percent visual blockage of the soil surface.

Short Term Mulch shall be hydraulically applied at the rate of 2500 pounds per acre and may be applied in one lift.

Moderate Term Mulch and Long Term Mulch shall be hydraulically applied at the rate of 3500 pounds per acre with no more than 2000 pounds applied in any single lift.

Mulch sprayed on signs or sign Structures shall be removed the same day.

Areas not accessible by mulching equipment shall be mulched by accepted hand methods.

8-01.3(2)F Dates for Application of Final Seed, Fertilizer, and Mulch
This section is deleted in its entirety.

8-01.3(2)G Protection and Care of Seeded Areas
This section is deleted in its entirety.

8-01.3(2)H Inspection
This section is deleted in its entirety.

8-01.3(2)I Mowing
This section is deleted in its entirety.

8-01.3(3) Placing Biodegradable Erosion Control Blanket
This section’s title is revised to read:
8-01.3(3) Placing Erosion Control Blanket

The first sentence of the first paragraph is revised to read:

Erosion Control Blankets are used as an erosion prevention device and to enhance the establishment of vegetation.

The second paragraph is revised to read:

When used to enhance the establishment of seeded areas, seeding and fertilizing shall be done prior to blanket installation.

8-01.3(4) Placing Compost Blanket

This section is revised to read:

Compost blankets are used for erosion control. Compost blanket shall be only be placed on ground surfaces that are steeper than 3-foot horizontal and 1-foot vertical though steeper slopes shall be broken by wattles or compost socks placed according to the Standard Plans. Compost shall be placed to a depth of 3 inches over bare soil. An organic tackifier shall be placed over the entire composted area when dry or windy conditions are present or expected. The tackifier shall be applied immediately after the application of compost to prevent compost from leaving the composted area.

Medium compost shall be used for the compost blanket. Compost may serve the purpose of soil amendment as specified in Section 8-02.3(6).

8-01.3(5) Plastic Covering

The first paragraph is revised to read:

Erosion Control – Plastic coverings used to temporarily cover stockpiled materials, slopes or bare soils shall be installed and maintained in a way that prevents water from intruding under the plastic and prevents the plastic cover from being damaged by wind. Plastic coverings shall be placed with at least a 12-inch overlap of all seams and be a minimum of 6 mils thick. Use soil stabilization and energy dissipation BMPs to minimize the erosive energy flows coming off sloped areas of plastic (e.g., toe of slope). When feasible, prevent the clean runoff from plastic from hitting bare soil. Direct flows from plastic to stabilized outlet areas.

8-01.3(7) Stabilized Construction Entrance

The first paragraph is revised to read:

Temporary stabilized construction entrance shall be constructed in accordance with the Standard Plans, prior to construction vehicles entering the roadway from locations that generate sediment track out on the roadway. Material used for stabilized construction entrance shall be free of extraneous materials that may cause or contribute to track out.

8-01.3(8) Street Cleaning

This section is revised to read:

Self-propelled pickup street sweepers shall be used to remove and collect dirt and other debris from the Roadway. The street sweeper shall effectively collect these materials and prevent them from being washed or blown off the Roadway or into waters of the
State. Street sweepers shall not generate fugitive dust and shall be designed and operated in compliance with applicable air quality standards. Material collected by the street sweeper shall be disposed of in accordance with Section 2-03.3(7)C.

When allowed by the Engineer, power broom sweepers may be used in non-sensitive areas. The broom sweeper shall sweep dirt and other debris from the roadway into the work area. The swept material shall be prevented from entering or washing into waters of the State.

Street washing with water will require the concurrence of the Engineer.

**8-01.3(12) Compost Socks**

The first two sentences of the first paragraph are revised to read:

Compost socks are used to disperse flow and sediment. Compost socks shall be installed as soon as construction will allow but before flow conditions create erosive flows or discharges from the site. Compost socks shall be installed prior to any mulching or compost placement.

**8-01.3(13) Temporary Curb**

The last two sentences of the second paragraph are revised to read:

Temporary curbs shall be a minimum of 4 inches in height. Temporary curb shall be installed so that ponding does not occur in the adjacent roadway.

**8-01.3(14) Temporary Pipe Slope Drain**

The third and fourth paragraphs are revised to read:

The pipe fittings shall be water tight and the pipe secured to the slope with metal posts, wood stakes, or sand bags.

The water shall be discharged to a stabilized conveyance, sediment trap, stormwater pond, rock splash pad, or vegetated strip, in a manner to prevent erosion and maintain water quality compliance.

The last paragraph is deleted.

**8-01.3(15) Maintenance**

This section is revised to read:

Erosion and sediment control BMPs shall be maintained or adaptively managed as required by the CSWGP until the Engineer determines they are no longer needed. When deficiencies in functional performance are identified, the deficiencies shall be rectified immediately.

The BMPs shall be inspected on the schedule outlined in Section 8-01.3(1)B for damage and sediment deposits. Damage to or undercutting of BMPs shall be repaired immediately.

In areas where the Contractor’s activities have compromised the erosion control functions of the existing grasses, the Contractor shall overseed at no additional cost to the Contracting Agency.
The quarry spalls of construction entrances shall be refreshed, replaced, or screened to maintain voids between the spalls for collecting mud and dirt.

Unless otherwise specified, when the depth of accumulated sediment and debris reaches approximately ⅓ the height of the BMP the deposits shall be removed. Debris or contaminated sediment shall be disposed of in accordance with Section 2-03.3(7)C. Clean sediments may be stabilized on-site using BMPs as allowed by the Engineer.

8-01.3(16) Removal
This section is revised to read:

The Contractor shall remove all temporary BMPs, all associated hardware and associated accumulated sediment deposition from the project limits prior to Physical Completion unless otherwise allowed by the Engineer. When the temporary BMP materials are made of natural plant fibers unaltered by synthetic materials the Engineer may allow leaving the BMP in place.

The Contractor shall remove BMPs and associated hardware in a way that minimizes soil disturbance. The Contractor shall permanently stabilize all bare and disturbed soil after removal of BMPs. If the installation and use of the erosion control BMPs have compacted or otherwise rendered the soil inhospitable to plant growth, such as construction entrances, the Contractor shall take measures to rehabilitate the soil to facilitate plant growth. This may include, but is not limited to, ripping the soil, incorporating soil amendments, or seeding with the specified seed.

At the request of the Contractor and at the sole discretion of the Engineer the CSWGP may be transferred back to the Contracting Agency. Approval of the Transfer of Coverage request will require the following:

1. All other Work required for Contract Completion has been completed.
2. All Work required for compliance with the CSWGP has been completed to the maximum extent possible. This includes removal of BMPs that are no longer needed and the site has undergone all Stabilization identified for meeting the requirements of Final Stabilization in the CSWGP.
3. An Equitable Adjustment change order for the cost of Work that has not been completed by the Contractor.

If the Engineer approves the transfer of coverage back to the Contracting Agency, the requirement in Section 1-07.5(3) for the Contractor’s submittal of the Notice of Termination form to the Washington State Department of Ecology will not apply.

8-01.4 Measurement
This section’s content is deleted and replaced with the following new subsections:
8-01.4(1) Lump Sum Bid for Project (No Unit Items)
When the Bid Proposal contains the item “Erosion Control and Water Pollution Prevention” there will be no measurement of unit or force account items for Work defined in Section 8-01 except as described in Sections 8-01.4(3) and 8-01.4(4). Also, except as described in Section 8-01.4(3), all of Sections 8-01.4(2) and 8-01.5(2) are deleted.

8-01.4(2) Item Bids
When the Proposal does not contain the items “Erosion Control and Water Pollution Prevention”, Section 8-01.4(1) and 8-01.5(1) are deleted and the Bid Proposal will contain some or all of the following items measured as noted.

ESC lead will be measured per day for each day that an inspection is made and a report is filed.

Erosion control blanket and plastic covering will be measured by the square yard along the ground slope line of surface area covered and accepted.

Turbidity curtains will be measured by the linear foot along the ground line of the installed curtain.

Check dams will be measured per linear foot one time only along the ground line of the completed check dam. No additional measurement will be made for check dams that are required to be rehabilitated or replaced due to wear.

Stabilized construction entrances will be measured by the square yard by ground slope measurement for each entrance constructed.

Tire wash facilities will be measured per each for each tire wash installed.

Street cleaning will be measured by the hour for the actual time spent cleaning pavement, refilling with water, dumping and transport to and from cleaning locations within the project limits, as authorized by the Engineer. Time to mobilize the equipment to or from the project limits on which street cleaning is required will not be measured.

Inlet protections will be measured per each for each initial installation at a drainage structure.

Silt fence, gravel filter, compost berms, and wood chip berms will be measured by the linear foot along the ground line of the completed barrier.

Wattles and compost socks will be measured by the linear foot.

Temporary curbs will be measured by the linear foot along the ground line of the completed installation.

Temporary pipe slope drains will be measured by the linear foot along the flow line of the pipe.

Coir logs will be measured by the linear foot along the ground line of the completed installation.
Outlet protections will be measured per each initial installation at an outlet location.

Temporary seeding, temporary mulching, and tackifiers will be measured by the acre by ground slope measurement.

Compost blanket will be measured by the square yard by ground slope surface area covered and accepted.

8-01.4(3) Reinstating Unit Items with Lump Sum Erosion Control and Water Pollution Prevention

The Contract Provisions may establish the project as lump sum, in accordance with Section 8-01.4(1) and also include one or more of the items included above in Section 8-01.4(2). When that occurs, the corresponding measurement provision in Section 8-01.4(2) is not deleted and the Work under that item will be measured as specified.

8-01.4(4) Items not included with Lump Sum Erosion Control and Water Pollution Prevention

Compost blanket will be measured by the square yard by ground slope surface area covered and accepted.

Temporary mulch will be measured by the acre by ground slope surface area covered and accepted.

High visibility fence will be measured by the linear foot along the ground line of the completed fence.

8-01.5 Payment

This section’s content is deleted and replaced with the following new subsections:

8-01.5(1) Lump Sum Bid for Project (No Unit Items)

Payment will be made for the following Bid item when it is included in the Proposal:

“Erosion Control and Water Pollution Prevention”, lump sum.

The lump sum Contract price for “Erosion Control and Water Pollution Prevention” shall be full pay to perform the Work as described in Section 8-01 except for costs compensated by Bid Proposal items inserted through Contract Provisions as described in Section 8-01.4(2). Progress payments for the lump sum item “Erosion Control and Water Pollution Prevention” will be made as follows:

1. The Contracting Agency will pay 15 percent of the bid amount for the initial set up for the item. Initial set up includes the following:

   a. Acceptance of the TESC Plan provided by the Contracting Agency or submittal of a new TESC Plan,

   b. Submittal of a schedule for the installation of the BMPs, and

   c. Identifying water quality sampling locations.
2. 70 percent of the bid amount will be paid in accordance with Section 1-09.9.

3. Once the project is physically complete and copies of all reports submitted to the Washington State Department of Ecology have been submitted to the Engineer, and, if applicable, transference of the CSWGP back to the Contracting Agency is complete, the remaining 15 percent of the bid amount shall be paid in accordance with Section 1-09.9.

8-01.5(2) Item Bids

“ESC Lead”, per day.

“Turbidity Curtain”, per linear foot.

“Erosion Control Blanket”, per square yard.

“Plastic Covering”, per square yard.

“Check Dam”, per linear foot.

“Inlet Protection”, per each.

“Gravel Filter Berm”, per linear foot.

“Stabilized Construction Entrance”, per square yard.

“Street Cleaning”, per hour.

“Silt Fence”, per linear foot.

“Wood Chip Berm”, per linear foot.

“Compost Berm”, per linear foot.

“Wattle”, per linear foot.

“Compost Sock”, per linear foot.

“Coir Log”, per linear foot.

“Temporary Curb”, per linear foot.

“Temporary Pipe Slope Drain”, per linear foot.

“Temporary Seeding”, per acre.

“Temporary Mulching”, per acre.

“Compost Blanket”, per square yard.

“Outlet Protection”, per each.
“Tackifier”, per acre.

“Erosion/Water Pollution Control”, by force account as provided in Section 1-09.6.

Maintenance and removal of erosion and water pollution control devices including removal and disposal of sediment, stabilization and rehabilitation of soil disturbed by these activities, and any additional Work deemed necessary by the Engineer to control erosion and water pollution will be paid by force account in accordance with Section 1-09.6.

To provide a common Proposal for all Bidders, the Contracting Agency has entered an amount in the Proposal to become a part of the Contractor’s total Bid.

8-01.5(3) Reinstating Unit Items with Lump Sum Erosion Control and Water Pollution Prevention

The Contract may establish the project as lump sum, in accordance with Section 8-01.4(1) and also reinstate the measurement of one or more of the items described in Section 8-01.4(2), except for Erosion/Water Pollution Control, by force account. When that occurs, the corresponding payment provision in Section 8-01.5(2) is not deleted and the Work under that item will be paid as specified.

8-01.5(4) Items not included with Lump Sum Erosion Control and Water Pollution Prevention

Payment will be made for the following Bid item when it is included in the Proposal:

“High Visibility Fence”, per linear foot.

8-02.AP8

Section 8-02, Roadside Restoration

April 1, 2019

This section, including all subsections, is revised to read:

8-02.1 Description

This Work consists of preserving, maintaining, establishing and augmenting vegetation on the roadsides and within mitigation or sundry site areas. It includes vegetation preservation, weed and pest control, furnishing and placing topsoil, compost, and soil amendments, and furnishing and planting seed, sod and plants of all forms and container types. It includes performing plant establishment activities and soil bioengineering. Work shall be performed in accordance with these Specifications and as shown in the Plans or as designated by the Engineer.

Trees, whips, shrubs, ground covers, cuttings, live stakes, live poles, live branches, rhizomes, tubers, rootstock, and seedlings will hereinafter be referred to collectively as “plants” or “plant material”. Grass, wildflowers, and other plant materials installed in seed form will hereinafter be referred to collectively as “seed”.

8-02.2 Materials

Materials shall meet the requirements of the following sections:

<table>
<thead>
<tr>
<th>Material</th>
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<tr>
<td>Erosion Control and Roadside Planting</td>
<td>9-14</td>
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<tr>
<td>Water</td>
<td>9-25.2</td>
</tr>
</tbody>
</table>
Botanical identification and nomenclature of plant materials shall be based on descriptions by Hitchcock and Cronquist in “Flora of the Pacific Northwest”. Botanical identification and nomenclature of plant material not found in "Flora" shall be based on Bailey in “Hortus Third” or superseding editions and amendments or as referenced in the Plans.

8-02.3 Construction Requirements

8-02.3(1) Responsibility During Construction
The Contractor shall prepare, install, and ensure adequate and proper care of all roadside seeded, planted, and lawn areas on the project until all plant establishment periods required by the Contract are complete or until Physical Completion of the project, whichever is last.

Adequate and proper care shall include, but is not limited to, keeping all plant material in a healthy, growing condition by watering, pruning, and other actions deemed necessary for plant health. This Work shall include keeping the project area free from insect infestation, weeds or unwanted vegetation, litter, and other debris along with retaining the finished grades and mulch in a neat uniform condition.

Existing desirable vegetation shall be saved and protected unless removal is required by the Contract or allowed by the Engineer.

The Contractor shall have sole responsibility for the maintenance and appearance of the roadside restoration.

8-02.3(2) Work Plans
Three Work Plan submittals exist under this Section:

1. Roadside Work Plan: This plan is required when Work will disturb the roadside beyond 20 feet from the pavement or where trees or native vegetation will be removed, the Contractor shall submit a Type 2 Working Drawing.

2. Weed and Pest Control Plan: This plan is required when the proposal contains the item "Weed and Pest Control," and prior to application of any chemicals or weed control activities, the Contractor shall submit a Type 2 Working Drawing.

3. Plant Establishment Plan: This plan is required when the proposal contains the item "PSIPE__", and prior to completion of Initial Planting, the Contractor shall submit a Type 2 Working Drawing.

8-02.3(2)A Roadside Work Plan
The Roadside Work Plan shall define the expected impacts to the roadside and restoration resulting from Work necessary to meet all Contract requirements. The Contractor shall define how the roadside restoration Work included in the Contract will be phased and coordinated with project Work such as earthwork, staging, access, erosion and water pollution control, irrigation, etc. The Roadside Work Plan shall include the following:
1. **Limiting impacts to roadsides:**
   
a. Limits of Work including locations of staging or parking.

b. Means and methods for vegetation protection (in accordance with Section 1-07.16(2)).

c. Locations outside of clearing limits where vegetation shall be removed to provide access routes or other needs to accomplish the Work.

d. Plans for removal, preservation and stockpile of topsoil or other native materials, if outside of clearing and grubbing limits and within the project limits.

2. **Roadside Restoration:**
   
a. Plan for propagation and procurement of plants, ground preparation for planting, and installation of plants.

b. Means and methods to limit soil compaction where seeding and planting are to occur, such as steel plates, hog fuel access roads, wood mats for sensitive areas (including removal) and decompaction for unavoidable impacts.

c. Plan and timing to incorporate or remove erosion control items.

3. **Lawn Installation:**
   
a. Schedule for lawn installation work.

b. Establishment and maintenance of lawns.

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**8-02.3(2)B Weed and Pest Control Plan**

The Weed and Pest Control Plan shall describe all weed and pest control needs for the project.

The plan shall be prepared and signed by a licensed Commercial Pest Control Operator or Consultant. The plan for control of weeds and pests on the Contract in accordance with Section 8-02.3(3) shall include the following:

1. Names of plan preparer and pesticide operators, including contact information. The Contractor shall furnish the Engineer evidence that all operators are licensed with appropriate endorsements, and that the pesticide used is registered for use by the Washington State Department of Agriculture.

2. Means and methods of weed control, including mechanical and/or chemical.

3. Schedule for weed control including re-entry times for pesticide application by pesticide type.
4. Proposed pesticide use in accordance with Section 8-02.3(3)A: name, application rate, and Safety Data Sheets of all proposed pesticides. Include a copy of the current product label for each pesticide to be used.

5. Plan to ensure worker safety until pesticide re-entry periods are met.

**8-02.3(2)C Plant Establishment Plan**

The Plant Establishment Plan shall describe activities necessary to ensure continued health and vigor of planted and seeded areas in accordance with the requirements of Sections 8-02.3(12) and 8-02.3(13). Should the plan become unworkable at any time during the first-year plant establishment, the Contractor shall submit a revised plan prior to proceeding with further Work. The Plant Establishment Plan shall include:

1. Proposed scheduling of joint inspection meetings, activities, materials, equipment to be utilized for the first-year plant establishment.

2. Proposed adaptive management activities to ensure successful establishment of seeded, sodded, and planted areas.

3. A contact person.

4. Management of the irrigation system, when applicable.

**8-02.3(3) Weed and Pest Control**

The Contractor shall control weed and pest species within the project limits using integrated pest management principles consisting of mechanical, biological, and chemical controls that are outlined in the Weed and Pest Control Plan or as designated by the Engineer. Controlling weeds consists of killing and removing weeds by chemical, mechanical, and hand methods.

**8-02.3(3)A Chemical Pesticides**

Chemical pesticides include, but are not restricted to, any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest, including but not limited to, insecticides, herbicides, fungicides, adjuvants, and additives, including plant regulators, defoliants and desiccants. The Contractor shall apply chemical pesticides in accordance with the label recommendations, the Washington State Department of Ecology, local sensitive area ordinances, and Washington State Department of Agriculture laws and regulations. Only those pesticides listed in the table Herbicides Approved for Use on WSDOT Rights of Way and accepted as part of the Weed and Pest Control Plan or by written authorization from the Engineer may be used ([www.wsdot.wa.gov/maintenance/roadside/herbicide_use.htm](http://www.wsdot.wa.gov/maintenance/roadside/herbicide_use.htm)).

The applicator shall be licensed by the State of Washington as a Commercial Applicator or Commercial Operator, with additional endorsements as required by the Special Provisions or the proposed weed control plan. All chemical pesticides shall be delivered to the job site in the original containers, or if pre-mixed off-site, a certification of the components and formulation from the
supplier is required. The licensed applicator or operator shall complete
WSDOT Form 540-509, Commercial Pesticide Application Record, each day
the pesticide is applied and furnish a copy to the Engineer by the following
business day.

The Contractor shall ensure confinement of the chemicals within the
designated areas. The use of spray chemical pesticides shall require the use
of anti-drift and activating agents and a spray pattern indicator unless
otherwise allowed by the Engineer.

The Contractor shall assume all responsibility for rendering any area
unsatisfactory for planting by reason of chemical application. Damage to
adjacent areas, either on or off the Highway Right of Way, shall be repaired to
the satisfaction of the Engineer or the property owner at no additional cost to
the Contracting Agency.

8-02.3(3)B Planting and Lawn Area Weed Control
Planting and lawn area weed control consists of controlling weeds and pests in
planted and lawn areas shown in the Plans. This Work is included in the bid
items for planting and lawn installation.

All planting and lawn areas shall be prepared so that they are weed and debris
free at the time of planting and until completion of the project. The planting
areas shall include the entire ground surface, regardless of cover, areas
around plants, and those areas shown in the Plans.

Within planting or lawn areas, all species that are not shown in the Plans are
unwanted and shall be controlled unless specifically allowed by the Engineer
to remain.

Grass growing within the mulch ring of a plant, including grass applied in
accordance with Sections 8-01.3(2)A1, 8-02.3(9) or 8-02.3(10), shall be
considered a weed and shall be controlled on the project in accordance with
the weed and pest control plan.

All applications of post-emergent herbicides shall be made while green and
growing tissue is present. Residual herbicides shall not be used where
rhizomatous species or perennial species are indicated.

Should unwanted vegetation reach the flowering and seed stage in violation of
these Specifications, the Contractor shall physically remove and bag the seed
heads prior to seed dispersion. All physically removed vegetation and seed
heads shall be disposed of off-site at no cost to the Contracting Agency.

8-02.3(3)C Project Area Weed and Pest Control
The Contractor shall control weeds not otherwise covered in accordance with
Section 8-02.3(3)B, in all areas within the project limits, including erosion
control seeding areas and vegetation preservation areas, as designated by the
Engineer.

When the Bid Item “Project Area Weed and Pest Control” is included in the
Contract, the Contractor shall also control all weeds specified as noxious by
the Washington State Department of Agriculture, the local Weed District, or the
County Noxious Weed Control Board outside of planting areas within the
project limits.

8-02.3(4) Topsoil
Topsoil shall not be worked or placed when the ground or topsoil is frozen, or
excessively wet.

The Contractor shall protect topsoil stockpiled for project use to prevent erosion
and weed growth. Weed growth on topsoil stockpile sites shall be immediately
eliminated in accordance with the accepted Weed and Pest Control Plan and
Section 8-02.3(3)C.

The subsoil where topsoil is to be placed shall be tilled to a depth of 1 foot or as
specified in the Special Provisions or the Plans. Topsoil of the type specified shall
be evenly spread over the specified areas to the depth shown in the Plans or as
otherwise ordered by the Engineer. Topsoil depths greater than 6 inches shall be
placed in lifts no more than 6 inches in depth. The first lift of topsoil shall be
incorporated with sub-soil to a depth of 8 inches and subsequent lifts placed and
lightly tamped between lifts. After the topsoil has been spread, all large clods, hard
lumps, and rocks 2 inches in diameter and larger, and litter shall be raked up,
removed, and disposed.

8-02.3(4)A Topsoil Type A
Topsoil Type A shall be as specified in the Special Provisions. The Contractor
shall submit a certification by the supplier that the contents of the Topsoil meet
the requirements in the Special Provisions.

8-02.3(4)B Topsoil Type B
Topsoil Type B shall be naturally occurring topsoil taken from within the project
limits and shall meet the requirements of Section 9-14.1(2). Topsoil Type B
shall be taken from areas shown in the Plans to the designated depth and
stockpiled at locations that will not interfere with the construction of the project,
and outside of sensitive areas, as allowed by the Engineer. A minimum of two
weeks prior to excavation of Topsoil Type B, the Contractor shall pre-treat the
vegetation on the designated Topsoil Type B areas according to the Weed and
Pest Control Plan. Areas beyond the slope stakes shall be disturbed as little as
possible in the above operations and under no circumstances shall Topsoil
Type B be stockpiled within 10 feet of any existing tree or vegetation area
designated to be saved and protected. The Contractor shall protect topsoil
stockpile from weed infestation.

The Contractor shall set aside sufficient material to satisfy the needs of the
project.

Upon completion of topsoil placement, the Contractor shall dispose of
remaining stockpiled Topsoil Type B not required for use on the project at no
additional expense to the Contracting Agency in accordance with Section 2-
03.3(7)C.
Should a shortage of Topsoil Type B occur, and the Contractor has wasted or otherwise disposed of topsoil material, the Contractor shall furnish Topsoil Type A or C at no additional expense to the Contracting Agency.

8-02.3(4)C Topsoil Type C
Topsoil Type C shall be naturally occurring topsoil obtained from a source provided by the Contractor outside of the Contracting Agency-owned Right of Way. Topsoil Type C shall meet the requirements of Sections 8-02.3(4)B and 9-14.1(3). The Contractor shall not begin removal of Topsoil Type C from the proposed source until the material has been allowed for use by the Engineer.

8-02.3(5) Roadside Seeding, Lawn and Planting Area Preparation
This Work includes preparing worked areas for the installation of all types of permanent erosion control planting. Work shall be conducted so the flow lines in drainage channels are maintained. Material displaced by the Contractor’s operations that interferes with drainage shall be removed from the channel and disposed of as allowed by the Engineer.

8-02.3(5)A Seeding Area Preparation
The Contractor shall prepare roadside seeding areas as follows:

1. Remove all excess material, debris, stumps, and rocks greater than 3 inches in diameter from areas to be seeded. Dispose of removed materials offsite.
2. Prepare roadside seeding area to a weed free and bare condition.
3. Bring area to uniform grade and install topsoil, soil amendments, or compost as specified. Any slopes 3(H) to 1(V) or steeper shall not be tilled unless otherwise specified.
4. Compact to provide a reasonably firm but friable seedbed; tractor walk to uniformly cover the surface with longitudinal depressions at least 2 inches deep formed perpendicular to the natural flow of water on the slope. Condition the soil with sufficient water so the longitudinal depressions remain in the soil surface until completion of the seeding.
5. Seed and mulch within 2 days of preparation.

8-02.3(5)B Lawn Area Preparation
The Contractor shall prepare lawn areas as follows:

1. Prepare lawn area to a weed free and bare condition in accordance with Section 8-02.3(3)B.
2. Remove excess material, stumps, wood or rocks over 3 inches in diameter and remove from site.
3. Bring area to uniform grade and install topsoil or soil amendments in accordance with Section 8-02.3(4) and 8-02.3(6).
4. Till to an 8-inch depth, rake to a smooth even grade without low areas that trap water, and compact with a 50-pound roller. The finished grade of the soil shall be 1 inch below the top of all curbs, junction and valve boxes, walks, driveways, and other Structures.

5. Seed or sod the area within two days of preparation.

8-02.3(5)C Planting Area Preparation
The Contractor shall prepare planting areas as follows:

1. Prepare planting area to a weed free and bare condition in accordance with Section 8-02.3(3)B.

2. Decompact soil to a depth of 18 inches where construction activities have taken place or where native soils are compacted.

3. Return soil to uniform grade even with surrounding areas, leaving no holes or mounds over 3 inches in depth or height.

4. Remove excess material, stumps, wood or rocks over 3 inches in diameter and remove from site.

5. Apply compost or other amendments as indicated in the plans and in accordance with Section 8-02.3(6).

6. Cultivate amendments to a depth of 12 inches to provide a reasonably firm but friable planting area. Do not till any slopes 3(H) to 1(V) or steeper.

7. Return soil to a uniform finished grade, 1 inch, or the specified depth of mulch plus 1 inch, below walks, curbs, junction and valve boxes, catch basins, and driveways, unless otherwise specified.

8. Begin planting and mulching the area within two days of final preparation.

8-02.3(6) Soil Amendments
The Contractor shall place soil amendments of the type, quality, and quantities specified where shown in the Plans or as specified in the Special Provisions. Areas receiving soil amendments shall be bare soil or vegetation free prior to application. All soil amendments shall be installed as shown in the Plans within 30 calendar days after delivery to the project site.

8-02.3(6)A Compost
Compost used for soil amendments shall be Fine Compost unless otherwise designated in the Plans. When compost blanket is used for temporary erosion control, the compost blanket may be incorporated into the soil immediately prior to planting when used as compost soil amendment. The area shall be prepared in accordance with Section 8-02.3(5) prior to placing compost.
8-02.3(6)B Fertilizers

The Contractor shall apply fertilizer in the form, mixture, and rate specified in the Special Provisions or as directed by the Engineer. Application procedures shall be in accordance with the manufacturer’s recommendations unless otherwise specified in the Special Provisions.

The Contractor shall submit a guaranteed fertilizer analysis label for the selected product a minimum of one week prior to application for acceptance. Following the Engineer’s acceptance, fertilizing of the accepted ground or vegetated surfaces shall begin immediately.

In seeding and lawn areas to be fertilized, the fertilizer shall be applied concurrently with the seed. When fertilizer is hydraulically applied, the fertilizer shall be suitable for application with seeding as specified in Section 8-02.3(9)C. If hydroseeding, the fertilizer shall be placed in the hydroseeder tank no more than 1 hour prior to application.

Fertilizers for planting areas shall be applied concurrently with compost and applied prior to incorporation, unless tablet form fertilizer is specified. Where tablet form fertilizer is specified, fertilizer shall be applied concurrently with plant installation.

Fertilizer sprayed on signs or sign structures shall be removed the same day.

Areas not accessible by fertilizing equipment shall be fertilized by allowed hand methods.

Second Application: A second application of fertilizer shall be applied as specified in the Special Provisions at the locations designated in the Plans. The fertilizer shall be applied during the months of March, April, or May of the following year after the initial seeding, planting, or lawn installation. The fertilizer shall be dry granular pellets or pearls and applied in accordance with the manufacturer’s recommendations or as specified in the Special Provisions.

8-02.3(7) Layout of Planting, Lawn and Seeding Areas

The Contractor shall lay out and prepare planting and lawn areas and receive the Engineer’s acceptance of layout and preparation prior to any installation activities. The Contractor shall stake the location of all trees larger than 1-inch caliper and the perimeter of all planting areas for acceptance by the Engineer prior to any installation activities.

The Contractor shall locate all trees to be planted in mowable grass areas a minimum of 10 feet from the edge of planting areas, other trees, fence lines, and bottom of ditches unless otherwise specified.

Tree locations shown in the Plans shall be considered approximate unless shown with stationing and offset distance. In irrigated areas, trees shall be located so their trunk is a minimum of ½ of the spray radius away from the nearest sprinkler head.

Unless otherwise shown, planting areas located adjacent to Roadways shall begin 6 feet from the edge of shoulder on roadway fills and begin 5 feet up on the back slope from the bottom on roadway cut sections. Plants within planting areas shall
be located such that mature branching pattern will not block sight distance, signs, or other traffic-related devices. No trees shall be placed where the mature canopy will grow to within 10 feet of existing power lines. Where roadside ditches are present, planting areas shall begin 5 feet from the centerline of the ditch unless shown otherwise in the Plans.

8-02.3(8) Planting

8-02.3(8)A Dates and Conditions for Planting

No plant material shall be planted until it has been inspected and accepted for planting by the Engineer. Rejected material shall be removed from the project site immediately. All plants for the project or a sufficient quantity to plant 1-acre of the site, whichever is less, shall be received on site prior to the Engineer beginning inspection of the plants.

Under no circumstances will planting be permitted during unsuitable soil or weather conditions as determined by the Engineer. Unsuitable conditions may include frozen soil, freezing weather, saturated soil, standing water, high winds, heavy rains, and high water levels. The ground shall be moist at the time of planting. All planting shall be accomplished during the following periods:

1. Non-Irrigated Plant Material
   Western Washington (West of the Cascade Mountain Crest) – October 1 to March 1.
   Eastern Washington (East of the Cascade Mountain Crest) – October 1 to November 15.

2. Irrigated Plant Material

In irrigated areas, plant material shall not be installed until the irrigation system is fully operational and accepted by the Engineer. Trees and shrubs may be planted in irrigated areas during the non-irrigated planting window before the irrigation system is functional with the written concurrence of the Engineer only if the irrigation system is guaranteed to be operational prior to the end of the non-irrigated planting window.

8-02.3(8)B Plant Installation

The Contractor shall handle plant material in the following manner:

1. Root systems shall be kept covered and damp at all times. Plant material shall be kept in containers until the time of planting.

2. Roots shall not be bunched, curled, twisted, or unreasonably bent when placed in the planting hole. Bare root plant material shall be dormant at the time of harvesting and planting. The root systems of all bare root plant material shall be dipped in a slurry immediately prior to planting.

3. Plant material supplied in wrapped balls shall not be removed from the wrapping until the time of planting at the planting location. The root system of balled plant material shall be moist at the time of planting. Root balls shall be loosened prior to planting. All burlap,
baskets, string, wire and other such materials shall be removed from
the hole when planting balled plants.

4. Plant cutting material shall be dormant at the time of cutting and
planting. All cuttings shall be installed immediately if buds begin to
swell.

5. Plants shall be placed with the crown at the finished grade. In their
final position, plants shall have their top true root (not adventitious
root) no more than 1 inch below the soil surface, no matter where that
root was located in the original root ball or container. The backfill
material, including container and root ball soil, shall be thoroughly
watered on the same day that planting occurs regardless of season.

When installing plants, the Contractor shall dig planting holes three times the
diameter of the container or root ball size. Any glazed surface of the planting
hole shall be roughened prior to planting.

8-02.3(8)C Pruning, Staking, Guying, and Wrapping

Plants shall be pruned at the time of planting, only to remove minor broken or
damaged twigs, branches or roots. Pruning shall be performed with a sharp
tool and shall be done in such a manner as to retain or to encourage natural
growth characteristics of the plants. All other pruning shall be performed only
after the plants have been in the ground at least 1 year and when plants are
dormant.

Trees shall only be staked when so noted in the Plans. Each tree shall be
staked or guyed before completion of the backfilling in accordance with the
details shown in the Plans.

Trees shall be wrapped when so noted in the Plans.

8-02.3(9) Seeding, Fertilizing, and Mulching

For all seed, the Contractor shall furnish the following documentation to the
Engineer:

1. The state or provincial seed dealer license and endorsements.

2. Copies of Washington State Department of Agriculture (WSDA) test
results on each lot of seed. Test results shall be within six months prior to
the date of application.

8-02.3(9)A Dates for Application of Seed

Unless otherwise allowed by the Engineer, the Contractor shall apply seed for
permanent erosion control during the following periods:

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<thead>
<tr>
<th>Western Washington² (West of the Cascade Mountain Crest)</th>
<th>Eastern Washington (East of the Cascade Mountain Crest)</th>
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<tbody>
<tr>
<td>March 1 through May 15</td>
<td>October 1 through November 15</td>
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<tr>
<td>September 1 through October 1</td>
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Seeding may be allowed outside these dates when allowed by the Engineer.

All roadway excavation and embankment ground surfaces that are completed to final grades shall be prepared and seeded during the first available seeding window. When environmental conditions are not conducive to satisfactory results, the Engineer may suspend the seeding Work until such time that the desired results are likely to be obtained. If seeding is suspended, temporary erosion control methods according to Section 8-01 shall be used to protect the bare soil until seeding conditions improve.

8-02.3(9)B Seeding and Fertilizing
The Contractor shall prepare the seeding area in accordance with Section 8-02.3(5)A and apply seed at the rate and mix specified in the Special Provisions. The Contractor shall notify the Engineer within 5 days in advance of any seeding operation and shall not begin the Work until areas prepared or designated for seeding have been accepted. Following the Engineer’s acceptance, seeding of the accepted ground surfaces shall begin immediately.

Seeding shall not be done during windy weather or when the ground is frozen, or excessively wet.

When seeding by hand, the seed shall be incorporated into the top ¼ inch of soil by hand raking or other method that is allowed by the Engineer.

Seed applied as a separate operation using a hydroseeder shall have a tracer added to visibly aid uniform application. The tracer shall be HECP Short-Term Mulch applied at a rate of 200 to 250 pounds per acre and the tracer shall carry the measured specified seeding rate.

8-02.3(9)C Seeding with Fertilizers and Mulches
When the Proposal includes any variation of seeding, fertilizing, and without mulching, the seed and fertilizer shall be applied in one application followed by mulching. West of the Cascade Mountains, seed, fertilizer, and mulch may be completely applied in one application. East of the Cascades, seeding, fertilizing, and mulching shall not be applied as a single application unless allowed by the Engineer in writing prior to application. The fertilizing and mulching shall meet the requirements of Sections 8-02.3(6) and 8-02.3(11).

8-02.3(9)D Inspection
Seeded areas will be inspected upon completion of seeding, fertilizing, and mulching. The Work in any area will not be measured for payment until a uniform distribution of the materials is accomplished at the specified rate. Areas that have not received a uniform application of seed, fertilizer, and mulch at the specified rate, as determined by the Engineer, shall be re-seeded, re-fertilized, or re-mulched prior to payment for seeding within a designated area.

8-02.3(9)E Protection and Care of Seeded Areas
The Contractor shall install and establish a stable and weed free stand of grass as specified within all designated permanent seeding areas. A stable stand of grass shall meet the following requirements:
1. A dense and uniform canopy cover, 70% for Western Washington and 50% for Eastern Washington, of specified species covers all seeded areas after 3 months of active growth following germination during the growing season. Canopy cover is defined as the cover of living and vigorous grass blades, leaves, and shoots of specified species. Volunteer species, weeds, woody plants, or other undesirable vegetation shall not factor into the canopy cover. Growth and establishment may require supplemental irrigation to meet cover requirements.

2. Stand health is evident by vigorously growing planted species having a uniform rich-green appearance and with no dead patches or major gaps of growth. A stand of grass that displays rusting, wilting, stunted growth, disease, yellowing or browning of leaves, or bare patches does not meet the stand health requirement.

3. The Contractor shall establish a stable stand of grass free of all weeds, non-specified grasses, and other undesirable vegetation. Weed control shall be in accordance with the Weed and Pest Control Plan and occur on a monthly basis during the establishment period and through the life of the Contract.

4. Remove all trash, rocks, construction debris, and other obstructions that may be detrimental to the continued establishment of future seeding.

In addition to the requirements of Section 1-07.13(1), restoration of eroded areas including clean up, removal, and proper disposal of eroded material, filling and raking of eroded areas with Topsoil Type A or fine compost, and re-application of the specified seed, fertilizer, and mulch shall occur at no additional cost to the Contracting Agency.

8-02.3(10) Lawn Installation

8-02.3(10)A Dates and Conditions for Lawn Installation

In irrigated areas, lawn installation shall not begin until the irrigation system is fully operational.

Unless otherwise allowed by the Engineer, seeded lawn installation shall be performed during the following time periods at the location shown:

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<td>October 1 through November 15</td>
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<tr>
<td>September 1 through October 1</td>
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<tr>
<td>When irrigation system is operational</td>
<td>When irrigation system is operational</td>
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<tr>
<td>March 1 through October 1</td>
<td>March 1 through November 1</td>
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The Contractor shall prepare the lawn area in accordance with Section 8-02.3(5) and apply seed at the mix and rate of application as specified in the Special Provisions.

The Contractor shall have the option of sodding in lieu of seeding for lawn installation at no additional expense to the Contracting Agency. Seeding in lieu of sodding will not be allowed.

Seed placed by hand shall be raked into the soil. Following raking, the seeded soil shall be rolled with a smooth 50-pound roller. Sod strips shall be placed within 48 hours of being cut. Placement shall be without voids and have the end joints staggered. Following placement, the sod shall be rolled with a smooth roller to establish contact with the soil.

Barriers shall be erected, with warning signs where necessary, to preclude pedestrian traffic access to the newly placed lawn during the establishment period.

Lawn establishment shall consist of caring for all new lawn areas within the limits of the project.

The lawn establishment period shall begin immediately after the lawn seeding or sodding has been accepted by the Engineer and shall extend to the end of four mowings or 20 working days whichever is longer. The mowings shall be done in accordance with Section 8-02.3(10)D.

During the lawn establishment period, the Contractor shall ensure the continuing healthy growth of the turf. This care shall include keeping the project in a presentable condition including, but not limited to, removal of litter, mowing, trimming, removal of grass clippings, edging, fertilization, insecticide and fungicide applications, weed control, watering, repairing the irrigation system, and repair and reseeding all damaged areas.

Temporary barriers shall be removed only when directed by the Engineer.

All Work performed under lawn establishment shall comply with established turf management practices.

Acceptance of lawn planting as specified will be based on a uniform stand of grass and a uniform grade at the time of final inspection. The Contractor shall recultivate, re-grade, reseed, and refertilize areas that are bare or have a poor stand of grass or not having a uniform grade through any cause before final inspection at no additional cost to the Contracting Agency.

Lawn mowing shall begin immediately after the lawn establishment period has been accepted by the Engineer and shall extend to the end of the Contract or the first-year plant establishment, whichever is last.

The Contractor shall accomplish the following minimum requirements:
1. Mow, trim, and edge as often as conditions dictate, at a minimum, once per week between April and September. Maximum height of lawn shall not exceed 3 inches. The cutting height shall be 2 inches. Cuttings, trimmings, and edgings shall be disposed of off the project site. When the Engineer allows the use of a mulching mower, trimmings may be left in place.

2. Water as often as conditions dictate depending on weather and soil conditions.

3. Provide fertilizer, weed control, water, and other measures as necessary to establish and maintain a healthy stand of grass.

8-02.3(11) Mulch
Mulches associated with seeding and planting shall be of the type specified in the Special Provisions or as indicated in the Plans. The Contractor shall evenly apply mulch at the rates indicated in the Plans. Mulches shall not be placed below the anticipated water level of ditch slopes, pond bank slopes, and stream banks, or in areas of standing or flowing water.

8-02.3(11)A Mulch for Seeding Areas
The Contractor shall furnish and evenly apply Hydraulically Applied Erosion Control Product (HECP) Long Term Mulch at the rates indicated and in accordance with the Manufacturer’s specifications unless otherwise specified.

HECP Long Term Mulch shall be hydraulically applied at the rate of 3500 pounds per acre with no more than 2000 pounds applied in any single lift. HECP mulch shall not be used within the Ordinary High Water Mark.

Mulch sprayed on signs or sign Structures shall be removed the same day.

Areas not accessible by mulching equipment shall be mulched by accepted hand methods.

HECP Long Term Mulch may be applied with seed and fertilizer west of the summit of the Cascade Range. East of the summit of the Cascade Range, seed and fertilizer shall be applied in a single application followed by the application of mulch.

8-02.3(11)B Bark or Woodchip Mulch
The Contractor shall apply bark or wood chip mulch of the type and depth specified where shown in the Plans or as specified in the Special Provisions.

The Contractor shall complete final grading and placement/incorporation of soil amendments within the planting area prior to placement of mulch. Areas receiving bark mulch shall be bare soil or vegetation free before application, except where trees and other plants are specifically identified in the Plans or designated by the Engineer to be saved and protected.

Bark or wood chip mulch shall be placed to a uniform non-compacted depth of 3 inches over all planting areas unless otherwise specified. Mulch shall be
feathered to the base of the plant and 1 inch below the top of junction and valve boxes, curbs, and pavement edges.

Any contamination of the mulch due to the Contractor’s operations shall be corrected to its former condition at no additional cost to the Contracting Agency. Mulch placed to a thickness greater than specified shall be at no additional cost to the Contracting Agency.

The Contractor shall keep plant material crowns, runners, and branches free of mulch at all times.

8-02.3(11)C Bark or Woodchip Mulch Rings
The Contractor shall apply mulch rings around plants installed within existing vegetation areas or within seeded areas as shown in the Plans. Bark or woodchip mulch rings shall be applied to the surface of vegetation free amended soil in the isolated plant locations where shown in the Plans or as specified in the Special Provisions. Bark or woodchip mulch shall be placed to a uniform non-compacted depth of 3 inches to a radius of 2 feet around all plants within interplanted plant locations.

8-02.3(12) Completion of Initial Planting
Upon completion of the initial planting within a designated area, the Engineer will make an inspection of all planting areas. The Engineer will notify the Contractor, in writing, of any replacements or corrective action necessary to meet the plant installation requirements. The Contractor shall replace all plants and associated materials rejected or missing and correct unsatisfactory conditions.

Completion of the initial planting within a designated area includes the following conditions:

1. 100 percent of each of the plant material categories are installed as shown in the Plans.
2. Planting Area is cleaned up.
3. Repairs are completed, including but not limited to, full operation of the irrigation system.
4. Mulch coverage is complete.
5. All weeds are controlled.

8-02.3(13) Plant Establishment
Plant establishment consists of caring for all plants and planting areas within the project limits. The provisions of Sections 1-07.13(2) and 1-07.13(3) do not apply to this Section.

When the Proposal includes the bid item PSIPE (Plant Selection Including Plant Establishment), that bid item includes one year of plant establishment Work. The first year of plant establishment shall begin immediately upon written notification from the Engineer of the completion of initial planting for the project. The first-year plant establishment period shall be a minimum of one calendar year.
The one calendar year shall be extended an amount equal to any periods where the Contractor does not comply with the plant establishment requirements and plan.

During the first-year plant establishment period, the Contractor shall perform all Work necessary to ensure the resumption and continued growth of the transplanted material. This Work shall include, but is not limited to, applying water, removing foreign, dead, or rejected plant material, maintaining all planting areas in a weed-free condition, and replacing all unsatisfactory plant material planted under the Contract. If plants are stolen or damaged by the acts of others, the Contracting Agency will pay invoice cost only for the replacement plants with no mark-up and the Contractor will be responsible for the labor to install the replacement plants.

Other weed control within the project limits but outside of planting, lawn, or seeding areas shall be as specified in Section 8-02.3(3)C.

During the first year of plant establishment, the Contractor shall meet monthly or at an agreed upon schedule with the Engineer for the purpose of joint inspection of the planting material. The Contractor shall correct all unsatisfactory conditions identified by the Engineer within a 10-day period immediately following the inspection. If plant replacement is required, the Contractor shall, within the 10-day period, submit a plan and schedule for the plant procurement and replacement to occur during the planting period as designated in Section 8-02.3(8). At the end of the plant establishment period, plants that do not show normal growth shall be replaced and all staking and guying that remain on the project shall be removed unless otherwise allowed by the Engineer.

All automatic irrigation systems shall be operated fully automatic during the plant establishment period and until final acceptance of the Contract. Payment for water used to water in plants, or hand watering of plant material or lawn areas unless otherwise specified, is the responsibility of the Contractor during the first-year plant establishment period.

Subsequent year plant establishment periods shall begin immediately at the completion of the preceding year’s plant establishment period. Each subsequent plant establishment period shall be one full calendar year in duration.

During the plant establishment period(s) after the first year plant establishment, the Work necessary for the continued healthy and vigorous growth of all plants material shall be performed as directed by the Engineer.

Payment for water used to water plants during the subsequent year(s) of plant establishment will be paid under the plant establishment item.

8-02.3(14) Plant Replacement
The Contractor shall be responsible for growing or arrange to provide sufficient plants for replacement of all plant material rejected through first-year plant establishment. All replacement plant material shall be inspected and accepted by the Engineer prior to installation. All rejected plant material shall be replaced with acceptable plants meeting the specifications and installed according to the requirements of this Section at dates allowed by the Engineer.
All replacement plants shall be of the same species as the plants they replace and meet the requirements of Section 9-14.8 unless otherwise allowed by the Engineer. Plants may vary in size reflecting one season of growth should the Contractor elect to hold plant material under nursery conditions for an additional year to serve as replacement plants. Replacement plant material larger than specified in the Plans shall meet the applicable section requirements of the ASNS for container class, ball size, spread, and branching characteristics.

8-02.3(15) Bioengineering
Bioengineering consists of using plant materials for the purpose of streambank or earthen slope construction and surface stabilization. This Work may include installing woody plant cuttings in various forms as well as part of streambank or earthen slope construction.

8-02.3(15)A Fascines
Live fascines shall be constructed of live and dead cuttings bundled together with a diameter of 8 to 18 inches. Live cuttings shall be the species shown in the Plans. Dead branches may be cuttings from any woody, non-invasive plant native to the project area. Dead branches may be placed within the live fascine and on the side exposed to the air. Live branches shall be placed in contact with the soil along their entire length. Each live fascine must contain a minimum of eight live branches. Dead branches shall constitute no more than 40 percent of the total fascine content.

The total length of each live fascine shall be a minimum of 5 feet. Branches shall be bundled into log-like forms and bound with biodegradable twine spaced at 1-foot intervals along the entire length of the live fascine. Live fascines shall be installed horizontally in a trench whose depth shall be ½ the diameter of the live fascine. Secure the live fascine with live stakes 3 feet in length and ¾ inch in diameter placed at 18-inch intervals. A minimum of three live stakes shall be used per fascine. The live stakes shall be driven through the live fascine vertically into the slope. The ends of live fascines shall be woven together so that no gap remains between the two sections of the live fascine.

Prior to being covered with soil, the fascine shall be thoroughly watered. Once the fascine is covered with 6 inches of soil, the soil covering the fascine shall be thoroughly watered.

When used to remedy erosion areas, live fascines shall extend a minimum of two feet beyond the visible area of erosion and soil disturbance. The locations for live fascines and live stake rows shall be identified in the field for review and acceptance by the Engineer. The Engineer may require adjustment of fascine locations prior to installation in order to best accomplish the intended functions.

Plant replacement during plant establishment for “PSIPE Live Fascine” will be required for any section void of live shoots for a length of 3 feet or more. Replacement shall consist of installing live stakes, spaced 1 foot apart above the fascine within the area void of live shoots. Live stakes shall be of the same species as the live fascine and shall have a minimum length of 3 feet and a
minimum diameter of ¾ inch. The requirements of Section 8-02.3(8) apply to PSIPE Live Fascine.

8-02.3(15)B Brush Mattress
Live brush mattress shall be constructed of live branch cuttings, live poles, jute rope and topsoil. The live cuttings and live poles shall be from the plant species designated in the Plans. Live branch cuttings shall be placed with the cut ends oriented down slope as shown in the Plans. Cuttings shall overlap from side to side and from top to bottom as each layer is constructed. The live branches in each succeeding upper layer shall overlap the adjacent lower layer by a minimum of 6 inches. A maximum of 20 percent of the branches may be dead branches, but the live branches shall be distributed evenly to provide even rooting and growth over the entire area of the brush mattress.

The Contractor shall anchor the live brush mattress to the slope using stakes and jute rope as shown in the Plans. Initially, the stakes shall be installed to protrude above the live brush mattress. The Contractor shall attach the jute rope to the stakes and tighten the rope by tamping the stakes further into the bank, pulling the live brush mattress tight against the soil surface. The Contractor shall cover the live brush mattress with sufficient stockpiled topsoil to ensure good soil contact with the live plant material.

Plant replacement during plant establishment for “PSIPE Live Brush Mattress” will be required for any section void of live shoots for an area of 25 square feet or more. Replacement shall consist of installing live stakes, spaced 3 feet apart in a triangular pattern within the area void of live shoots. Live stakes shall be of the same species as the live brush mattress and shall have a minimum length of 3 feet and a minimum diameter of ¾ inch. The requirements of Section 8-02.3(8) apply to PSIPE Brush Mattress.

8-02.3(15)C Brush Layer
Brush layers shall be constructed of live branch cuttings, randomly mixed, from the plant species listed under the brush layer heading in the Plans. The number of branches required will vary depending on the average branch diameter and layer thickness.

Brush layers shall be placed in a trench dug at a 45 degree incline into the slope or stream bank. Two-thirds to three-fourths of the length of the live branches shall be buried. Soil shall be firmly tamped in place. Succeeding layers shall be spaced as detailed in the Plans. Brush layer placed in stream banks shall be angled downstream.

Brush layers may include plant establishment when designated as PSIPE Brush Layer. Plant replacement for PSIPE Brush Layer will be required for each section void of live shoots for a continuous distance of 3 feet or more. The requirements of Section 8-02.3(8) apply to PSIPE Brush Layer.

8-02.3(16) Roadside Maintenance Under Construction
When the Contract includes the item, Roadside Maintenance Under Construction, this Work includes roadside mowing and ditch maintenance, and noxious weed control outside of planting areas according to Section 8-02.3(3)C.
8-02.3(16)A Roadside Mowing

The Contractor shall mow designated roadside grass areas to the limits designated by the Engineer. Roadside mowing is limited to slopes not steeper than 3(H) to 1(V).

The Contractor shall mow according to the following requirements:

1. Trim around traffic equipment, structures, planting areas, or other features extending above ground preceding or simultaneously with each mowing.

2. Maintain grass between 4 and 12 inches in height.

3. Operate mowing equipment with suitable guards to prevent throwing rocks or debris onto the traveled way or off of the Contracting Agency property. Power driven equipment shall not cause ruts, deformation, and compaction of the vegetated soil.

4. Removing clippings is required on the traveled way, shoulders, walkways, or Structures.

5. Restore soil rutting to a smooth and even grade at the direction of the Engineer.

8-02.3(16)B Ditch Maintenance

The Contractor shall maintain drainage for the duration of the Contract according to the following requirements:

1. Maintain flow lines in drainage channels and roadside ditches.

2. Cutting or trimming vegetation within drainage channels to maintain positive flow.

3. Remove dirt and debris from inside of culverts or any drainage area where runoff has allowed accumulations and re-seed for erosion control.

4. Restore channels to previous operational condition.

8-02.4 Measurement

Topsoil, bark or woodchip mulch and soil amendments will be measured by the acre or the square yard along the grade and slope of the area covered immediately after placement. Weed control pre-treatment of topsoil areas, excavation, and stockpiling are included in the bid item “Topsoil Type ____.”

Bark or woodchip mulch rings will be measured per each.

Compost will be measured by the acre or the square yard along the grade and slope of the area covered immediately after application.

Seeding, fertilizing, and mulching will be measured by the acre or the square yard by ground slope measurement or through the use of design data.
Seeding and fertilizing by hand will be measured by the square yard. No adjustment in area size will be made for the vegetation free zone around each plant.

Seeded lawn, sod installation, and lawn mowing will be measured along the ground slope and computed in square yards of actual lawn completed, established, and accepted.

Plant selection will be measured per each.

PSIPE __ (Plant Selection Including Plant Establishment) will be measured per each.

Live Pole will be measured per each.

Live Stake Row will be measured by the linear foot along the ground slope line.

The pay quantities for plant materials will be determined by count of the number of satisfactory plants in each category accepted by the Engineer.

Fascine and PSIPE live fascine will be measured by the linear foot along the ground slope line.

Brush mattress and PSIPE live brush mattress will be measured by the surface square yard along the ground slope line.

Brush layer and PSIPE brush layer will be measured by the linear foot along the ground slope line.

Water will be measured in accordance with Section 2-07.4. Measurement will be made of only that water hauled in tank trucks or similar equipment.

8-02.5 Payment
Payment will be made for each of the following listed Bid items that are included in the Proposal:

“Project Area Weed and Pest Control” will be paid in accordance with Section 1-09.6.

For the purpose of providing a common Proposal for all Bidders, the Contracting Agency entered an amount for “Project Area Weed and Pest Control” in the Proposal to become a part of the total Bid by the Contractor. Payment under this item will be made only when the Work is not already covered by other items.

“Topsoil Type ____”, per acre.

The unit Contract price per acre for “Topsoil Type ____” shall be full payment for all costs for the specified Work.

“Fine Compost”, per acre or per square yard.
“Medium Compost”, per acre or per square yard.
“Coarse Compost”, per acre or per square yard.

The unit Contract price per acre for “Fine Compost”, “Medium Compost” or “Coarse Compost” shall be full pay for furnishing and spreading the compost onto the existing soil.
“Soil Amendment”, per acre.
The unit Contract price per acre for “Soil Amendment” shall be full pay for furnishing and incorporating the soil amendment into the existing soil.

“Plant Selection ___”, per each.
The unit Contract price for “Plant Selection ___”, per each shall be full pay for all Work to perform the work as specified within the planting area prior to planting for weed control, planting area preparation and installation of plants with initial watering.

As the plants that do not include plant establishment are obtained, propagated, and grown, partial payments will be made as follows:

Payment of 15 percent of the unit Contract price per each when the plant materials have been contracted, propagated, and are growing under nursery conditions. The Contractor shall provide the Engineer with certification that the plant material has been procured or contracted for delivery to the project for planting within the time limits of the project. The certification shall state the location, quantity, and size of all material.

Payment will be increased to 100 percent of the unit Contract price per each for contracted plant material at the completion of the initial planting.

All partial payments shall be limited to the actual number of healthy vigorous plants that meet the stage requirements, limited to plan quantity. Previous partial payments made for materials rejected or missing will be deducted from future payments due the Contractor.

“PSIPE ___”, per each.
The unit Contract price for “PSIPE ___”, per each, shall be full pay for all Work necessary to perform as specified within the planting area for weed control and planting area preparation, planting, cleanup, and water necessary to complete planting operations as specified to the end of first year plant establishment.

As the plants that include plant establishment are obtained, propagated, and grown, partial payments will be made as follows after inspection by the Engineer:

Payment of 5 percent of the unit Contract price, per each, when the plant materials have been contracted, propagated, and are growing under nursery conditions. The Contractor shall provide the Engineer with certification that the plant material has been procured or contracted for delivery to the project for planting within the time limits of the project. The certification shall state the location, quantity, and size of all material.

Payment will be increased to 15 percent of the unit Contract price, per each, upon completion of the initial weed control and planting area preparation Work.

Payment will be increased to 60 percent of the unit Contract price per each for the contracted plant material in a designated unit area when planted.
Payment will be increased to 70 percent of the unit Contract price per each for contracted plant material at the completion of the initial planting.

Payment will be increased to the appropriate percentage upon reaching the following plant establishment milestones:

- June 30th: 80 percent
- September 30th: 90 percent
- Completion of first-year plant establishment or after all replacement plants have been installed, whichever is later.

Plant establishment milestones are achieved when planting areas meet conditions described in Section 8-02.3(13).

- “Seeding, Fertilizing and Mulching”, per acre.
- “Seeding and Fertilizing”, per acre or per square yard.
- “Seeding and Fertilizing by Hand”, per square yard.
- “Second Application of Fertilizer”, per acre.
- “Seeding and Mulching”, per acre.
- “Seeded Lawn Installation”, per square yard.
- “Sod Installation”, per square yard.
- “Lawn Mowing”, per square yard.

The unit Contract price per square yard for “Seeded Lawn Installation” or “Sod Installation” shall be full pay for all costs necessary to prepare the area, plant or sod the lawn, erect barriers, control weeds, and establish lawn areas and for furnishing all labor, tools, equipment, and materials necessary to complete the work as specified and shall be paid in the following sequence for healthy, vigorous lawn:

- Completion of Lawn Planting: 60 percent of individual areas
- Mid Lawn Establishment (after two mowings): 85 percent of individual areas
- Completion of Lawn Establishment (after four mowings): 100 percent of individual areas

“Plant Establishment Year ____” will be paid in accordance with Section 1-09.6. For the purpose of providing a common Proposal for all Bidders, the Contracting Agency entered an amount for “Plant Establishment - ____ Year” in the Proposal to become a part of the total Bid by the Contractor.

- “Live Pole”, per each.
- “Live Stake Row”, per linear foot.
“Bark or Wood Chip Mulch”, per acre.

“Bark or Wood Chip Mulch Rings”, per each.

The unit Contract price per acre for “Bark or Wood Chip Mulch” shall be full pay for furnishing and spreading the mulch onto the existing soil.

“Fascine” and “PSIPE Live Fascine”, per linear foot.
“Brush Mattress” and “PSIPE Live Brush Mattress”, per square yard.
“Brush Layer” and “PSIPE Brush Layer”, per linear foot.

When PSIPE is included with Fascine, Brush Mattress, or Brush Layer, the payment schedule for PSIPE will apply.

“Roadside Maintenance under Construction” will be paid in accordance with Section 1-09.6.

For the purpose of providing a common Proposal for all Bidders, the Contracting Agency has entered an amount for “Roadside Maintenance Under Construction” in the Proposal to become a part of the total Bid by the Contractor.

“Water”, per M Gal.

8-04.AP8

Section 8-04, Curbs, Gutters, and Spillways
April 2, 2018

8-04.2 Materials
In the first paragraph, the reference to “Portland Cement” is revised to read:
Cement 9-01

8-04.3(1) Cement Concrete Curbs, Gutters, and Spillways
The first paragraph is supplemented with the following:
Roundabout truck apron cement concrete curb and gutter shall be constructed with air entrained concrete Class 4000 conforming to the requirements of Section 6-02.

8-06.AP8

Section 8-06, Cement Concrete Driveway Entrances
April 2, 2018

8-06.2 Materials
In the first paragraph, the reference to “Portland Cement” is revised to read:
Cement 9-01

8-06.3 Construction Requirements
The first paragraph is revised to read:
Cement concrete driveway approaches shall be constructed with air entrained concrete Class 4000 conforming to the requirements of Section 6-02 or Portland Cement or
Blended Hydraulic Cement Concrete Pavement conforming to the requirements of Section 5-05.

8-07.AP8  
Section 8-07, Precast Traffic Curb  
April 2, 2018

8-07.3(1) Installing Curbs  
The first sentence of the first paragraph is revised to read:

The curb shall be firmly bedded for its entire length and breadth on a mortar bed conforming to Section 9-20.4(3) composed of one part Portland cement or blended hydraulic cement and two parts sand.

The fourth paragraph is revised to read:

All joints between adjacent pieces of curb except joints for expansion and/or drainage as designated by the Engineer shall be filled with mortar composed of one part Portland cement or blended hydraulic cement and two parts sand.

8-09.AP8  
Section 8-09, Raised Pavement Markers  
April 1, 2019

8-09.5 Payment  
The last paragraph is revised to read:

The unit Contract price per hundred for “Raised Pavement Marker Type 1”, “Raised Pavement Marker Type 2”, “Raised Pavement Marker Type 3______ In.”, and “Recessed Pavement Marker” shall be full pay for furnishing and installing the markers in accordance with these Specifications.

8-11.AP8  
Section 8-11, Guardrail  
April 1, 2019

8-11.3(1)A Erection of Posts  
The first sentence of the first paragraph is revised to read:

Posts shall be set to the true line and grade of the Highway after the grade is in place and compaction is completed.

8-11.3(1)C Terminal and Anchor Installation  
The first paragraph is revised to read:

All excavation and backfilling required for installation of anchors shall be performed in accordance with Section 2-09, except that the costs thereof shall be included in the unit Contract price for the anchor installed.

The first sentence of the second to last paragraph is revised to read:
Assembly and installation of Beam Guardrail Non-flared Terminals for Type 31 guardrail shall be supervised at all times by a manufacturer’s representative, or an installer who has been trained and certified by the manufacturer.

The last paragraph is revised to read:

Beam Guardrail Non-flared Terminals for Type 31 guardrail shall meet the crash test and evaluation criteria in the Manual for Assessing Safety Hardware (MASH).

8-11.4 Measurement
The third paragraph is revised to read:

Measurement of beam guardrail _____ terminal will be per each for the completed terminal.

The fourth paragraph is revised to read:

Measurement of beam guardrail Type 31 buried terminal Type 2 will be per linear foot for the completed terminal.

The sixth paragraph is revised to read:

Measurement of beam guardrail anchor Type 10 will be per each for the completed anchor, including the attachment of the anchor to the guardrail.

8-11.5 Payment
The Bid item “Beam Guardrail Anchor Type ____”, per each is revised to read “Beam Guardrail Anchor Type 10”, per each.

The Bid item “Beam Guardrail Buried Terminal Type 1”, per each is deleted from this section.

The Bid item “Beam Guardrail Buried Terminal Type 2”, per linear foot and the following paragraph are revised to read:

“Beam Guardrail Type 31 Buried Terminal Type 2”, per linear foot.

The unit Contract price per linear foot for “Beam Guardrail Type 31 Buried Terminal Type 2” shall be full payment for all costs to obtain and provide materials and perform the Work as described in Section 8-11.3(1)C.

8-14.2 Materials
In the first paragraph, the reference to “Portland Cement” is revised to read: Cement 9-01

In the second paragraph, each reference to “Federal Standard 595” is revised to read “SAE AMS Standard 595”.

Section 8-14, Cement Concrete Sidewalks
April 2, 2018
8-16.AP8
Section 8-16, Concrete Slope Protection
April 2, 2018

8-16.2 Materials
In the first paragraph, the last two material references are revised to read:

Poured Portland Cement or Blended Hydraulic Cement
Concrete Slope Protection 9-13.5(2)
Pneumatically Placed Portland Cement or Blended
Hydraulic Cement Concrete Slope Protection 9-13.5(3)

8-17.AP8
Section 8-17, Impact Attenuator Systems
January 7, 2019

8-17.3 Construction Requirements
This section is supplemented with the following:

Permanent impact attenuators shall meet the crash test and evaluation criteria of the
Manual for Assessing Safety Hardware (MASH), except as otherwise noted in the Plans
or Special Provisions.

8-20.AP8
Section 8-20, Illumination, Traffic Signal Systems, Intelligent Transportation Systems, and Electrical
August 6, 2018

8-20.1(1) Regulations and Code
The last paragraph is revised to read:

Persons performing electrical work shall be certified in accordance with and supervised
as required by RCW 19.28.161. Proof of certification shall be worn at all times in
accordance with WAC 296-46B-942. Persons failing to meet these certification
requirements may not perform any electrical work, and shall stop any active electrical
work, until their certification is provided and worn in accordance with this Section.

8-20.2(2) Equipment List and Drawings
This section is renumbered:

8-20.2(1) Equipment List and Drawings

8-20.3(4) Foundations
The second sentence of the first paragraph is revised to read:

Concrete for Type II, III, IV, V, and CCTV signal standards and light standard
foundations shall be Class 4000P and does not require air entrainment.

8-20.3(5)A General
The last two sentences of the last paragraph is deleted.
This section is supplemented with the following:

All conduits shall include a pull tape with the equipment grounding conductor. The pull tape shall be attached to the conduit near the end bell or grounded end bushing, or to duct plugs or caps if present, at both ends of the conduit.

8-20.3(8) Wiring

The seventeenth paragraph is supplemented with the following:

Pulling tape shall meet the requirements of Section 9-29.1(10). Pull string may not be used.

8-20.3(14)C Induction Loop Vehicle Detectors

Item number 2 is deleted.

Item numbers 3 through 12 are renumbered to 2 through 11, respectively.

8-21.AP8

Section 8-21, Permanent Signing

January 7 2019

8-21.3(5) Sign Relocation

The second sentence of the first paragraph is revised to read:

Where the existing sign structure is mounted on concrete pedestals, the Contractor shall remove the pedestal to a minimum of 2 feet below finished grade and backfill the remaining hole with material similar to that surrounding the hole.

8-21.3(9)F Foundations

Item number 3 of the twelfth paragraph is supplemented with the following new sentence:

Class 4000P concrete for roadside sign structures does not require air entrainment.

8-22.AP8

Section 8-22, Pavement Marking

January 7, 2019

8-22.3(2) Preparation of Roadway Surfaces

The second paragraph is revised to read:

Remove all other contaminants from pavement surfaces that may adversely affect the installation of new pavement marking.

8-22.3(3)F Application Thickness

The second to last sentence of the last paragraph is revised to read:

After grinding, clean the groove.
Section 9-00, Definitions and Tests
January 7, 2019

9-00.4 Sieves for Testing Purposes
This section is revised to read:

Test sieves shall be made of either: (1) woven wire cloth conforming to ASTM E11, or
(2) square-hole, perforated plates conforming to ASTM E323.

9-00.7 Galvanized Hardware, AASHTO M 232
The first sentence is revised to read:

An acceptable alternate to hot-dip galvanizing in accordance with AASHTO M 232 will
be zinc coatings mechanically deposited in accordance with ASTM B695, providing the
minimum thickness of zinc coating is not less than that specified in AASHTO M 232,
and the process will not produce hydrogen embrittlement in the base metal.

Section 9-02, Bituminous Materials
January 7, 2019

9-02.1 Asphalt Material, General
The second paragraph is revised to read:

The Asphalt Supplier of Performance Graded (PG) asphalt binder and emulsified
asphalt shall have a Quality Control Plan (QCP) in accordance with WSDOT QC 2
"Standard Practice for Asphalt Suppliers That Certify Performance Graded and
Emulsified Asphalts". The Asphalt Supplier’s QCP shall be submitted and receive the
acceptance of the WSDOT State Materials Laboratory. Once accepted, any change to
the QCP will require a new QCP to be submitted for acceptance. The Asphalt Supplier
of PG asphalt binder and emulsified asphalt shall certify through the Bill of Lading that
the PG asphalt binder or emulsified asphalt meets the Specification requirements of the
Contract.

9-02.1(4) Performance Graded Asphalt Binder (PGAB)
This section’s title is revised to read:

Performance Graded (PG) Asphalt Binder

The first paragraph is revised to read:

PG asphalt binder meeting the requirements of AASHTO M 332 Table 1 of the grades
specified in the Contract shall be used in the production of HMA. For HMA with greater
than 20 percent RAP by total weight of HMA, or any amount of RAS, the new asphalt
binder, recycling agent and recovered asphalt (RAP and/or RAS) when blended in the
proportions of the mix design shall meet the PG asphalt binder requirements of
AASHTO M 332 Table 1 for the grade of asphalt binder specified by the Contract.

The second paragraph, including the table, is revised to read:
In addition to AASHTO M 332 Table 1 specification requirements, PG asphalt binders shall meet the following requirements:

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Method</th>
<th>PG58S-22</th>
<th>PG58H-22</th>
<th>PG58V-22</th>
<th>PG64S-28</th>
<th>PG64H-28</th>
<th>PG64V-28</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTFO Residue: Average Percent Recovery @ 3.2 kPa</td>
<td>AASHTO T 350(^1)</td>
<td></td>
<td></td>
<td>30% Min.</td>
<td>20% Min.</td>
<td>25% Min.</td>
<td>30% Min.</td>
</tr>
</tbody>
</table>

\(^1\)Specimen conditioned in accordance with AASHTO T 240 – RTFO.

The third paragraph is revised to read:

The RTFO $J_{nrdiff}$ and the PAV direct tension specifications of AASHTO M 332 are not required.

**9-02.1(6) Cationic Emulsified Asphalt**

This section is revised to read:

Cationic Emulsified Asphalt meeting the requirements of AASHTO M 208 Table 1 of the grades specified in the Contract shall be used.

**9-02.5 Warm Mix Asphalt (WMA) Additive**

This section, including title, is revised to read:

**9-02.5 HMA Additive**

Additives for HMA shall be accepted by the Engineer.

9-03.AP9

**Section 9-03, Aggregates**

**January 7, 2019**

**9-03.1 Aggregates for Portland Cement Concrete**

This section’s title is revised to read:

**Aggregates for Concrete**

**9-03.1(1) General Requirements**

The first two sentences of the first paragraph are revised to read:

Concrete aggregates shall be manufactured from ledge rock, talus, or sand and gravel in accordance with the provisions of Section 3-01. Reclaimed aggregate may be used if it complies with the specifications for concrete.

The second paragraph (up until the colon) is revised to read:
Aggregates for concrete shall meet the following test requirements:

The second sentence of the second to last paragraph is revised to read:

The Contractor shall submit test results according to ASTM C1567 through the Engineer to the State Materials Laboratory that demonstrate that the proposed fly ash when used with the proposed aggregates and cement will control the potential expansion to 0.20 percent or less before the fly ash and aggregate sources may be used in concrete.

9-03.1(2) Fine Aggregate for Portland Cement Concrete

This section’s title is revised to read:

Fine Aggregate for Concrete

9-03.1(4) Coarse Aggregate for Portland Cement Concrete

This section’s title is revised to read:

Coarse Aggregate for Concrete

9-03.1(4)C Grading

The first paragraph (up until the colon) is revised to read:

Coarse aggregate for concrete when separated by means of laboratory sieves shall conform to one or more of the following gradings as called for elsewhere in these Specifications, Special Provisions, or in the Plans:

9-03.1(5) Combined Aggregate Gradation for Portland Cement Concrete

This section’s title is revised to read:

Combined Aggregate Gradation for Concrete

9-03.1(5)B Grading

In the last paragraph, “WSDOT FOP for WAQTC/AASHTO T 27/T 11” is revised to read “FOP for WAQTC/AASHTO T 27/T 11”.

9-03.2 Aggregate for Job-Mixed Portland Cement Mortar

This section’s title is revised to read:

Aggregate for Job-Mixed Portland Cement or Blended Hydraulic Cement Mortar

The first sentence of the first paragraph is revised to read:

Fine aggregate for portland cement or blended hydraulic cement mortar shall consist of sand or other inert materials, or combinations thereof, accepted by the Engineer, having hard, strong, durable particles free from adherent coating.

9-03.4(1) General Requirements

The first paragraph (up until the colon) is revised to read:
Aggregate for bituminous surface treatment shall be manufactured from ledge rock, talus, or gravel, in accordance with Section 3-01. Aggregates for Bituminous Surface Treatment shall meet the following test requirements:

9-03.8(1) General Requirements
The first paragraph (up until the colon) is revised to read:

Aggregates for Hot Mix Asphalt shall meet the following test requirements:

9-03.8(2) HMA Test Requirements
The two tables in the second paragraph are replaced with the following three tables:

<table>
<thead>
<tr>
<th>Mix Criteria</th>
<th>HMA Class</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>3/8 inch</td>
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<tr>
<td>Voids in Mineral Aggregate (VMA), %</td>
<td>15.0</td>
</tr>
<tr>
<td>Voids Filled With Asphalt (VFA), %</td>
<td>ESAL’s (millions)</td>
</tr>
<tr>
<td></td>
<td>&lt; 0.3</td>
</tr>
<tr>
<td></td>
<td>0.3 to &lt; 3</td>
</tr>
<tr>
<td></td>
<td>≥ 3</td>
</tr>
<tr>
<td>Dust/Asphalt Ratio</td>
<td>0.6</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Method</th>
<th>ESAL’s (millions)</th>
<th>Number of Passes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hamburg Wheel-Track Testing, FOP for AASHTO T 324 Minimum Number of Passes with no Stripping Inflection Point and Maximum Rut Depth of 10mm</td>
<td>&lt; 0.3</td>
<td>10,000</td>
</tr>
<tr>
<td></td>
<td>0.3 to &lt; 3</td>
<td>12,500</td>
</tr>
<tr>
<td></td>
<td>≥ 3</td>
<td>15,000</td>
</tr>
<tr>
<td>Indirect Tensile (IDT) Strength (psi) of Bituminous Materials FOP for ASTM D6931</td>
<td>175 Maximum</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Gmm</th>
<th>ESAL’s (millions)</th>
<th>N initial</th>
<th>N design</th>
<th>N maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 0.3</td>
<td>≤ 91.5</td>
<td>96.0</td>
<td>≤ 98.0</td>
<td></td>
</tr>
<tr>
<td>0.3 to &lt; 3</td>
<td>≤ 90.5</td>
<td>96.0</td>
<td>≤ 98.0</td>
<td></td>
</tr>
<tr>
<td>≥ 3</td>
<td>≤ 89.0</td>
<td>96.0</td>
<td>≤ 98.0</td>
<td></td>
</tr>
<tr>
<td>Gyratory Compaction (number of gyrations)</td>
<td>&lt; 0.3</td>
<td>6</td>
<td>50</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>0.3 to &lt; 3</td>
<td>7</td>
<td>75</td>
<td>115</td>
</tr>
<tr>
<td></td>
<td>≥ 3</td>
<td>8</td>
<td>100</td>
<td>160</td>
</tr>
</tbody>
</table>

9-03.8(7) HMA Tolerances and Adjustments
In the table in item number 1, the fifth row is revised to read:

<table>
<thead>
<tr>
<th></th>
<th>Asphalt binder</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-0.4% to 0.5%</td>
</tr>
</tbody>
</table>

In the table in item number 1, the following new row is inserted before the last row:

<table>
<thead>
<tr>
<th></th>
<th>Voids in Mineral Aggregate, VMA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-1.0%</td>
</tr>
</tbody>
</table>
9-03.9(1) Ballast
The second paragraph (up until the colon) is revised to read:

Aggregates for ballast shall meet the following test requirements:

9-03.14(4) Gravel Borrow for Structural Earth Wall
The second sentence of the first paragraph is revised to read:

The material shall be substantially free of shale or other soft, poor durability particles, and shall not contain recycled materials, such as glass, shredded tires, concrete rubble, or asphaltic concrete rubble.

9-03.21(1)B Recycled Concrete Aggregate Approval and Acceptance
The first sentence of the second paragraph is revised to read:

Recycled concrete aggregate may be used as coarse aggregate or blended with coarse aggregate for Commercial Concrete, Class 3000 concrete, or Cement Concrete Pavement.

Item number 4 of the second paragraph is revised to read:

4. For Cement Concrete Pavement mix designs using recycled concrete aggregates, the Contractor shall submit evidence that ASR mitigating measures control expansion in accordance with Section 9-03.1(1).

This section is supplemented with the following new subsection:

9-03.21(1)B1 Recycled Concrete Aggregate Approval and Acceptance
Recycled concrete aggregate may be approved through a three tiered system that consists of the following:

<table>
<thead>
<tr>
<th>Tier 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approval Requirements</td>
</tr>
<tr>
<td>Acceptance Requirements</td>
</tr>
</tbody>
</table>

Approved to provide the following Aggregate Materials:

- 9-03.10 Aggregate for Gravel Base
- 9-03.12(1)B Gravel Backfill for Foundations Class B
- 9-03.12(2) Gravel Backfill for Walls
- 9-03.12(3) Gravel Backfill for Pipe Zone Bedding
- 9-03.14(1) Gravel Borrow
- 9-03.14(2) Select Borrow
- 9-03.14(2) Select Borrow (greater than 3 feet below subgrade and side slope)
- 9-03.14(3) Common Borrow
- 9-03.14(3) Common Borrow (greater than 3 feet below subgrade and side slope)
- 9-03.17 Foundation Material Class A and Class B
- 9-03.18 Foundation Material Class C
- 9-03.19 Bank Run Gravel for Trench Backfill

Tier 2
### Approval Requirements

The Reclamation Facility shall have a Quality Control Plan (QCP) in accordance with WSDOT QC 9 “Standard Practice for Approval of Reclamation Facilities of WSDOT Recycled Concrete and Returned Concrete”. The Reclamation Facility’s QCP shall be submitted and approved by the WSDOT State Materials Laboratory. Once accepted, any changes to the QCP will require a new QCP to be submitted for acceptance. Evaluation of aggregate source properties (LA Wear and Degradation) for the recycled concrete aggregate is not required.

### Acceptance Requirements

Certification of toxicity characteristics in accordance with Section 9-03.21(1), required if requested. Field acceptance testing in accordance with Section 3-04 is required. Provide certification in accordance with WSDOT QC 9 for every lot. A lot shall be no larger than 10,000 tons.

**Approved to provide the following Aggregate Materials:**

<table>
<thead>
<tr>
<th>Tier 1 aggregate materials</th>
<th>9-03.1 Coarse Aggregate for Commercial Concrete or Concrete class 3000</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-03.9(1) Ballast</td>
<td>9-03.9(2) Permeable Ballast</td>
</tr>
<tr>
<td>9-03.9(3) Crushed Surfacing</td>
<td>9-03.12(1)A Gravel Backfill for Foundations Class A</td>
</tr>
</tbody>
</table>

### Tier 3

**Approval Requirements**

The Reclamation Facility shall have a Quality Control Plan (QCP) in accordance with WSDOT QC 10 “Standard Practice for Approval of Reclamation Facilities of Recycled Concrete Aggregates from Stockpiles of Unknown Sources”. The Reclamation Facility’s QCP shall be submitted and approved by the WSDOT State Materials Laboratory. Once accepted, any changes to the QCP will require a new QCP to be submitted for acceptance. Evaluation of aggregate source properties (LA Wear and Degradation) for the recycled concrete aggregate is required.

**Acceptance Requirements**

Certification of toxicity characteristics in accordance with Section 9-03.21(1) is required. Field acceptance testing in accordance with Section 3-04 is required. Provide certification in accordance with WSDOT QC 10 for every lot. A lot shall be no larger than 10,000 tons.

**Approved to provide the following Aggregate Materials:**

<table>
<thead>
<tr>
<th>Tier 1 aggregate materials</th>
<th>9-03.1 Coarse Aggregate for Commercial Concrete or Concrete class 3000</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-03.9(1) Ballast</td>
<td>9-03.9(2) Permeable Ballast</td>
</tr>
<tr>
<td>9-03.9(3) Crushed Surfacing</td>
<td>9-03.12(1)A Gravel Backfill for Foundations Class A</td>
</tr>
</tbody>
</table>
For Reclamation Facilities that do not participate in Tier 2 and Tier 3, approval of recycled concrete aggregate will be in accordance with Section 9-03.21(1), and acceptance will be in accordance with Section 3-04.

**9-03.21(1)E  Table on Maximum Allowable percent (By Weight) of Recycled Material**

“Portland Cement” is deleted from the first two rows in the table.

The following new row is inserted after the second row:

| Coarse Aggregate for Concrete Pavement | 9-03.1(4) | 0 | 100 | 0 | 0 |

The first column of the fourth row (after the preceding Amendment is applied) is revised to read:

Coarse Aggregate for Commercial Concrete and Class 3000 Concrete

9-04.AP9

**Section 9-04, Joint and Crack Sealing Materials**

January 7, 2019

This section’s title is revised to read:

**Joint Sealing Materials**

**9-04.1(2) Premolded Joint Filler for Expansion Joints**

In this section, each reference to “AASHTO T 42” is revised to read “ASTM D 545”.

**9-04.2(1)A1 Hot Poured Sealant for Cement Concrete Pavement**

This section is supplemented with the following:

- Hot poured sealant for cement concrete pavement is acceptable for installations in joints where cement concrete pavement abuts a bituminous pavement.

**9-04.2(1)A2 Hot Poured Sealant for Bituminous Pavement**

This section is supplemented with the following:

- Hot poured sealant for bituminous pavement is acceptable for installations in joints where cement concrete pavement abuts a bituminous pavement.

**9-04.2(1)B Sand Slurry for Bituminous Pavement**

Item number 2 of the first paragraph is revised to read:

- Two percent portland cement or blended hydraulic cement, and

**9-04.3 Joint Mortar**

The first paragraph is revised to read:

- Mortar for hand mortared joints shall conform to Section 9-20.4(3) and consist of one part portland cement or blended hydraulic cement, three parts fine sand, and sufficient water to allow proper workability.
9-04.5 Flexible Plastic Gaskets
In the table, the Test Method value for Specific Gravity at 77°F is revised to read “ASTM D71”.

In the table, the Test Method value for Flash Point COC, F is revised to read “ASTM D93 REV A”.

In the table, the Test Method value for Volatile Matter is revised to read “ASTM D6”.

9-05.AP9
Section 9-05, Drainage Structures and Culverts
January 7, 2019

9-05.3(1)A End Design and Joints
The second sentence of the first paragraph is revised to read:

The joints and gasket material shall meet the requirements of ASTM C990.

9-05.3(1)C Age at Shipment
The last sentence of the first paragraph is revised to read:

Unless it is tested and accepted at an earlier age, it shall not be considered ready for shipment sooner than 28 days after manufacture when made with Type II portland cement or blended hydraulic cement, nor sooner than 7 days when made with Type III portland cement.

9-05.7(3) Concrete Storm Sewer Pipe Joints
The second sentence is revised to read:

The joints and gasket material shall meet the requirements of ASTM C990.

9-05.7(4)A Hydrostatic Pressure on Pipes in Straight Alignment
The first sentence is revised to read:

Hydrostatic pressure tests on pipes in straight alignment shall be made in accordance with the procedure outlined in Section 10 of ASTM C990, except that they shall be performed on an assembly consisting of not less than three nor more than five pipe sections selected from stock by the Engineer and assembled in accordance with standard installation instructions issued by the manufacturer.

9-05.24(1) Polypropylene Culvert Pipe and Storm Sewer Pipe
This section is revised to read:

Polypropylene culvert and storm sewer pipe shall conform to the following requirements:

1. For dual wall pipe sizes up to 60 inches: ASTM F2881 or AASHTO M 330, Type S or Type D.

2. For double or triple wall pipe sizes up to 60 inches: ASTM F2764.
3. Fittings shall be factory welded, injection molded, or PVC.

9-05.24(2) Polypropylene Sanitary Sewer Pipe

This section is revised to read:

Polypropylene sanitary sewer pipe shall conform to the following requirements:

1. For pipe sizes up to 60 inches: ASTM F2764.

2. Fittings shall be factory welded, injection molded, or PVC.

9-06.AP9

Section 9-06, Structural Steel and Related Materials

January 7, 2019

9-06.5 Bolts

This section’s title is revised to read:

Bolts and Rods

9-06.5(4) Anchor Bolts

This section, including title, is revised to read:

9-06.5(4) Anchor Bolts and Anchor Rods

Anchor bolts and anchor rods shall meet the requirements of ASTM F1554 and, unless otherwise specified, shall be Grade 105 and shall conform to Supplemental Requirements S2, S3, and S4.

Nuts for ASTM F1554 Grade 105 black anchor bolts and anchor rods shall conform to ASTM A563, Grade D or DH. Nuts for ASTM F1554 Grade 105 galvanized anchor bolts and anchor rods shall conform to either ASTM A563, Grade DH, or AASHTO M292, Grade 2H, and shall conform to the overtapping, lubrication, and rotational testing requirements in Section 9-06.5(3). Nuts for ASTM F1554 Grade 36 or 55 black or galvanized anchor bolts and anchor rods shall conform to ASTM A563, Grade A or DH. Washers shall conform to ASTM F436.

The bolts and rods shall be tested by the manufacturer in accordance with the requirements of the pertinent Specification and as specified in these Specifications. Anchor bolts, anchor rods, nuts, and washers shall be inspected prior to shipping to the project site. The Contractor shall submit to the Engineer for acceptance a Manufacturer’s Certificate of Compliance for the anchor bolts, anchor rods, nuts, and washers, as defined in Section 1-06.3. If the Engineer deems it appropriate, the Contractor shall provide a sample of the anchor bolt, anchor rod, nut, and washer for testing.

All bolts, rods, nuts, and washers shall be marked and identified as required in the pertinent Specification.

9-06.15 Welded Shear Connectors

The third paragraph is revised to read:

Mechanical properties shall be determined in accordance with AASHTO T 244.
9-06.17 Vacant
This section, including title, is revised to read:

9-06.17 Noise Barrier Wall Access Door
Access door frames shall be formed of 14-gauge steel to the size and dimensions shown in the Plans. The access door frame head and jamb members shall be mitered, securely welded, and ground smooth. Each head shall have two anchors and each jamb shall have three anchors. The hinges shall be reinforced with ¼-inch by 12-inch plate, width equal to the full inside width of the frame.

Access doors shall be full flush 1-¾-inch thick seamless doors with a polystyrene core. Door faces shall be constructed with smooth seamless 14-gauge roller-levered, cold-rolled steel sheet conforming to ASTM A 792 Type SS, Grade 33 minimum, Coating Designation AZ55 minimum. The vertical edges shall be neat interlocked hemmed edge seam. The top and bottom of the door shall be enclosed with 14-gauge channels. Mortise and reinforcement for locks and hinges shall be 10-gauge steel. Welded top cap shall be ground and filled for exterior applications. The bottom channel shall have weep holes.

Each access door shall have three hinges. Access door hinges shall be ASTM A 276 Type 316 stainless steel, 4-½-inches square, with stainless steel ball bearing and non-removable pins.

Each access door shall have two pull plates. The pull plates shall be ASTM A 240 Type 316 stainless steel, with a grip handle of one-inch diameter and 8 to 10-inches in length.

The door assembly shall be fabricated and assembled as a complete unit including all hardware specified prior to shipment.

9-06.18 Metal Bridge Railing
The second sentence of the first paragraph is revised to read:

Steel used for metal railings, when galvanized after fabrication in accordance with AASHTO M111, shall have a controlled silicon content of either 0.00 to 0.06 percent or 0.15 to 0.25 percent.

9-07.AP9
Section 9-07, Reinforcing Steel
January 7, 2019

9-07.5(1) Epoxy-Coated Dowel Bars (for Cement Concrete Rehabilitation)
This section (including title) is revised to read:

9-07.5(1) Dowel Bars for Cement Concrete Pavement Rehabilitation
Dowel bars for Cement Concrete Pavement Rehabilitation shall be 1½ inch outside diameter plain round steel bars or tubular bars 18 inches in length and meet the requirements of one of the following dowel bar types:

1. Epoxy-coated dowel bars shall be round plain steel bars of the dimensions shown in the Standard Plans. They shall conform to AASHTO M31, Grade 60 or ASTM A615, Grade 60 and shall be coated in accordance with ASTM
A1078 Type 2 coating, except that the bars may be cut to length after being coated. Cut ends shall be coated in accordance with ASTM A1078 with a patching material that is compatible with the coating, inert in concrete and recommended by the coating manufacturer. The thickness of the epoxy coating shall be 10 mils plus or minus 2 mils. The Contractor shall furnish a written certification that properly identifies the coating material, the number of each batch of coating material used, quantity represented, date of manufacture, name and address of manufacturer, and a statement that the supplied coating material meets the requirements of ASTM A1078 Type 2 coating. Patching material, compatible with the coating material and inert in concrete and recommended by the manufacturer shall be supplied with each shipment for field repairs by the Contractor.

2. ASTM A513 steel tubes made from Grade 60 Carbon Steel Tube with a 1.625 inch outside diameter and a 0.120 inch wall thickness. Both the inside and outside of the tube shall be zinc coated with G40 galvanizing in accordance with ASTM A653. Following zinc coating the tubes shall be coated in accordance with Section 9-07.5(1) item 1. The ends of the tube shall be capped to prevent intrusion of concrete or other materials.

9-07.5(2) Corrosion Resistant Dowel Bars (for Cement Concrete Pavement and Cement Concrete Pavement Rehabilitation)

The first paragraph (up until the colon) is revised to read:

Corrosion resistant dowel bars shall be 1½ inch outside diameter plain round steel bars or tubular bars 18 inches in length and meet the requirements of one of the following:

Item number 4 and 5 of the first paragraph are revised to read:

4. Corrosion-resistant, low-carbon, chromium plain steel bars for concrete reinforcement meeting all the requirements of ASTM A 1035 Alloy Type CS Grade 100 or Alloy Type CS Grade 120.

5. Zinc Clad dowel bars shall be 1½ inch solid bars or 1.625 inch outside diameter by 0.120 inch wall tubular bars meeting the chemical and physical properties of AASHTO M 31, Grade 60, or AASHTO M 255, Grade 60. The bars shall have a minimum of 0.035 inches A710 Zinc alloy clad to the plain steel inner bar or tube. A710 Zinc shall be composed of: zinc: 99.5 percent, by weight, minimum; copper: 0.1-0.25 percent, by weight; and iron: 0.0020 percent, by weight, maximum. Each end of tubular bars shall be plugged using a snug-fitting insert to prohibit any intrusion of concrete or other materials.

The numbered list in the first paragraph is supplemented with the following:

6. Multicoated fusion bonded epoxy bars shall consist of an ASTM A615 bar with alternating layers of ASTM A934 coating and an abrasion resistant overcoat (ARO). The ASTM A934 coating shall form the base and there shall be two layers of each coating material. The minimum thickness of the combined layers of the ASTM A934 coating and ARO coating shall be 20 mils. The ARO shall meet the following requirements:

<table>
<thead>
<tr>
<th>Test</th>
<th>Method</th>
<th>Specification</th>
</tr>
</thead>
</table>

AMENDMENTS TO THE 2018 STANDARD SPECIFICATIONS BOOK
Revised: 6/3/19
Gouge Resistance NACE TM0215, 30 kg wt., LS-1 bit @ 25°C  < 0.22 mm
Gouge Resistance NACE TM0215, 50 kg wt., LS-1 bit @ 25°C  < 0.44 mm

7. ASTM A513 steel tubes made from Grade 60 Carbon Steel Tube with a 1.625 inch outside diameter and a 0.120 inch wall thickness. Both the inside and outside of the tube shall be zinc coated with G90 galvanizing in accordance with ASTM A653. Following zinc coating the tubes shall be coated in accordance with Section 9-07.5(1) item 1. The ends of the tube shall be capped to prevent intrusion of concrete or other materials.

The last paragraph is revised to read:

Stainless Steel Clad and Stainless Steel Tube Dowel bar ends shall be sealed with a patching material (primer and finish coat) used for patching epoxy-coated reinforcing steel as required in Section 9-07.3, item 6.

9-07.7 Wire Mesh
This section is supplemented with the following:

Welded wire manufacturers shall participate in the NTPEP Audit Program for Reinforcing Steel (rebar) Manufacturers and shall be listed on the NTPEP audit program website displaying that they are NTPEP compliant.

9-08.AP9

Section 9-08, Paints and Related Materials
January 7, 2019

9-08.1(1) Description
The first sentence is revised to read:

Paint used for highway and bridge structure applications shall be made from materials meeting the requirements of the applicable Federal and State Paint Specifications, Department of Defense (DOD), American Society of Testing of Materials (ASTM), and The Society for Protective Coatings (SSPC) specifications in effect at time of manufacture.

9-08.1(2) Paint Types
This section is supplemented with the following new subsections:

9-08.1(2)M NEPCOAT Qualified Products List A
Qualified products used shall be part of a NEPCOAT system supplied by the same manufacturer.

9-08.1(2)N NEPCOAT Qualified Products List B
Qualified products used shall be part of a NEPCOAT system supplied by the same manufacturer.

9-08.1(2)D Organic Zinc-Rich Primer
This section, including title, is revised to read:

Vacant
9-08.1(2)E Epoxy Polyamide
This section is revised to read:

Epoxy polyamide shall be a two-component system conforming to MIL-DTL-24441 or SSPC Coating Standard No. 42.

9-08.1(2)H Top Coat, Single-Component, Moisture-Cured Polyurethane
This section is revised to read:

Vehicle Type: Moisture-cured aliphatic polyurethane.
Color and Gloss: Meet the SAE AMS Standard 595 Color as specified in the table below.

The Top Coat shall meet the following requirements:
The resin shall be an aliphatic urethane.
Minimum-volume solids 50 percent.
The top coat shall be semi-gloss.

<table>
<thead>
<tr>
<th>Color</th>
<th>Semi-Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washington Gray</td>
<td>26357</td>
</tr>
<tr>
<td>Mt. Baker Gray</td>
<td>26134</td>
</tr>
<tr>
<td>Mt. St. Helens Gray</td>
<td>26306</td>
</tr>
<tr>
<td>Cascade Green</td>
<td>24158</td>
</tr>
</tbody>
</table>

9-08.1(2)I Rust-Penetrating Sealer
This section is revised to read:

Rust-penetrating sealer shall be a two-component, chemically-cured, 100 percent solids epoxy.

9-08.1(2)J Black Enamel
This section is revised to read:

The enamel shall conform to Federal Specification MIL PRF 24635E Type II Class 2.

9-08.1(2)K Orange Equipment Enamel
The first paragraph is revised to read:

The enamel shall be an alkyd gloss enamel conforming to Federal Specification MIL-PRF-24635E Type II Class 1. The color, when dry, shall match that of SAE AMS Standard 595, color number 12246.

9-08.1(2)L Exterior Acrylic Latex Paint-White
The first paragraph is revised to read:

This paint shall conform to Federal Specification MIL-PRF-24635E Type II Class 1, 2 or 3.
9-08.1(7) Acceptance
This section is revised to read:

For projects with moisture-cured polyurethane quantities less than 20 gallons, acceptance will be by the Manufacturer's Certificate of Compliance.

For projects with moisture-cured polyurethane quantities greater than 20 gallons, the product shall be listed in the current WSDOT Qualified Products List (QPL). If the lot number is listed on the QPL, it may be accepted without additional testing. If the lot number is not listed on the QPL, a 1 quart sample shall be submitted to the State Materials Laboratory for testing and acceptance.

For all other paint types, acceptance will be based on visual inspection.

9-08.1(8) Standard Colors
In the first paragraph, the reference to “Federal Standard 595” is revised to read “SAE AMS Standard 595”.

The second paragraph is revised to read:

Unless otherwise specified, all top or finish coats shall be semi-gloss, with the paint falling within the range of 35 to 70 on the 60-degree gloss meter.

9-08.2 Powder Coating Materials for Coating Galvanized Surfaces
The last paragraph is revised to read:

Repair materials shall be as recommended by the powder coating manufacturer and as specified in the Contractor’s powder coating plan as accepted by the Engineer.

9-08.3 Pigmented Sealer Materials for Coating of Concrete Surfaces
This section, including title, is revised to read:

9-08.3 Concrete Surface Treatments
9-08.3(1) Pigmented Sealer Materials
The pigmented sealer shall be a semi-opaque, colored toner containing only methyl methacrylate-ethyl acrylate copolymer resins, toning pigments suspended in solution at all times by a chemical suspension agent, and solvent. Toning pigments shall be laminar silicates, titanium dioxide, and inorganic oxides only. There shall be no settling or color variation. Tinting shall occur at the factory at the time of manufacture and placement in containers, prior to initial shipment. Use of vegetable or marine oils, paraffin materials, stearates, or organic pigments in any part of coating formulation will not be permitted. The color of pigmented sealer shall be as specified by the Contracting Agency. The Contractor shall submit a 1-quart wet sample, a drawdown color sample, and spectrophotometer or colorimeter readings taken in accordance with ASTM D2244, for each batch and corresponding standard color card. The calculated Delta E shall not exceed 1.5 from the Commission Internationale de l'Eclairage (CIELAB) when measured at 10 degrees Standard Observer and Illuminant D 65.

The 1-quart wet sample shall be submitted in the manufacturer’s labeled container with product number, batch number, and size of batch. The companion drawdown
color sample shall be labeled with the product number, batch number, and size of
batch. The Contractor shall submit the specified samples and readings to the
Engineer at least 14 calendar days prior to the scheduled application of the sealer.
The Contractor shall not begin applying pigmented sealer until receiving the
Engineer’s written approval of the pigmented sealer color samples.

9-08.3(2) Exposed Aggregate Concrete Coatings and Sealers

9-08.3(2)A Retardant Coating
Retardant coating shall exhibit the following properties:

1. Retards the set of the surface mortar of the concrete without
   preventing the concrete to reach the specified 28 day compressive
   strength.

2. Leaves the aggregate with its original color and luster, and firmly
   embedded in the concrete matrix.

3. Allows the removal of the surface mortar in accordance with the
   methods specified in Section 6-02.3(14)E without the use of acidic
   washing compounds.

4. Allows for uniform removal of the surface mortar.

If the Contractor proposes use of a retardant coating that is not listed in the
current WSDOT QPL, the Contractor shall submit a Type 2 Working Drawing
consisting of a one quart product sample from a current lot along with
supporting product information, Safety Data Sheet, and a Manufacturer’s
Certificate of Compliance stating that the product conforms to the above
performance requirements.

9-08.3(2)B Clear Sealer
The sealer for concrete surfaces with exposed aggregate finish shall be a
clear, non-gloss, penetrating sealer of either a silane, siloxane, or silicone
based formulation.

9-08.3(3) Permeon Treatment
Permeon treatment shall be a product of known consistent performance in
producing the SAE AMS Standard 595 Color No. 30219 target color hue
established by WSDOT, either selected from the WSDOT Qualified Products List
(QPL), or an equivalent product accepted by the Engineer. For acceptance of
products not listed in the current WSDOT QPL, the Contractor shall submit Type 3
Working Drawings consisting of a one quart product sample from a current lot,
supporting product information and a Safety Data Sheet.
Riprap and quarry spalls shall be free from segregation, seams, cracks, and other defects tending to destroy its resistance to weather and shall meet the following test requirements:

9-13.5 Concrete Slope Protection

This section is revised to read:

Concrete slope protection shall consist of reinforced portland cement or blended hydraulic cement concrete poured or pneumatically placed upon the slope with a rustication joint pattern or semi-open concrete masonry units placed upon the slope closely adjoining each other.

9-13.5(2) Poured Portland Cement Concrete Slope Protection

This section’s title is revised to read:

Poured Portland Cement or Blended Hydraulic Cement Concrete Slope Protection

9-13.5(3) Pneumatically Placed Portland Cement Concrete Slope Protection

This section’s title is revised to read:

Pneumatically Placed Portland Cement or Blended Hydraulic Cement Concrete Slope Protection

The first paragraph is revised to read:

Cement – This material shall be portland cement or blended hydraulic cement as specified in Section 9-01.

9-13.7(1) Rock for Rock Walls and Chinking Material

The first paragraph (up until the colon) is revised to read:

Rock for rock walls and chinking material shall be hard, sound and durable material, free from seams, cracks, and other defects tending to destroy its resistance to weather, and shall meet the following test requirements:

9-14.AP9

Section 9-14, Erosion Control and Roadside Planting

August 6, 2018

9-14.4(2) Hydraulically Applied Erosion Control Products (HECPs)

In Table 1, the last four rows are deleted.

9-14.4(2)A Long-Term Mulch

The first paragraph is supplemented with the following:

Products containing cellulose fiber produced from paper or paper components will not be accepted.

Table 2 is supplemented with the following new rows:

| Water Holding Capacity | ASTM D 7367 | 800 percent minimum |
Organic Matter Content | AASHTO T 267 | 90 percent minimum
---|---|---
Seed Germination Enhancement | ASTM D 7322 | Long Term 420 percent minimum

9-14.4(2)B Moderate-Term Mulch
This section is revised to read:
Within 48 hours of application, the Moderate-Term Mulch shall bond with the soil surface to create a continuous, absorbent, flexible, erosion-resistant blanket. Moderate-Term Mulch shall effectively perform the intended erosion control function in accordance with Section 8-01.3(1) for a minimum of 3 months, or until temporary vegetation has been established, whichever comes first.

Moderate-Term Mulch shall not be used in conjunction with permanent seeding.

9-14.4(2)C Short-Term Mulch
This section is revised to read:
Short-Term Mulch shall effectively perform the intended erosion control function in accordance with Section 8-01.3(1) for a minimum of 2 months, or until temporary vegetation has been established, whichever comes first. Short-Term Mulch shall not be used in conjunction with permanent seeding.

9-16.AP9
Section 9-16, Fence and Guardrail
August 6, 2018

9-16.3(1) Rail Element
The last sentence of the first paragraph is revised to read:
All rail elements shall be formed from 12-gage steel except for thrie beam reducer sections, reduced length thrie beam rail elements, thrie beams used for bridge rail retrofits, and Design F end sections, which shall be formed from 10-gage steel.

9-16.3(5) Anchors
The last paragraph is revised to read:
Cement grout shall conform to Section 9-20.3(4) and consist of one part portland cement or blended hydraulic cement and two parts sand.

9-18.AP9
Section 9-18, Precast Traffic Curb
April 2, 2018

9-18.1(1) Aggregates and Proportioning
Item number 1 of the first paragraph is revised to read:
1. Portland cement or blended hydraulic cement shall conform to the requirements of Section 9-01 except that it may be Type I portland cement conforming to AASHTO M 85.
9-20.1 Patching Material

This section, including title, is revised to read:

9-20.1 Patching Material for Cement Concrete Pavement

Concrete patching material shall be prepackaged mortar extended with aggregate. The amount of aggregate for extension shall conform to the manufacturer’s recommendation.

Patching mortar and patching mortar extended with aggregate shall contain cementitious material and conform to Sections 9-20.1(1) and 9-20.1(2). The manufacturer shall use the services of a laboratory that has an equipment calibration verification system and a technician training and evaluation process in accordance with AASHTO R 18 to perform all tests specified in Section 9-20.1.

9-20.1(1) Patching Mortar

Patching mortar shall conform to the following requirements:

<table>
<thead>
<tr>
<th>Test Description</th>
<th>ASTM Test Method</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressive Strength at 3 hours</td>
<td>C 39</td>
<td>Minimum 3,000 psi</td>
</tr>
<tr>
<td>Compressive Strength at 24 hours</td>
<td>C 39</td>
<td>Minimum 5,000 psi</td>
</tr>
<tr>
<td>Length Change at 28 days</td>
<td>C 157</td>
<td>0.15 percent maximum</td>
</tr>
<tr>
<td>Total Chloride Ion Content</td>
<td>C 1218</td>
<td>1 lb/yd³ maximum</td>
</tr>
<tr>
<td>Bond Strength at 24 hours</td>
<td>C 882 (As modified by C 928, Section 9.5)</td>
<td>Minimum 1,000 psi</td>
</tr>
<tr>
<td>Bond Strength Scaling Resistance</td>
<td>C 672 (As modified by C 928, Section 9.4)</td>
<td>1 lb/ft² maximum</td>
</tr>
</tbody>
</table>

9-20.1(2) Patching Mortar Extended with Aggregate

Patching mortar extended with aggregate shall meet the following requirements:

<table>
<thead>
<tr>
<th>Test Description</th>
<th>ASTM Test Method</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressive Strength at 3 hours</td>
<td>C 39</td>
<td>Minimum 3,000 psi</td>
</tr>
<tr>
<td>Compressive Strength at 24 hours</td>
<td>C 39</td>
<td>Minimum 5,000 psi</td>
</tr>
<tr>
<td>Length Change at 28 days</td>
<td>C 157</td>
<td>0.15 percent maximum</td>
</tr>
<tr>
<td>Bond Strength at 24 hours</td>
<td>C 882 (As modified by ASTM C928, Section 9.5)</td>
<td>Minimum 1,000 psi</td>
</tr>
<tr>
<td>Bond Strength Scaling Resistance</td>
<td>C 672</td>
<td>2 Maximum Visual Rating</td>
</tr>
<tr>
<td>Freeze thaw</td>
<td>C 666</td>
<td>Maximum expansion 0.10% Minimum durability 90.0%</td>
</tr>
</tbody>
</table>
9-20.1(3) Aggregate
Aggregate used to extend the patching mortar shall conform to Section 9-03.1(4) and be AASHTO Grading No. 8. A Manufacturer’s Certificate of Compliance shall be submitted showing the aggregate source and the gradation. Mitigation for Alkali Silica Reaction (ASR) will not be required for the extender aggregate used for concrete patching material.

9-20.1(4) Water
Water shall meet the requirements of Section 9-25.1. The quantity of water shall be within the limits recommended by the repair material manufacturer.

9-20.2 Specifications
This section, including title, is revised to read:

9-20.2 Patching Material for Concrete Structure Repair
Concrete patching material shall be a prepackaged mixture of portland or blended hydraulic cement, aggregate, and admixtures. Fly ash, ground granulated blast furnace slag and microsilica fume may be used. The concrete patching material may be shrinkage compensated. The concrete patching material shall also meet the following requirements:

- Compressive strength of 6000 psi or higher at 28 days in accordance with AASHTO T 22 (ASTM C 39), unless noted otherwise
- Bond strength of 250 psi or higher at 28 days or less in accordance with ASTM C 1583 or ICRI 210.3R
- Shrinkage shall be 0.05 percent (500 microstrain) or lower at 28 days in accordance with AASHTO T 160 (ASTM C 157) as modified by ICRI 320.3R
- Permeability shall be 2,000 coulombs or lower at 28 days in accordance with AASHTO T 277 (ASTM C 1202)
- Freeze-thaw resistance shall have a durability factor of 90 percent or higher after a minimum of 300 cycles in accordance with AASHTO T 161 Procedure A (ASTM C 666)
- Soluble chloride ion limits in Section 6-02.3(2) shall be satisfied

9-20.2(1) Patching Mortar
This section, including title, is deleted in its entirety.

9-20.2(2) Patching Mortar Extended with Aggregate
This section, including title, is deleted in its entirety.

9-20.3(3) Grout Type 3 for Unconfined Bearing Pad Applications
This section’s title is revised to read:

Grout Type 3 for Unconfined Applications

This section is revised to read:
Grout Type 3 shall be a prepackaged material that does not include expansive admixtures meeting the following requirements:

- Compressive strength shall be 4000 psi or higher at 28 days in accordance with AASHTO T 22 (ASTM C 39) for grout extended with coarse aggregate or AASHTO T 106 (ASTM C109) otherwise.

- Bond strength shall meet one of the following:
  - 250 psi or higher at 28 days or less in accordance with ASTM C1583.
  - 2000 psi or higher at 28 days or less in accordance with ASTM C882. The following modification to ASTM C882 is acceptable: use Type 3 Grout in lieu of epoxy resin base bonding system and freshly mixed portland-cement mortar in the procedure for testing Type II and V systems.

- Drying shrinkage shall be 0.08 percent (800 microstrain) or lower at 28 days in accordance with AASHTO T 160 (ASTM C157). The following modification to AASHTO T 160 is acceptable: use a standard specimen size of 3 x 3 x 11-¼ inches.

9-20.5 Bridge Deck Repair Material

Item number 3 of the first paragraph is revised to read:

3. Permeability of less than 2,000 coulombs at 28-days or more in accordance with AASHTO T 277.

9-21.AP9

Section 9-21, Raised Pavement Markers (RPM) January 2, 2018

9-21.2 Raised Pavement Markers Type 2

This section’s content is deleted.

9-21.2(1) Physical Properties

This section, including title, is revised to read:

9-21.2(1) Standard Raised Pavement Markers Type 2

The marker housing shall contain reflective faces as shown in the Plans to reflect incident light from either a single or opposite directions and meet the requirements of ASTM D 4280 including Flexural strength requirements.

9-21.2(2) Optical Requirements

This section, including title, is revised to read:

9-21.2(2) Abrasion Resistant Raised Markers Type 2

Abrasion Resistant Raised Markers Type 2 shall comply with Section 9-21.2(1) and meet the requirements of ASTM D 4280 with the following additional requirement: The coefficient of luminous intensity of the markers shall be measured after subjecting the entire lens surface to the test described in ASTM D 4280 Section 9.5 using a sand drop
apparatus. After the exposure described above, retroreflected values shall not be less than 0.5 times a nominal unblemished sample.

9-21.2(3) Strength Requirements
This section is deleted in its entirety.

9-23.AP9
Section 9-23, Concrete Curing Materials and Admixtures
April 1, 2019

9-23.12 Natural Pozzolan
This section is revised to read:
Natural Pozzolans shall be ground Pumice and shall conform to the requirements of AASHTO M295 Class N, including supplementary optional chemical requirements as set forth in Table 2.

9-23.13 Blended Supplementary Cementitious Material
The second sentence is revised to read:
Blended SCMs shall be limited to binary or ternary blends of fly ash, ground granulated blast furnace slag and microsilica fume.
The second to last sentence is deleted.

9-26.AP9
Section 9-26, Epoxy Resins
January 7, 2019

9-26.1(1) General
The following new sentence is inserted after the first sentence of the first paragraph:
For pre-packaged cartridge kits, the epoxy bonding agent shall meet the requirements of ASTM C881 when mixed according to manufacturer instructions, utilizing the manufacturer’s mixing nozzle.

9-26.1(2) Packaging and Marking
The first sentence of the first paragraph is revised to read:
The components of the epoxy system furnished under these Specifications shall be supplied in separate containers or pre-packaged cartridge kits that are non-reactive with the materials contained.
The second paragraph is revised to read:
Separate containers shall be marked by permanent marking that identify the formulator, “Component A” (contains the Epoxy Resin) and “Component B” (Contains the Curing Agent), type, grade, class, lot or batch number, mixing instructions and the quantity contained in pounds or gallons as defined by these Specifications.
The following new paragraph is inserted after the second paragraph:
Pre-packaged cartridge kits shall be marked by permanent marking that identify the formulator, type, grade, class, lot or batch number, mixing instructions and the quantity contained in ounces or milliliters as defined by these Specifications.

9-28.AP9

Section 9-28, Signing Materials and Fabrication

April 1, 2019

9-28.2 Manufacturer’s Identification and Date

The second sentence is revised to read:

In addition, the width and height dimension, in inches, the Contract number, and the number of the sign as it appears in the Plans shall be placed using 3-inch series C black letters on the back of destination, distance, and large special signs.

9-28.10 Vacant

This section, including title, is revised to read:

9-28.10 Digital Printing

Transparent and opaque durable inks used in digital printed sign messages shall be as recommended by the manufacturer. When properly applied, digital printed colors shall have a warranty life of the base retroreflective sign sheeting. Digital applied colors shall present a smooth surface, free from foreign material, and all messages and borders shall be clear and sharp. Digital printed signs shall conform to 70% of the retroreflective minimum values established for its type and color. Digitally printed signs shall meet the daytime color and luminance, and nighttime color requirements of ASTM D 4956. No variations in color or overlapping of colors will be permitted. Digital printed permanent traffic signs shall have an integrated engineered match component clear protective overlay recommended by the sheeting manufacturer applied to the entire face of the sign. On Temporary construction/maintenance signs printed with black ink only, the protective overlay film is optional, as long as the finished sign has a warranty of a minimum of three years from sign sheeting manufacturer.

All digital printed traffic control signs shall be an integrated engineered match component system. The integrated engineered match component system shall consist of retroreflective sheeting, durable ink(s), and clear overlay film all from the same manufacturer applied to aluminum substrate conforming to Section 9-28.8.

The sign fabricator shall use an approved integrated engineered match component system as listed on the Qualified Products List (QPL). Each approved digital printer shall only use the compatible retroreflective sign sheeting manufacturer’s engineered match component system products.

Each retroreflective sign sheeting manufacturer/integrated engineered match component system listed on the QPL shall certify a department approved sign fabricator is approved to operate their compatible digital printer. The sign fabricator shall re-certify annually with the retroreflective sign manufacturer to ensure their digital printer is still meeting manufacturer’s specifications for traffic control signs. Documentation of each re-certification shall be submitted to the QPL Engineer annually.
9-28.11 Hardware
The last paragraph is revised to read:

All steel parts shall be galvanized in accordance with AASHTO M111. Steel bolts and related connecting hardware shall be galvanized in accordance with ASTM F 2329.

9-28.14(2) Steel Structures and Posts
The first sentence of the third paragraph is revised to read:

Anchor rods for sign bridge and cantilever sign structure foundations shall conform to Section 9-06.5(4), including Supplemental Requirement S4 tested at -20°F.

In the second sentence of the fourth paragraph, “AASHTO M232” is revised to read “ASTM F 2329”.

The first sentence of the fifth paragraph is revised to read:

Except as otherwise noted, steel used for sign structures and posts shall have a controlled silicon content of either 0.00 to 0.06 percent or 0.15 to 0.25 percent.

The last sentence of the last paragraph is revised to read:

If such modifications are contemplated, the Contractor shall submit a Type 2 Working Drawing of the proposed modifications.

9-29.AP9
Section 9-29, Illumination, Signal, Electrical
April 1, 2019

9-29.1 Conduit, Innerduct, and Outerduct
This section is supplemented with the following new subsections:

9-29.1(10) Pull Tape
Pull tape shall be pre-lubricated polyester pulling tape. The pull tape shall have a minimum width of ½-inch and a minimum tensile strength of 500 pounds. Pull tape may have measurement marks.

9-29.1(11) Foam Conduit Sealant
Foam conduit sealant shall be self-expanding waterproof foam designed to prevent both water and pest intrusion. The foam shall be designed for use in and around electrical equipment, including both insulated and bare conductors.

9-29.2(1) Junction Boxes
The first paragraph is revised to read:

For the purposes of this Specification concrete is defined as portland cement or blended hydraulic cement concrete and non-concrete is all others.

9-29.2(1)A2 Non-Concrete Junction Boxes
The first paragraph is revised to read:
Material for the non-concrete junction boxes shall be of a quality that will provide for a similar life expectancy as portland cement or blended hydraulic cement concrete in a direct burial application.

9-29.2(2)A Standard Duty Cable Vaults and Pull Boxes
In the table in the last paragraph, the fourth, fifth and sixth rows are revised to read:

| Material                  | Quality
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Slip Resistant Lid</td>
<td>ASTM A36 steel</td>
</tr>
<tr>
<td>Frame</td>
<td>ASTM A36 steel</td>
</tr>
<tr>
<td>Slip Resistant Frame</td>
<td>ASTM A36 steel</td>
</tr>
</tbody>
</table>

9-29.3(2)A1 Single Conductor Current Carrying
This second sentence is revised to read:

Insulation shall be XLP (cross-linked polyethylene) or EPR (Ethylene Propylene Rubber), Type USE (Underground Service Entrance) or USE-2, and rated for 600-volts or higher.

9-29.6 Light and Signal Standards
In the first sentence of the third paragraph, “AASHTO M232” is revised to read “ASTM F 2329”.

Item number 2 of the last paragraph is revised to read:

2. The steel light and signal standard fabricator’s shop drawing submittal, including supporting design calculations, submitted as a Type 2E Working Drawing in accordance with Section 8-20.2(1) and the Special Provisions.

9-29.6(1) Steel Light and Signal Standards
In the second paragraph, “AASHTO M232” is revised to read “ASTM F 2329”.

The first sentence of the last paragraph is revised to read:

Steel used for light and signal standards shall have a controlled silicon content of either 0.00 to 0.06 percent or 0.15 to 0.25 percent.

9-29.6(5) Foundation Hardware
In the last paragraph, “AASHTO M232” is revised to read “ASTM F 2329”.

9-29.10(1) Conventional Roadway Luminaires
This section is revised to read:

All conventional roadway luminaires shall meet 3G vibration requirements as described in ANSI C136.31.

All luminaires shall have housings fabricated from aluminum. The housing shall be painted flat gray, SAE AMS Standard 595 color chip No. 26280, unless otherwise specified in the Contract. Painted housings shall withstand a 1,000 hour salt spray test as specified in ASTM B117.
Each housing shall include a four bolt slip-fitter mount capable of accepting a nominal 2” tenon and adjustable within +/- 5 degrees of the axis of the tenon. The clamping bracket(s) and the cap screws shall not bottom out on the housing bosses when adjusted within the +/- 5 degree range. No part of the slipfitter mounting brackets on the luminaires shall develop a permanent set in excess of 0.2 inch when the cap screws used for mounting are tightened to a torque of 32 foot-pounds. Each luminaire shall include leveling reference points for both transverse and longitudinal adjustment.

All luminaires shall include shorting caps when shipped. The caps shall be removed and provided to the Contracting Agency when an alternate control device is required to be installed in the photocell socket. House side shields shall be included when required by the Contract. Order codes shall be modified to the minimum extent necessary to include the option for house side shields.

This section is supplemented with the following new subsections:

9-29.10(1)A High Pressure Sodium (HPS) Conventional Roadway Luminaires

HPS conventional roadway luminaires shall meet the following requirements:

1. General shape shall be “cobrahead” style, with flat glass lens and full cutoff optics.

2. Light pattern distribution shall be IES Type III.

3. The reflector of all luminaires shall be of a snap-in design or secured with screws. The reflector shall be polished aluminum or prismatic borosilicate glass.

4. Flat lenses shall be formed from heat resistant, high-impact, molded borosilicate or tempered glass.

5. The lens shall be mounted in a doorframe assembly, which shall be hinged to the luminaire and secured in the closed position to the luminaire by means of an automatic latch. The lens and doorframe assembly, when closed, shall exert pressure against a gasket seat. The lens shall not allow any light output above 90 degrees nadir. Gaskets shall be composed of material capable of withstanding the temperatures involved and shall be securely held in place.

6. The ballast shall be mounted on a separate exterior door, which shall be hinged to the luminaire and secured in the closed position to the luminaire housing by means of an automatic type of latch (a combination hex/slot stainless steel screw fastener may supplement the automatic-type latch).

7. Each luminaire shall be capable of accepting a 150, 200, 250, 310, or 400 watt lamp complete and associated ballast. Lamps shall mount horizontally.

9-29.10(1)B Light Emitting Diode (LED) Conventional Roadway Luminaires

LED Conventional Roadway Luminaires are divided into classes based on their equivalent High Pressure Sodium (HPS) luminaires. Current classes are 200W, 250W, 310W, and 400W. LED luminaires are required to be pre-approved in order to verify their photometric output. To be considered for pre-approval, LED luminaires must meet the requirements of this section.
LED luminaires shall include a removable access door, with tool-less entry, for access to electronic components and the terminal block. The access door shall be removable, but include positive retention such that it can hang freely without disconnecting from the luminaire housing. LED drivers may be mounted either to the interior of the luminaire housing or to the removable door itself.

LED drivers shall be removable for user replacement. All internal modular components shall be connected by means of mechanical plug and socket type quick disconnects. Wire nuts may not be used for any purpose. All external electrical connections to the luminaire shall be made through the terminal block.

LED luminaires shall include a 7-pin NEMA photocell receptacle. The LED driver(s) shall be dimmable from ten volts to zero volts. LED output shall have a Correlated Color Temperature (CCT) of 4000K nominal (4000-4300K) and a Color Rendering Index (CRI) of 70 or greater. LED output shall be a minimum of 85% at 75,000 hours at 25 degrees Celsius.

LED luminaires shall be available for 120V, 240V, and 480V supply voltages. Voltages refer to the supply voltages to the luminaires present in the field. LED power usage shall not exceed the following maximum values for the applicable wattage class:

<table>
<thead>
<tr>
<th>Class</th>
<th>Max. Wattage</th>
</tr>
</thead>
<tbody>
<tr>
<td>200W</td>
<td>110W</td>
</tr>
<tr>
<td>250W</td>
<td>165W</td>
</tr>
<tr>
<td>310W</td>
<td>210W</td>
</tr>
<tr>
<td>400W</td>
<td>275W</td>
</tr>
</tbody>
</table>

Only one brand of LED conventional roadway luminaire may be used on a Contract. They do not necessarily have to be the same brand as any high-mast, underdeck, or wall-mount luminaires when those types of luminaires are specified in the Contract. LED luminaires shall include a standard 10 year manufacturer warranty.


9-29.10(2) Decorative Luminaires
This section, including title, is revised to read:

9-29.10(2) Vacant

9-29.12 Electrical Splice Materials
This section is supplemented with the following new subsections:

9-29.12(3) Splice Enclosures
9-29.12(3)A Heat Shrink Splice Enclosure
Heat shrink splice enclosures shall be medium or heavy wall cross-linked polyolefin, meeting the requirements of AMS-DTL-23053/15, with thermoplastic adhesive sealant. Heat shrink splices used for “wye” connections require rubber electrical mastic tape.
9-29.12(3)B Molded Splice Enclosure
Molded splice enclosures shall use epoxy resin in a clear rigid plastic mold. The material used shall be compatible with the insulation material of the insulated conductor or cable. The component materials of the resin insulation shall be packaged ready for convenient mixing without removing from the package.

9-29.12(4) Re-Enterable Splice Enclosure
Re-enterable splice enclosures shall use either dielectric grease or a flexible resin contained in a two-piece plastic mold. The mold shall either snap together or use stainless steel hose clamps.

9-29.12(5) Vinyl Electrical Tape for Splices
Vinyl electrical tape in splicing applications shall meet the requirements of MIL-I-24391C.

9-29.12(1) Illumination Circuit Splices
This section is revised to read:
Underground illumination circuit splices shall be solderless crimped connections capable of securely joining the wires, both mechanically and electrically, as defined in Section 8-20.3(8). Aerial illumination splices shall be solderless crimp connectors or split bolt vice-type connectors.

9-29.12(1)A Heat Shrink Splice Enclosure
This section is deleted in its entirety.

9-29.12(1)B Molded Splice Enclosure
This section is deleted in its entirety.

9-29.12(2) Traffic Signal Splice Material
This section is revised to read:
Induction loop splices and magnetometer splices shall use an uninsulated barrel-type crimped connector capable of being soldered.

9-29.13(10)D Cabinets for Type 170E and 2070 Controllers
The first sentence of item number 4 is revised to read:
A disposable paper filter element with dimensions of 12” × 16” × 1” shall be provided in lieu of a metal filter.

Item number 6 is revised to read:
6. LED light strips shall be provided for cabinet lighting, powered from the Equipment breaker on the Power Distribution Assembly. Each LED light strip shall be approximately 12 inches long, have a minimum output of 320 lumens, and have a color temperature of 4100K (cool white) or higher. There shall be three light strips for each rack within the cabinet. Lighting shall be ceiling mounted – rack mounted lighting is not permitted. Light strips shall be installed in the locations shown in the Standard Plans. Lighting shall not interfere with the proper operation of any other ceiling mounted equipment. All lighting fixtures above a rack shall energize
automatically when either door to that respective rack is opened. Each door switch shall be labeled “Light”.

Item number 7 is revised to read:

7. Rack mounted equipment shall be as shown in the Standard Plans. The cabinet shall use PDA #2LX and Output File #1LX. Where an Auxiliary Output File is required, Output File #2LX shall also be included.

This section is supplemented with the following new item:

9. The PCB connectors for Field Terminal Blocks FT1 through FT6 on Output Files #1LX and #2LX shall be capable of accepting minimum 14 AWG field wiring, have a pitch of 5.08 mm, and use screw flange type locking to secure the plug and socket connection. The sockets on the Field Terminal Panel shall be secured to the panel such that unplugging a connector will not result in the socket moving or separating from the panel.

9-29.13(11) Traffic Data Accumulator and Ramp Meters

Item number 2 is revised to read:

2. Rack mounted equipment shall be as shown in the Standard Plans.

Item number 3 is revised to read:

3. PDA #3LX shall be furnished with three Model 200 Load Switches installed. PDA #3LX shall be modified to include a second Model 430 transfer relay, mounted on the rear of the PDA and wired as shown in the Standard Plans.

9-29.13(12) ITS Cabinet

This section’s title is revised to read:

Type 331L ITS Cabinet

The first paragraph (excluding the numbered list) is revised to read:

Basic ITS cabinets shall be Model 331L Cabinets, unless otherwise specified in the Contract. Type 331L Cabinets shall be constructed in accordance with the TEES, with the following modifications:

Item number 6 of the first paragraph is revised to read:

6. LED light strips shall be provided for cabinet lighting, powered from the Equipment breaker on the Power Distribution Assembly. Each LED light strip shall be approximately 12 inches long, have a minimum output of 320 lumens, and have a color temperature of 4100K (cool white) or higher. There shall be three light strips for each rack within the cabinet. Lighting shall be ceiling mounted – rack mounted lighting is not permitted. Light strips shall be installed in the locations shown in the Standard Plans. Lighting shall not interfere with the proper operation of any other ceiling mounted equipment. All lighting fixtures above a rack shall energize automatically when either door to that respective rack is opened. Each door switch shall be labeled “Light”.

AMENDMENTS TO THE 2018 STANDARD SPECIFICATIONS BOOK
Revised: 6/3/19
9-29.16(2)E Painting Signal Heads
In the first sentence, “Federal Standard 595” is revised to read “SAE AMS Standard 595”.

9-29.17 Signal Head Mounting Brackets and Fittings
In the first paragraph, item number 2 under Stainless Steel is revised to read:

2. Bands or cables for Type N mount.

9-29.20 Pedestrian Signals
In item 2C of the second paragraph, “Federal Standard 595” is revised to read “SAE AMS Standard 595”.

9-29.24 Service Cabinets
The third sentence of item number 6 is revised to read:

The dead front cover shall have cutouts for the entire breaker array, with blank covers where no circuit breakers are installed.

Item number 8 is revised to read:

8. Lighting contactors shall meet the requirements of Section 9-29.24(2).

The last sentence of item number 10 is revised to read:

Dead front panels shall prevent access to any exposed, live components, and shall cover all equipment except for circuit breakers (including blank covers), the photocell test/bypass switch, and the GFCI receptacle.

9-29.24(2) Electrical Circuit Breakers and Contactors
This section is revised to read:

All circuit breakers shall be bolt-on type, with the RMS-symmetrical interrupting capacity described in this Section. Circuit breakers for 120/240/277 volt circuits shall be rated at 240 or 277 volts, as applicable, with an interrupting capacity of not less than 10,000 amperes. Circuit breakers for 480 volt circuits shall be rated at 480 volts, and shall have an interrupting capacity of not less than 14,000 amperes.

Lighting contactors shall be rated for tungsten or ballasted (such as sodium vapor, mercury vapor, metal halide, and fluorescent) lamp loads. Contactors for 120/240/277 volt circuits shall be rated at 240 volts maximum line to line voltage, or 277 volts maximum line to neutral voltage, as applicable. Contactors for 480 volt circuits shall be rated at 480 volt maximum line to line voltage.

9-33.AP9
Section 9-33, Construction Geosynthetic
August 6, 2018

9-33.4(1) Geosynthetic Material Approval
The second sentence of the first paragraph is revised to read:
If the geosynthetics material is not listed in the current WSDOT QPL, a Manufacturer’s Certificate of Compliance including Certified Test Reports of each proposed geosynthetic shall be submitted to the State Materials Laboratory in Tumwater for evaluation.

The last paragraph is revised to read:

Geosynthetics used as reinforcement in permanent geosynthetic retaining walls, reinforced slopes, reinforced embankments, and other geosynthetic reinforcement applications require proof of compliance with the National Transportation Product Evaluation Program (NTPEP) in accordance with AASHTO Standard Practice R 69, Standard Practice for Determination of Long-Term Strength for Geosynthetic Reinforcement.

Section 9-34, Pavement Marking Material
January 7, 2019

9-34.2(2) Color
The first sentence is revised to read:

Paint draw-downs shall be prepared according to ASTM D823.

Each reference to “Federal Standard 595” is revised to read “SAE AMS Standard 595”.

9-34.2(3) Prohibited Materials
This section is revised to read:

Traffic paint shall not contain mercury, lead, chromium, diarylide pigments, toluene, chlorinated solvents, hydrolysable chlorine derivatives, ethylene-based glycol ethers and their acetates, nor any other EPA hazardous waste material over the regulatory levels in accordance with CFR 40 Part 261.24.

9-34.2(5) Low VOC Waterborne Paint
The heading “Standard Waterborne Paint” is supplemented with “Type 1 and 2”.

The heading “High-Build Waterborne Paint” is supplemented with “Type 4”.

The heading “Cold Weather Waterborne Paint” is supplemented with “Type 5”.

In the row beginning with “° @90°F”, each minimum value is revised to read “60”.

In the row beginning with “Fineness of Grind, (Hegman Scale)”, each minimum value is revised to read “3”.

The last four rows are replaced with the following:

<table>
<thead>
<tr>
<th>Vehicle Composition</th>
<th>ASTM D 2621</th>
<th>100% acrylic emulsion</th>
<th>100% cross-linking acrylic&lt;sup&gt;4&lt;/sup&gt;</th>
<th>100% acrylic emulsion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freeze-Thaw Stability, KU</td>
<td>ASTM D 2243 and D 562</td>
<td>@ 5 cycles show no coagulation or change</td>
<td>@ 5 cycles show no coagulation or change</td>
<td>@ 3 cycles show no coagulation or change</td>
</tr>
</tbody>
</table>
After the preceding Amendments are applied, the following new column is inserted after the "Standard Waterborne Paint Type 1 and 2" column:

<table>
<thead>
<tr>
<th>Semi-Durable Waterborne Paint Type 3</th>
<th>White</th>
<th>Yellow</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Min.</strong></td>
<td><strong>Max.</strong></td>
<td><strong>Min.</strong></td>
</tr>
<tr>
<td>Within ± 0.3 of qualification sample</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>95</td>
<td>80</td>
</tr>
<tr>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>77</td>
<td>65</td>
<td>77</td>
</tr>
<tr>
<td>43</td>
<td>43</td>
<td>1.25</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>0.98</td>
</tr>
<tr>
<td>88</td>
<td>50</td>
<td>100°</td>
</tr>
<tr>
<td>9.5</td>
<td>9.5</td>
<td>10</td>
</tr>
</tbody>
</table>

- 100% acrylic emulsion
- @ 5 cycles show no coagulation or change in viscosity greater than ± 10 KU
- ± 10 KU from the initial viscosity
- No Cracks
- Pass at 0.25 in mandrel
- ≥70% paint retention in wheel track
- No Cracks

The footnotes are supplemented with the following:

4Cross-linking acrylic shall meet the requirements of federal specification TT-P-1952F Section 3.1.1.

5Cold Flexibility: The paint shall be applied to an aluminum panel at a wet film thickness of 15 mils and allowed to dry under ambient conditions (50±10% RH and 72±5 °F) for 24 hours. A cylindrical mandrel apparatus (in accordance with ASTM D522 method B) shall be put in a 40°F refrigerator when the paint is drawn down. After 24 hours, the aluminum panel with dry paint shall be put in the 40°F refrigerator with the mandrel apparatus for 2 hours. After 2 hours, the panel and test apparatus shall be removed and immediately tested to according to ASTM D522 to evaluate cold flexibility. Paint must
show no evidence of cracking, chipping or flaking when bent 180 degrees over a
mandrel bar of specified diameter.

6NTPEP test deck, or a test deck conforming to ASTM D713, shall be conducted for a
minimum of six months with the following additional requirements: it shall be applied at
15 wet mils to a test deck that is located at 40N latitude or higher with at least 10,000
ADT and which was applied during the months of September through November.

7Paint is applied to an approximately 4”x12” aluminum panel using a drawdown bar with
a 50 mil gap. The coated panel is allowed to dry under ambient conditions (50±10% RH
and 72±5 °F) for 24 hours. Visual evaluation of the dry film shall reveal no cracks.

9-34.3 Plastic
In the first sentence of the last paragraph, “Federal Standard 595” is revised to read “SAE
 AMS Standard 595”.

9-34.3(2) Type B – Pre-Formed Fused Thermoplastic
In the last two paragraphs, each reference to “Federal Standard 595” is revised to read “SAE
AMS Standard 595”.

9-34.3(4) Type D – Liquid Cold Applied Methyl Methacrylate
The Test Method value for Adhesion to PCC or HMA, psi is revised to read “ASTM
 D4541”.

9-34.4 Glass Beads for Pavement Marking Materials
In the Test Method column of the table titled Metal Concentration Limits, “EPA 3052 SW-846
6010C” is revised to read “EPA 3052 SW-846 6010D”.

9-34.5(1) Temporary Pavement Marking Tape – Short Duration
This section, including title, is revised to read:

9-34.5(1) Temporary Pavement Marking Tape – Short Duration (Removable)
Temporary pavement marking tape for short duration (usage is for up to two months)
shall conform to ASTM D4592 Type I except that black tape, black mask tape and the
black portion of the contrast removable tape, shall be non-reflective.

9-34.5(2) Temporary Pavement Marking Tape – Long Duration
This section’s title is revised to read:

Temporary Pavement Marking Tape – Long Duration (Non-Removable)

The first sentence is revised to read:

Temporary pavement marking tape for long duration (usage is for greater than two
months and less than one year) shall conform to ASTM D4592 Type II.

ASTM E2176 is deleted from the second sentence.

9-34.7(1) Requirements
The first paragraph is revised to read:
Field performance evaluation is required for low VOC solvent-based paint per Section 9-34.2(4), Type A – liquid hot applied thermoplastic per Section 9-34.3(1), Type B – preformed fused thermoplastic per Section 9-34.3(2), Type C – cold applied preformed tape per Section 9-34.3(3), and Type D – liquid applied methyl methacrylate per Section 9-34.3(4).

The last paragraph is deleted.

9-34.7(1)C Auto No-Track Time

The first paragraph is revised to read:

Auto No-Track Time will only be required for low VOC solvent-based paint in accordance with Section 9-34.2(4).

The second and third sentences of the second paragraph are deleted.
GENERAL CONDITIONS
(00 72 00)
PART 1 – GENERAL

GENERAL

A. The work on this project shall be accomplished in accordance with the Standard Specifications for Road, Bridge and Municipal Construction, 2018 edition, as issued by the Washington State Department of Transportation (WSDOT) and the American Public Works Association (APWA), Washington State Chapter (hereafter “Standard Specifications”). The Standard Specifications, as modified or supplemented by the Amendments to the Standard Specifications and these General Conditions, all of which are made a part of the Contract Documents, shall govern all of the Work.


C. The accompanying Plans and these Specifications and any Addenda thereto, show and describe the location and type of work to be performed under the Totem Lake Park – Phase 1 Project.

D. These General Conditions are made up of both Provisions from various sources. Each Provision supplements, modifies, or replaces the comparable Standard Specification, or is a new Provision. The deletion, amendment, alteration, or addition to any subsection or portion of the Standard Specifications is meant to pertain only to that particular portion of the section, and in no way should it be interpreted that the balance of the section does not apply.

E. The titles of headings of the Sections and subsections herein are intended for convenience or reference and shall not be considered as having any bearing on their interpretation.

F. Also incorporated into the Contract Documents by reference are:


3. City of Kirkland Public Works Department Pre-Approved Plans and policies.

4. Contractor shall obtain copies of these publications, at Contractor’s own expense.
DESCRIPTION OF WORK

G. This contract provides for the improvement of Totem Lake Park – Phase 1, all in accordance with the attached Contract Plans, these Contract Provisions, and the Standard Specifications.

1.01 STANDARD SPECIFICATIONS SECTION 1-01 – DEFINITIONS AND TERMS

A. Delete from the Standard Specifications Section 1-01.3 Definitions heading “Completion Dates” and the three paragraphs that follow it, and replace them with the following:

1. Dates

   a) **Bid Opening Date:** The date on which the Contracting Agency publicly opens and reads the Bids.

   b) **Award Date:** The date of the formal decision of the Contracting Agency to accept the lowest responsible and responsive Bidder for the Work.

   c) **Contract Execution Date:** The date the Contracting Agency officially binds the Agency to the Contract.

   d) **Notice to Proceed Date:** The date stated in the Notice to Proceed on which the Contract time begins.

   e) **Substantial Completion Date:** The day the Engineer determines the Contracting Agency has full and unrestricted use and benefit of the facilities, both from the operational and safety standpoint, any remaining traffic disruptions will be rare and brief, and only minor incidental work, replacement of temporary substitute facilities, plant establishment periods, or correction or repair remains for the Physical Completion of the total Contract.

   f) **Physical Completion Date:** The day all of the Work is physically completed on the project. All documentation required by the Contract and required by law does not necessarily need to be furnished by the Contractor by this date.

   g) **Completion Date:** The day all the Work specified in the Contract is completed and all the obligations of the Contractor under the contract are fulfilled by the Contractor. All documentation required by the Contract and required by law must be furnished by the Contractor before establishment of this date.
h) **Final Acceptance Date:** The date on which the Contracting Agency accepts the Work as complete.

B. Supplement Standard Specifications **Section 1-01.3 Definitions** with the following:

All references in the Standard Specifications, Amendments, or WSDOT General Special Provisions, to the terms “State”, “Department of Transportation”, “Washington State Transportation Commission”, “Commission”, “Secretary of Transportation”, “Secretary”, “Headquarters”, and “State Treasurer” shall be revised to read “Contracting Agency”.

All references to “State Materials Laboratory” shall be revised to read “Contracting Agency designated location”.

All references to “final contract voucher certification” shall be interpreted to mean the final payment form established by the Contracting Agency.

The venue of all causes of action arising from the advertisement, award, execution, and performance of the contract shall be in the Superior Court of the County where the Contracting Agency’s headquarters are located.

C. **Definitions**

**Additive:**
A supplemental unit of work or group of bid items, identified separately in the Bid Proposal, which may, at the discretion of the Contracting Agency, be awarded in addition to the base bid.

**Alternate:**
One of two or more units of work or groups of bid items, identified separately in the Bid Proposal, from which the Contracting Agency may make a choice between different methods or material of construction for performing the same work.

**Business Day:**
A business day is any day from Monday through Friday except holidays as listed in Section 1-08.5.

**Consultant:**
Berger Partnership and their design team.

**Contract Bond:**
The definition in the Standard Specifications for “Contract Bond” applies to whatever bond form(s) are required by the Contract Documents, which may be a combination of a Payment Bond and a Performance Bond.
Contract Documents:
The Contract Drawings and Specifications/project manual.

Contract Time:
The period of time established by the terms and conditions of the Contract within which the Work must be physically completed.

Notice of Award:
The written notice from the Contracting Agency to the successful Bidder signifying the Contracting Agency’s acceptance of the Bid Proposal.

Notice to Proceed:
The written notice from the Contracting Agency or Engineer to the Contractor authorizing and directing the Contractor to proceed with the Work and establishing the date on which the Contract time begins.

Owner:
The City of Kirkland.

Project Engineer:
The City of Kirkland Public Works Engineer/Project Manager and staff.

Traffic:
Both vehicular and non-vehicular traffic, such as pedestrians, bicyclists, wheelchairs, and equestrian traffic.

1.02 STANDARD SPECIFICATIONS SECTION 1-02 – BID PROCEDURES AND CONDITIONS

A. Delete this Section from the Standard Specifications Section 1-02.1 Prequalification of Bidders and replace it with the following:

1-02.1 Qualifications of Bidder

Before award of a public works contract, a bidder must meet at least the minimum qualifications of RCW 39.04.350(1) to be considered a responsible bidder and qualified to be awarded a public works project.

B. Add the following new section to Standard Specifications Section 1-02.1(1) Supplemental Qualifications Criteria:

In addition, the Contracting Agency has established Contracting Agency-specific and/or project-specific supplemental criteria, in accordance with RCW 39.04.350(2), for determining Bidder responsibility, including the basis for evaluation and the deadline for appealing a determination that a Bidder is not responsible. These criteria are contained in the section below.
Bidders shall complete and sign the Statement of Bidder’s Qualification contained in the Proposal. Said form must be submitted with the bid proposal.

After bids are opened, Contracting Agency may request that a bidder or all bidders provide supplemental information concerning responsibility in accordance with RCW 39.04.350(2). Such supplemental information shall be provided to Contracting Agency in writing within two (2) business days of the request. Whether bidder supplies this supplemental information within the time and manner specified or not, in addition to consideration of this additional information, Contracting Agency may also base its determination of responsibility on any available information related to the supplemental criteria.

If Contracting Agency determines that a bidder is not responsible, Contracting Agency will provide, in writing, the reasons for such determination at which point the contractor will be deemed disqualified in accordance with WSDOT Standard Specification 1-02.14(10) and the proposal rejected. The bidder may appeal the determination within two (2) business days after receipt of the determination by presenting additional information to Contracting Agency. Contracting Agency will consider the additional information before issuing its final decision. If Contracting Agency’s final decision affirms that the bidder is not responsible, Contracting Agency will not execute a contract with any other bidder until two (2) business days after the bidder determined to be not responsible has received Contracting Agency’s final determination. The failure or omission of a bidder to receive or examine any form, instrument, addendum or other document shall in no way relieve any bidder from obligations with respect to the bid or to the contract.

Any bidder may, within five (5) business days before the bid submittal deadline, request that Contracting Agency modify the supplemental criteria. Contracting Agency will evaluate the information submitted by the bidder and respond before the submittal deadline. If the evaluation results in a change of the criteria, the Contracting Agency will issue an Addendum to the bidding documents identifying the new criteria.

Supplemental Criteria. Contracting Agency acknowledges that Change Orders (changes, extra work, requests for equitable adjustment and claims (defined as including demands for money or time in excess of the contract amount or contract time)) are ubiquitous on public works construction projects. The expeditious resolution of Change Orders is critical to the on budget and on time successful completion of a public works project. Thus, the City has established the following relevant supplemental bidder responsibility criteria applicable for the project:
1. Criterion. The bidder must demonstrate a record of successful and timely resolution of Change Orders including compliance with public contract Change Order resolution procedures (e.g. timely notice of event giving rise to the Change Order, timely submission of a statement of the cost and/or impact of the Change Order unless the bidder is able to show extenuating circumstances that explain bidder’s failure to timely provide such information to the satisfaction of Contracting Agency.

2. Documentation. As evidence that the bidder meets the supplemental responsibility criteria, after bids are opened and within two (2) business days of the public notice of Contracting Agency’s tabulation of bids, the lowest responsive bidder must submit the following documentation of public works projects completed within the previous three (3) years and include for each project the following:

   a) The Owner and contact information for the Owner;

   b) A listing of Change Orders and a signed statement from the bidder that the project timelines concerning resolution of Change Orders was complied with, and if not, provide a written explanation of what the bidder believes to be the extenuating circumstances excusing compliance with the Contract Change Order notice and claim provisions.

   Contracting Agency may contact owners listed by the bidders to validate the information provided by a bidder.

C. Add the following to Standard Specifications Section 1-02.1(1) Supplemental Qualifications Criteria:

3. Prior Experience with Similar Projects. The Contractor shall demonstrate familiarity and experience with projects similar in nature and complexity to the Totem Lake Park – Phase 1 Project. The Contractor shall provide documentation of at least 3 previous projects successfully completed within the last 7 years involving public park construction. At a minimum, for each project provide:

   a. Name, location, and a description of the project;

   b. Contracting Agency (i.e. Owner) for the project;

   c. Total construction contract value and duration;

   d. Contact name and phone number of the Contracting Agency.
4. Availability: The Contractor shall have sufficient means and resources in order to begin work on site on or before December 1, 2019. This includes preparation and submittal of required plans and documentation to the Engineer for review.

D. Delete Standard Specifications Section 1-02.2 Plans and Specifications and replace it with the following:

Information as to where Bid Documents can be obtained or reviewed can be found in the Call for Bids (Invitation for Bids) for the work.

After award of the contract, plans and specifications will be issued to the Contractor at no cost as detailed below:

<table>
<thead>
<tr>
<th>To Prime Contractor</th>
<th>No. of Sets</th>
<th>Basis of Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced plans (11&quot; x 17&quot;)</td>
<td>4</td>
<td>Furnished automatically upon award.</td>
</tr>
<tr>
<td>Contract Provisions</td>
<td>4</td>
<td>Furnished automatically upon award.</td>
</tr>
<tr>
<td>Large plans (e.g., 22&quot; x 34&quot;)</td>
<td>1</td>
<td>Furnished only upon request.</td>
</tr>
</tbody>
</table>

Additional plans and Contract Provisions may be obtained by the Contractor from the source stated in the Call for Bids, at the Contractor’s own expense.

E. In Standard Specifications Section 1-02.4(2) Subsurface Information, revise the second sentence in the first paragraph to read:

The Summary of Geotechnical Conditions and the boring logs are included as an appendix to the General Conditions, shall be considered as part of the Contract.

F. Delete from the Standard Specifications Section 1-02.5 Proposal Forms and replace it with the following:

The Proposal Form will identify the project and its location and describe the work. It will also list estimated quantities, units of measurement, the items of work, and the materials to be furnished at the unit bid prices. The bidder shall complete spaces on the proposal form that call for, but are not limited to, unit prices; extensions; summations; the total bid amount; signatures; date; and, where applicable, retail sales taxes and acknowledgment of addenda; the bidder’s name, address, telephone number, and signature; the bidder’s D/M/WBE commitment, if applicable; a State of Washington Contractor’s Registration Number; and a Business
License Number, if applicable. Bids shall be completed by typing or shall be printed in ink by hand, preferably in black ink. The required certifications are included as part of the Proposal Form.

The Contracting Agency reserves the right to arrange the proposal forms with alternates and additives, if such be to the advantage of the Contracting Agency. The bidder shall bid on all alternates and additives set forth in the Proposal Form unless otherwise specified.

G. Supplement the second paragraph of the Standard Specifications Section 1-02.6 Preparation of Proposal with the following:

4. If a minimum bid amount has been established for any item, the unit or lump sum price must equal or exceed the minimum amount stated.

5. Any correction to a bid made by interlineation, alteration, or erasure, shall be initialed by the signer of the bid.

H. Delete the last paragraph of the Standard Specifications Section 1-02.6 Preparation of Proposal and replace it with the following:

The Bidder shall make no stipulation on the Bid Form, nor qualify the bid in any manner.

A bid by a corporation shall be executed in the corporate name, by the president or a vice president (or other corporate officer accompanied by evidence of authority to sign).

A bid by a partnership shall be executed in the partnership name, and signed by a partner. A copy of the partnership agreement shall be submitted with the Bid Form if any D/M/WBE requirements are to be satisfied through such an agreement.

A bid by a joint venture shall be executed in the joint venture name and signed by a member of the joint venture. A copy of the joint venture agreement shall be submitted with the Bid Form if any D/W/MBE requirements are to be satisfied through such an agreement.

I. Supplement the Standard Specifications Section 1-02.7 Bid Deposit with the following:

Bid bonds shall contain the following:

1. Contracting Agency-assigned number for the project;

2. Name of the project;
3. The Contracting Agency named as obligee;

4. The amount of the bid bond stated either as a dollar figure or as a percentage which represents five percent of the maximum bid amount that could be awarded;

5. Signature of the bidder’s officer empowered to sign official statements. The signature of the person authorized to submit the bid should agree with the signature on the bond, and the title of the person must accompany the said signature;

6. The signature of the surety’s officer empowered to sign the bond and the power of attorney.

If so stated in the Contract Provisions, bidder must use the bond form included in the Contract Provisions.

If so stated in the Contract Provisions, cash will not be accepted for a bid deposit.

J. Insert the following new paragraph in Standard Specifications Section 1-02.8 Noncollusion Declaration and Lobbying Certification:

Conflict of Interest

The bidder affirms that it presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of its services hereunder. The Contractor further covenants that in the performance of this contract, no person having any conflicting interest shall be employed. Any interest on the part of the Contractor or its employees must be disclosed forthwith to the City of Kirkland. If this contract is within the scope of a Federal Housing and Community Development Block Grant program, the Contractor further covenants that no person who presently exercises any functions or responsibilities in connection with the block grant program has any personal financial interest, direct or indirect, in this contract.

K. Delete Standard Specifications Section 1-02.9 Delivery of Proposal and replace it with the following:

Each proposal shall be submitted in a sealed envelope, with the Project Name and Project Number as stated in the Invitation for Bids clearly marked on the outside of the envelope, or as otherwise required in the Bid Documents, to ensure proper handling and delivery.

If the project has FHWA funding and requires DBE Written Confirmation Documents or Good Faith Effort Documentation, then to be considered
responsive, the Bidder shall submit with their Bid Proposal, written
Confirmation Documentation from each DBE firm listed on the Bidder’s
completed DBE Utilization Certification, form 272-056A EF, as required
by Section 1-02.6.

The Contracting Agency will not open or consider any Bid Proposal that is
received after the time specified in the Invitation for Bids for receipt of
Bid Proposals, or received in a location other than that specified in the
Invitation for Bids.

L. Revise item 1 in Standard Specifications Section 1-02.13 Irregular Proposals to
read:

1. A proposal will be considered irregular and will be rejected if:
   a. The Bidder is not prequalified when so required;
   b. The authorized proposal form furnished by the Contracting Agency
      is not used or is altered;
   c. The completed proposal form contains any unauthorized additions,
      deletions, alternate Bids, or conditions;
   d. The Bidder adds provisions reserving the right to reject or accept the
      award, or enter into the Contract;
   e. A price per unit cannot be determined from the Bid Proposal;
   f. The Proposal form is not properly executed;
   g. The Bidder fails to submit or properly complete a Subcontractor list,
      if applicable, as required in Section 1-02.6;
   h. The Bidder fails to submit or properly complete a Disadvantaged
      Business Enterprise Certification, if applicable, as required in
      Section 1-02.6;
   i. The Bidder fails to submit written confirmation from each DBE firm
      listed on the Bidder’s completed DBE Utilization Certification that
      they are in agreement with the bidders DBE participation
      commitment, if applicable, as required in Section 1-02.6, or if the
      written confirmation that is submitted fails to meet the requirements
      of the General Conditions;
   j. The Bidder fails to submit DBE Good Faith Effort documentation,
      if applicable, as required in Section 1-02.6, or if the documentation
that is submitted fails to demonstrate that a Good Faith Effort to meet the Condition of Award was made;

k. The Bid Proposal does not constitute a definite and unqualified offer to meet the material terms of the Bid invitation; or

l. More than one proposal is submitted for the same project from a Bidder under the same or different names.

M. Delete Standard Specifications **Section 1-02.14 Disqualification of Bidders** and replace it with the following:

   A Bidder will be deemed not responsible if the Bidder does not meet the mandatory bidder responsibility criteria in RCW 39.04.350(1), as amended.

   As evidence that the Bidder meets the mandatory bidder responsibility criteria, the apparent two lowest Bidders must submit to the Contracting Agency within 24 hours of the bid submittal deadline, documentation (sufficient in the sole judgment of the Contracting Agency) demonstrating compliance with all responsibility criteria. The Contracting Agency reserves the right to request such documentation from other Bidders as well, and to request further documentation as needed to assess bidder responsibility. The Contracting Agency also reserves the right to obtain information from third parties concerning a Bidder’s compliance with the mandatory bidder responsibility criteria.

   If the Contracting Agency determines the Bidder does not meet the mandatory bidder responsibility criteria in RCW 39.04.350(1) and is therefore not a responsible Bidder, the Contracting Agency shall notify the Bidder in writing, with the reasons for its determination. If the Bidder disagrees with this determination, it may appeal the determination within two (2) business days of the Contracting Agency’s determination by presenting its appeal and any additional information to the Contracting Agency. The Contracting Agency will consider the appeal and any additional information before issuing its final determination. If the final determination affirms that the Bidder is not responsible, the Contracting Agency will not execute a contract with any other Bidder until at least two business days after the Bidder determined to be not responsible has received the Contracting Agency’s final determination.

N. Revise Standard Specifications **Section 1-02.15 Pre-Award Information** as follows:

   Before awarding any Contract, the Contracting Agency may require one or more of these items or actions of the apparent lowest responsible Bidder:
1. A complete statement of the origin, composition, and manufacture of any or all materials to be used;

2. Samples of these materials for quality and fitness tests;

3. A progress schedule (in a form the Contracting Agency requires) showing the order of and time required for the various phases of the Work;

4. A breakdown of costs assigned to any Bid item;

5. Attendance at a conference with the Engineer or representatives of the Engineer;

6. Obtain, and furnish a copy of, a business license to do business in the city or county where the work is located.

7. Any other information or action taken that is deemed necessary to ensure that the Bidder is the lowest responsible Bidder.

1.03 STANDARD SPECIFICATIONS SECTION 1-03 – AWARD AND EXECUTION OF CONTRACT

A. Revise the first paragraph in Standard Specifications Section 1-03.1 Consideration of Bids to read:

After opening and reading proposals, the Contracting Agency will check them for correctness of extensions of the prices per unit and the total price. If a discrepancy exists between the price per unit and the extended amount of any bid item, the price per unit will control. If a minimum bid amount has been established for any item and the bidder’s unit or lump sum price is less than the minimum specified amount, the Contracting Agency will unilaterally revise the unit or lump sum price, to the minimum specified amount and recalculate the extension. The total of extensions, corrected where necessary, including sales taxes where applicable and such additives and/or alternates as selected by the Contracting Agency, will be used by the Contracting Agency for award purposes and to fix the Awarded Contract Price amount and the amount of the contract bond.

B. Revise Standard Specifications Section 1-03.3 Execution of Contract to read:

Copies of the Contract Provisions, including the unsigned Form of Contract, will be available for signature by the successful bidder on the first business day following award. The number of copies to be executed by the Contractor will be determined by the Contracting Agency.
Within ten (10) calendar days after the award date, the successful bidder shall return the signed Contracting Agency-prepared contract, an insurance certification as required by Section 1-07.18, and a satisfactory bond as required by law and Section 1-03.4. Before execution of the contract by the Contracting Agency, the successful bidder shall provide any pre-award information the Contracting Agency may require under Section 1-02.15.

Until the Contracting Agency executes a contract, no proposal shall bind the Contracting Agency nor shall any work begin within the project limits or within Contracting Agency-furnished sites. The Contractor shall bear all risks for any work begun outside such areas and for any materials ordered before the contract is executed by the Contracting Agency.

If the bidder experiences circumstances beyond their control that prevents return of the contract documents within 10 calendar days after the award date stated above, the Contracting Agency may grant up to a maximum of 10 additional calendar days for return of the documents, provided the Contracting Agency deems the circumstances warrant it.

C. Revise the first paragraph of Standard Specifications Section 1-03.4 Contract Bond to read:

The successful bidder shall provide executed payment and performance bond(s) for the full contract amount. Separate payment and performance bonds are required and each shall be for the full contract amount. The bond(s) shall:

1. Be on Contracting Agency-furnished form(s);
2. Be signed by an approved surety (or sureties) that:
   a. Is registered with the Washington State Insurance Commissioner, and
   b. Appears on the current Authorized Insurance List in the State of Washington published by the Office of the Insurance Commissioner, and
   c. Have an A.M. Best rating of A:VII or better.
3. Guarantee that the Contractor will perform and comply with all obligations, duties, and conditions under the Contract, including but not limited to the duty and obligation to indemnify, defend, and protect the Contracting Agency against all losses and claims related directly or indirectly from any failure:
a. Of the Contractor (or any of the employees, subcontractors, or lower tier subcontractors of the Contractor) to faithfully perform and comply with all contract obligations, conditions, and duties, or

b. Of the Contractor (or the subcontractors or lower tier subcontractors of the Contractor) to pay all laborers, mechanics, subcontractors, lower tier subcontractors, material person, or any other person who provides supplies or provisions for carrying out the work;

4. Be conditioned upon the payment of taxes, increases, and penalties incurred on the project under titles 50, 51, and 82 RCW; and

5. Be accompanied by a power of attorney for the Surety’s officer empowered to sign the bond; and

6. Be signed by an officer of the Contractor empowered to sign official statements (sole proprietor or partner). If the Contractor is a corporation, the bond(s) must be signed by the president or vice president, unless accompanied by written proof of the authority of the individual signing the bond(s) to bind the corporation (i.e., corporate resolution, power of attorney, or a letter to such effect signed by the president or vice president).

1.04 STANDARD SPECIFICATIONS SECTION 1-04 – SCOPE OF THE WORK

A. Supplement Standard Specifications Section 1-04.1 Intent of the Contract with the following:

All materials, tools, labor, and guarantees thereof of required to complete the work shall be furnished and supplied in accordance with the Plans, these General Conditions, the Standard Specifications, and City of Kirkland Pre-Approved (Standard) Plans and policies. The Contractor shall include all costs of doing this work within the contract bid item prices.

B. Revise the second paragraph of Standard Specifications Section 1-04.2 Coordination of Contract Documents, Plans, Special Provisions, Specifications, and Addenda to read:

Any inconsistency in the parts of the contract shall be resolved by following this order of precedence (e.g., 1 presiding over 2, 2 over 3, 3 over 4, and so forth):

1. Addenda,
2. Proposal Form,
3. General Conditions,
4. Contract Plans,
5. Technical Specifications,
6. Amendments to the Standard Specifications,
7. 2018 WSDOT Standard Specifications,
8. Contracting Agency’s Standard Plans or Details (if any), and
9. WSDOT Standard Plans for Road, Bridge, and Municipal Construction.

C. Supplement Standard Specifications Section 1-04.6 Variation in Estimated Quantities with the following:

The quantities for unit price bid items have been entered into the Proposal only to provide a common proposal for bidders. Actual quantities will be determined in the field as the work progresses, and will be paid at the original bid price, regardless of final quantity. These bid items shall not be subject to the provisions of 1-04.6 of the Standard Specifications.

D. Delete the first paragraph of Standard Specifications Section 1-04.6 Variation in Estimated Quantities and replace it with the following:

Payment to the Contractor will be made only for the actual quantities of work performed and accepted in conformance with the contract. When the accepted quantity of work, included in change orders accepted by both parties, performed under a unit item varies from the original proposal quantity, payment will be at the unit contract price for all work.

E. Delete Standard Specifications Section 1-04.11 Final Cleanup in its entirety and replace with the following:

From time to time or as may be ordered by the Engineer, the Contractor shall cleanup and remove debris, refuse, and discarded materials of any kind resulting from the Work. Failure to do so may result in cleanup done by the Owner and the cost thereof charged to the Contractor and deducted from the Contractor’s progress estimate.

The Contractor shall perform final cleanup as provided in this Section. The Engineer will not establish the Physical Completion Date until this is done. All public and private property the Contractor occupied to do the
Work, including but not limited to the Street Right of Way, material sites, borrow and waste sites, and construction staging area shall be left neat and presentable. Immediately after completion of the Work, the Contractor shall cleanup and remove all refuse and unused materials of any kind resulting from the Work. Failure to do the final cleanup may result in the final cleanup being done by the Owner and the cost thereof charged to the Contractor and deducted from the Contractor’s final progress estimate.

The Contractor shall:

1. Remove all rubbish, surplus materials, discarded materials, falsework, piling, camp buildings, temporary structures, equipment, and debris;

2. Remove from the Project, all unneeded, oversized rock left from grading, surfacing, or paving unless the Contract specifies otherwise or the Engineer approves otherwise;

3. On all concrete and asphalt pavement work, flush the pavement clean and remove the wash water and debris;

4. Sweep and flush structure decks and remove wash water and debris;

5. Clean out from all open culverts and drains, inlets, catch basins, manholes and water main valve chambers, within the limits of the Project Site, all dirt and debris of any kind that is the result of the Contractor's operations;

6. Level and fine grade all excavated material not used for backfill where the Contract requires;

7. Fine grade all slopes;

8. Upon completion of grading and cleanup operations at any privately-owned site for which a written agreement between the Contractor and property owner is required, the Contractor shall obtain and furnish to the Engineer a written release from all damages, duly executed by the property owner, stating that the restoration of the property has been satisfactorily accomplished.

All costs associated with cleanup shall be incidental to the Work and shall be included in the various Bid items in the Bid, and shall be at no additional cost to the Owner.

1.05 STANDARD SPECIFICATIONS SECTION 1-05 – CONTROL OF WORK

A. Add the following two new sub-sections to Standard Specifications Section 1-05.4 Conformity with and Deviations from Plans and Stakes:
1-05.4(1) Roadway and Utility Surveys

The Contractor shall be responsible for setting, maintaining, and resetting all alignment stakes, slope stakes, and grades necessary for the construction of the improvements under this contract. Except for the survey control data furnished by the Owner, calculations, surveying, and measuring required for setting and maintaining the necessary lines and grades shall be the Contractor’s responsibility.

The Owner may spot-check the Contractor’s surveying. These spot-checks will not change the requirements for normal checking by the Contractor.

To facilitate the establishment of lines and elevations, the Owner will provide the Contractor with primary survey control information consisting of descriptions of two primary control points used for the horizontal and vertical control. Primary control points will be described and shown on the right-of-way Plans. The Contractor shall check all control points for horizontal and vertical locations prior to use and report any discrepancy to the Engineer. Errors resulting from using control points which have not been verified, shall be the Contractors responsibility.

At a minimum the Contractor shall provide following survey staking shall be required:

1. Construction centerline or an offset to construction centerline shall be staked at all angle points and 100-foot intervals on tangents.

2. Offset stakes of JUT Centerline at all angle points and at 50-foot intervals on tangents
   a. Cut/fill shall reference the elevations of the lowest conduit.
   b. Offset shall reference the location of the center of trench and list the width of the trench section.

3. Offset stakes of all structure control/location points shown on the undergrounding Plans.
   a. Each vault, handhold, and junction box shall have a sets of off-set points provided each location point shown in the location tables Cut/Fill shall reference elevations of the finish grade of the top lid of the structure.
   b. Each pole riser and stub up, shall have at least one set of off-set hubs provided with cut/fills to finish ground elevations.
c. Finish grade elevations of all structures shall be determined by the Contractor based on the typical sections and details provided in the Contract Documents.

4. Offset stakes at face or walls.

5. Offset staking of all drainage structures and drainage pipes at 50-foot intervals.

6. Location of all right-of-way and easements adjacent to the work area.

7. Offset of all permanent concrete sidewalks, curb ramps, and driveways.

Each stake shall have the following information: Hub elevation, offset distance to items being staked, cut/fill to proposed elevations, design elevation of items being staked.

The above information shall also be shown on a written Cut Sheet and provided to the City inspector 48-hours prior to installation of the items being staked.

The Contractor shall establish all secondary survey controls, both horizontal and vertical, as necessary to assure proper placement of all project elements based on the primary control points provided by the Engineer. Survey work shall be within the following tolerances:

<table>
<thead>
<tr>
<th>Survey Type</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stationing</td>
<td>+.01 foot</td>
</tr>
<tr>
<td>Alignment</td>
<td>+.01 foot (between successive points)</td>
</tr>
<tr>
<td>Superstructure Elevations</td>
<td>+.01 foot (from plan elevations)</td>
</tr>
<tr>
<td>Substructure Elevations</td>
<td>+.05 foot (from plan elevations)</td>
</tr>
<tr>
<td>Sidewalk and Curb Ramp Elevations</td>
<td>+.01 foot (from plan elevations)</td>
</tr>
</tbody>
</table>

During the progress of the work, the Contractor shall make available to the Engineer all field books including survey information, footing elevations, cross sections and quantities.

The Contractor shall be fully responsible for the close coordination of field locations and measurements with appropriate dimensions of structural members being fabricated.

1-05.4(2) Bridge and Structure Surveys
For all structural work such as bridges and retaining walls, the Contractor shall retain as a part of Contractor’s organization an experienced team of surveyors.

The Contractor shall provide all surveys required to complete the structure, except the following primary survey control which will be provided by the Engineer:

1. Centerline or offsets to centerline of the structure.
2. Stations of abutments and pier centerlines.
3. A sufficient number of bench marks for levels to enable the Contractor to set grades at reasonably short distances.
4. Monuments and control points as shown in the Plans.

The Contractor shall establish all secondary survey controls, both horizontal and vertical, as necessary to assure proper placement of all project elements based on the primary control points provided by the Engineer. Survey work shall be within the following tolerances:

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stationing</td>
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<td>+.05 foot (from plan elevations)</td>
</tr>
</tbody>
</table>

During the progress of the work, the Contractor shall make available to the Engineer all field books including survey information, footing elevations, cross sections and quantities.

The Contractor shall be fully responsible for the close coordination of field locations and measurements with appropriate dimensions of structural members being fabricated.

**Measurement**

No unit of measurement shall apply to the lump sum price for construction surveying.

**Payment**

Payment will be incidental to the total project lump sum bid for the following bid item:

“Construction Surveying”, per lump sum.
The lump sum Contract price for "Construction Surveying" shall be full pay for all labor, equipment, materials, and supervision utilized to perform the Work specified, including any resurveying, checking, correction of errors, replacement of missing or damaged stakes, and coordination efforts.

B. Supplement Standard Specifications **Section 1-05.7 Removal of Defective and Unauthorized Work** with the following:

If the Contractor fails to remedy defective or unauthorized work within the time specified in a written notice from the Engineer, or fails to perform any part of the work required by the Contract Documents, the Engineer may correct and remedy such work as may be identified in the written notice, with Contracting Agency forces or by such other means as the Contracting Agency may deem necessary.

If the Contractor fails to comply with a written order to remedy what the Engineer determines to be an emergency situation, the Engineer may have the defective and unauthorized work corrected immediately, have the rejected work removed and replaced, or have work the Contractor refuses to perform completed by using Contracting Agency or other forces. An emergency situation is any situation when, in the opinion of the Engineer, a delay in its remedy could be potentially unsafe, or might cause serious risk of loss or damage to the public.

Direct or indirect costs incurred by the Contracting Agency attributable to correcting and remedying defective or unauthorized work, or work the Contractor failed or refused to perform, shall be paid by the Contractor. Payment will be deducted by the Engineer from monies due, or to become due, the Contractor. Such direct and indirect costs shall include in particular, but without limitation, compensation for additional professional services required, and costs for repair and replacement of work of others destroyed or damaged by correction, removal, or replacement of the Contractor’s unauthorized work.

No adjustment in contract time or compensation will be allowed because of the delay in the performance of the work attributable to the exercise of the Contracting Agency’s rights provided by this Section.

The rights exercised under the provisions of this section shall not diminish the Contracting Agency’s right to pursue any other avenue for additional remedy or damages with respect to the Contractor’s failure to perform the work as required.

C. Insert the following new paragraph between the second and third paragraphs of Standard Specifications **Section 1-05.9 Equipment**: 
Use of equipment with metal tracks will not be permitted on concrete or asphalt surfaces unless otherwise authorized by the Engineer.

D. Supplement Standard Specifications Section 1-05.10 Guarantees as follows:

Guarantees and maintenance bonds shall be in accordance with City of Kirkland, State of Washington, Public Works Performance and Payment Bond forms and requirements. The performance bond shall be in the full amount of contract. The Contractor guarantees all items of material, equipment, and workmanship against mechanical, structural, or other defects for which the Contractor is responsible that may develop or become evident within a period of one year from and after acceptance of the work by the Owner. This guarantee shall be understood to require prompt remedy of defects upon written notification to the Contractor. If the Owner determines the defect requires immediate repair, the Owner may, without further notice to the Contractor, make the necessary corrections, the cost of which shall be borne by the Contractor. To support the above guarantee, the Contractor's performance bond shall remain in full force and effect for one year following the acceptance of the project by the Owner.

E. Delete Standard Specifications Section 1-05.11 Final Inspection and replace it with the following:

1-05.11 Final Inspections and Operational Testing

1-05.11(1) Substantial Completion Date

When the Contractor considers the work to be substantially complete, the Contractor shall so notify the Engineer and request the Engineer establish the Substantial Completion Date. The Contractor’s request shall list the specific items of work that remain to be completed in order to reach physical completion. The Engineer will schedule an inspection of the work with the Contractor to determine the status of completion. The Engineer may also establish the Substantial Completion Date unilaterally.

If, after this inspection, the Engineer concurs with the Contractor that the work is substantially complete and ready for its intended use, the Engineer, by written notice to the Contractor, will set the Substantial Completion Date. If, after this inspection the Engineer does not consider the work substantially complete and ready for its intended use, the Engineer will, by written notice, so notify the Contractor giving the reasons therefor.

Upon receipt of written notice concurring in or denying substantial completion, whichever is applicable, the Contractor shall pursue vigorously, diligently and without unauthorized interruption, the work necessary to reach Substantial and Physical Completion. The Contractor shall provide the
Engineer with a revised schedule indicating when the Contractor expects to reach substantial and physical completion of the work.

The above process shall be repeated until the Engineer establishes the Substantial Completion Date and the Contractor considers the work physically complete and ready for final inspection.

1-05.11(2) Final Inspection and Physical Completion Date

When the Contractor considers the work physically complete and ready for final inspection, the Contractor by written notice, shall request the Engineer to schedule a final inspection. The Engineer will set a date for final inspection. The Engineer and the Contractor will then make a final inspection and the Engineer will notify the Contractor in writing of all particulars in which the final inspection reveals the work incomplete or unacceptable. The Contractor shall immediately take such corrective measures as are necessary to remedy the listed deficiencies. Corrective work shall be pursued vigorously, diligently, and without interruption until physical completion of the listed deficiencies. This process will continue until the Engineer is satisfied the listed deficiencies have been corrected.

If action to correct the listed deficiencies is not initiated within 7 days after receipt of the written notice listing the deficiencies, the Engineer may, upon written notice to the Contractor, take whatever steps are necessary to correct those deficiencies pursuant to Section 1-05.7.

The Contractor will not be allowed an extension of contract time because of a delay in the performance of the work attributable to the exercise of the Engineer’s right hereunder.

Upon correction of all deficiencies, the Engineer will notify the Contractor and the Contracting Agency, in writing, of the date upon which the work was considered physically complete. That date shall constitute the Physical Completion Date of the contract, but shall not imply acceptance of the work or that all the obligations of the Contractor under the contract have been fulfilled.

1-05.11(3) Operational Testing

It is the intent of the Contracting Agency to have at the Physical Completion Date a complete and operable system. Therefore when the work involves the installation of machinery or other mechanical equipment; street lighting, electrical distribution or signal systems; irrigation systems; buildings; or other similar work it may be desirable for the Engineer to have the Contractor operate and test the work for a period of time after final inspection but prior to the physical completion date. Whenever items of work are listed in the Contract Provisions for operational testing they shall be fully tested under
operating conditions for the time period specified to ensure their acceptability prior to the Physical Completion Date. During and following the test period, the Contractor shall correct any items of workmanship, materials, or equipment which prove faulty, or that are not in first class operating condition. Equipment, electrical controls, meters, or other devices and equipment to be tested during this period shall be tested under the observation of the Engineer, so that the Engineer may determine their suitability for the purpose for which they were installed. The Physical Completion Date cannot be established until testing and corrections have been completed to the satisfaction of the Engineer.

The costs for power, gas, labor, material, supplies, and everything else needed to successfully complete operational testing, shall be included in the unit contract prices related to the system being tested, unless specifically set forth otherwise in the proposal.

Operational and test periods, when required by the Engineer, shall not affect a manufacturer’s guaranties or warranties furnished under the terms of the contract.

F. Standard Specifications Section 1-05.12 Final Acceptance.

Add the following new section:

1-05.12(1) One-Year Guarantee Period

The Contractor shall return to the project and repair or replace all defects in workmanship and material discovered within one year after Final Acceptance of the Work. The Contractor shall start work to remedy any such defects within 7 calendar days of receiving Contracting Agency’s written notice of a defect, and shall complete such work within the time stated in the Contracting Agency’s notice. In case of an emergency, where damage may result from delay or where loss of services may result, such corrections may be made by the Contracting Agency’s own forces or another contractor, in which case the cost of corrections shall be paid by the Contractor. In the event the Contractor does not accomplish corrections within the time specified, the work will be otherwise accomplished and the cost of same shall be paid by the Contractor.

When corrections of defects are made, the Contractor shall then be responsible for correcting all defects in workmanship and materials in the corrected work for one year after acceptance of the corrections by Contracting Agency.

This guarantee is supplemental to and does not limit or affect the requirements that the Contractor’s work comply with the requirements of the Contract or any other legal rights or remedies of the Contracting Agency.
G. Revise the second paragraph of Standard Specifications **Section 1-05.15 Method of Serving Notices** to read:

All correspondence from the Contractor shall be directed to the Project Engineer. All correspondence from the Contractor constituting any notification, notice of protest, notice of dispute, or other correspondence constituting notification required to be furnished under the Contract, must be in paper format, hand delivered or sent via mail delivery service to the Project Engineer's office. Electronic copies such as e-mails or electronically delivered copies of correspondence will not constitute such notice and will not comply with the requirements of the Contract.

H. Add new Standard Specifications **Section 1-05.16 Water and Power**.

**1-05.16 Water and Power**

The Contractor shall make necessary arrangements, and shall bear the costs for power and water necessary for the performance of the work, unless the contract includes power and water as a pay item.

F. Add new Standard Specifications Section 1-05.17 Oral Agreements.

**1-05.17 Oral Agreements**

No oral agreement or conversation with any officer, agent, or employee of the Contracting Agency, either before or after execution of the contract, shall affect or modify any of the terms or obligations contained in any of the documents comprising the contract. Such oral agreement or conversation shall be considered as unofficial information and in no way binding upon the Contracting Agency, unless subsequently put in writing and signed by the Contracting Agency.

G. Add the following new Standard Specifications section:

**1-05.18 Record Drawings**

The Contractor shall maintain one set of full size plans for Record Drawings, updated with clear and accurate red-lined field revisions on a daily basis, and within 2 business days after receipt of information that a change in Work has occurred. The Contractor shall not conceal any work until the required information is recorded.

This Record Drawing set shall be used for this purpose alone, shall be kept separate from other Plan sheets, and shall be clearly marked as Record Drawings. These Record Drawings shall be kept on site at the Contractor’s field office, and shall be available for review by the Contracting Agency at all times. The Contractor shall bring the Record Drawings to each progress meeting for review.
The preparation and upkeep of the Record Drawings is to be the assigned responsibility of a single, experienced, and qualified individual. The quality of the Record Drawings, in terms of accuracy, clarity, and completeness, is to be adequate to allow the Contracting Agency to modify the computer-aided drafting (CAD) Contract Drawings to produce a complete set of Record Drawings for the Contracting Agency without further investigative effort by the Contracting Agency.

The Record Drawing markups shall document all changes in the Work, both concealed and visible. Items that must be shown on the markups include but are not limited to:

- Actual dimensions, arrangement, and materials used when different than shown in the Plans.
- Changes made by Change Order or Field Order.
- Changes made by the Contractor.
- Accurate locations of storm sewer, sanitary sewer, water mains and other water appurtenances, structures, conduits, light standards, vaults, width of roadways, sidewalks, landscaping areas, building footprints, channelization and pavement markings, etc. Include pipe invert elevations, top of castings (manholes, inlets, etc.).

The Contract calls for the Contractor to do the surveying/staking, the applicable tolerance limits include, but are not limited to the following:

<table>
<thead>
<tr>
<th>Description</th>
<th>Vertical</th>
<th>Horizontal</th>
</tr>
</thead>
<tbody>
<tr>
<td>As-built sanitary &amp; storm invert and grate elevations</td>
<td>± 0.01 foot</td>
<td>± 0.01 foot</td>
</tr>
<tr>
<td>As-built monumentation</td>
<td>± 0.001 foot</td>
<td>± 0.001 foot</td>
</tr>
<tr>
<td>As-built waterlines, inverts, valves, hydrants</td>
<td>± 0.10 foot</td>
<td>± 0.10 foot</td>
</tr>
<tr>
<td>As-built ponds/swales/water features</td>
<td>± 0.10 foot</td>
<td>± 0.10 foot</td>
</tr>
<tr>
<td>As-built buildings (fin. Floor elev.)</td>
<td>± 0.01 foot</td>
<td>± 0.10 foot</td>
</tr>
<tr>
<td>As-built gas lines, power, TV, Tel, Com</td>
<td>± 0.10 foot</td>
<td>± 0.10 foot</td>
</tr>
</tbody>
</table>
As-built signs, signals, etc.  

N/A ± 0.10 foot

Making Entries on the Record Drawings:

- Use erasable colored pencil (not ink) for all markings on the Record Drawings, conforming to the following color code:
  - Additions - Red
  - Deletions - Green
  - Comments - Blue
  - Dimensions - Graphite
- Provide the applicable reference for all entries, such as the change order number, the request for information (RFI) number, or the approved shop drawing number.
- Date all entries.
- Clearly identify all items in the entry with notes similar to those in the Contract Documents (such as pipe symbols, centerline elevations, materials, pipe joint abbreviations, etc.).

The Contractor shall certify on the Record Drawings that said drawings are an accurate depiction of built conditions, and in conformance with the requirements detailed above. The Contractor shall submit final Record Drawings to the Contracting Agency. Contracting Agency acceptance of the Record Drawings is one of the requirements for achieving Physical Completion.

Payment will be made as an incidental part of the base bid lump sum price for Record Drawings.
1-05.19 Daily Construction Report

Add the following new Section:

The Contractor and Subcontractors shall maintain daily, a Daily Construction Report of the Work. The Diary must be kept and maintained by Contractor’s designated project superintendent(s). Entries must be made on a daily basis and must accurately represent all of the project activities on each day. Contractor shall provide signed copies of diary sheets from the previous week to Engineer at each Weekly Coordination Meeting.

Every single diary sheet/page must have:

• Project name & number;

• Consecutive numbering of pages, and

• Typed or printed name, signature, and date of the person making the entry.

At a minimum the diary shall, for each day, have a separate entry detailing each of the following:

1. Day and date.
2. Weather conditions, including changes throughout the day.
3. Complete description of work accomplished during the day, with adequate references to the Plans and Contract Provisions so the reader can easily and accurately identify said work on the Plans. Identify location/description of photographs or videos taken that day.
4. Each and every changed condition, dispute or potential dispute, incident, accident, or occurrence of any nature whatsoever which might affect Contractor, Contracting Agency, or any third party in any manner. This shall be provided on a separate page for other information.
5. List all materials received and stored on- or off-site by Contractor that day for future installation, including the manner of storage and protection of the same.
6. List materials installed that day.
7. List all Subcontractors working on-site that day.
8. List the number of Contractor’s employees working during each day, by category of employment.
9. List Contractor’s equipment on the site that day; showing which were in use, and which idle.
10. Notations to explain inspections, testing, stake-out, and all other services furnished by Contracting Agency or other party during the day.
11. Verify the daily (including non-work days) inspection and maintenance of traffic control devices and condition of the traveled roadway surfaces.
12. Any other information that serves to give an accurate and complete record of the nature, quantity, and quality of Contractor’s progress on each day.
13. Add; Officials and visitors onsite
14. Change Orders
15. Occurrence of testing, staking or special inspections

It is expressly agreed between Contractor and Contracting Agency that the Daily Diary maintained by Contractor shall be the "Contractor's Book of Original Entry" for the documentation of any potential claims or disputes that might arise during this Contract. Failure of Contractor to maintain this Diary in the manner described above will constitute a waiver of any such claims or disputes by Contractor.

Engineer or his representative on the job site will also complete a Daily Construction Report.

1.05 STANDARD SPECIFICATIONS SECTION 1-06 – CONTROL OF MATERIAL

A. Supplement Standard Specifications Section 1-06.1 Approval of Materials Prior to Use as follows:

   Approval of a Material source shall not mean acceptance of the Material. The Material shall meet the requirements of the Contract.

B. Delete Standard Specifications Section 1-06.1(4) Fabrication Inspection Expense in its entirety.
1.06 STANDARD SPECIFICATIONS SECTION 1-07 – LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC

A. Supplement Standard Specifications Section 1-07.1 Laws to be Observed with the following:

The Contractor shall at all times eliminate noise to the maximum practicable extent. Air compressing plants shall be equipped with silencers, and the exhaust of all gasoline motors or other power equipment shall be provided with mufflers. Special care shall be used to avoid noise or other nuisances, and the Contractor shall strictly observe all federal, state, and local regulations concerning noise.

The Contractor shall make an effort to reduce carbon emissions by turning off engines on construction equipment not in active use, and on trucks that are idling while waiting to load or unload material for five minutes or more.

Compliance with Laws

The Contractor shall comply with the requirements of all other City ordinances, state statutes, laws, and regulations, whether or not stated herein, which are specifically applicable to the public improvements and work to be performed.

B. Supplement Standard Specifications Section 1-07.1 Laws to be Observed with the following:

In cases of conflict between different safety regulations, the more stringent regulation shall apply.

The Washington State Department of Labor and Industries shall be the sole and paramount administrative agency responsible for the administration of the provisions of the Washington Industrial Safety and Health Act of 1973 (WISHA).

The Contractor shall maintain at the project site office, or other well known place at the project site, all articles necessary for providing first aid to the injured. The Contractor shall establish, publish, and make known to all employees, procedures for ensuring immediate removal to a hospital, or doctor’s care, persons, including employees, who may have been injured on the project site. Employees should not be permitted to work on the project site before the Contractor has established and made known procedures for removal of injured persons to a hospital or a doctor’s care.

The Contractor shall have sole responsibility for the safety, efficiency, and adequacy of the Contractor’s plant, appliances, and methods, and for any damage or injury resulting from their failure, or improper maintenance, use,
or operation. The Contractor shall be solely and completely responsible for
the conditions of the project site, including safety for all persons and
property in the performance of the work. This requirement shall apply
continuously, and not be limited to normal working hours. The required or
implied duty of the Engineer to conduct construction review of the
Contractor’s performance does not, and shall not, be intended to include
review and adequacy of the Contractor’s safety measures in, on, or near the
project site.

C. Supplement Standard Specifications Section 1-07.1 Laws to be Observed with
the following:

**Contractor’s Safety Responsibilities**

These construction documents and the joint and several phases of
construction hereby contemplated are to be governed at all times by
applicable provisions of the federal law(s), including but not limited to the
latest amendments of the following:

Williams-Steiger Occupational Safety and Health Act of 1980, Public Law
91-596.

Part 1910 - Occupational Safety and Health Standards, Chapter XVII of
Title 29, Code of Federal Regulations.

This project, the Contractor and its subcontractors, shall, at all times, be
governed by Chapter XIII of Title 29, Code of Federal Regulations, Part
1518 - Safety and Health Regulations for Construction (35 CFR 75), as
amended to date.

To implement the program, and to provide safe and healthful working
conditions for all persons, the construction superintendent or his/her
designated safety officer shall conduct general project safety meetings at
the site at least once each month during the course of construction.

The prime contractor and all subcontractors shall immediately report all
accidents, injuries, and health hazards to the Manager, in writing. This shall
not obviate any mandatory reporting under the provisions of the
Occupational Safety and Health Act of 1970. This program shall become a
part of the contract documents and the contract between the Owner and the
Contractor, and all subcontractors, as though fully written therein.

Where the location of the work is in proximity to overhead wires and power
lines, the Contractor shall coordinate all work with the utility and shall
provide for such measures as may be necessary for the protection of the
workers.
D. Delete Standard Specifications Section 1-07.2 State Taxes, including its sub-sections, in its entirety, and replace it with the following:

1-07.2 State Sales Tax

The Washington State Department of Revenue has issued special rules on the State sales tax. Sections 1-07.2(1) through 1-07.2(3) are meant to clarify those rules. The Contractor should contact the Washington State Department of Revenue for answers to questions in this area. The Contracting Agency will not adjust its payment if the Contractor bases a bid on a misunderstood tax liability.

The Contractor shall include all Contractor-paid taxes in the unit bid prices or other contract amounts. In some cases, however, state retail sales tax will not be included. Section 1-07.2(2) describes this exception.

The Contracting Agency will pay the retained percentage (or release the Contract Bond if a FHWA-funded Project) only if the Contractor has obtained from the Washington State Department of Revenue a certificate showing that all contract-related taxes have been paid (RCW 60.28.051). The Contracting Agency may deduct from its payments to the Contractor any amount the Contractor may owe the Washington State Department of Revenue, whether the amount owed relates to this contract or not. Any amount so deducted will be paid into the proper State fund.

1-07.2(1) State Sales Tax — Rule 171

WAC 458-20-171, and its related rules, apply to building, repairing, or improving streets, roads, etc., which are owned by a municipal corporation, or political subdivision of the state, or by the United States, and which are used primarily for foot or vehicular traffic. This includes storm or combined sewer systems within and included as a part of the street or road drainage system and power lines when such are part of the roadway lighting system. For work performed in such cases, the Contractor shall include Washington State Retail Sales Taxes in the various unit bid item prices, or other contract amounts, including those that the Contractor pays on the purchase of the materials, equipment, or supplies used or consumed in doing the work.

1-07.2(2) State Sales Tax — Rule 170

WAC 458-20-170, and its related rules, apply to the constructing and repairing of new or existing buildings, or other structures, upon real property. This includes, but is not limited to, the construction of streets, roads, highways, etc., owned by the state of Washington; water mains and their appurtenances; sanitary sewers and sewage disposal systems unless such sewers and disposal systems are within, and a part of, a street or road drainage system; telephone, telegraph, electrical power distribution lines, or other conduits or lines in or above streets or roads, unless such power lines become
a part of a street or road lighting system; and installing or attaching of any article of tangible personal property in or to real property, whether or not such personal property becomes a part of the realty by virtue of installation.

For work performed in such cases, the Contractor shall collect from the Contracting Agency, retail sales tax on the full contract price. The Contracting Agency will automatically add this sales tax to each payment to the Contractor. For this reason, the Contractor shall not include the retail sales tax in the unit bid item prices, or in any other contract amount subject to Rule 170, with the following exception.

Exception: The Contracting Agency will not add in sales tax for a payment the Contractor or a subcontractor makes on the purchase or rental of tools, machinery, equipment, or consumable supplies not integrated into the project. Such sales taxes shall be included in the unit bid item prices or in any other contract amount.

1-07.2(3) Services

The Contractor shall not collect retail sales tax from the Contracting Agency on any contract wholly for professional or other services (as defined in Washington State Department of Revenue Rules 138 and 244).

E. Supplement Standard Specifications Section 1-07.14 Responsibility for Damage with the following:

The Contractor further agrees that it is waiving immunity under Industrial Insurance Law Title 51 RCW for any claims brought against the City by its employees. In the event Contractor fails, after receipt of timely notice from the City, to appear, defend, or pay as required by the first paragraph of this section, then in that event and in that event only, the City may in its sole discretion, deduct from the progress payments to the Contractor and pay any amount sufficient to pay any claim, of which the City may have knowledge and regardless of the informalities of notice of such claim, arising out of the performance of this contract, provided the City has theretofore given notice of receipt of such claim to the Contractor and the Contractor has failed to act thereon.

F. In Standard Specifications Section 1-07.15(1) Spill Prevention, Control, and Countermeasures Plan, supplement the list under SPCC Plan Element Requirements with the following:

2. City of Kirkland spill response hotline (425) 587-3900 shall be listed as the first point of contact.

G. Supplement Standard Specifications Section 1-07.17 Utilities and Similar Facilities with the following:
Locations and dimensions shown in the Plans for existing facilities are in accordance with available information obtained without uncovering, measuring, or other verification.

The Contractor is alerted to the existence of Chapter 19.122 RCW, a law relating to underground utilities. Any cost to the Contractor incurred as a result of this law shall be at the Contractor's expense.

No excavation shall begin until all known facilities in the vicinity of the excavation area have been located and marked.

The Contractor shall give advance notice to all utility companies involved where work is to take place and in all other respects comply with the provisions of Chapter 19.122 RCW. Notice shall include, but not be limited to, the following utility companies:

1. Water, sewer, storm, streets – minimum two working days in advance
2. Power (Electric and Natural Gas) – minimum 48 hours in advance
3. Telephone – minimum 30 days in advance
4. Natural Gas – minimum 48 hours in advance
5. Cable Television – minimum 48 hours in advance
6. Transit – minimum 21 days in advance

The following is a list of some utilities serving the Kirkland area. This is not intended or represented to be a complete list and is provided for the Contractor’s convenience.

<table>
<thead>
<tr>
<th>Utility</th>
<th>Agency/Company</th>
<th>Address</th>
<th>Contact</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>City of Kirkland</td>
<td>123 Fifth Avenue Kirkland, WA 98033</td>
<td>Tom Chriest</td>
<td>(425) 587-3900</td>
</tr>
<tr>
<td>Sewer / Storm Drainage</td>
<td>City of Kirkland</td>
<td>123 Fifth Avenue Kirkland, WA 98033</td>
<td>Scott Helsel - Sewer</td>
<td>(425) 587-3900</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Jason Osborn - Storm</td>
<td></td>
</tr>
<tr>
<td>Water / Sewer (North area of Kirkland)</td>
<td>Northshore Utility District</td>
<td>6380 NE 185th St Kenmore, WA 98028</td>
<td>Tom Alexieff</td>
<td>(425) 398-4420</td>
</tr>
<tr>
<td>Street</td>
<td>City of Kirkland</td>
<td>123 Fifth Avenue Kirkland, WA 98033</td>
<td>John Pantzke</td>
<td>(425) 587-3900</td>
</tr>
<tr>
<td>Natural Gas / Electric</td>
<td>Puget Sound Energy</td>
<td>P.O. Box 97034 EST-11W</td>
<td>Sharon Seitz</td>
<td>(206) 643-1908</td>
</tr>
</tbody>
</table>
Note that most utility companies may be contacted for locations through the “One Call” system, 1-800-424-5555. In the event of a gas emergency, call 911 and then the PSE hotline at 1-888-225-5773 (1-888-CALL-PSE).

The Contractor shall coordinate the work with these utilities and shall notify the Engineer in advance of any conflicts affecting the work schedule. The utility companies shall witness or perform all shutdowns, connections or disconnections.

Wherever in the course of the construction operation it becomes necessary to cause an outage of utilities, it shall be the Contractor's responsibility to notify the affected users not less than twenty-four (24) hours in advance of the creation of such outage. The Contractor shall make reasonable effort to minimize the duration of outages.

The Contractor shall be responsible for any breakage of utilities or services resulting from its operations and shall hold the City and its agents harmless from any claims resulting from disruption of, or damage to, same.

Other Notifications

Service Area Turn Off: All service area turn off notices must be distributed to affected parties two working days in advance of any scheduled shut off. City to provide door hangers and affected service area map. The contractor shall fill in all required information prior to hanging door hanger.
Entry onto Private Property: Each property owner shall be given two working days advance Written Notice prior to entry by the Contractor.

Loop Detection Systems: Where an excavation is to take place through a signal loop detector system, the Contractor shall provide at least five (5) Working Days advance notice to the City Signal Shop at (425) 587-3920 to coordinate temporary signal wire disconnect and installation of temporary signal detection equipment.

Survey Monuments: Contractor shall submit and satisfy all requirements of the "Application for Permit to Remove or Destroy A Survey Monument" with the DNR prior to removal and replacement of existing monuments. A copy of the permit shall be provided to the Engineer. When proposed pavement removal is close to existing survey monumentation, or proposed pavement removal includes existing survey monumentation, the Contractor shall provide a minimum 4 Working Days advance notice to the Engineer to allow survey crews to tie the monument out and reset the monument after pavement installation.

H. Supplement Standard Specifications Section 1-07.17(2) Utility Construction, Removal or Relocation by Others with the following:

Under no circumstances will discrepancies in location or incompleteness in description of existing utilities or improvements, whether they are visible from the surface, buried, or otherwise obscured, be considered as a basis for additional compensation to the Contractor.

I. Delete Standard Specifications Section 1-07.18 Public Liability and Property Damage Insurance in its entirety, and replace it with the following:

1-07.18(1) General Requirements

A. The Contractor shall obtain the insurance described in this section from insurers approved by the State Insurance Commissioner pursuant to RCW Title 48. The insurance must be provided by an insurer with a rating of A-: VII or higher in the A.M. Best’s Key Rating Guide, which is licensed to do business in the state of Washington (or issued as a surplus line by a Washington Surplus lines broker). The Contracting Agency reserves the right to approve or reject the insurance provided, based on the insurer (including financial condition), terms and coverage, the Certificate of Insurance, and/or endorsements.

B. The Contractor shall keep this insurance in force during the term of the contract and for thirty (30) days after the Physical Completion date, unless otherwise indicated (see C. below).
C. If any insurance policy is written on a claims made form, its retroactive date, and that of all subsequent renewals, shall be no later than the effective date of this Contract. The policy shall state that coverage is claims made, and state the retroactive date. Claims-made form coverage shall be maintained by the Contractor for a minimum of 36 months following the Final Completion or earlier termination of this contract, and the Contractor shall annually provide the Contracting Agency with proof of renewal. If renewal of the claims made form of coverage becomes unavailable, or economically prohibitive, the Contractor shall purchase an extended reporting period (“tail”) or execute another form of guarantee acceptable to the Contracting Agency to assure financial responsibility for liability for services performed.

D. The insurance policies shall contain a “cross liability” provision.

E. The Contractor’s and all subcontractors’ insurance coverage shall be primary and non-contributory insurance as respects the Contracting Agency’s insurance, self-insurance, or insurance pool coverage.

F. The Contractor shall provide the Contracting Agency and all Additional Insureds with written notice of any policy cancellation, within two business days of their receipt of such notice.

G. Upon request, the Contractor shall forward to the Contracting Agency a full and certified copy of the insurance policy(s).

H. The Contractor shall not begin work under the contract until the required insurance has been obtained and approved by the Contracting Agency.

I. Failure on the part of the Contractor to maintain the insurance as required shall constitute a material breach of contract, upon which the Contracting Agency may, after giving five business days’ notice to the Contractor to correct the breach, immediately terminate the contract or, at its discretion, procure or renew such insurance and pay any and all premiums in connection therewith, with any sums so expended to be repaid to the Contracting Agency on demand, or at the sole discretion of the Contracting Agency, offset against funds due the Contractor from the Contracting Agency.
J. All costs for insurance shall be incidental to and included in the unit or lump sum prices of the contract and no additional payment will be made.

1-07.18(2) Additional Insured

All insurance policies, with the exception of Professional Liability and Workers Compensation, shall name the following listed entities as additional insured(s):

- the Contracting Agency and its officers, elected officials, employees, agents, and volunteers
- Consultants hired by the Contracting Agency to administer the Construction

The above-listed entities shall be additional insured(s) for the full available limits of liability maintained by the Contractor, whether primary, excess, contingent or otherwise, irrespective of whether such limits maintained by the Contractor are greater than those required by this Contract, and irrespective of whether the Certificate of Insurance provided by the Contractor pursuant to 1-07.18(3) describes limits lower than those maintained by the Contractor.

1-07.18(3) Subcontractors

Contractor shall ensure that each subcontractor of every tier obtains and maintains at a minimum the insurance coverages listed in 1-07.18(5)A and 1-07.18(5)B. Upon request of the Contracting Agency, the Contractor shall provide evidence of such insurance.

1-07.18(4) Evidence of Insurance

The Contractor shall deliver to the Contracting Agency a Certificate(s) of Insurance and endorsements for each policy of insurance meeting the requirements set forth herein when the Contractor delivers the signed Contract for the work. The certificate and endorsements must conform to the following requirements:

1. An ACORD certificate or a form determined by the Contracting Agency to be equivalent.
2. Copies of all endorsements naming Contracting Agency and all other entities listed in 1-07.18(2) as Additional Insured(s), showing the policy number. The Contractor may submit a copy of any blanket additional insured clause from its policies instead of a separate endorsement. A statement of additional insured status on an ACORD Certificate of Insurance shall not satisfy this requirement.
3. Any other amendatory endorsements to show the coverage required herein.

1-07.18(5) Coverages and Limits

The insurance shall provide the minimum coverages and limits set forth below. Providing coverage in these stated minimum limits shall not be construed to relieve the Contractor from liability in excess of such limits. All deductibles and self-insured retentions must be disclosed and are subject to approval by the Contracting Agency. The cost of any claim payments falling within the deductible shall be the responsibility of the Contractor.

1-07.18(5)A Commercial General Liability

A policy of Commercial General Liability Insurance, including:

- Per project aggregate
- Premises/Operations Liability
- Products/Completed Operations – for a period of one year following final acceptance of the work.
- Personal/Advertising Injury
- Contractual Liability
- Independent Contractors Liability
- Stop Gap / Employers’ Liability
- Explosion, Collapse, or Underground Property Damage (XCU)
- Blasting (only required when the Contractor’s work under this Contract includes exposures to which this specified coverage responds)

Such policy must provide the following minimum limits:

- $1,000,000 Each Occurrence
- $2,000,000 General Aggregate
- $1,000,000 Products & Completed Operations Aggregate
- $1,000,000 Personal & Advertising Injury, each offence

Stop Gap / Employers’ Liability

- $1,000,000 Each Accident
- $1,000,000 Disease - Policy Limit
- $1,000,000 Disease - Each Employee

1-07.18(5)B Automobile Liability
Automobile Liability for owned, non-owned, hired, and leased vehicles, with an MCS 90 endorsement and a CA 9948 endorsement attached if “pollutants” are to be transported. Such policy(ies) must provide the following minimum limit:

$1,000,000 combined single limit

1-07.18(5)C Workers’ Compensation

The Contractor shall comply with Workers’ Compensation coverage as required by the Industrial Insurance laws of the state of Washington.

1-07.18(5)F Excess or Umbrella Liability

The Contractor shall provide Excess or Umbrella Liability coverage at limits of $3,000,000 per occurrence and annual aggregate. This excess or umbrella liability coverage shall apply, at a minimum, to both the Commercial General and Auto insurance policy coverage.

This requirement may be satisfied instead through the Contractor’s primary Commercial General and Automobile Liability coverage, or any combination thereof.

1-07.18(5)H Professional Liability

The Contractor and/or its Subcontractor and/or its design consultant providing construction management, value engineering, or any other design-related non-construction professional services shall provide evidence of Professional Liability insurance covering professional errors and omissions. Such policy must provide the following minimum limits:

$1,000,000 per Claim

If the scope of such design-related professional services includes work related to pollution conditions, the Professional Liability insurance shall include Pollution Liability coverage.

If insurance is on a claims made form, its retroactive date, and that of all subsequent renewals, shall be no later than the effective date of this Contract.

J. Supplement Standard Specifications Section 1-07.23 Public Convenience and Safety with the following:

No road or street shall be closed to the public except as permitted in these plans and specifications or with the approval of the Engineer and proper governmental authority. Fire hydrants on or adjacent to the work shall be
kept accessible to fire fighting equipment at all times. Provision shall be made by the Contractor to ensure the proper functioning of all gutters, sewer inlets, drainage ditches and culverts, irrigation ditches and natural water courses, and storm sewer facilities throughout the project. Temporary interruption of service will be allowed only with the permission of the Engineer.

The Kirkland Police Department and Kirkland Fire Department shall be notified at least four (4) hours in advance of any actions by the Contractor that may affect the functions of either the Police Department or Fire Department.

The Contractor shall conduct its work and take preventative measures so that dust or other particulate matter in the project area shall not become objectionable to the adjacent property owners or general public. Should the Owner determine the Contractor is not fulfilling its obligation in this regard; the Owner reserves the right to take such action as may be necessary to remedy the objectionable condition and to charge the Contractor with any cost that may be incurred in such remedial action. All work shall be carried on with due regard for the safety of the public. No driveway, whether public, commercial, or private, may be closed without prior approval of the Owner, project supervisor, or Engineer unless written authority has been given by the affected property owner. The Contractor shall be responsible for notifying the affected property owners 24 hours in advance of scheduled interruptions to access.

K. Revise the second paragraph of Standard Specifications Section 1-07.23(1) Construction Under Traffic to read:

To disrupt public traffic as little as possible, the Contractor shall permit traffic to pass through the work with the least possible inconvenience or delay. The Contractor shall maintain existing roads, streets, sidewalks, and paths within the project limits, keeping them open, and in good, clean, safe condition at all times. Deficiencies caused by the Contractor’s operations shall be repaired at the Contractor’s expense. Deficiencies not caused by the Contractor’s operations shall be repaired by the Contractor when directed by the Engineer, at the Contracting Agency’s expense. The Contractor shall also maintain roads, streets, sidewalks, and paths adjacent to the project limits when affected by the Contractor’s operations. Snow and ice control will be performed by the Contracting Agency on all projects. Cleanup of snow and ice control debris will be at the Contracting Agency’s expense. The Contractor shall perform the following:

1. Remove or repair any condition resulting from the work that might impede traffic or create a hazard.
2. Keep existing traffic signal and highway lighting systems in operation as the work proceeds. (The Contracting Agency will continue the route maintenance on such system.)

3. Maintain the striping on the roadway at the Contracting Agency’s expense. The Contractor shall be responsible for scheduling when to renew striping, subject to the approval of the Engineer. When the scope of the project does not require work on the roadway, the Contracting Agency will be responsible for maintaining the striping.

4. Maintain existing permanent signing. Repair of signs will be at the Contracting Agency’s expense, except those damaged due to the Contractor’s operations.

5. Keep drainage structures clean to allow for free flow of water. Cleaning of existing drainage structures will be at the Contracting Agency’s expense when approved by the Engineer, except when flow is impaired due to the Contractor’s operations.

L. Supplement Standard Specifications Section 1-07.23(1) Construction Under Traffic with the following:

**Pedestrian Control and Protection**

When the work area encroaches upon a sidewalk, walkway or crosswalk area, special consideration must be given to pedestrian safety. Maximum effort must be made to separate pedestrians from the work area. Protective barricades, fencing, and bridges, together with warning and guidance devices and signs, shall be utilized so that the passageway for pedestrians is safe and well defined. Whenever pedestrian walkways are provided across excavations, they shall be provided with suitable handrails. Footbridges shall be safe, strong, free of bounce and sway, have a slip resistant coating, and be free of cracks, holes, and irregularities that could cause tripping. Ramps shall be provided at the entrance and exit of all raised footbridges, again to prevent tripping. Adequate illumination and reflectorization shall be provided during hours of darkness. All walkways shall be maintained with at least 4 feet clear width.

Where walks are closed by construction, an alternate walkway shall be provided, preferably within the planting strip.

Where it is necessary to divert pedestrians into the roadway, barricading or channeling devices shall be provided to separate the pedestrian walkway from the adjacent vehicular traffic lane. At no time shall pedestrians be diverted into a portion of a street used concurrently by moving vehicular traffic.
At locations where adjacent alternate walkways cannot be provided, appropriate signs shall be posted at the limits of construction and in advance of the closure at the nearest crosswalk or intersection to divert pedestrians across the street.

Physical barricades shall be installed to prevent visually impaired people from inadvertently entering a closed area. Pedestrian walkways shall be wheelchair accessible at all times. Pedestrian access shall be maintained to all properties adjacent to the construction site.

M. Delete Standard Specifications Section 1-07.24 Rights of Way in its entirety, and replace it with the following:

Street right of way lines, limits of easements, and limits of construction permits are indicated in the Plans. The Contractor’s construction activities shall be confined within these limits, unless arrangements for use of private property are made.

Generally, the Contracting Agency will have obtained, prior to bid opening, all rights of way and easements, both permanent and temporary, necessary for carrying out the work. Exceptions to this are noted in the Bid Documents or will be brought to the Contractor’s attention by a duly issued Addendum.

Whenever any of the work is accomplished on or through property other than public right of way, the Contractor shall meet and fulfill all covenants and stipulations of any easement agreement obtained by the Contracting Agency from the owner of the private property. Copies of the easement agreements may be included in the Contract Provisions or made available to the Contractor as soon as practical after they have been obtained by the Engineer.

The Contractor shall not proceed with any portion of the work in areas where right of way, easements or rights of entry have not been acquired until the Engineer certifies to the Contractor that the right of way or easement is available or that the right of entry has been received. If the Contractor is delayed due to acts of omission on the part of the Contracting Agency in obtaining easements, rights of entry or right of way, the Contractor will be entitled to an extension of time. The Contractor agrees that such delay shall not be a breach of contract.

Each property owner shall be given two working days’ notice prior to entry by the Contractor. This includes entry onto easements and private property where private improvements must be adjusted.
The Contractor shall be responsible for providing, without expense or liability to the Contracting Agency, any additional land and access thereto that the Contractor may desire for temporary construction facilities, storage of materials, or other Contractor needs. However, before using any private property, whether adjoining the work or not, the Contractor shall file with the Engineer a written permission of the private property owner, and, upon vacating the premises, a written release from the property owner of each property disturbed or otherwise interfered with by reasons of construction pursued under this contract. The statement shall be signed by the private property owner, or proper authority acting for the owner of the private property affected, stating that permission has been granted to use the property and all necessary permits have been obtained or, in the case of a release, that the restoration of the property has been satisfactorily accomplished. The statement shall include the parcel number, address, and date of signature. Written releases must be filed with the Engineer before the Completion Date will be established.

N. Supplement Standard Specifications Section 1-07.24 Rights of Way with the following:

The Contractor shall file with the Engineer signed property release forms (in the format as detailed below) for all properties disturbed or damaged by the Contractor's operations.

PROPERTY RELEASE

__________________________

(Date: ____________________

I, ______________________________________________________________ owner of _______________________________, hereby release _____________________________, (Contractor's name) from any property damage or personal injury resulting from construction on or adjacent to my property located at __________________________________________________ during construction of the ____________________________________________. My signature below is my acknowledgment and acceptance that my property, as identified above, was returned to a satisfactory condition.

Signed: ____________________________
Name: ____________________________
Address: ____________________________
Phone: ____________________________
1.07 STANDARD SPECIFICATION SECTION 1-08 PROSECUTION AND PROGRESS:

A. Add the following new Standard Specifications Section 1-08.0 Preliminary Matters:

1-08.0(1) Preconstruction Conference

Prior to the Contractor beginning the work, a preconstruction conference will be held between the Contractor, the Engineer and such other interested parties as may be invited. The purpose of the preconstruction conference will be:

1. To review the initial progress schedule;
2. To establish a working understanding among the various parties associated or affected by the work;
3. To establish and review procedures for progress payment, notifications, approvals, submittals, etc.;
4. To establish normal working hours for the work;
5. To review safety standards and traffic control; and
6. To discuss such other related items as may be pertinent to the work.

The Contractor shall prepare and submit at the preconstruction conference the following:

7. A breakdown of all lump sum items;
8. A preliminary schedule of working drawing submittals;
9. A list of material sources for approval if applicable;
10. A schedule of submittals;
11. Environmental, Traffic, Safety and Other Plans, as applicable; and
12. Requests to sublet for all subcontractors performing work valued at over one-percent of the contract amount.

Add the following new Standard Specifications section:

1-08.0(2) Hours of Work

Except in the event of an emergency, no work shall be done between the hours of 6:00 p.m. and 7:00 a.m., or weekends (except driveway construction), or holidays observed by the City of Kirkland and identified in Section 1-08.5 of the Standard Specifications. If the proper and efficient prosecution of the work requires operations during the night, hours of operation more than 8 hours per day, or work weeks greater than 40 hours in duration, the written
permission of the Owner shall be obtained before starting such items of the work and shall be in full compliance with terms therewith.

Except in the case of emergency or unless otherwise approved by the Contracting Agency, the normal straight time working hours for the contract shall be any consecutive 8-hour period between 7:00 a.m. and 6:00 p.m. of a working day with a maximum 1-hour lunch break and a 5-day work week. The normal straight time 8-hour working period for the contract shall be established at the preconstruction conference or prior to the Contractor commencing the work.

If a Contractor desires to perform work on holidays, Saturdays, Sundays, or before 7:00 a.m. or after 6:00 p.m. on any day, the Contractor shall apply in writing to the Engineer for permission to work such times. Permission to work longer than an 8-hour period between 7:00 a.m. and 6:00 p.m. is not required. Such requests shall be submitted to the Engineer no later than noon on the working day prior to the day for which the Contractor is requesting permission to work.

Permission to work between the hours of 10:00 p.m. and 7:00 a.m. during weekdays and between the hours of 10:00 p.m. and 9:00 a.m. on weekends or holidays may also be subject to noise control requirements. Approval to continue work during these hours may be revoked at any time the Contractor exceeds the Contracting Agency’s noise control regulations or complaints are received from the public or adjoining property owners regarding the noise from the Contractor’s operations. The Contractor shall have no claim for damages or delays should such permission be revoked for these reasons.

Permission to work Saturdays, Sundays, holidays or other than the agreed upon normal straight time working hours Monday through Friday may be given subject to certain other conditions set forth by the Contracting Agency or Engineer. These conditions may include but are not limited to: requiring the Engineer or such assistants as the Engineer may deem necessary to be present during the work; requiring the Contractor to reimburse the Contracting Agency for the costs in excess of straight-time costs for Contracting Agency employees who worked during such times, on non Federal aid projects; considering the work performed on Saturdays and holidays as working days with regards to the contract time; and considering multiple work shifts as multiple working days with respect to contract time even though the multiple shifts occur in a single 24-hour period. Assistants may include, but are not limited to, survey crews; personnel from the Contracting Agency’s material testing lab; inspectors; and other Contracting Agency employees when in the opinion of the Engineer, such work necessitates their presence.

Arterial Streets
No work will be performed on arterial streets during the peak traffic hours of 7:00 a.m. – 9:00 a.m. and 3:30 p.m. – 6:00 p.m., except emergency work to restore services, unless a City-approved traffic control plan allows work during the peak hours. The following streets are classified as arterials:

<table>
<thead>
<tr>
<th>STREET</th>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Way/NE 85th St</td>
<td>Market St</td>
<td>132nd Ave NE</td>
</tr>
<tr>
<td>Juanita Dr NE /NE Juanita Dr</td>
<td>NE 143rd St (City Limits)</td>
<td>98th Ave NE</td>
</tr>
<tr>
<td>Juanita Woodinville Way</td>
<td>100th Ave NE</td>
<td>NE 145th St (City Limits)</td>
</tr>
<tr>
<td>Lake St/Lake Washington Blvd/Northup Wy</td>
<td>Central Way</td>
<td>Northup Way (City Limits)</td>
</tr>
<tr>
<td>Kirkland Ave/Kirkland Way</td>
<td>Lake St</td>
<td>NE 85th St</td>
</tr>
<tr>
<td>Lakeview Dr /NE 68th St/NE 70th St</td>
<td>Lake Washington Blvd</td>
<td>132nd Ave NE</td>
</tr>
<tr>
<td>Market St/98th Ave NE/100th Ave NE</td>
<td>Central Way</td>
<td>NE 145th St (City Limits)</td>
</tr>
<tr>
<td>NE 116th St</td>
<td>98th Ave NE</td>
<td>Slater Ave NE</td>
</tr>
<tr>
<td>NE 120th St/132nd Ave NE</td>
<td>Slater Ave NE</td>
<td>NE 60th St (City Limits)</td>
</tr>
<tr>
<td>NE 124th St</td>
<td>100th Ave NE</td>
<td>East City Limits</td>
</tr>
<tr>
<td>NE 128th St</td>
<td>116th Ave NE/116th Way NE</td>
<td>120th Ave NE</td>
</tr>
<tr>
<td>Simonds Rd NE</td>
<td>92nd Ave NE (City Limits)</td>
<td>100th Ave NE</td>
</tr>
<tr>
<td>Slater Ave NE</td>
<td>NE 116th St</td>
<td>NE 124th St</td>
</tr>
<tr>
<td>Totem Lake Blvd</td>
<td>NE 132nd St</td>
<td>124th Ave NE</td>
</tr>
<tr>
<td>3rd Street/State Street</td>
<td>Central Way</td>
<td>NE 68th Street/Lakeview Dr.</td>
</tr>
<tr>
<td>6th St/6th St S/108th Ave NE</td>
<td>Central Way/NE 85th St</td>
<td>South City Limits</td>
</tr>
<tr>
<td>90th Ave NE/NE 131st Way/NE 132nd St</td>
<td>NE 134th St</td>
<td>132nd Ave NE</td>
</tr>
<tr>
<td>120th Ave NE/116th Ave NE/116th Way NE</td>
<td>NE 112th St</td>
<td>NE 132nd St</td>
</tr>
<tr>
<td>124th Ave NE</td>
<td>NE 85th St</td>
<td>NE 124th St</td>
</tr>
<tr>
<td>124th Ave NE</td>
<td>NE 132nd St</td>
<td>NE 145th PI (City Limits)</td>
</tr>
</tbody>
</table>

1-08.0(3) Reimbursement for Overtime Work of Contracting Agency Employees

Where the Contractor elects to work on a Saturday, Sunday, or holiday, or longer than an 8-hour work shift on a regular working day, as defined in the Standard Specifications, such work shall be considered as overtime work. On all such overtime work an inspector will be present, and a survey crew may be required at the discretion of the Engineer. In such case, the Contracting Agency may deduct from amounts due or to become due to the Contractor
for the costs in excess of the straight-time costs for employees of the Contracting Agency required to work overtime hours.

The Contractor by these specifications does hereby authorize the Engineer to deduct such costs from the amount due or to become due to the Contractor.

**B. Supplement Standard Specifications Section 1-08.1 Subcontracting** with the following:

A Subcontractor or an Agent to the Subcontractor will not be permitted to perform any work under the contract until the following documents have been completed and submitted to the Engineer:

1. Request to Sublet Work (form 421-012).
2. Statement of Intent to Pay Prevailing Wages (Form 700-029-000).

The Contractor's records pertaining to the requirements of this Special Provision shall be open to inspection or audit by representatives of the Department during the life of the contract and for a period of not less than three years after the date of acceptance of the contract. The Contractor shall retain these records for that period. The Contractor shall also guarantee that these records of all Subcontractors and Agents shall be open to similar inspection or audit for the same period.

**C. Add Standard Specifications Section 1-08.3 Progress Schedule:**

The order of work will be at the Contractor's option, in keeping with good construction practice and the terms of the contract. All work shall be carried out in accordance with the requirements of the City of Kirkland in compliance with the plans and specifications. However, the Contractor shall so schedule the work within the time constraints noted in the various contract documents, including any permits. The Contractor is cautioned to review said documents and permits and schedule the work appropriately as no additional compensation will be made to the Contractor due to the time constraints imposed by such documents.

**1-08.3(1) Scheduling General**

The Contractor is responsible for planning, scheduling, managing, and reporting the progress of the work in accordance with all of the methods and submittals described in Section 1-08.3.

**1-08.3(2) Scheduling Review and Acceptance**

The Contractor's schedule submittals will be reviewed by the Engineer; such review shall not constitute an approval, control or direction over the
Contractor's construction means, methods, sequencing or its ability to complete the Work in a timely manner.

The initial schedule is referred to as the Preliminary Schedule. Upon receipt and acceptance by the Engineer, it is referred to as the Baseline Schedule. Weekly revisions are termed Update Schedules. If major delays require drastic revision to the schedule, it is referred to as the Recovery Schedule.

D. Revise Standard Specifications **Section 1-08.3(2) A Type A Progress Schedule** to read:

The Contractor shall submit three copies of a Type A Progress Schedule no later than at the preconstruction conference, or some other mutually agreed upon submittal time. The schedule may be a critical path method (CPM) schedule, bar chart, or other standard schedule format. Regardless of which format used, the schedule shall identify the critical path. The Engineer will evaluate the Type A Progress Schedule and approve or return the schedule for corrections within 15 calendar days of receiving the submittal. The Contractor shall provide electronic copies of the schedule as requested by the Contracting Agency.

The Contractor shall update the progress schedule, showing all work through the physical completion date, on a weekly basis and submit to the Engineer by 5 P.M. of each Friday.

E. Add **Section 1-08.3(3) Scheduling – Failure to Comply** as follows:

Failure by the Contractor to provide the required Preliminary Schedule information will result in a delay of the Engineer's issuance of a Notice-to-Proceed for the Contractor to begin work. Failure by the Contractor to provide the required weekly Update Schedules may result in either default termination or denial of partial or all progress payments until such time as the required schedule information is submitted, at the sole option of the Engineer.

F. Delete Standard Specifications **Section 1-08.4 Prosecution of Work** in its entirety, and replace it with the following:

Notice to Proceed will be given after the Contract has been executed and the contract bond and evidence of insurance have been approved and filed by the Contracting Agency. The Contractor shall not commence with the work until the Notice to Proceed has been given by the Engineer. The Contractor shall commence construction activities on the project site within ten days of the Notice to Proceed Date, unless otherwise approved in writing. The Contractor shall diligently pursue the work to the physical completion date within the time specified in the Contract. Voluntary
shutdown or slowing of operations by the Contractor shall not relieve the Contractor of the responsibility to complete the work within the time(s) specified in the Contract.

When shown in the Plans, the first order of work shall be the installation of high visibility fencing to delineate all areas for protection or restoration, as described in the Contract. Installation of high visibility fencing adjacent to the roadway shall occur after the placement of all necessary signs and traffic control devices in accordance with 1-10.1(2). Upon construction of the fencing, the Contractor shall request the Engineer to inspect the fence. No other work shall be performed on the site until the Contracting Agency has accepted the installation of high visibility fencing, as described in the Contract.

G. Revise the third and fourth paragraphs of Standard Specifications Section 1-08.5 Time for Completion to read:

Contract time shall begin on the first working day following the Notice to Proceed Date.

Each working day shall be charged to the contract as it occurs, until the contract work is physically complete. If substantial completion has been granted and all the authorized working days have been used, charging of working days will cease. Each week the Engineer will provide the Contractor a statement that shows the number of working days: (1) charged to the contract the week before; (2) specified for the physical completion of the contract; and (3) remaining for the physical completion of the contract. The statement will also show the nonworking days and any partial or whole day the Engineer declares as unworkable. Within 10 calendar days after the date of each statement, the Contractor shall file a written protest of any alleged discrepancies in it. To be considered by the Engineer, the protest shall be in sufficient detail to enable the Engineer to ascertain the basis and amount of time disputed. By not filing such detailed protest in that period, the Contractor shall be deemed as having accepted the statement as correct.

If the Contractor is approved to work 10 hours a day and 4 days a week (a 4-10 schedule) and the fifth day of the week in which a 4-10 shift is worked would ordinarily be charged as a working day then the fifth day of that week will be charged as a working day whether or not the Contractor works on that day.

H. Revise the sixth paragraph of Standard Specifications Section 1-08.5 Time for Completion to read:

The Engineer will give the Contractor written notice of the completion date of the contract after all the Contractor’s obligations under the contract have
been performed by the Contractor. The following events must occur before the Completion Date can be established:

1. The physical work on the project must be complete; and
2. The Contractor must furnish all documentation required by the contract and required by law, to allow the Contracting Agency to process final acceptance of the contract. The following documents must be received by the Project Engineer prior to establishing a completion date:
   a. Certified Payrolls (per Section 1-07.9(5))
   b. Material Acceptance Certification Documents
   d. Final Contract Voucher Certification
   e. Copies of the approved “Affidavit of Prevailing Wages Paid” for the Contractor and all Subcontractors
   f. Property owner releases per Section 1-07.24

I. Supplement Standard Specifications Section 1-08.5 Time for Completion with the following:

   This project shall be substantially complete within 250 working days.

J. Revise the second paragraph of Standard Specifications Section 1-08.7 Maintenance During Suspension to read:

   At no expense to the Contracting Agency, the Contractor shall provide through the construction area a safe, smooth, and unobstructed roadway, sidewalk, and path for public use during suspension (as required in Section 1-07.23 or the General Conditions). This may include a temporary road or detour.

K. Revise the third paragraph of Standard Specifications Section 1-08.9 Liquidated Damages to read:

   Accordingly, the Contractor agrees:

   1. To pay (according to the following formula) liquidated damages for each working day beyond the number of working days established for Physical Completion, and

   2. To authorize the Engineer to deduct these liquidated damages from any money due or coming to the Contractor.

   **LIQUIDATED DAMAGES FORMULA**
For $C > 50,000 \Rightarrow LD = 0.15 \times C \div T$, and
For $C \leq 50,000 \Rightarrow LD = 0.30 \times C \div T$.

Where:
\[
LD = \text{liquidated damages per working day (rounded to the nearest dollar)}
\]
\[
C = \text{original Contract amount}
\]
\[
T = \text{original time for Physical Completion}
\]

L. Revise the fourth paragraph of Standard Specifications **Section 1-08.9 Liquidated Damages** to read:

When the Contract Work has progressed to **Substantial Completion** as defined in the Contract. The Engineer may determine that the work is Substantially Complete. The Engineer will notify the Contractor in writing of the Substantial Completion Date. For overruns in Contract time occurring after the date so established, the formula for liquidated damages shown above will not apply. For overruns in Contract time occurring after the Substantial Completion Date, liquidated damages shall be assessed on the basis of direct engineering and related costs assignable to the project until the actual Physical Completion Date of all the Contract Work. The Contractor shall complete the remaining Work as promptly as possible. Upon request by the Project Engineer, the Contractor shall furnish a written schedule for completing the physical Work on the Contract.

M. Supplement Standard Specifications **Section 1-08.9 Liquidated Damages** as follows:

The Contractor is responsible for all fines and other costs incurred by the Contracting Agency as a result of the Contractor not completing the Work with the conditions specified for the in-water work identified in the Hydraulic Project Approval issued by the Department of Fish and Wildlife.

1.08 STANDARD SPECIFICATIONS **SECTION 1-09 – MEASUREMENT AND PAYMENT**

A. Supplement the last paragraph of Standard Specifications **Section 1-09.2(1) General Requirements for Weighing Equipment** with the following:

**Trucks and Tickets**

All tickets shall, at a minimum, contain the following information:

7. Ticket serial number
8. Date and hour of weighing
9. Weigher’s identification
Duplicate tally tickets shall be prepared to accompany each truckload of materials delivered to the project.

It is the responsibility of the Contractor to see that tickets are given to the Inspector on the project for each truckload of material delivered. Pay quantities will be prepared on the basis of said tally tickets, delivered to the Inspector at time of delivery of materials. Tickets not collected at the time of delivery will not be honored for payment.

B. Supplement Standard Specifications **Section 1-09.9 Payments** with the following:

Lump sum item breakups are not required when the bid price for the lump sum item is less than $20,000.

C. Delete the first four paragraphs of Standard Specifications **Section 1-09.9 Payments** and replace with the following:

The basis of payment will be the actual quantities of Work performed according to the Contract and as specified for payment.

The Contractor shall submit a breakdown of the cost of lump sum bid items at the Preconstruction Conference, to enable the Project Engineer to determine the Work performed on a monthly basis. A breakdown is not required for lump sum items that include a basis for incremental payments as part of the respective Specification. Absent a lump sum breakdown, the Project Engineer will make a determination based on information available. The Project Engineer’s determination of the cost of work shall be final.

Progress payments for completed work and material on hand will be based upon progress estimates prepared by the Engineer. A progress estimate cutoff date will be established at the preconstruction conference.

The initial progress estimate will be made not later than 30 days after the Contractor commences the work, and successive progress estimates will be made every month thereafter until the Completion Date. Progress estimates made during progress of the work are tentative, and made only for the purpose of determining progress payments. The progress estimates are subject to change at any time prior to the calculation of the final payment.

The value of the progress estimate will be the sum of the following:

1. **Unit Price Items in the Bid Form** — the approximate quantity of acceptable units of work completed multiplied by the unit price.
2. Lump Sum Items in the Bid Form — based on the approved Contractor’s lump sum breakdown for that item, or absent such a breakdown, based on the Engineer’s determination.

3. Materials on Hand — 100 percent of invoiced cost of material delivered to Job site or other storage area approved by the Engineer.

4. Change Orders — entitlement for approved extra cost or completed extra work as determined by the Engineer.

Progress payments will be made in accordance with the progress estimate less:

1. Retainage per Section 1-09.9(1), on non FHWA-funded projects;
2. The amount of progress payments previously made; and
3. Funds withheld by the Contracting Agency for disbursement in accordance with the Contract Documents.

Progress payments for work performed shall not be evidence of acceptable performance or an admission by the Contracting Agency that any work has been satisfactorily completed. The determination of payments under the contract will be final in accordance with Section 1-05.1.

Unless otherwise agreed to by both parties, the work period shall coincide with the calendar month. A check will be mailed or made available to the Contractor no later than thirty (30) days following the last day of the work period.

D. Delete Standard Specifications Section 1-09.13(3) Claims $250,000 or Less and replace it with the following:

The Contractor and the Contracting Agency mutually agree that those claims that total $250,000 or less, submitted in accordance with Section 1-09.11 and not resolved by nonbinding ADR processes, provided Contracting Agency agreed to engage such ADR processes, shall be resolved through litigation unless the parties mutually agree in writing to resolve the claim through binding arbitration.

E. Revise the third paragraph of Standard Specifications Section 1-09.13(3)A Administration of Arbitration to read:

The Contracting Agency and the Contractor mutually agree to be bound by the decision of the arbitrator, and judgment upon the award rendered by the arbitrator may be entered in the Superior Court of the county in which the Contracting Agency’s headquarters are located. The decision of the arbitrator and the specific basis for the decision shall be in writing. The arbitrator shall use the contract as a basis for decisions.

F. Add a new Section 1-09.14 Staging Area:
The City will not provide a staging area for Contractor use. The Contractor shall utilize an off-site staging area other than the project site.

1.09 STANDARD SPECIFICATION SECTION 1-10 – TEMPORARY TRAFFIC CONTROL

A. Revise the third paragraph of Standard Specifications Section 1-10.1(2) Description to read:

The Contractor shall provide signs and other traffic control devices not otherwise specified as being furnished by the Contracting Agency. The Contractor shall erect and maintain all construction signs, warning signs, detour signs, and other traffic control devices necessary to warn and protect the public at all times from injury or damage as a result of the Contractor’s operations which may occur on highways, roads, streets, sidewalks, or paths. No work shall be done on or adjacent to any traveled way until all necessary signs and traffic control devices are in place.

B. Delete the first and second sentences of Standard Specifications Section 1-10.2(2) Traffic Control Plans and replace with the following:

The Contractor shall submit a traffic control plan or plans showing a method of handling traffic including pedestrian and bicycle traffic. All construction signs, flaggers, spotters and other traffic control devices shall be shown on the traffic control plan(s) except for emergency situations.

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PART 1 – GENERAL

1.01 SCOPE

A. The accompanying Contract Documents and Specifications show and describe the location and type of work to be performed under this project.

1. The Work under this Contract is to provide all labor and to furnish and/or install all materials and equipment, as may be required to complete the work, installed, tested, fully operational, ready for use, and as described in these Contract Documents.

2. Totem Lake Park Phase 1 is the first portion of a larger project to construct park infrastructure at Totem Lake. The work includes, but is not limited to, demolition of an approximate 6,000 SF wood framed building, site demolition and clearing, earthwork, asphalt paving, concrete paving, curbs and walls, storm drainage utilities, play area and safety surfacing installation, boardwalk construction on pipe piles, site furnishing installation, construct a new approximate 440 SF restroom building, irrigation and landscape installation, and mitigation in critical areas. This is a general description of the Work for bidder information, and it is not intended to be inclusive of all work requirements. All of the work elements are included in the Base Bid item, unit price bid items shown in the Bid Proposal Form, and defined in Section 01 20 00, Price and Payment Procedures.

3. The work includes mitigation for impacts in critical areas including but not limited to, Wetland Enhancement, Buffer Enhancement, and Buffer Restoration. See Permits, Drawings sheets LP001, LP101, LP102, LP103, and Specification Appendix H – Critical Areas Report.

1.02 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract, including the Procurement and Contracting Requirements and General Requirements, apply to this work as if specified in this section. Work related to this section is described throughout the Specifications.

1.03 LOCATION

A. The work area for Phase 1 of the Totem Lake Park site is located at 12031 Totem Lake Way, in Kirkland, Washington.

1.04 ACCESS TO SITE

A. The Contractor shall have access to the Project site by city streets.
1.05 WORK BY OWNER ON THIS PROJECT

A. Coordination will be needed for the installation of sculptural art elements along the boardwalk that are part of a separate contract. The connection brackets are identified on the plans that these elements will connect to. Owner will coordinate installation of the freestanding features once boardwalk construction is complete.

1.06 ENGINEERING AND INSPECTION

A. The Project Engineer and Consultant will perform the necessary inspection work except as otherwise specified in the Specifications. Refer to Section 01 45 00, Quality Control, for general requirements.

1.07 COORDINATION

A. Owner Activities: The Contractor shall coordinate its activity with the Project Engineer, to minimize interference with Owner activities.

B. All costs associated with coordination of the work shall be considered incidental to the lump sum and unit prices set forth in Section 00 41 43, Bid Proposal.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION
PART 1 – GENERAL

1.01 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract, including the Standard Specifications and General Conditions apply to this work as if specified in this section. Work related to this section is described throughout the Specifications.

1.02 USE OF PREMISES

A. Use of Site: Limit use of premises to Work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated. Disturbance outside the project limits (as shown in the Contract Drawings) is only to designated access points and storage areas as shown in the Contract Drawings or specified herein.

1. Limits: Confine construction operations to limits as shown in the Contract Drawings. In those locations where existing vegetation is to remain, the Contractor shall work around and protect the material from damage.

2. Easements: There are multiple easements for this project site. Owner has negotiated rights of entry to the following parcels to facilitate construction of the following work items. Refer to plans for full detail:

   a) Café Veloce (parcel 692840-0034) – This is a shared driveway to the park property that requires installation of a temporary driveway prior to installation of the construction access.

   b) Hotel Property (parcel 866327-0010) – Easement to construct a pathway and associated improvements along the edge of the wetland complex.

   c) Apartment Property (parcel 154200-0000) – Easement to construct a pathway and associated improvements along the edge of the wetland complex. The northern terminus of the boardwalk will also be constructed on a portion of this parcel.

   d) King County Conservation District Property (parcel 866327-0060) – Easement to construct the raised boardwalk through the Totem Lake Wetland complex.

3. Owner Occupancy: Allow for Owner access of site, but the public shall be restricted. Allow access for the adjacent homeowners to their site access and property. Their property is accessed at the east end of Totem Lake Way, toward the east edge of the Project site.
4. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to the Owner, the Owner’s employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. This includes driveways and entrances to adjacent parcels accessed through easements.
   a) Schedule deliveries to minimize use of driveways and entrances.
   b) Schedule deliveries to minimize impacts to site access for adjacent parcels.
   c) No storage of materials or equipment is allowed that will block access or entrances.

5. Move any stored products, under Contractor's control, that interfere with the operations of the Owner or access to adjacent properties.

B. Protected Areas: The following areas within the project limits are to be protected from any and all negative impacts during construction including materials storage and silt laden runoff:

1. Stormwater outfalls.
2. The entire wetland boundary below Ordinary High Water Mark.

1.03 STAGING AND STOCKPILE AREAS

A. Staging and stockpile areas are limited to the areas shown in the Contract Drawings. Contractor's use of these areas shall be limited to purposes directly related to the construction of the Project. Prior to mobilization, Contractor shall submit a proposal at the Pre-construction Meeting for review by the Owner of these (and other) areas indicating specific use, access, restoration, and anticipated duration of use. No use of these areas is permitted until the Owner provides written approval of Contractor's proposal.

B. Contractor may provide legal staging and storage areas off-site at Contractor’s discretion. If this occurs the contractor shall submit a temporary use permit for planning review and seek approval prior to staging in this location. All costs associated to this permit shall be incidental to the base bid. Provide the Owner with locations for approval. Protect downstream areas by covering or otherwise containing stockpiles of loose materials. Provide the Owner with a release from the property owner that states the site was returned in an acceptable condition and all obligations associated with its use have been met.
1.04 RESTORATION CLAUSE

A. Restore all areas disturbed by the construction process. All ingress or egress points that are disturbed will have to be regraded, reseeded, replanted, or repaved to restore them to original or better conditions.

B. Unless otherwise designated, protect all existing site features to remain from potential Contractor damage above and below grade. If unavoidable damage occurs, notify the Owner immediately, and a decision will be rendered as to how the Contractor shall replace or repair the damage, at the Contractor's expense.

C. Surround protected areas with highly visible fencing prior to the start of the Work.

1.05 NEW AND EXISTING WORK

A. Unless otherwise noted, any new Work authorized by the Owner shall be assumed to be performed in conditions corresponding to existing conditions and shall utilize similar material, workmanship, grade, and finish. Existing work shall be cut, drilled, altered, removed, or temporarily removed, and replaced for performance of Work under the Contract. Work replaced shall match similar existing work. Work remaining in place that is damaged during this Contract shall be restored to the condition at time of award of Contract, or replaced with new Work as determined by the Owner. Patch existing Work as required for proper interface.

1.06 EQUIPMENT STANDARDS

A. All equipment furnished and/or installed under this Contract shall meet safety requirements of all applicable codes.

1.07 PARKING

A. Parking for Contractor personnel on the Project site will be limited to an area within the Project boundaries as shown on the Contract Drawings or at other off-site locations arranged by the Contractor. The Contractor can obtain additional off-site parking, material stockpiling, and storage at the Contractor’s own expense with the approval of the Owner. The Contractor shall be responsible for ensuring that no nuisance is created for the Owner or adjacent properties, through use of the streets for Contractor parking and/or worker access.

1.08 TRUCK AND EQUIPMENT ACCESS

A. To avoid traffic conflict with local residents, and to avoid overloading of streets and driveways elsewhere on the Owner's property, limit the access of trucks and equipment to a route as approved by the Owner prior to mobilization.
DIVISION 01—GENERAL REQUIREMENTS
Section 01 14 00—Work Restrictions

B. Vehicular traffic is limited to the area within the Project limits, except areas designated for access.

1.09 PERMIT RESTRICTIONS AND REGULATORY REQUIREMENTS

A. The Contractor shall comply with all conditions in approved permits found in Appendix C and subsequently obtained by the Owner and Contractor. See Section 01 41 26, Permits, and Section 01 45 00, Quality Control.

1.10 SEQUENCING

A. See Section 01 32 00, Construction Progress Documentation, for a discussion of proposed construction sequencing.

PART 2 — PRODUCTS

Not used.

PART 3 — EXECUTION

Not used.

END OF SECTION
PART 1 – GENERAL

1.01 RELATED WORK DESCRIBED ELSEWHERE

A. Individual submittals are required in accordance with the pertinent sections of these Specifications.

1.02 PAYMENT PROCEDURES

A. Monthly pay estimates shall be addressed to Brian Baker – Senior Capital Projects Coordinator or designee, and hand delivered to her at the job site; mailed to 123 Fifth Avenue, Kirkland, WA 98033; or submitted electronically using Adobe PDF file format. PDF files can be e-mailed to bbaker@kirklandwa.gov.

B. Monthly pay estimates shall clearly identify the work performed for the given time period based on a percentage of work completed for lump sum bid items as presented in the approved “Schedule of Values” per Section 01 29 73, Schedule of Values, of the Specifications, and actual quantities installed for unit price items. Pay estimates that fail to meet these requirements shall be subject to the requirements of Section 00 72 00, General Conditions.

1.03 PAYMENT PRICING

A. Pricing for the various lump sum or unit prices in the Bid Proposal (Section 00 41 43), shall include all compensation to be received by the Contractor for furnishing all tools, equipment, supplies, and manufactured articles, and for all labor, operations, and incidentals appurtenant to the items of work being described, as necessary to complete the various items of the work in accordance with the requirements of the Contract Documents.

B. Pricing also includes all costs of compliance with the regulations of public agencies having jurisdiction, including safety and health requirements of the Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor, and the U.S. Longshore and Harbor Workers’ Compensation Act.

C. No separate payment will be made for any item that is not specifically set forth in the Bid Proposal (Section 00 41 43), and all costs therefore shall be included in the prices named in the Bid Form for the various appurtenant items of work. All other work not specifically mentioned in the measurement and payment sections identified below shall be considered incidental to the work performed and merged into the various unit and lump sum bid prices. Payment for work under one item will not be paid for under any other item.

D. The Owner reserves the right to make changes should unforeseen conditions necessitate such changes. Where work is on a unit price basis, the actual quantities occasioned by such changes shall govern the compensation.
1.04 MEASUREMENT AND PAYMENT

A. Lump Sum Base Bid A-1: Payment for the lump sum price offered in the Bid proposal for the Base Bid Item shall include all work as noted. No measurement shall be made for the lump sum bid items. Payment for the lump sum Base Bid Item shall be based on a percentage of work complete in accordance with the approved Schedule of Values conforming to Section 01 29 73 of these Specifications. Payment shall be considered full compensation for furnishing all labor, materials, and equipment to complete the Base Bid Work as shown and specified in the Contract Documents.

B. Measurement and Payment for Unit Price Bid Items: The unit prices offered in the bid proposal form shall be considered full compensation for furnishing all labor, materials, equipment, and incidentals to complete each Unit Price Bid Item.

1. Unit Price Item B-1: Contaminated Soils and Creosote Pilings – Excavation, Haul, and Disposal

   a) Contaminated soils shall be excavated, hauled, and disposed of as requested by the Project Engineer. Contaminated materials shall consist of creosote pilings and soils and determined to be unsuitable for use on this Project by the Project Engineer per Section 02 06 00 Contaminated Soil Handling and Disposal. Assumed quantity of 150 tons shall be used as a basis of bid for the project.

   b) The Project Engineer shall determine the general extent, in terms of the area and depth, where unsuitable Contaminated Soils and Creosote Pilings shall be removed within the Project site.

   c) Unsuitable Contaminated Soils and Creosote Pilings shall be measured in Tons, based on truck tickets.

   d) Additional Contaminated Soils and Creosote Pilings – Excavation, Haul, and Disposal required to complete the construction shall be measured in tons, based on truck tickets.

2. Unit Price Item B-2: Pea Gravel Backfill for areas of Contaminated Soil and Creosote Piling removal.

   a) Pea Gravel Backfill shall be furnished and installed as requested by the Project Engineer. This material shall be used to backfill excavations where contaminated materials have been excavated. Assumed quantity of 150 tons shall be used as a basis of bid for the project.

   b) Pea Gravel Backfill material shall be AASHTO No. 8 material.
c) The Project Engineer shall determine the general extent, in terms of the area and depth, where Pea Gravel Backfill shall be furnished and installed within the Project site.

d) Pea Gravel Backfill for areas of Contaminated Soil and Creosote Piling removal shall be measured in Tons, based on truck tickets.

e) Additional Pea Gravel Backfill for areas of Contaminated Soil and Creosote Piling removal required to complete the construction shall be measured in tons, based on truck tickets.

3. Unit Price Item B-3: 2 inch Diameter Pipe Piles – Boardwalk Deep Foundation Installation

   a) Installation of deep foundations for boardwalk construction assumed a quantity of (1,180) 10 foot length 2 inch diameter pipe piles based on information available in the Geotechnical Report. This information is to be used as a basis of bid for the project.

   b) Include a 5% contingency in the bid for piles that need to be re-set due to hitting an obstruction or that do not meet refusal criteria.

   c) Refusal criteria for the piles is identified in the Geotechnical Report and will be monitored on site. A daily log of pipe segments shall track quantity of material installed.

   d) Additional pipe piles required to complete construction of the boardwalk deep foundations beyond the basis of bid shall be measured in number of installed 10 foot segment 2 inch diameter pipe piles. Piles shall be driven to meet requirements as identified on the plans.

4. Unit Price Item B-4: 4 inch Diameter Pipe Piles – Miscellaneous Park Elements Deep Foundation Installation

   a) Installation of deep foundations for miscellaneous park elements assumed a quantity of (162) 10 foot length 4 inch diameter pipe piles based on information available in the Geotechnical Report. This information is to be used as a basis of bid for the project.

   b) Include a 5% contingency in the bid for piles that need to be re-set due to hitting an obstruction or that do not meet refusal criteria.

   c) Refusal criteria for the piles is identified in the Geotechnical Report and will be monitored on site. A daily log of pipe segments shall track quantity of material installed.
d) Additional pipe piles required to complete construction of the miscellaneous park element deep foundations beyond the basis of bid shall be measured in number of installed 10 foot segment 4 inch diameter pipe piles. Piles shall be driven to meet requirements as identified on the plans.

5. Unit Price Item B-5: 6 inch Diameter Pipe Piles – Restroom Building Deep Foundation Installation

   a) Installation of deep foundations for the restroom building assumed a quantity of (54) 10 foot length 6 inch diameter pipe piles based on information available in the Geotechnical Report. This information is to be used as a basis of bid for the project.

   b) Include a 5% contingency in the bid for piles that need to be re-set due to hitting an obstruction or that do not meet refusal criteria.

   c) Refusal criteria for the piles is identified in the Geotechnical Report and will be monitored on site. A daily log of pipe segments shall track quantity of material installed.

   d) Additional pipe piles required to complete construction of the restroom building deep foundations beyond the basis of bid shall be measured in number of installed 10 foot segment 6 inch diameter pipe piles. Piles shall be driven to meet requirements as identified on the plans.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION
PART 1 – GENERAL

1.01 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract, including the Standard Specifications and General Conditions, apply to this work as if specified in this section. Work related to this section is described throughout the Specifications.

1.02 QUALITY ASSURANCE

A. The Contract is based upon products and standards established in the Contract Documents without consideration of proposed substitutions.

B. Products specified define standard of quality, type, function, dimension, appearance, and performance required.

C. The Owner will consider proposals for substitutions of materials, equipment, and methods only when such proposals are accompanied by full and complete technical data as required by the Owner to evaluate the proposed substitution.

D. Do not substitute materials, equipment, or methods unless such substitution has been specifically approved in writing for this work by the Owner.

E. Do not substitute products unless substitution has been accepted and approved in writing by the Owner.

1.03 TIME OF SUBSTITUTION REQUESTS

A. Requests for substitutions must be made during the bidding period. Written requests by prime bidders for substitutions may be considered if received by the Owner at least 14 calendar days prior to the bid submittal deadline. The Owner may, in its sole discretion, defer the consideration of a proposed substitution until after Contract award. Use Substitution Request Form attached to this section.

B. Each substitution request shall, in accordance with the applicable provisions of Section 01 33 00, Submittal Procedures, describe the proposed substitution in its entirety, including the name of the material or equipment, drawings, catalog cuts, performance or test data, and all other information required for an evaluation. The submittal shall also include a statement noting all changes required in adjoining, dependent, or other interrelated work necessitated by the incorporation of the proposed substitution. The bidder shall bear the burden of proof to show that the proposed substitution meets or exceeds the required function and is equal or superior to the specification.

C. The Owner may require that samples be submitted or demonstration made prior to approval. The Owner’s decision of approval or disapproval of a proposed substitution shall be final.
D. Approval of substitutions will be made by addenda during the bidding period. When, in the sole opinion of the Owner, the product is equivalent in all respects to the product specified, it will be approved subject to the Contract requirements and the Contractor's assumption of all responsibility therefore.

E. After written approval, this submission shall become a part of the Contract, and may not be deviated from except upon written approval of the Owner.

F. Catalog data for equipment approved by the Owner does not in any case supersede the Contract Documents. The approval by the Owner shall not relieve the Contractor from responsibility for deviations from the Contract Documents or Specifications, unless the Contractor has, in writing, called the Owner's attention to such deviations at the time of the submission, nor shall it relieve the Contractor from responsibility for errors of any sort in the items submitted. The Contractor shall check the work described by the catalog data with the Contract Documents for deviations and errors.

G. It shall be the responsibility of the Contractor to ensure that items to be furnished fit the space available. The Contractor shall make necessary field measurements to ascertain space requirements, including those for connections, and shall order such sizes and shapes of equipment that the final installation shall suit the true intent and meaning of the Contract Documents and Specifications.

H. Where equipment requiring different arrangement of connections from those shown as approved is used, the Contractor shall be responsible for installing the equipment to operate properly, and in harmony with the intent in the Contract Documents and Specifications, and to make all changes in the work required by the different arrangement of connections together with any cost of redesign necessitated thereby, all at the Contractor's expense.

I. Where the phrase "or equal" or "or equal as approved by the Owner" occurs in the Contract Documents, do not assume that material, equipment, or methods will be approved as equal by the Owner unless the item has specifically been approved as a substitution for this Work by the Owner.

J. The decision of the Owner shall be final.

1.04 SUBSTITUTION PROCEDURES

A. Limit each request to one proposed substitution.

B. Submit substitution requests on the required Substitution Request Form, complete with attachments necessary to fully document the proposed substitution. Submit in number of copies required for the Contractor's use and distribution, plus one copy to be retained by Owner and one copy to be retained by the Consultant, as applicable.
C. Document each request with supporting data substantiating compliance of proposed substitution with Contract Documents, including the following:

1. Manufacturer's name and address, product, trade name, model, or catalog number, performance and test data, and reference standards.

2. Itemized point-by-point comparison of proposed substitution with specified product, listing variations in quality, performance and other pertinent characteristics.

3. Reference to article and paragraph numbers in Specifications section.

4. Cost data comparing proposed substitution with specified product and amount of net change to Contract Sum.

5. Changes required in other Work.

6. Availability of maintenance service and source of replacement parts, as applicable.

7. Certified test data to show compliance with performance characteristics specified.

8. Samples, when applicable or requested.

9. Other information as necessary to assist Owner's evaluations.

D. A request for substitution constitutes a representation that the Contractor:

1. Has investigated proposed product and determined that it is equal or superior in all respects to the specified product.

2. Will provide identical or better warranty as required for specified product.

3. Will coordinate installation and make changes to other Work that may be required.

4. Waives claims for additional costs or time extension that may subsequently become apparent.

5. Certifies that proposed product will not affect or delay the Construction Progress Schedule.

6. Will pay for changes to building design, including architectural or engineering design, detailing, and construction costs caused by the requested substitution.
E. Substitutions will not be considered when:

1. Indicated or implied on shop drawings or product data submittals without formal request submitted in accordance with this section.

2. Submittal for substitution request has not been reviewed and approved by the Contractor.

3. Acceptance will require substantial revision of Contract Documents or other items of the Work.

4. Submittal for substitution request does not include point-by-point comparison of proposed substitution with specified product.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION
SUBSTITUTION REQUEST FORM

Contractor: ___________________________ Project: Totem Lake Park – Phase 1
Note: Limit this Request to One Proposed Substitution.

To: Engineer  Date: _______________ Request No.: ___________________________

From: ________ Contractor ________ Subcontractor ________ Supplier ________ Manufacturer

Specified Item: Section: ______________ Page:_____________ Paragraph:_____________

Proposed Substitution:

Manufacturer:___________________ Address:____________________ Phone No.:_______________

Trade Name:_____________________________________________ Model No.:_________________

Installer:_______________________ Address:____________________ Phone No.:_______________

History:____ New Product ____ 2 to 5 years old ____ 5 to 10 years old ____ More than 10 years old

Differences between proposed substitution and specified product:

_________________________________________________________________________________

Point-by-point comparison data attached - REQUIRED BY ENGINEER

Similar Installations:

Project:__________________________________ Engineer:__________________________
Address:_________________________________ Owner:____________________________

Project:__________________________________ Engineer:__________________________
Address:_________________________________ Owner:____________________________

Proposed substitution affects other parts of Work: _____ No _____ Yes; Explain

_________________________________________________________________________________

Proposed substitution changes Contract Time: _____ No _____ Yes; Add/Deduct _______ Days

Supporting Data Attached: __ Product Data __ Drawings __ Tests __ Reports __ Samples __ Other

Reason for Not Providing Specified Item, See General Conditions, 00 72 00 – 3.07B (N/A for substitutions during bidding) ____ Unavailability ____ Unsuitability ____ Regulatory Changes ____ Owner Request

Savings to Owner for accepting substitution (N/A for substitutions during bidding): $_____________

Undersigned certifies:

1. Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
2. Same warranty will be furnished for proposed substitution as for specified product.
3. Same maintenance service and source of replacement parts, as applicable, is available.
4. Proposed substitution will not affect or delay Construction Progress Schedule.
5. Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
6. Proposed substitution does not affect dimensions and functional clearances.
7. Payment will be made for changes to building design, including engineering design, detailing, and construction costs caused by the requested substitution.
8. Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

(Note during bidding must be signed and submitted by Bidder)

Submitted By: ____________________________________________
Signature: ________________________________________________
Firm: ____________________________________________________
Address: _________________________________________________
Telephone No: _____________________ Email Address: __________
Attachments: _____________________________________________

DESIGN ENGINEER'S REVIEW AND ACTION

____ Approve Substitution - Make submittals in accordance with Specification Section 01 33 00.
____ Approve Substitution as noted - Make submittals in accordance with Specification Section 01 33 00.
____ Reject Substitution - Use specified products. Engineer shall not have responsibility for performance of substitution approved by Owner and rejected by Engineer.
____ Substitution Request received too late - Use specified products.

Signed by: ________________________________________________
Comments: ______________________________________________

OWNER'S REVIEW AND ACTION (Approval of Substitution is not valid without Owner's signature)

____ Substitution approved - Make submittals in accordance with Specification Section 01 33 00.
____ Substitution approved as noted - Make submittals in accordance with Specification Section 01 33 00.
____ Substitution rejected - Use specified products.

Signed by: ________________________________________________
Comments: ______________________________________________

DIVISION 01—GENERAL REQUIREMENTS
Section 01 25 00—Substitution Procedures (Attachment)
PART 1 – GENERAL

1.01 SUMMARY

A. This section defines the process whereby the Schedule of Values for lump sum bid items shall be developed.

B. The Schedule of Values will be the basis for payment of all Lump Sum contract work.

1.02 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract, including the Procurement and Contracting Requirements and General Requirements, apply to this work as if specified in this section. Work related to this section is described throughout the specifications.

1.03 PREPARATION OF SCHEDULE OF VALUES

A. To facilitate monthly pay requests, the lump sum price stipulated in the Bid Proposal shall be divided up to reflect the elements of work identified on the Drawings and in the Specifications. The Contractor shall submit for approval a Schedule of Values for the major components of the Work at the Preconstruction Conference in accordance with Section 01 33 00, Submittals. The listing shall include, at a minimum, the proposed value for the major Work components as described in Article 3.01 of this section. The summary of detail provided in the schedule of values shall separately include materials costs (as appropriate by unit), installation costs (labor and equipment components) and other incremental breakouts. The total of all items in the Schedule of Values shall match the Contractor’s lump sum Base Bid Item and any Additive Alternate Bid Items awarded.

B. The quantity for progress payment for each item indicated in the schedule of values shall be based a percentage of work complete at the time of submitting an application for payment to the Owner. The percentage of work complete shall be substantiated by the Contractor to the extent necessary and agreed to between the Owner and Contractor, payable in monthly progress payments in increments proportional to the work performed.

1.04 SUBMITTAL

A. Submit preliminary Schedule of Values at the Preconstruction Conference. **DO NOT SUBMIT THE SCHEDULE OF VALUES WITH YOUR BID PACKAGE.**

B. Upon request, support prices with data that will substantiate their correctness.
PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 SAMPLE SCHEDULE OF VALUES – BASE BID

A. The sample schedule of values provided below is the minimum level of detail expected. Unit Price Bid items reflected on the bid form but not addressed in the approved schedule of values shall be included in the monthly pay request based on the unit of measure indicated on the bid form.

1. Project Administration shall be broken down to include at a minimum all costs associated with Project Administration, as follows:
   a) Project supervision and meetings
   b) Administration of sub-contractors
   c) Preparation costs for various work plans and other submittals
   d) Temporary facilities operations (that not included in mobilization/demobilization or temporary facilities), including field offices, temporary utilities, sanitation, and communications
   e) Project overhead

2. Mobilization and Demobilization: Shall be based on 10 percent of the Base Bid (maximum). The Work will be paid for as follows:
   a) 40% paid after 5% of the total Contract amount has been completed.
   b) 40% paid after 20% of the total Contract amount has been completed.
   c) 20% paid after all of the Work on the Project has been completed, including cleanup and acceptance of the Project by the Owner.

3. Site Demolition and Clearing shall be broken down to include at a minimum:
   a) Clear and grub site’s upland areas including tree removal
   b) Demolition of existing area pathways, paving, walls, curbs, and site utilities.
c) Removal of existing building  
d) Removal of existing piles  

4. Temporary Facilities shall be broken down to include at a minimum:  
a) Install fencing  
b) Install temporary in-water sediment curtain  
c) Install drain inlet protection  
d) Install temporary stabilized construction entrance  

5. Earthwork shall be broken down to include at a minimum:  
a) Excavation and disposal  
b) Excavation and stockpile for reuse  
c) Stormdrain and conduit trenching, bedding and backfill  
d) Furnish and install erosion control fabrics  
e) Furnish and install vegetated retaining walls  
f) Furnish and install rockery walls  

6. CIP concrete and asphalt shall be broken down to include at a minimum:  
a) Install concrete pathway  
b) Install crushed surfacing top course  
c) Install crushed surfacing base course  
d) Install concrete curb and curb walls  
e) Install concrete walls and seatwalls  
f) Install concrete ADA ramps  
g) Install concrete stairway  
h) Install asphalt paving  
i) Install asphalt berms
7. Boardwalk construction shall be broken down to include at a minimum:
   a) Concrete abutments
   b) Furnish and install pipe piles
   c) Steel structure
   d) Grating
   e) Metal railing assembly
   f) Resurfacing work at existing boardwalk

8. Utilities and drainage shall be broken down to include at a minimum:
   a) Field locate utilities
   b) Adjust sanitary sewer manhole rims
   c) Adjust storm drain catch basin rims
   d) Furnish and install new catch basins
   e) Furnish and install 12-inch PVC storm drain pipe
   f) Furnish and install 6-inch PVC storm drain pipe
   g) Furnish and install bioretention facilities
   h) Furnish and install sewer pipe
   i) Furnish and install conduit

9. Restroom building
   a) Furnish and install concrete foundation
   b) Masonry walls
   c) Wood, plastics and composites
   d) Thermal and moisture protection
   e) Openings & finishes
   f) Fixtures and accessories
g) Plumbing

h) Mechanical and electrical systems

i) Furnish and install pipe piles

j) Structural Steel

10. Play area shall be broken down to include at a minimum:

a) Furnish and install pipe piles

b) Site prep related to proposed grading at play area

c) Furnish and install underdrains

d) Install safety surfacing including playground grass, geotextile and drainage

e) Install play equipment

11. Site furnishings shall be broken down to include at a minimum:

a) Install manufactured site furnishings

b) Install custom site furnishings (picnic table)

c) Install wood fencing and split rail

12. Planting shall be broken down to include at a minimum:

a) Furnish and install topsoil

b) Furnish and install plant material

c) Furnish and install mulch

d) Plant establishment

13. Irrigation shall be broken down to include at a minimum:

a) Furnish and install point of connection assembly and mainline

b) Furnish and install spray irrigation

END OF SECTION
PART 1 – GENERAL

1.01 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract, including the Standard Specifications and General Conditions, apply to this work as if specified in this section. Work related to this section is described throughout the Specifications.

1.02 PROGRESS MEETINGS

A. The Owner will schedule and administer weekly progress meetings throughout progress of the Work.

B. The Owner will arrange meetings, prepare standard agenda with copies for participants, preside at meetings, record minutes, and distribute copies within 10 working days to the Contractor, meeting participants, and others affected by decisions made.

C. Attendance is required for the Contractor's job superintendent, major subcontractors and suppliers, the Owner’s Project Engineer, Consultant, Construction Manager, and other City representatives as appropriate to the agenda topics for each meeting.

D. Standard Agenda

1. Review minutes of previous meeting.
2. Review of work progress.
3. Field observations, problems, and decisions.
4. Identification of problems that impede planned progress.
5. Progress schedule (3 weeks ahead; 1 week back provided by contractor).
6. Effect of proposed changes on progress schedule and coordination.
7. Corrective measures to regain projected schedules.
8. Planned progress during succeeding work period.
10. Maintenance of quality and work standards.
11. Demonstration that the Project Record Drawings are up-to-date.
12. Pay request (as required).
13. Other business relating to the Work.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 PARTNERING

A. Construction partnering is a process of improving communication and better understanding the goals and objectives of all parties in a construction project. It is also a process to avoid disputes by working together to resolve issues. Although a formal partnering program is not planned for this project an informal and voluntary partnering process is desired.

B. The Owner will meet with the selected Contractor near the time of the Pre-construction Meeting and the parties jointly determine the partnering program for the project or to forego a partnering program.

END OF SECTION
PART 1 – GENERAL

1.01 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract, including the Standard Specifications and General Conditions apply to this work as if specified in this section. Work related to this section is described throughout the Specifications.

1.02 PROJECT CONSTRUCTION SCHEDULE

A. The Project Construction Schedule shall include sufficient time for cleaning, punch list review, and completion of punch list items prior to the designated substantial completion date.

B. The Project Construction Schedule shall be used to justify time extension days requested by the Contractor. For additional days requested, the Project Construction Schedule shall be detailed enough to identify the work item(s) affected and the relationship to the changed or added work.

C. Should any activity not be completed by the stated scheduled date, the Owner will have the right to require the Contractor to expedite completion of the activity by whatever means appropriate and necessary, without additional compensation to the Contractor.

1.03 ON-SITE DOCUMENTS

A. The Contractor shall maintain at the Project site, in good order for ready reference by the Owner, one complete record copy of the Contract Documents, including the Addenda, Change Orders, and all working drawings, Project Construction Schedule, and other approved submittals. The Contractor shall generate and keep on site all documents and reports required by applicable permit conditions.

B. The Contract Record Drawings shall be marked to record all changes made during construction. The location of all existing or new underground piping, valves and utilities, and obstructions as located during the Work, shall be appropriately marked on the ground until the Contractor incorporates the actual field location dimensions and coordinates into the Project’s Record Drawings. The Project’s Record Drawings shall be updated on a weekly basis and before elements of the Work are covered or hidden from view. After the completion of the Work or portions of the Work and before requesting final inspection, the record copy of the Record Drawings shall be given to the Owner. The Owner reserves the right to withhold progress payments until such time as the Record Drawings are brought current.
1.04 CONSTRUCTION SEQUENCING

A. The Owner has developed a proposed sequence of construction for certain elements of this project to achieve the desired product. The Owner’s proposed sequencing and the rationale for that sequencing is provided below. Actual project sequencing will be left to the Contractor’s discretion, provided that the rationale for the Contractor’s selected sequencing is adequately documented in the Contractor’s Work Plan and approved by the Owner.

B. Project Engineer’s proposed construction sequence

1. The Project Engineer’s proposed construction sequence is as follows:
   a) Submittals: Provide shop drawings and related submittals for long-lead items, (order materials on approval of submittals)
   b) Demolition and Clearing: Remove and protect existing vegetation, structures, and shoreline debris to allow for excavation and grading
   c) Excavation, grading, and material placement in shoreline areas, including temporary protection to protect slopes from erosive forces until permanent facilities are installed
   d) Perform other excavation and backfill to achieve required grades

2. The Contractor must determine whether this sequence or the Contractor’s own adaptation of this sequence will allow the Contractor to be the successful bidder, recognizing that the Contractor will determine their own means and methods to perform the work, price the work, and have responsibility for associated risks.

C. The following elements, in particular, will require the Contractor to carefully evaluate their equipment, methods, and order of work against site constraints and possible geotechnical-related considerations.

1. Stability of Temporarily Exposed Slopes and Surfaces. If the Contractor elects to excavate/dredge shoreline areas in advance of installing the required slope protection materials, then the newly exposed surface(s) will be exposed to the potentially erosive effects of waves, currents, and groundwater seepage. It will be the Contractor’s responsibility to ensure that any temporarily exposed surfaces and/or slopes remain sufficiently protected against such forces, and the Contractor shall be responsible for fully repairing any related damage that such surfaces may undergo. The Contractor shall also be responsible for meeting permit conditions that address exposed slopes or surfaces.
DIVISION 01—GENERAL REQUIREMENTS
Section 01 32 00—Construction Progress Documentation

PART 2 — PRODUCTS
Not used.

PART 3 — EXECUTION
Not used.

END OF SECTION
PART 1 – GENERAL

1.01 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract, including the Standard Specifications and General Conditions, apply to this work as if specified in this section. Work related to this section is described throughout the Specifications.

B. Individual submittals required in accordance with the pertinent sections of these Specifications. Other submittals may be required during the course of the Project and are considered part of the normal work to be completed under the Contract.

1. The list below may be incomplete, and it is the Contractor's responsibility to ensure that the Contractor has met all conditions of the Contract requirements.

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<th>SECTION</th>
<th>SUBMITTALS REQUIRED</th>
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<td>01 45 00 – Quality Control</td>
<td>Worker Qualifications</td>
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<td>01 50 00 – Temporary Facilities and Controls</td>
<td>Work Plan</td>
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<td>01 57 13 – Temporary Erosion and Sediment Control and Construction Stormwater</td>
<td>Construction Storm Water Pollution Prevention Plan (CSWPP); Product Data; MSDS for Dust Control products; Site Inspection Logs; Monitoring Reports</td>
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<td>01 73 29 – Cutting and Patching</td>
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<td>02 41 00 – Demolition</td>
<td>Plan to comply with standards</td>
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<tr>
<td>06 18 00 – Finished Carpentry</td>
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<tr>
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### PART 2 – PRODUCTS

#### 2.01 COMPLIANCE

A. Failure to comply with these requirements shall be deemed as the Contractor's agreement to furnish the exact materials specified or materials selected by the Owner based on these specifications.
2.02 SHOP DRAWINGS

A. The Owner will not accept shop drawings that prohibit the Owner from making copies for its own use.

B. Quality: Shop drawings shall be prepared accurately to a scale sufficiently large to indicate all pertinent features of the products and the method of fabrication, connection, erection, or assembly with respect to the Work.

C. All drawings submitted to the Owner for approval shall be drawn on full-size (ANSI D) copy or half-scale sets on 11 inches by 17 inches, bond paper only. Electronic versions of the drawings will also be submitted in the following formats on CD-ROM:

1. DWG
2. TIF
3. PDF – formatted to print to half-scale set on 11-inch by 17-inch paper

D. Type of Prints Required:

1. The Contractor shall submit two paper copies of all shop drawings or supplemental working drawings, in accordance with 00 72 00, General Conditions.

2. In lieu of the above, the Contractor may submit shop drawings or supplemental working drawings in the form of one sepia transparency of each sheet plus one blue line or black line print of each sheet. Blueprint submittals will not be acceptable.

3. Distribution: In the event the action described in Subparagraph 2.02.D.2. above is selected by the Contractor, the Owner will review the drawings, mark the sepia with appropriate notations, prepare the required number of prints for their use, and return the marked sepia to the Contractor. The Contractor may then order as many additional copies as required for Contractor's work.

E. In lieu of the above, submittals typically provided on paper may be submitted electronically as PDFs.

2.03 MANUFACTURERS' LITERATURE

A. The Contractor shall submit six paper copies of manufacturers' literature for approval.
B. Catalog cuts or brochures shall show the type, size, ratings, style, color, manufacturer, and catalog number of each item and be complete enough to provide for positive and rapid identification in the field. Catalog data shall be submitted in an orderly bound form. General catalogs or partial lists will not be accepted.

C. In lieu of the above, submittals typically provided on paper may be submitted electronically as PDFs. The manufacturer's original electronic issue is preferred.

2.04 SAMPLES

A. The sample submitted shall be the exact or precise article proposed to be furnished.

B. Samples, color chips, finish styles, etc., shall be submitted in sufficient number as to provide the Owner with alternate choices.

2.05 SUBSTITUTIONS

A. Refer to the Section 01 25 00, Substitution Procedures.

B. Catalog data for equipment approved by the Owner does not in any case supersede the Contract Documents. The approval by the Owner shall not relieve the Contractor from responsibility for deviations from the Contract Documents or Specifications, unless the Contractor has, in writing, called to the Owner’s attention to such deviations at the time of the submission, nor shall it relieve it from responsibility for errors of any sort in the items submitted. The Contractor shall check the work described by the catalog data with the Contract Documents for deviations and errors.

PART 3 – EXECUTION

3.01 TRANSMITTALS

A. General: The Contractor shall submit all shop drawings, catalog cuts, brochures, and mailable samples accompanied with a Submittal Review Transmittal form provided to the Contractor at the Pre-construction Meeting. Six copies of each submittal shall be transmitted.

B. Preparation: A separate Submittal Review Transmittal form shall be prepared for each product or procedure and shall be further identified by referencing the Specification section and paragraph number, and each submittal shall be numbered consecutively.

C. Mailing: The original shall be sent in every instance and will be the Contractor's record and final correspondence for every submittal.
D. In lieu of the above, submittals typically provided on paper may be submitted electronically as PDFs.

E. The Owner intends to complete the review of all submittals within 21 calendar days of receipt. When incomplete or rejected submittals are returned to the Contractor, the Contractor shall make appropriate revisions and re-submit. Review of re-submittals will be completed within 21 calendar days. The Contract time shall not be extended on the basis that the Contractor experienced delays due to rejection of submittals.

F. All submittals shall be dated, signed, and certified by the Contractor as being correct and in conformance with the Contract Documents. The Owner’s review of Contractor submittals shall not relieve the Contractor of the entire responsibility for the correctness of details and dimensions. The Contractor shall assume all responsibility and risk for any errors in Contractor submittals.

G. Whenever materials or equipment are described by using the name of a proprietary item or the name of a particular supplier, the naming of the item is intended to establish the type, function, and quality required. If the name is followed by the words “or equivalent,” indicating that a substitution is permitted, materials or equipment of other suppliers may be accepted by the Owner. Sufficient information shall be submitted by the Contractor to allow the Owner to determine that the material or equipment proposed is equivalent to that named, subject to the following requirements:

1. The burden of proof as to the type, function, and quality of any such substitute material or equipment shall be upon the Contractor.

2. The Owner will be the sole judge as to the type, function, and quality of any such substitute material or equipment and the Owner’s decision shall be final.

3. The Owner may require the Contractor to furnish, at the Contractor’s expense, additional data about the proposed substitution.

4. Acceptance by the Owner of a substitute item proposed by the Contractor shall not relieve the Contractor of the responsibility for full compliance with the Contract Documents and for adequacy of the substitute item.

H. No substitute materials shall be installed by the Contractor until written approval has been obtained from the Owner authorizing the material as an “Approved Equivalent.”

I. All equipment, materials, and articles incorporated into the permanent Work:

1. Shall be new, unless Section 00 72 00, General Conditions, or the Standard Specifications permit otherwise.
2. Shall meet the requirements of the Contract and be approved by the Owner
3. May be inspected or tested at any time during their preparation and use
4. Shall not be used in the Work if they become unfit after being previously approved

3.02 COORDINATION

A. Shop and detail drawings shall be submitted in related packages. All equipment or material details that are interdependent or are related in any way must be submitted indicating the complete installation. Submittals shall not be altered once approved for Construction. Revisions shall be clearly marked and dated. Major revisions must be submitted for approval.

B. The Contractor shall thoroughly review all shop and detail drawings, prior to submittal, to ensure coordination with other parts of the Work. The Contractor's failure to do this will be the cause for rejection. Submittals shall bear this approval stamp and initials.

C. Components or materials that require shop drawings and that arrive at the job site prior to approval of shop drawings will be considered as not being made for the Project and will be subject to rejection and removal from the premises.

END OF SECTION
PART 1 – GENERAL

1.01 DESCRIPTION

A. This section describes the Contract applicable permits.

1.02 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract, including the General Requirements, apply to this work as if specified in this section. Work related to this section is described throughout the Specifications.

1.03 PERMITS

A. Keep fully informed of all local ordinances, as well as State and federal laws that in any manner affect the work herein specified. At all times comply with said ordinances, laws, and regulations, and protect and indemnify the Owner and its officers and agents against any claim or liability arising from or based on the violation of such laws, ordinances, or regulations. Secure and pay for all permits, licenses, and inspection fees necessary for prosecution and completion of the Work, unless otherwise specified.

B. The Contractor shall comply with all conditions attached to applicable City, County, federal, State, and local permits found in Appendix C. These permits include the following:

1. State Environmental Policy Act (SEPA) Determination
2. Washington Department of Fish and Wildlife Hydraulic Project Approval
3. City of Kirkland Critical Areas Permit
4. City of Kirkland Demolition Permit
5. City of Kirkland Land Surface Modification (LSM) Permit
6. City of Kirkland Building Permit (Restroom and Boardwalk)
7. City of Kirkland Electrical Permit
8. City of Kirkland Mechanical Permit
9. City of Kirkland Plumbing Permit
10. City of Kirkland NUD (Water & Sewer)
11. City of Kirkland Right-of-Way permit
12. PSE Electrical Permit

13. Washington Department of Ecology Section 401 Water Quality Certification


15. Board of Health permits (as appropriate to temporary facilities)

1.04 PERMITS OBTAINED AFTER BID SUBMITTAL

A. If, after the bid submittal date, the Owner obtains any permits that require changes to the Work hereunder and thereby cause an increase or decrease in the cost of, or the time required for, the performance of the Work, submit information sufficient for the Owner to determine the extent of the effects on the cost and/or schedule. If the Owner agrees the cost and/or schedule will be affected by such changes, such effects will be handled in accordance with the General Conditions. The Owner will provide Contractor with a copy of any such permits. The Contractor shall comply with all applicable terms and conditions contained in such permits.

1.05 POSTING PERMITS

A. Post permits at the site of the Work.

1.06 INSPECTIONS

A. The Contractor shall call and make any arrangements for all inspections and testing required by the permits and conditions of the permits.

B. Post inspection reports at the work site.

1.07 RESTORATION OF PROPERTY

A. Comply with all property restoration requirements contained in permits and agreements to complete the Work.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION
PART 1 – GENERAL

1.01 QUALITY CONTROL FOR COMPLIANCE
   A. All work described in the Contract Documents must be fully tested in accordance with applicable sections of these Specifications.

1.02 RELATED WORK DESCRIBED ELSEWHERE
   A. The provisions and intent of the Contract, including the Standard Specifications and General Conditions apply to this work as if specified in this section. Work related to this section is described throughout these Specifications.

1.03 SUBMITTALS
   A. The Contractor shall submit the qualifications of the personnel identified in Article 2.01 of this section.

1.04 QUALITY ASSURANCE – CONTROL OF INSTALLATION
   A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
   B. Comply with manufacturers' instructions, including each step in sequence.
   C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Owner before proceeding.
   D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
   E. Perform Work by persons qualified to produce required and specified quality.
   F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
   G. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.
   H. Familiarity with Pertinent Codes and Standards: In procuring all items used in this work, it is the Contractor's responsibility to verify the detailed requirements of the specifically named codes and standards and to verify that the items procured for use in this work meet or exceed the specified requirements.
   I. Rejection of Non-Complying Items: The Owner reserves the right to reject items incorporated into the Work which fail to meet the specified minimum
requirements. The Owner further reserves the right, and without prejudice to other recourse the Owner may take, to accept non-complying items subject to an adjustment in the Awarded Contract Price as approved by the Owner.

1.05 TOLERANCES

A. Monitor fabrication and installation tolerance control of Products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from the Owner before proceeding.

C. Adjust Products to appropriate dimensions; position before securing Products in place.

1.06 REFERENCES AND STANDARDS

A. For Products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on date of Contract Documents, except where a specific date is established by code.

C. Obtain copies of standards where required by product specification sections.

D. Neither the contractual relationships, duties, nor responsibilities of the parties in the Contract, nor those of the Owner, shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

E. All pertinent laws, ordinances, rules, regulations and codes shall govern construction activities at the work site.

F. Construction which is not governed by governmental regulations or the Contract Specifications will be governed by the more stringent provisions of the latest published edition or statute adopted edition, at the time of Contract signing, following applicable codes and standards:

1. Uniform Building Code

2. American Welding Society

3. National Electrical Code

4. Uniform Plumbing Code
DIVISION 01—GENERAL REQUIREMENTS
Section 01 45 00—Quality Control

5. Uniform Fire Code

1.07 PERMITS

A. Refer to Section 01 41 26, Permits, and Appendix C for permit requirements.

1.08 TESTING SERVICES

A. Necessary materials testing shall be performed by an independent testing laboratory during the execution of the Work. Access to the area necessary to perform the testing and/or to secure the material for testing, shall be provided by the Contractor.

B. Testing does not relieve Contractor to perform work to contract requirements.

C. Re-testing required because of non-conformance to specified requirements shall be performed by the same independent firm. Payment for re-testing will be charged to the Contractor by deducting testing charges from the Contract Sum.

D. Material testing for initial material approval will be performed by an independent, certified laboratory and paid for by the Contractor. These tests must be dated within 6 months of the submittal date.

E. Subsequent sampling and testing, required as the Work progresses to ensure continual control of materials and compliance with all requirements of the Contract documents, shall be the responsibility of the Owner, except as required by other sections of these Specifications.

1.09 MANUFACTURERS’ FIELD SERVICES

A. When specified in individual specification sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up equipment, test, and adjust and balance equipment as applicable, and to initiate instructions when necessary.

B. Submit qualifications of observer to the Owner 30 days in advance of required observations. The observer is subject to approval of the Owner.

C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
PART 2 – PRODUCTS

2.01 CONTRACTOR PERSONNEL REQUIREMENTS

A. All Contractor personnel shall be trained, experienced and qualified to perform the tasks assigned to them.

B. The Contractor shall submit the qualifications of the proposed field superintendent to the Owner for review and approval. The proposed field superintendent shall have a minimum of 5 years of experience as a field superintendent, in addition to having been the field superintendent on three projects of similar type and size, described below.

Contractor Personnel

Field Superintendent:

The field superintendent must have successfully completed three projects of similar type and size.

Name: ______________________________________________________________________
Address: _____________________________________________________________________
Phone: ______________________________________________________________________
Name of Contractor Employed By: ________________________________________________

#1 Project Name: ________________________________________________________________
Owner: __________________________ Contact Person:______________________________
Name of Contractor Employed By: ________________________________________________
Completion Date: ______________________________________________________________

#2 Project Name: ________________________________________________________________
Owner: __________________________ Contact Person:______________________________
Name of Contractor Employed By: ________________________________________________
Completion Date: ______________________________________________________________

#3 Project Name: ________________________________________________________________
Owner: __________________________ Contact Person:______________________________
Name of Contractor Employed By: ________________________________________________
Completion Date: ______________________________________________________________

C. The Contractor shall submit the qualifications of the proposed pile driving superintendent to the Owner for review and approval.
PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Verify that utility services are available, of the correct characteristics, and in the correct locations.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

END OF SECTION
PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. The Work includes the requirements to provide temporary facilities required by both the Contractor and the Owner until Final Completion of the Work. The Work also includes compliance with all controls or ordinances with respect to safety, noise, dust, security, or traffic.

1.02 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract, including the Standard Specifications and General Conditions apply to this work as if specified in this section. Work related to this section is described throughout these Specifications.

1.03 SUBMITTALS:

A. The Contractor shall provide a Temporary Facilities and Controls Work Plan that details management of the environmental conditions presented during performance of the Work and provides methods for how the Work will be performed.

B. The Plan shall be submitted to the Owner and accepted prior to beginning Work. The Temporary Facilities and Controls Work Plan shall include, as a minimum:

1. A general description of demolition work to be performed discussing anticipated chemical and/or physical hazards associated with the work

2. Description of anticipated waste streams and procedures for site management, transportation, and off-site disposal/recycling

3. Methods for managing/accumulating/stockpiling soil, ground asphalt, and crushed concrete on site

4. Document control, including the documentation of all waste transportation and disposal, and including submission of a complete and final report to the Owner

5. Methods for site maintenance and security

6. Description of air pollution control procedures and air permit application for on-site crushing operations

7. Methods for management of noise

8. Tree and plant protection
9. Board of Health Permits associated with approvals required for disposing of solid waste in landfills regulated by the King County Board of Health

10. Run-off management plan detailing controls to be used during building washing, dust control, concrete sawing, and any other use of water during the project which may impact the stormwater system

11. Oil Spill Response and Prevention Procedures

PART 2—PRODUCTS

Not used.

PART 3—EXECUTION

3.01 UTILITIES

A. The Contractor shall provide adequate facilities for Contractor’s operation at Contractor’s expense, including:

1. Water
   a) Fresh drinking water for employees shall be provided near sanitary containers by the Contractor. The Contractor shall make arrangements with the Owner or other sources to supply construction water for the duration of this Contract.
   b) All such connections, fittings, etc., shall be furnished, installed by the Contractor, and removed upon completion of the Work, to the satisfaction of the Owner.

2. Construction Electricity
   a) The Contractor shall make all arrangements for the furnishing of electric power for construction purposes. The power meter shall be registered in the name of the Contractor.

3. Toilet Room Facilities
   a) The Contractor shall install and maintain necessary temporary sanitary toilet facilities with hand washing facilities during the term of this contract.

4. Communications
   a) The Contractor shall install and maintain the appropriate equipment to allow for the efficient communication via voice and
the Internet with the Owner and with outside parties at all times during the term of this contract. Remove at completion of work. All accounts shall be registered in the name of the Contractor.

5. Fences and Enclosures
   a) Furnish and install temporary construction fencing and tree protection fencing as shown on the Contract Drawings to protect the public and to protect the Work and equipment during construction.
   b) The temporary fence shall consist of woven wire mesh not less than six feet in height, complete with metal or wood posts and all required bracing, and with truck and pedestrian gates, required to accomplish the work.
   c) Construction fencing and gates shall not block access to the park driveway and private residences who have an easement to use this driveway.

6. Contractor Field Office
   a) The Contractor shall install and maintain necessary field office space during the Work. Remove at the completion of Work.

3.02 SITE MAINTENANCE

A. Clean-up
   1. The Contractor shall keep the work site, staging areas, and Contractor's facilities clean and free from dirt, dust, rubbish, and debris at all times. Materials and equipment shall be removed from the site when they are no longer necessary. Before Final Completion of the Work, the work site shall be cleared of equipment, unused materials, and dirt, dust, and rubbish to present a clean and neat appearance. Disturbed areas shall be restored per the Owner’s direction.
   2. Waste material of any kind shall not be permitted to remain on the site of the Work or on adjacent streets. Immediately upon collection of such materials, they shall be carried off the site and disposed of properly by the Contractor.
   3. The Contractor shall keep all buildings occupied by the Contractor clear of all refuse, rubbish, and debris that may accumulate from any source and shall keep them in a neat condition to the satisfaction of the Owner. The Contractor shall control any rodent problems that develop during the course of the Work.
4. In the event that waste material, refuse, debris, or rubbish is not so removed from the work site by the Contractor, the Owner reserves the right to have such material removed and the expense of the removal and disposal charged to the Contractor.

5. Paints, solvents, and other materials shall be handled with care to prevent entry of contaminants into storm drains, surface waters, or soils. These materials shall be collected and properly disposed of by the Contractor.

B. Public Street and On-site Roadway Cleaning

1. The Contractor shall be responsible for preventing dirt and dust escaping from trucks and other vehicles operating on or departing the project site by sweeping, covering dusty loads, washing truck tires, and all other reasonable methods.

2. When trucks and other equipment are operating on paved public streets and site roadways/paved surfaces, the Contractor shall clean said streets, roadways, and other paved surfaces at least daily, and at other times if required by the Owner.

3. In the event that the above requirements are violated and no action is taken by the Contractor after notification of infraction by the Owner, the Owner reserves the right to have the streets, roadways, and other paved surfaces in question cleaned by others and the expense of the operation charged to the Contractor.

3.03 AIR POLLUTION CONTROL

A. The Contractor shall only fuel construction equipment dedicated to the project with Ultra Low Sulfur Diesel (ULSD) having a sulfur content of 15 parts per million weight (ppmw) or less. “Dedicated” means anticipated to be used in the Work for more than 40 hours. For other equipment used in the Work, the use of ULSD is encouraged.

B. The Contractor shall not discharge smoke, dust, and other contaminants into the atmosphere that violate local, State, or federal regulations, or Owner-specific requirements. Internal combustion engines shall not be allowed to idle for prolonged periods of time. The Contractor shall maintain construction vehicles and equipment in good repair. Exhaust emissions that are determined to be excessive by the Owner shall be repaired or the equipment replaced.

C. The Contractor shall minimize nuisance dust by cleaning, sweeping, vacuum sweeping, sprinkling with water, or other means. The use of water, in amounts which result in mud on public streets or runoff to on-site or off-site storm drain catchments, is not acceptable as a substitute for sweeping or other methods. Equipment for this operation shall be on the job site or available at all times.
D. The Contractor shall minimize dust and waste generated during demolition by thoroughly cleaning specified structures prior to demolition. The Contractor may utilize vacuuming, water washing, or a combination of methods to achieve this dust and waste control. Use of compressed air is not permitted for cleaning purposes. All wash water, dust and/or waste residuals shall be collected and properly managed by the Contractor. Under no circumstances shall wash water be directly introduced to the storm drain system. Dust control by water misting during demolition may also be utilized for dust control, either on buildings that have been pre-cleaned or on buildings that are not specified for pre-cleaning. As previously noted, water from misting operations shall not be allowed to discharge into the storm drain system.

E. The Contractor shall furnish and provide all necessary compliance related activities, permits and licenses associated with the use of an on-site crusher. All such applications and intended activities are subject to the Owner’s review and approval.

3.04 NOISE CONTROL

A. Construction involving noisy operations, including starting and warming up of equipment shall be in compliance with local noise ordinances.

B. The Contractor shall comply with all local controls and noise level rules, regulations and ordinances which apply to any work performed pursuant to the Contract.

C. Each internal combustion engine, used for any purpose on the job or related to the job, shall be enclosed and be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler and enclosure.

3.05 USE AND OCCUPANCY

A. The Contractor will be allowed space for the storage of materials, equipment, and employee parking as shown in the Contract Drawings. Employee parking will be confined to the Contractor's work and storage area. No on-street equipment or employee parking is allowed.

B. The Contractor may make arrangements with private property owners as desired to secure additional space for material storage, employee parking, etc. All space must be within local land use and permitting requirements, at the Contractor’s expense. The Contractor must provide the Owner a copy of the release from the private property owner that all obligations of the property use arrangement have been met before final payment to the Contractor is issued.
C. The construction site shall be closed to the public at all times. The Contractor shall abide by special request of security personnel, and local police and fire departments.

END OF SECTION
PART 1          GENERAL

1.01          SUMMARY

A. This section covers Work to implement structural and nonstructural Best Management Practices (BMP) to control soil erosion by wind or water and keep eroded sediments and other construction-generated pollutants from moving off Project Sites. Requirements described in this Specification and shown on Drawings are part of the project Temporary Erosion and Sediment Control Plan (TESC Plan) and are the minimum for all project construction sites and conditions. This Specification covers all Project activities, including material sources, disposal sites, and offsite mitigation areas unless specific Project activities are excluded elsewhere in this Specification or in other Contract Documents controlling the Work.

B. National Pollutant Discharge Elimination System: Comply with federal, state, and local laws, rules and regulations, and the National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Discharge Permit. A State of Washington Department of Ecology Construction Stormwater General Permit is required for this Project. The City will transfer the Construction Stormwater General Permit to the Contractor after Contract award.


D. City of Kirkland: The Project shall comply with the City of Kirkland Pre-Approved Plan D-12.


1.02          REFERENCES

A. Activities shall conform to the Stormwater Management Manual for Western Washington (SWMMWW) by Ecology, the Construction Stormwater General Permit (NPDES), and Drawings. In the event of a conflict, the more stringent requirement shall apply.

B. A draft Stormwater Pollution Prevention Plan (SWPPP) has been prepared for this Project by Engineer and was made available during bidding of the Work for bidder’s review. Contractor may use the Engineer-developed SWPPP as-is, or
with modification, to result in the required Contractor-responsible SWPPP documents for the Work. Regardless of whether or not Contractor uses the Engineer-developed draft SWPPP, as-is, or develops a modified version or a new version, Contractor shall be solely responsible for implementing the SWPPP. Maintain the SWPPP and update as required during the life of the Project.

C. The following is a list of standards that may be referenced in this section:

1. ASTM International (ASTM):
   c. D3776/D3776M, Standard Test Methods for Mass Per Unit Area (Weight) of Fabric.

2. National Weather Service:

1.03 SYSTEM DESCRIPTION AND REQUIREMENTS

A. Erosion and Sediment Control:

1. Provide, maintain, and operate temporary facilities to control erosion and sediment releases during construction period. TESC shall comply with the standards of the Construction Stormwater General Permit, including, but not limited to, sediment discharges limited to 25 NTUs TSS.

2. Design erosion and sediment controls to handle peak runoff resulting from 25-year, 24-hour storm event based on SWMMWW from Ecology.


B. Erosion and Sediment Control (ESC) Lead:

1. Contractor shall identify the ESC Lead at the preconstruction discussions and in the TESC Plan. The ESC Lead shall have current certification as a Certified Erosion and Sedimentation Control Lead (CESCL).

2. The ESC Lead shall implement the TESC Plan, including, but not limited to:
   a. Installing, inspecting, and maintaining all temporary erosion and sediment control Best Management Practices (BMPs) included in the TESC Plan to assure continued performance of their intended function. Damaged or inadequate TESC BMPs shall be corrected immediately.
   b. Updating TESC Plan/SWPPP to reflect current field conditions.
   c. Terminating TESC Plan.

3. ESC Lead shall also perform discharge sampling and monitoring, and inspect all areas disturbed by construction activities, all onsite erosion and sediment control BMPs, all stormwater discharge points, and all temporarily stabilized inactive sites per schedule in the Construction Stormwater General Permit or as directed by Engineer. Complete erosion and sediment control inspection form provided by Ecology or Owner for each inspection and submit a copy to Engineer no later than end of the next working day following inspection.
C. Personnel Training:

1. Prior to commencement of construction, applicable personnel must have an understanding of the Construction Stormwater General Permit’s requirements and their specific responsibilities under the permit. At a minimum, personnel must be trained to understand the following as it relates to the scope of their job duties:
   a. The location of all stormwater controls and how to maintain them.
   b. Procedures for complying with the pollution prevention requirements.
   c. Procedures for conducting inspections, recording findings, and taking corrective action.

D. Temporary Erosion and Sediment Control Plan (Stormwater Pollution Prevention Plan):

1. A Draft TESC Plan is furnished as part of Drawings, which helps fulfill part of the plan requirement of the Construction Stormwater General Permit. The ESC measures shown on this plan and described in the Project Specifications are minimum requirements for anticipated Site conditions. During the construction period, upgrade these measures as needed to comply with all applicable local, state, and federal erosion and sediment control regulations.

2. A draft SWPPP is also provided for Contractor’s use as-is or as a starting point for developing a modified version for which Contractor is solely responsible. This draft TESC Plan and SWPPP, shall be modified, as necessary, by Contractor to reflect Contractor’s construction sequence, means, and methods. Additional or revised erosion and sediment control features, not shown on the draft TESC Plan, may be required depending on Contractor’s methods of operation and schedule.

3. For each phase of the scheduled work, indicate on the TESC Plan all the BMPs proposed and installed for erosion and sediment control to minimize clearing, stabilize exposed soil, divert or temporarily store flows, limit runoff from exposed areas, and filter transported sediment. Include all temporary slopes, constructed for staging or other reasons, which may not have been identified in the original Contract plans. Refer to the current local jurisdiction’s erosion and sediment control manual.

4. Some TESC Plan required elements typically required by NPDES permits:
   a. Narrative Site Description:
      1) Nature of construction activity planned for the Site.
      2) Estimates of total site area and the areas of the Site expected to be disturbed.
      3) Soil types found onsite and their erosion potential.
      4) The types of fill materials to be used.
      5) Timetable for sequence of major construction events.
Division 01—General Requirements
Section 01 57 13—Temporary Erosion and Sediment Control

b. Site Map:
   1) All areas of development.
   2) Drainage patterns.
   3) Areas of soil disturbance, including pre-development and post-
      development elevation contours.
   4) Areas used for temporary storage of soils or wastes.
   5) Areas where vegetative practices are to be implemented.
   6) Location of all erosion and sediment control BMP or structures.
   7) Location of all impervious structures and surfaces after Project
      is completed.
   8) Springs, wetlands, and other surface waters located onsite.
   9) Boundaries of the 100-year floodplain.
  10) Ordinary High Water line.
  11) Location of storm drainage outfalls to receiving waters, if
      applicable.
  12) Details of sediment and erosion controls.
  13) Details of detention tanks, storm drain piping, inflow and
      outflow details.
  14) Location and details of water quality treatment facilities.

c. Required BMPs and Procedures for Erosion Prevention, Runoff
   Control, and Sediment Control:
   1) Construction entrances and parking areas.
   2) Unpaved site roads such as haul roads.
   3) Hauling saturated soils from the Site.
   4) Water washed from concrete trucks.
   5) Correct installation of erosion and sediment control BMPs.
   6) Prompt maintenance and repair of BMPs.
   7) Clearing and grading practices to minimize area of exposed soil
      throughout life of the Project.
   8) Schedule of phased clearing operations to limit soils to what can
      be stabilized.
   9) Vegetative practices, including preservation of existing
      vegetation, seeding, mulching, and buffer strips.
  10) Preventing erosion of exposed areas.
  11) Diverting flows from exposed slopes.
  12) Limiting runoff from exposed areas.
  13) Preventing sediment transport within work sites and keeping it
      from moving off of project areas.
  14) Perimeter controls for all clearing and grubbing, both planned
      and installed.
  15) Additional controls for wet season work and temporary work
      suspensions.
  16) Sensitive areas such as wetlands.
  17) Offsite material source and waste areas.
  18) Dust.
19) Emergency materials stockpiled onsite.
20) Storing flows and filtering sediment.
21) Soil stockpiles.
22) Water quality treatment facilities.
23) Flow control facilities.

5. Contractor’s construction SWPPP Plan and implementation schedules must be prepared by a competent individual. Furnish a signed copy of the TESC Plan with individual’s name, title, state CESCL certification number, and employing firm if different than Contractor’s firm.

6. Do not begin any Site activities that have potential to cause erosion or sediment movement until the SWPPP Plan and implementation schedules are approved by Engineer.

7. Keep a copy of the approved SWPPP with updated changes onsite during all construction activities. During inactive periods longer than 7 calendar days, keep the SWPPP onsite or provide a copy to Engineer to retain.

8. Perform construction stormwater discharge monitoring and reporting to Ecology per General Construction Permit.

9. Continually update the TESC Plan, SWPPP, schedules, and methods as needed for unexpected storm or other events to ensure that sediment-laden water does not leave the construction site. Add approved changes to the TESC Plan no later than 24 hours after implementation.

E. Install high visibility fence along the Site shown on Approved Drawings or as instructed by Engineer. Space posts and attach fence fabric to posts as shown on Drawings. Do not fasten fence to trees. Throughout the life of the Project, preserve and protect delineated area, acting immediately to repair or restore any fencing damaged or removed.

F. Preventing erosion, and controlling runoff, sedimentation, and non-stormwater pollution, requires Contractor to perform temporary Work items including, but not limited to:

1. Providing ditches, berms, culverts, and other measures to control surface water.
2. Building dams, settling basins, energy dissipaters, and other measures to control downstream flows.
3. Controlling underground water found during construction.
4. Covering or otherwise protecting slopes until permanent erosion control measures are working.
5. Provide temporary flow control facilities (portable tanks, etc.) to limit flow rates.
6. Provide temporary water quality facilities (filtration, EC, chemical, etc.) to limit turbidity, pH, and other pollutants to acceptable levels.

G. To the degree possible, coordinate this temporary Work with permanent drainage and erosion control work the Contract requires.
H. When natural elements rut or erode the slope, restore and repair damage with eroded material where possible, and remove and dispose of any remaining material found in ditches and culverts.

I. Install all sediment control devices including, but not limited to, tanks, pumps, water quality treatment devices, perimeter silt fencing, or other sediment trapping BMPs prior to any ground disturbing activity. Do not expose more erodible earth than necessary during clearing, grubbing, excavation, borrow, or fill activities without written approval by Engineer. Engineer may increase or decrease the limits based on Project conditions. Erodible earth is defined as any surface where soils, grindings, or other materials may be capable of being displaced and transported by rain, wind, or surface water runoff. Cover inactive areas of erodible earth, whether at final grade or not, within specified time period (see Construction Stormwater General Permit), using an approved soil covering practice. Phase clearing and grading to maximum extent practical to prevent exposed inactive areas from becoming a source of erosion.

J. Water Management:

1. Manage site water as follows:
   a. Groundwater. When groundwater is encountered in an excavation, treat and discharge as follows:
      1) When turbidity of groundwater is similar to turbidity of site runoff, groundwater may be treated using same detention and treatment facilities being used to treat the site runoff and then discharged at a rate that will not cause erosion.
      2) When groundwater turbidity is greater than turbidity of site runoff, treat ground water separately until turbidity is similar to or better than site runoff, and then it may be combined with site runoff and treated as described above.
   b. Process Water:
      1) Do not discharge high pH process water or wastewater (nonstormwater) that is generated onsite, including water generated during concrete grinding, rubblizing, washout, and hydrodemolition activities, to waters of the State, including wetlands. Offsite disposal of concrete process water is subject to approval of Engineer.
      2) Treat all water generated onsite from construction or washing activities that is more turbid than site runoff separately until turbidity is the same or less than site runoff, and then it may be combined with site runoff and treated as described above.
   c. Offsite Water: Prior to disruption of normal watercourse, intercept offsite stormwater and pipe it either through or around the Project Site. This water shall not be combined with onsite stormwater. Discharge offsite water at its preconstruction outfall point preventing
an increase in erosion below the site. Submit proposed method for performing this Work for Engineer’s approval.

K. Dispersion/Infiltration: Dispersion and infiltration are not feasible means of disposal on this Site. All site runoff must be treated and conveyed to the natural discharge location.

L. Bioretention Facility Construction: Perform excavation to subgrade before beginning other grading and excavation Work in the area that drains into that facility or other temporary facility. Install temporary conveyances concurrently with grading in accordance with the TESC Plan so that newly graded areas drain to the facility as they are exposed. If bioretention facility is used as temporary detention, stabilize site and remove sediment prior to installing underdrain gravel or bioretention soil.

M. Provide temporary flow control facilities to limit the rate of runoff from the disturbed portion of the site until the permanent facilities are constructed and operational. Provide temporary storage with a minimum of 40,000 gallons.

N. In addition to implementing erosion control best management practices and flow control facilities. Design, install, operate and maintain a water quality treatment facility or facilities to limit runoff from the site to the following characteristics:

1. pH between 6.5 and 8.5, in accordance with the Construction Stormwater General Permit.
2. Turbidity below 25 NTU unless otherwise stated in the Construction Stormwater General Permit.
3. Limit other pollutants as noted in the Construction Stormwater General Permit.

O. Pollution Control:

1. Use BMPs to prevent or minimize stormwater exposure to pollutants from spills; vehicle and equipment fueling, maintenance, and storage; other cleaning and maintenance activities; and waste handling activities. These pollutants include fuel, hydraulic fluid, and other oils from vehicles and machinery, as well as debris, leftover paints, solvents, and glues from construction operations. Implement the following BMPs when applicable:
   a. Written spill prevention and response procedures.
   b. Employee training on spill prevention and proper disposal procedures.
   c. Spill kits in all vehicles.
   d. Regular maintenance schedule for vehicles and machinery.
   e. Material delivery and storage controls.
   f. Training and signage.
   g. Covered storage areas for waste and supplies.
   h. Pollution control within environmentally-sensitive areas (wetlands).
2. All equipment containing hydraulic fluid that extends over surface waters of the state or below the OHWM, including in the area of this Project mapped as wetlands, shall be equipped with an environmentally acceptable hydraulic fluid. The fluid shall meet specific requirements for biodegradability, aquatic toxicity, and bioaccumulation in accordance with the United States Environmental Protection Agency (EPA) publication EPA800-R-11-002. Acceptable shall be in accordance with Section 1-06.3, Manufacturer’s Certification of Compliance, of the WSDOT Standard Specifications.
   a. The designation of environmentally acceptable hydraulic fluid does not mean fluid spill are acceptable. The Contractor shall respond to spill to land or water in accordance with the Contract.

P. If Engineer orders the Work suspended, continue to control erosion, pollution, and runoff during the shutdown.

Q. Nothing in this section shall relieve Contractor from complying with other Contract requirements.

1.04 SUBMITTALS

A. Informational Submittals:
   1. Modify the Engineer-prepared draft SWPPP to reflect the Contractor’s construction sequence, means and methods.
   2. Modify the TESC Plan. Provide a schedule for TESC Plan implementation and incorporate it into Contractor’s progress schedule. Obtain Engineer’s approval of the TESC Plan and schedule before any Work begins.
   4. The TESC Plan shall cover all areas that may be affected inside and outside the limits of the Project (including all Owner-provided sources, disposal sites, and haul roads, and all nearby land, streams, and other bodies of water).
   5. Allow at least 5 working days for Engineer to review any original or revised TESC Plan. Failure to approve all or part of any such Plan shall not make Owner liable to Contractor for any Work delays.

PART 2 PRODUCTS

2.01 CHECK DAMS

A. Specified by Contractor with approval of Engineer.
2.02 COIR LOG

A. Logs made of 100 percent durable coconut (coir) fiber uniformly compacted within woven netting.

B. Netting: Made of bristle coir twine with minimum strength of 80 pounds tensile strength. Nominal 2-inch by 2-inch openings.

C. Log Segments: Maximum length of 20 feet, with a minimum diameter as shown on Drawings.

D. Log Minimum Density: 7 pounds per cubic foot.

E. Stakes: Untreated softwood species with a notch to secure rope ties.

F. Rope Ties: 1/4-inch diameter commercially available hemp rope.

2.03 COMPOST BLANKET

A. Composed of products resulting from the biological degradation and transformation of plant-derived materials under controlled conditions designed to promote aerobic decomposition and:

1. Stable in oxygen consumption and carbon dioxide generation.
2. Mature and suitable for serving as a soil amendment or an erosion control BMP.
3. Appropriate in Moisture Content: No visible free water or dust produced when handling material.
4. Test compost products in accordance with U.S. Composting Council Testing Methods for the Examination of Compost and Composting (TMECC) 02.02-B, “Sample Sieving for Aggregate Size Classification.”

B. Meet the following criteria for Coarse Compost:

1. Gradation:

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum</td>
</tr>
<tr>
<td>3”</td>
<td>100</td>
</tr>
<tr>
<td>1”</td>
<td>90</td>
</tr>
<tr>
<td>3/4”</td>
<td>70</td>
</tr>
<tr>
<td>1/4”</td>
<td>40</td>
</tr>
</tbody>
</table>

Maximum particle length of 6 inches.
2. **pH**: Between 6.0 and 8.5 when tested in accordance with U.S. Composting Council TMECC 04.11-A, “1:5 Slurry pH”.

3. **Manufactured Inert Material (Plastic, Concrete, Ceramics, Metal, etc.)**: Less than 1.0 percent by weight per U.S. Composting Council TMECC 03.08-A “Classification of Inerts by Sieve Size”.

4. **Minimum Organic Matter**: 40 percent by dry weight basis as determined by U.S. Composting Council TMECC 05.07A “Loss-On-Ignition Organic Matter Method (LOI)”.

5. **Soluble Salt Content**: Less than 4.0 mmhos/cm when tested in accordance with U.S. Composting Council TMECC 04.10 “Electrical Conductivity”.

6. **Maturity**: Greater than 80 percent in accordance with U.S. Composting Council TMECC 05.05-A, “Germination and Root Elongation.”

7. **Stability**: 7 mg CO₂–C/g OM/day or below in accordance with U.S. Composting Council TMECC 05.08-B “Carbon Dioxide Evolution Rate.”

8. **The compost product must originate a minimum of 65 percent by volume from recycled plant waste. A maximum of 35 percent by volume of feedstocks, source-separated food waste, and/or biosolids may be substituted for recycled plant waste. Provide a list of feedstock sources by percentage in final compost product.**

9. **Engineer may evaluate compost for maturity using U.S. Composting Council TMECC 05.08-E “Solvita® Maturity Index.” Coarse Compost shall score a 5 or above on the Solvita® Compost Maturity Test.**

### 2.04 COMPOST SOCK

A. **Provide socks fabricated from of extra heavy weight biodegradable fabric, with a minimum strand thickness of 5 mils.**

B. **Fill fabric with Coarse Compost.**

C. **Diameter**: 8 inches minimum.

D. **Fabric**: Clean, evenly woven, and free of encrusted concrete or other contaminating materials. Shall be free from cuts, tears, broken or missing yarns. Shall be free of thin, open, or weak areas. Shall be free of any type of preservative.

E. **Wood Stakes**: Untreated softwood species, be 2-inch by 2-inch nominal dimension and 36 inches in length.
2.05 **EROSION CONTROL BLANKET (MATTING), BIODEGRADABLE**

A. Temporary erosion control blanket shall be made of natural plant fibers. Supply independent test results meeting the following:

<table>
<thead>
<tr>
<th>Properties</th>
<th>ASTM Test Method</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protecting Slopes from Rainfall-Induced Erosion</td>
<td>D6459: Test in one soil type. Soil tested shall be sandy loam as defined by the NRCS Soil Texture Triangle.</td>
<td>Maximum C factor of 0.15 using Revised Universal Soil Loss Equation (RUSLE)</td>
</tr>
<tr>
<td>Dry Weight per Unit Area</td>
<td>D6475</td>
<td>0.36 lb/sq. yd. minimum</td>
</tr>
<tr>
<td>Performance in Protecting Earthen Channels from Stormwater-Induced Erosion</td>
<td>D6460: Test in one soil type. Soil tested shall be loam as defined by the NRCS Soil Texture Triangle.</td>
<td>1.0 lb/sq. ft. minimum</td>
</tr>
<tr>
<td>Seed Germination Enhancement</td>
<td>D7322</td>
<td>200 percent minimum</td>
</tr>
</tbody>
</table>

Netting, if present, shall be biodegradable with a minimum life span of 1 year.

2.06 **TEMPORARY RAINWATER STORAGE TANK**

A. Storage tanks shall be portable and installed onsite as shown on Drawings or as required to meet permit requirements.

2.07 **GEOTEXTILE**

A. Geotextiles shall consist only of long chain polymeric fibers or yarns formed into a stable network such that the fibers or yarns retain their position relative to each other during handling, placement, and design service life. At least 95 percent by weight of the material shall be polyolefins or polyesters. The material shall be free from defects or tears. Geotextile shall also be free of any treatment or coating which might adversely alter its hydraulic or physical properties after installation. Geotextile properties shall be as described in Standard Specifications Section 9.33-2 Table 1 through Table 3.

2.08 **GRAVEL FILTER, WOOD CHIP, OR COMPOST BERM**

A. Rock Material Used for Filter Berms: Clean 3/4-inch rock, with no recycled materials.

B. Wood Chips Used for Wood Chip Berm: As specified in Article Wood Chips and Wood Shavings.
C. Compost Used for Compost Berms: Coarse compost as specified in Article Compost Blanket.

2.09 HIGH VISIBILITY FENCING

A. High Visibility Fence: UV stabilized, orange, high-density polyethylene or polypropylene mesh.
B. Height: 4 feet minimum.
C. Support Posts: Wood or steel with sufficient strength and durability to support the fence through the life of the Project.

2.10 INLET PROTECTION

A. As specified under Article Geotextile.

2.11 MULCH

A. Short-Term: Provide independent test results documenting that the mulch meets the requirements in WSDOT Standard Specification Section 9-14.4(2)C.i.
B. Moderate-Term: Moderate Term Mulch shall meet the requirements in WSDOT Standard Specification Section 9-14.4(2)B.
C. Long-Term: Long-Term Mulch shall meet the requirements in WSDOT Standard Specification Section 9-14.4(2)A.

2.12 INLET AND OUTLET PROTECTION

A. Size riprap or quarry spall to resist movement under design flows. Install at least 8 inches deep. Provide riprap or quarry spall material free of extraneous material.

2.13 PLASTIC COVERING

A. Clear plastic meeting requirements of ASTM D4397 for polyethylene sheeting having a minimum thickness of 6 mils.

2.14 POLYACRYLAMIDE (PAM)

A. Meet ANSI/NSF Standard 60 for drinking water treatment with an AMD content not to exceed 0.05 percent.
B. Anionic, linear, and not cross-linked.
C. Minimum average molecular weight greater than 5 mg/mole and minimum 30 percent charge density.
D. 80 percent active ingredients minimum with moisture content not exceeding 10 percent by weight.

E. Delivered in a dry granular or powder form.

2.15 SEDIMENT CONTROL BARRIERS

A. Specified by Contractor with approval of Engineer. May include Compost Filter Sock or Compost Filter Berm.

2.16 SEEDING

A. See City of Kirkland standard.

2.17 SILT FENCE

A. Geotextile: As specified in Article Geotextile with reinforcement backing.

B. Support Posts: As recommended by manufacturer of geotextile.

C. Fasteners: Heavy-duty wire staples at least 1-inch long, tie wires, or hog rings, as recommended by manufacturer of geotextile.

2.18 STABILIZED CONSTRUCTION ENTRANCE

A. Construct a pad from stone 3 inches to 6 inches in size, placed at least 8 inches deep and not less than 50 feet long.

B. Provide aggregate free of extraneous materials that may cause or contribute to track out.

C. Place separation geotextile under the rock to prevent fine sediment from pumping up into the rock pad. See Article Geotextile for required geotextile properties.

D. Use of constructed or constructed/manufactured steel plates with ribs (such as, shaker/rumble plates or corrugated steel plates) for entrance/exit access is allowable.

2.19 STREET CLEANING

A. Use self-propelled pickup street sweeper(s). Mechanical broom sweepers are not allowed.

2.20 TACKIFIERS

A. Biodegradable Hydraulically Applied Erosion Control Products (HECPs) in a dry condition, free of noxious weeds, seeds, chemical printing ink, germination inhibitors, herbicide residue, chlorine bleach, rock, metal, plastic, and other
materials detrimental to plant life. Up to 5 percent by weight may be photodegradable material.

B. Suitable for spreading with a hydroteeder.

C. Furnish HECPs premixed by the manufacturer. Under no circumstances will field mixing of additives or components be acceptable.

D. Provide test results, dated within 3 years prior to the date of application, from an independent, accredited laboratory, as approved by Engineer, showing that the product meets the HECP requirements in Table 1.

<table>
<thead>
<tr>
<th>Properties</th>
<th>Test Method</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Toxicity</td>
<td>EPA-821-R-02-012 Methods for Measuring Acute Toxicity of Effluents. Test leachate from recommended application rate receiving 2 inches of rainfall per hour using static test for No-Observed-Adverse-Effect-Concentration (NOEC).</td>
<td>Four replicates are required with no statistically significant reduction in survival in 100 percent leachate for a Daphnid at 48 hours and Oncorhynchus mykiss (rainbow trout) at 96 hours.</td>
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<tr>
<td>Solvents</td>
<td>EPA 8260B</td>
<td>Benzene: &lt; 0.03 mg/kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Methylene chloride: &lt; 0.02 mg/kg</td>
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<tr>
<td></td>
<td></td>
<td>Naphthalene: &lt; 5 mg/kg</td>
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<td></td>
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<td>Tetrachloreoethylene: &lt; 0.05 mg/kg</td>
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<td></td>
<td>Toluene: &lt; 7 mg/kg</td>
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<td></td>
<td></td>
<td>Trichloroethylene: &lt; 0.03 mg/kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Xylenes: &lt; 9 mg/kg</td>
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</tbody>
</table>
## Table 1
### HECP Requirements

<table>
<thead>
<tr>
<th>Properties</th>
<th>Test Method</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy Metals</td>
<td>EPA 6020A Total Metals</td>
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<td>Cadmium: &lt; 2 mg/kg</td>
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<td>Chromium: &lt; 2 mg/kg</td>
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<td></td>
<td>Copper: &lt; 5 mg/kg</td>
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<td>Lead: &lt; 5 mg/kg</td>
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<tr>
<td></td>
<td></td>
<td>Mercury: &lt; 2 mg/kg</td>
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<tr>
<td></td>
<td></td>
<td>Nickel: &lt; 2 mg/kg</td>
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<tr>
<td></td>
<td></td>
<td>Selenium: &lt; 10 mg/kg</td>
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<td></td>
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<td>Strontium: &lt; 30 mg/kg</td>
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<td></td>
<td></td>
<td>Zinc: &lt; 5 mg/kg</td>
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<td>Water Holding Capacity</td>
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<tr>
<td>Organic Matter Content</td>
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<td>90 percent minimum</td>
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<tr>
<td>Moisture Content</td>
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<tr>
<td>Seed Germination Enhancement</td>
<td>ASTM D7322</td>
<td>Long-Term: 420 percent minimum</td>
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<td></td>
<td></td>
<td>Moderate-Term: 400 percent minimum</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Short-Term: 200 percent minimum</td>
</tr>
</tbody>
</table>

### 2.21 TEMPORARY CURB

**A.** Temporary curbs may consist of asphalt, concrete, sand bags, compost socks, wattles, or geotextile/plastic encased berms of sand or gravel, or as approved by Engineer.

### 2.22 TEMPORARY PIPE SLOPE DRAIN

**A.** Corrugated polyethylene drain pipe, couplings and fittings (up to 10-inch) meeting the requirements of AASHTO M252 Type C (corrugated both inside and outside) or Type S (corrugated outer wall and smooth inner liner).

1. Maximum Pipe Size: 10 inches in diameter.
2.23 WATTLES

A. Cylinders of biodegradable plant material such as weed-free straw, coir, compost, wood chips, excelsior, or wood fiber or shavings encased within biodegradable netting.

B. Diameter: 5 inches minimum.

C. Netting Material: Clean, evenly woven, and free of encrusted concrete or other contaminating materials such as preservatives. Also free from cuts, tears, or weak places with a minimum lifespan of 6 months.

D. Compost Filler: Coarse compost, wood chips, or wood shavings.

E. Wood Stakes: Untreated softwood species, 2-inch by 2-inch nominal dimension and 36 inches in length.

2.24 WOOD CHIPS AND WOOD SHAVINGS

A. Wood Chips:

   1. Derived from softwood species not containing resin, tannin, or other compounds in quantities that would be detrimental to plant life, and meeting the following loose volume gradation:
      a. 2-inch Sieve Size: 95 percent to 100 percent passing.
      b. No. 4 Sieve Size: 0 percent to 30 percent passing.

B. Wood Shavings: Provide shavings with 80 percent of the fibers 6 inches or longer between 0.030-inch wide and 0.50-inch wide, and between 0.017-inch thick and 0.13-inch thick.

2.25 TEMPORARY WATER TREATMENT FACILITY

A. Portable, Bidder-designed water treatment facility, provided and operated by the Contractor to treat runoff to allowable discharge characteristics.

PART 3 EXECUTION

3.01 PREPARATION

A. Engineer’s acceptance of the TESC Plan is required prior to starting earth disturbing activities.

B. Include proposed stockpile areas and installation of temporary erosion control devices, ditches, or other facilities in Work phasing plans.
C. Areas designated for Contractor’s use during Project may be temporarily developed as specified to provide working, staging, and administrative areas. Include control of sediment from these areas in the TESC Plan.

D. Check Dams: Install check dams as soon as construction will allow, or when designated by Engineer. Contractor may substitute a different check dam, in lieu of what is specified in the Contract, with approval of Engineer. Check dam is a temporary or permanent structure, built across a minor channel. Water shall not flow through check dam structure. Construct check dams to create a ponding area upstream of dam to allow pollutants to settle, with water from increased flows channeled over a spillway in check dam. Construct check dam to prevent erosion in area below spillway. Place check dams perpendicular to flow of water and install in accordance with Drawings. Extend outer edges up sides of conveyance to prevent water from going around check dam. Provide check dams of sufficient height to maximize detention, without causing water to leave ditch. Place sandbags so that initial row makes tight contact with ditch line for length of dam. Stagger subsequent rows so center of bag is placed over space between bags on previous lift. Check dams cannot be installed in wetlands.

E. Coir Log: Install coir logs in accordance with Drawings.

F. Compost Blanket: Place compost blanket to a depth of 3 inches over bare soil prior to seeding or other planting. Place an organic tackifier over entire composted area when dry or windy conditions are present or expected before final application of mulch or erosion control blanket. Apply tackifier immediately after compost application to prevent compost from leaving area.

G. Compost Sock: Exercise care when installing compost socks to ensure method of installation minimizes disturbance of waterways and prevents sediment or pollutant discharge into waterbodies. Lace compost socks together, end-to-end, with coir rope to create a continuous length. Bury loose ends of continuous length 3 feet to 5 feet laterally into the bankslope. Install the upper surface of compost sock parallel to slope. Provide finished grades of a natural appearance with smooth transitions. Secure compost sock with wood stakes or live stakes of species as indicated on Drawings. Drive stakes into place centered on top of compost sock and spaced 3 feet on center throughout length of sock.

H. Erosion Control Blanket (Matting), Biodegradable: Temporary Erosion Control Blankets are used as an erosion prevention device and to enhance temporary water treatment facility. Install erosion control blankets according to manufacturer’s recommendations.

1. Erosion control blankets with an open area of 60 percent or greater may be installed prior to seeding and fertilizing. Install blankets with less than 60 percent open space immediately following seeding and fertilizing operation.
2. Select erosion control blanket material for an area based on the intended function; slope or ditch stabilization and Site-specific factors including soil, slope gradient, rainfall, and flow exposure. Do not use erosion Control Blankets on slopes or in ditches that exceed manufacturer’s recommendations.

I. Temporary Rainwater Storage Tanks and Temporary Water Treatment Facility: Prior to discharge, sample each batch of treated and test for compliance with turbidity and pH limits, which may be established by water quality standards or a Site-specific discharge permit. Sampling and testing for other pollutants may be necessary. Obtain regulatory approval and provide a qualified, trained operator.

J. Gravel Filter, Wood Chip, or Compost Berm: Construct filter berms to retain sediment and direct flows.

1. Gravel Filter Berm: 1-foot minimum height. Maintain at this height for entire time berm is in use.
2. Wood Chip Berm: 2-foot minimum height. Maintain at this height for entire time berm is in use.
3. Construct compost berm of course compost in accordance with the detail on Drawings.

K. High Visibility Fencing: Install high visibility fencing in accordance with Drawings.

L. Inlet Protection: Install inlet protection below or above, or as a prefabricated cover at each inlet grate, as shown on Drawings. Install inlet protection devices prior to beginning clearing, grubbing or earthwork activities. Geotextile fabric used in prefabricated inlet protection devices must meet or exceed the requirements for Moderate Survivability and minimum filtration properties. When depth of accumulated sediment and debris reaches approximately one-half the height of an internal device or one-third the height of external device (or less when so specified by the manufacturers) or as designated by Engineer, remove deposits and stabilize onsite.

1. Below Inlet Grate:
   a. Prefabricated units specifically designed for inlet protection.
   b. Must remain securely attached to drainage structure when fully loaded with sediment and debris or at the maximum level of sediment and debris specified by manufacturer.

2. Above Inlet Grate:
   a. Devices may be silt fence, sandbags, or prefabricated units specifically designed for inlet protection.
   b. Must remain securely in place around drainage structure under all conditions.
3. Inlet Grate Cover:
   a. Prefabricated units specifically designed for inlet protection and:
      1) Be a sewn geotextile fabric unit fitted to individual grate and completely enclosing grate.
      2) Have built-in lifting devices to allow manual access of stormwater system.
      3) Use an orange monofilament geotextile fabric.
   b. Check dams or functionally equivalent devices may be used as inlet protection devices with approval of Engineer.

M. Mulch: Furnish, haul, and evenly apply at rates indicated and spread on seeded areas within 48 hours after seeding unless otherwise specified.

   1. Distribute straw mulch material with an approved mulch spreader that uses forced air to blow mulch material on seeded areas.
   2. Apply wood strand mulch by hand or by straw blower on seeded areas.
   3. Hydraulically apply Short-Term Mulch at the rate of 2,500 pounds per acre. May be applied in one lift.
   4. Hydraulically apply Moderate-Term Mulch and Long-Term Mulch at the rate of 3,500 pounds per acre with no more than 2,000 pounds applied in any single lift. Mulch may be applied with seed and fertilizer in moist climates. In dry climates, apply seed and fertilizer in a single application followed by mulch application. Provide mulch suitable for application with a hydroteeder.
   5. Cover temporary seed applied outside application windows established in Section 32 92 19, Hydroteeding Lawn Areas, with a mulch containing either Moderate-Term Mulch or Long-Term Mulch, as designated by Engineer.
   6. Mulch areas not accessible by mulching equipment by approved hand methods.
   7. Mulch cannot be placed in wetlands unless authorized in writing by the Washington State Department of Ecology.

N. Outlet Protection: Provide outlet protection to prevent scour at outlets of ponds, pipes, ditches, or other conveyances.

O. Plastic Covering: Use clear plastic covering to promote seed germination when seeding is performed outside of specified dates. Use black plastic covering for stockpiles or other areas where vegetative growth is unwanted. Place plastic with at least a 12-inch overlap of all seams. Install and maintain plastic cover to prevent water from cutting under the plastic and to prevent cover from blowing open in the wind.

P. Polyacrylamide (PAM): See Tackifiers.
Q. Sediment Control Barriers: Install sediment control barriers in accordance with TESC Plan or manufacturer’s recommendations in the areas of clearing, grubbing, earthwork, or drainage prior to starting those activities. Maintain sediment control barriers until soils are stabilized.

R. Seeding: See Section 32 92 19, Hydroseeding Lawn Areas.

S. Silt Fence:
   1. Silt fence shall be installed in accordance with Drawings. When backup support is used, use steel wire with a maximum mesh spacing of 2 inches by 4 inches, or plastic mesh as resistant to ultraviolet radiation as the geotextile it supports. Provide wire or plastic mesh with strength equivalent to or greater than as required for unsupported geotextile (for example, 180 pounds grab tensile strength in the machine direction).
   2. Attach geotextile to posts and support system using staples, wire, or in accordance with manufacturer’s recommendations. Geotextile shall be sewn together at the point of manufacture, or at a location approved by Engineer, to form geotextile lengths as required.
   3. Provide wood or steel support posts at sewn seams and overlaps and as shown on Drawings and necessary to support fence.
   4. Wood Posts: Minimum dimensions of 1-1/4 inch by 1-1/4 inch by the minimum length shown on Drawings.
   5. Steel Posts: Minimum weight of 0.90 pounds per foot.
   6. When sediment deposits reach approximately one-third the height of the silt fence, remove and stabilize deposits.

T. Stabilized Construction Entrance: Construct temporary stabilized construction entrance in accordance with Drawings, prior to beginning any clearing, grubbing, earthwork, or excavation. When stabilized entrance no longer prevents track out of sediment or debris, either rehabilitate existing entrance to original condition or construct a new entrance.

U. Street Cleaning: Use self-propelled pickup street sweepers whenever required by Engineer to prevent transport of sediment and other debris off Project Site. Provide street sweepers designed and operated to meet air quality standards. Street washing with water is not allowed. Intentional washing of sediment into storm sewers or drainage ways must not occur. Vacuuming or dry sweeping and material pickup must be used to cleanup released sediments.

V. Tackifiers:
   1. Mix and apply tackifier in accordance with manufacturer’s recommendations. If applied with a hydroseeder, add Short-Term Mulch as a tracer at a rate of 125 pounds to 250 pounds per acre to visibly aid uniform application.
2. Soil Binding Using Polyacrylamide (PAM): Apply PAM on bare soil completely dissolved and mixed in water or applied as a dry powder. Apply dissolved PAM at a rate of not more than 2/3 pound per 1,000 gallons of water per acre. Apply a minimum of 200 pounds per acre of Short-Term Mulch with the dissolved PAM. Dry powder applications may be at a rate of 5 pounds per acre using a hand-held fertilizer spreader or a tractor-mounted spreader.
   a. Apply PAM only to areas that drain to completed sedimentation control BMPs in accordance with the TESC Plan. PAM may be reapplied on actively worked areas after a 48-hour period.
   b. PAM shall not be applied during rainfall or to saturated soils.

W. Temporary Curb: Provide temporary curbs to divert or redirect water around erodible soils. Temporary curbs shall be installed along pavement edges to prevent runoff from flowing onto erodible slopes. Water shall be directed to areas where erosion can be controlled. Temporary curbs shall be a minimum of 4 inches in height. Ponding shall not be in roadways.

X. Temporary Pipe Slope Drain: Corrugated polyethylene drain pipe constructed in accordance with Drawings. Use water interceptor dikes or temporary curbs to direct water into pipe slope drain. Entrance to drain may consist of a prefabricated funnel device specifically designed for application, rock, sand bags, or as approved by Engineer. Construct pipe with gasketed watertight fittings and secure to slope with metal “T” posts, wood stakes, sand bags, or as approved by Engineer. Discharge water to a stabilized conveyance, sediment trap, stormwater pond, rock splash pad, vegetated strip, or as approved by Engineer. Install pipe so that water does not pond on road surface.

Y. Temporary Sediment Trap: Form trap by constructing a berm or by partial or complete excavation. Direct the discharge flow to a stabilized conveyance outlet or level spreader.

Z. Wattles: Install wattles as soon as construction will allow or when designated by Engineer. Begin trench construction and wattle installation at base of slope and work uphill. Spread excavated material evenly along the uphill slope and compact using hand tamping or other method approved by Engineer. On gradually sloped or clay-type soils, provide trenches 2 inches to 3 inches deep. On loose soils, in high rainfall areas, or on steep slopes, provide trenches 3 inches to 5 inches deep, or half the thickness of the wattle. Exercise care when installing wattles to minimize disturbance of waterways and prevent sediment or pollutant discharge into waterbodies.

AA. Wood Chips and Wood Shavings: Install in accordance with Drawings.
3.02 ADDITIONAL REQUIREMENTS

A. Natural Buffer or Equivalent:
   1. Unless natural buffer between the Project Site and receiving waters has previously been eliminated by pre-existing development disturbances, comply with one of the following alternatives if stormwater from construction will discharge to surface water:
      a. Provide a 50-foot, undisturbed natural buffer between construction disturbances and surface water.
      b. Provide an undisturbed natural buffer that is less than 50 feet supplemented by additional erosion and sediment controls, which in combination, achieve a sediment load reduction that is equivalent to a 50-foot buffer.
      c. If it is infeasible to provide an undisturbed natural buffer of any size, implement erosion and sediment controls that achieve a sediment load reduction that is equivalent to a 50-foot buffer.

3.03 MAINTENANCE

A. The ESCP measures described in this specification are minimum requirements for anticipated Site conditions. During the construction period, upgrade these measures as needed to comply with all applicable local, state, and federal erosion and sediment control regulations.

B. Maintain erosion and sediment control BMPs so they properly perform their function until Engineer determines they are no longer needed.

C. Construction activities must avoid or minimize excavation and creation of bare ground during wet weather.

D. The intentional washing of sediment into storm sewers or drainage ways must not occur. Vacuuming or dry sweeping and material pickup must be used to cleanup released sediments.

E. Inspect BMPs in accordance with the schedule in the Construction Stormwater Discharge Permit(s) or as directed by Engineer.

F. Complete an inspection report within 24 hours of an inspection. Each inspection report shall be signed and identify corrective actions. Document that corrective actions are performed within 7 days of identification. Keep a copy of all inspection reports at the Site or at an easily accessible location.

G. Unless otherwise specified, remove deposits before the depth of accumulated sediment and debris reaches approximately height of BMP. Dispose of debris or contaminated sediment at approved locations. Clean sediments may be stabilized onsite using BMPs as approved by Engineer.
H. Sediment Fence: Remove trapped sediment before it reaches one-third of the above ground fence height and before fence removal.

I. Other Sediment Barriers (such as biobags): Remove sediment before it reaches 2 inches depth above ground height and before BMP removal.

J. Catch Basins: Clean before retention capacity has been reduced by 50 percent.

K. Sediment Basins and Sediment Traps: Remove trapped sediments before design capacity has been reduced by 50 percent and at completion of Project.

L. Initiate repair or replacement of damaged erosion and sediment control BMPs immediately, and work completed by end of next work day. Significant replacement or repair must be completed within 7 days, unless infeasible.

M. Within 24 hours, remediate any significant sediment that has left construction site. Investigate cause of the sediment release and implement steps to prevent a recurrence of discharge within same 24 hours. Perform in-stream cleanup of sediment according to applicable regulations.

N. At end of each work day, stabilize or cover soil stockpiles or implement other BMPs to prevent discharges to surface waters or conveyance systems leading to surface waters.

O. Temporarily stabilize soils at end of shift before holidays and weekends, if needed. Ensure soils are stable during rain events at all times of year.

P. Initiate stabilization by no later than end of next work day after construction work in an area has stopped permanently or temporarily.

Q. Within 14 days of initiating stabilization or as specified in permit, either seed or plant stabilized area (see Section 32 92 19, Hydroseeding Lawn Areas) or apply nonvegetative measures and cover all areas of exposed soil. Seed dry areas as soon as Site conditions allow. Ensure that vegetation covers at least 70 percent of stabilized area. In areas where Contractor’s activities have compromised erosion control functions of existing grasses, overseed existing grass. Non-vegetative measures may include blown straw and a tackifier, loose straw, or an adequate covering of compost mulch. Complete initial stabilization within 7 days if storm water discharges to surface waters impaired for sediment or nutrients, or high quality waters.

R. Provide permanent erosion control measures on all exposed areas. Do not remove temporary sediment control practices until permanent vegetation or other cover of exposed areas is established. However, do remove all temporary erosion control measures as exposed areas become stabilized, unless doing so conflicts with local requirements. Properly dispose of construction materials and waste, including sediment retained by temporary BMPs.
3.04 EMERGENCY MATERIALS

A. Provide, stockpile, and protect the following emergency erosion and sediment control materials on the Project Site for unknown weather or erosion conditions. Emergency materials are in addition to other erosion control materials required to implement and maintain the TESC Plan. Replenish emergency materials as they are used. Remove all unused emergency materials from the Project Site at completion of the Project.

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>Silt (sediment) fence</td>
<td>200 ft</td>
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<tr>
<td>Plastic sheeting</td>
<td>1,000 sq. ft.</td>
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<tr>
<td>Rope</td>
<td>1,000 ft</td>
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<tr>
<td>Sand bags (empty, to be filled as needed)</td>
<td>50</td>
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<tr>
<td>Biofilter bags (with stakes)</td>
<td>10</td>
</tr>
<tr>
<td>Inflatable pipe plugs</td>
<td>One for each size of pipe</td>
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<tr>
<td>Water pump and hose</td>
<td>One</td>
</tr>
<tr>
<td>Wattles</td>
<td>200 ft</td>
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</table>

3.05 REMOVAL

A. When Engineer determines that an erosion control BMP is no longer required, remove BMP and all associated hardware from the Project limits. When materials are biodegradable, Engineer may approve leaving temporary BMP in place.

B. Permanently stabilize all bare and disturbed soil after removal of erosion and sediment control BMPs. Dress sediment deposits remaining after BMPs have been removed to conform to existing grade. Prepare and seed graded area. If installation and use of erosion control BMPs have compacted or otherwise rendered soil inhospitable to plant growth, such as construction entrances, take measures to rehabilitate soil to facilitate plant growth. This may include, but is not limited to, ripping the soil, incorporating soil amendments, or seeding with specified seed.

END OF SECTION
DIVISION 01—GENERAL REQUIREMENTS
Section 01 70 00—Execution and Closeout Requirements

PART 1 — GENERAL

1.01 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract, including the Standard Specifications and General Conditions, apply to this work as if specified in this section. Work related to this section is described throughout the Specifications.

1.02 TIMING

A. Prior to requesting final inspection, the Contractor shall assure itself that the project is complete in all aspects.

PART 2 — PRODUCTS

2.01 WARRANTY

A. The Contractor shall promptly (within 48 hours) repair or replace all defective or damaged items delivered under the Contract. The Contractor shall haul away all defective or damaged items prior to Substantial Completion.

B. In the event of equipment failure, during such time, or in such a location that immediate repairs are mandatory, the Contractor shall respond promptly, irrespective of time. If the Contractor is not available, the Owner will effect repairs. The Contractor shall then reimburse the Owner for parts and labor necessary to correct deficiencies, as defined within the warranty clause and time.

2.02 OPERATION AND MAINTENANCE MANUALS

A. The following information (minimum of three copies) shall be furnished for all items of equipment on the Project requiring operational and/or maintenance procedures and for any additional items indicated by the Owner:

1. Lubrication Information: This shall consist of the manufacturer’s recommendations regarding the lubricants to be used and the lubrication schedule to be followed.

2. Control Diagrams: Diagrams shall show internal and connection wiring and as-built wiring diagrams (where applicable).

3. Start-up Procedures: These instructions consist of equipment manufacturer’s recommendations for installation, adjustment, calibration, and troubleshooting.

4. Operating Procedures: These instructions consist of the equipment manufacturer’s recommended step-by-step procedures for starting,
operating, stopping the equipment under specified modes of operation, and for long-term shut-down (moth-balling).

5. Preventative Maintenance Procedures: These instructions consist of the equipment manufacturer’s recommended steps and schedules for maintaining the equipment.

6. Overhaul Instructions: These instructions consist of the manufacturer’s directions for the disassembly, repair, and reassembly of the equipment and any safety precautions that must be observed while performing the work.

7. Parts List: This list consists of the generic title and identification number of each component part of the equipment. This list shall include weights of individual components of each item of equipment weighing more than 100 pounds.

8. Spare Parts List: This list consists of the manufacturer’s recommendations of number of parts that should be stored by the Owner and any special storage precautions that may be required.

9. Exploded View: Exploded or cut views of equipment shall be provided if available as a standard item of the manufacturer’s information. When exploded or cut views are not available, plan and section views shall be provided with detailed callouts.

10. Specific Information: Where items of information not included in the above list are required, they will be provided as described in the specifications for the equipment.

11. Complete identification, including model and serial numbers.

12. Submittal information, as specified in Section 01 33 00, Submittal Procedures.

13. Warranty Information: This information consists of the name, address, and telephone number of the manufacturer’s representative to be contacted for warranty, parts, or service information.

14. Maintenance information summaries shall be prepared on 8-1/2-inch by 11-inch paper and digital version (PDF format) on CD-ROM and shall contain the following information compiled from manufacturer’s recommendations in the order shown.

   a) Description or name of item of equipment

   b) Manufacturer
c) Name, address, and telephone number of local manufacturer’s representative

d) Serial number (where applicable)

e) Equipment nameplate data

f) Recommended maintenance procedures:
   1) Description of procedures
   2) Lubricant(s) or other materials required (where applicable), including type of lubricant, lubricant manufacturer, and specific compound
   3) Additional information as required for proper maintenance

g) Maintenance schedule, broken down into:
   1) Daily
   2) Weekly
   3) Monthly
   4) Quarterly
   5) Semiannually
   6) Annually

h) Recommended spare parts (where applicable)

15. Provide video tapes, DVDs, and audiovisual training materials used in the manufacturer’s instruction program for the Owner.

16. All such information shall be organized by the Contractor into 3-inch, 3-post, expandable metal binders. The binders shall be sized for material approximately 8-1/2 by 11 inches, and the material in the binders shall not protrude beyond the covers. The binder(s) shall be divided with cover sheets for each major item of equipment. The cover sheets shall be typewritten to indicate the name, type of equipment, and location(s) within the Project where installed. A neatly typewritten index shall be provided. The number of copies of such binders to be submitted shall be equal to the total of the Contractor’s requirements plus five paper copies and an electronic copy (in PDF format) to be retained by the Owner.
17. All operation and maintenance information shall be comprehensive and detailed and shall contain information adequately covering all normal operation and maintenance procedures.

18. All information shall be specific for the items of equipment installed on the project. Material not directly applicable shall be removed, omitted, or clearly marked as inapplicable.

19. Lubricants shall be described in detail, including type, recommended manufacturer, and manufacturer’s specific compound to be used.

20. If manufacturer’s standard brochures and manuals are used to describe operating and maintenance procedures, such brochures and manuals shall be modified to reflect only the model or series of equipment used on this project.

21. Extraneous material shall be crossed out neatly or otherwise annotated or eliminated. It shall be the responsibility of the Contractor to ensure that all operation and maintenance materials are obtained. Material submitted must meet the approval of the Owner before Final Completion is issued.

PART 3 – EXECUTION

3.01 FINAL DOCUMENTS

A. Project Record Drawings

1. See Section 00 72 00, General Conditions, Article 1.05, for Project Record Drawings requirements.

B. Final Survey

1. See Section 01 71 23, Field Engineering, for Final Survey requirements. The Final Survey shall be completed and submitted to the Owner within 30 days of Substantial Completion. The Final Survey must be complete and accepted by the Owner before Final Completion is issued.

C. The following Certificates shall be submitted by the Contractor prior to Final Completion:

1. Certificates of Conformance

   a) Notice of Termination (NOT) Construction Stormwater General Permit: (Confirmation of Termination request acceptance by Ecology).
3.02 CLEAN-UP

A. Final clean-up and clean-up during the course of the work is defined in the Standard Specifications and the General Conditions. Those paragraphs are supplemented to provide the following:

1. Definition: Except as otherwise specifically provided, “clean” (for the purpose of this Article) shall be interpreted as the level of cleanliness generally provided by commercial building maintenance subcontractors using commercial-quality building maintenance equipment and materials.

2. General: Prior to completion of the Work, remove from the job site all tools, surplus materials, equipment, scrap, debris, and waste. Conduct final progress cleaning, as described above.

3. Site: Unless otherwise specifically directed by the Owner, hose down all paved areas on the site, all public sidewalks, and catch basins on adjoining streets. Completely remove all resultant debris.

4. Structure:
   a) Visually inspect all exterior surfaces and remove all traces of soil, waste material, smudges, and other foreign matter. Remove all traces of splashed materials from adjacent surfaces. If necessary to achieve a uniform degree of exterior cleanliness, hose down the exterior or the structure. In the event of stubborn stains not removable with water, the Owner may require light sandblasting or other cleaning, at no additional cost to the Owner.

B. Timing: Schedule final cleaning as approved by the Owner to enable the Owner to occupy a completely clean project.

END OF SECTION
PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. This section describes the general requirements for site surveying and grade control, including pre-construction and post-construction topographic and bathymetric surveys, utilities and Record Drawings, construction progress surveying, record keeping, and submittals. In addition, establish and maintain design lines and grades shown on the Contract Drawings.

1.02 RELATED SECTIONS

A. Section 01 33 00 – Submittal Procedures

B. Section 01 70 00 – Execution and Closeout Requirements

1.03 QUALITY ASSURANCE

A. It is the responsibility of the Contractor to schedule Contractor's survey and to verify that it has met the Contract requirements, prior to proceeding to the next sequence of work. The Owner shall review and approve each survey or survey increment prior to the Contractor proceeding to the next phase of work in that area. The Contractor shall allow up to 3 business days for Owner review. Surveys of the Project shall be surveyed using the same vertical datum and horizontal coordinate system as the Contract Drawings. Surveys may need to be completed in small increments to document work progress and sequential excavation and backfill. Survey requirements include:

1. Pre-Construction Surveying: The Contractor shall establish local horizontal and vertical control on the project site. Local control shall be established using local survey markers. The Contractor shall ensure closure of all survey loops.

2. Post-Construction Surveying: The Contractor shall perform a post-construction bathymetric and topographic survey of the entire project site. This survey shall be incorporated into the As-Built Drawings.

B. All surveys for verification of pay quantities shall be performed and stamped by an independent licensed surveyor acceptable to the Owner.

C. The surveyor shall have insurance that has limits that meet or exceed the requirements of the Standard Specifications.

D. The Owner reserves the right to retain an independent surveyor to periodically check the Contractor's survey. Surveying performed by the Owner will be at no cost to the Contractor.
1.04 SUBMITTALS

A. General submittals required in accordance with this section include:

1. Name, address, telephone number, and statement of qualifications of the Professional Land Surveyor before starting survey work. This surveyor shall be responsible for stamping and signing all work, as noted below.

2. On request, field notes and documentation verifying accuracy of survey work, to include cross section of interim surveys by the Contractor.

3. Project survey data shall be stored as electronic files on a compact disc formatted as a) DWG; b) TIF; c) PDF and printed to a mylar sheet. At a minimum, data for each survey point shall include a sequential reference number, the elevation, and appropriate northing and easting coordinates.

4. Field notes, Drawings, quantity computations, and point data for each survey shall be submitted to the Project Engineer for reference:

City of Kirkland, Public Works Department, Attention: Brian Baker or designee, 123 5th Avenue, Kirkland, WA 98033.

5. Progress surveys shall be conducted to monitor the accuracy of the work being performed. Progress surveys shall be submitted prior to submittal of progress payment requests.

6. Closure calculation for horizontal and vertical control. Submit prior to commencing pre-construction survey work.

B. As-Built Drawings:

1. Upon completion of all activities, the Contractor shall prepare As-Built drawings for each survey described in this section. The post-construction As-Built drawing shall locate all features as constructed and all real estate/property boundaries and public land survey section corners and lines. The As-Built drawings shall be produced full size (ANSI D), on bond paper, and signed by the surveyor and Contractor. A paper copy of half-size As-Built drawings shall also be created by the Contractor. Contractor to submit As-Built drawings in paper and electronic formats.

2. Contractor electronic files for the As-Built drawings shall be fully editable so as to allow future changes by the Owner. The Contractor shall submit the electronic version of the As-Built drawings with hard copies, as specified.
1.05 SURVEY VERTICAL DATUM

A. Project survey elevations shall reference the NAVD88 vertical datum.

B. The project benchmark and corresponding elevations are localized to a line between the monument at the intersection of 120th Ave NE & Totem Lake Blvd and 124th Ave NE & Totem Lake Blvd.

1.06 SURVEY HORIZONTAL DATUM

A. Project horizontal datum based on Washington State Plane Coordinate System, North Zone, NAD 83/91.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 GENERAL

A. At the Pre-construction Meeting, the Surveyor shall meet with the Owner to discuss the survey proceedings, methods, and equipment to be employed for the Contractor’s surveys, and the survey submittal schedules.

3.02 SURVEY REFERENCE POINTS

A. Locate and establish survey control points and monuments for the layout for the project as required. Control points and monuments shall be established for demolition and clearing limits, erosion and sedimentation control, grading, concrete paths, curbs, and walls, storm sewer utilities, pathways, and any other items shown in the Contract Drawings, as needed. Promptly notify the Owner in writing of any discrepancies discovered.

B. Provide a control traverse in the horizontal and vertical datum established for the project.

C. Mark and protect survey control points prior to starting site work. Make no change without prior written notice to the Owner.

D. Promptly report to the Owner the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

E. Prepare and submit an application to the Washington State Department of Natural Resources for a Permit to Remove Survey Monuments for those monuments anticipated to be removed or disturbed during construction.
F. Replace or relocate dislocated survey control points, or establish new control points, based on original survey control, at no added cost to the Owner.

3.03 PROCEDURES

A. Contractor survey procedures (positioning modes, equipment calibration, and data reduction, adjustment, processing, and plotting) shall conform to industry standards.

B. Failure to perform and process such surveys in accordance with recognized standards will result in a rejection and nonpayment for work performed.

C. All systems, methods, and procedures shall be described in the Demolition and Disposal Plan and be subject to the Owner's approval.

3.04 UNDERGROUND UTILITIES

A. The Contractor shall be responsible for locating all underground utilities and notifying all underground utility companies prior to commencing work.

B. The Contractor shall be responsible for providing As-Built Drawings showing accurate locations of utilities installed or relocated as part of the Work.

C. Prior to placing utility backfill, the Contractor shall survey the utility to accurately record the installed depth, alignment, and location of bends, valves, manholes and all other items or conditions to provide an accurate record of all below grade utilities. Contractor shall notify the Owner 72 hours before any utility backfill and surveys. Provide survey data as described in Article 1.04.

3.05 NEW CONSTRUCTION

A. Contractor shall develop and make all detailed surveys necessary for construction of new work, including setting bench marks for location of working points, verification of existing structures and critical topographic features, cut sheets, slope stakes and other surveys as required to ensure the work is installed in accordance with the Contract Documents. Contractor is responsible for notifying the Owner of any discrepancies found as a result of the detailed survey.

3.06 SLOPE PROTECTION

A. Contractor shall develop and make all detailed surveys necessary for construction of rock slope protection, including pre- and post-placement surveys of the keyway and slope to verify that the slope protection materials have been placed in accordance with the lines and grades shown in the Contract Drawings.

END OF SECTION
PART 1 – GENERAL

1.01 SUMMARY

A. This section includes administrative and procedural requirements for cutting and patching.

1.02 RELATED SECTIONS:

A. Section 01 31 00, Project Management and Coordination, for procedures for coordinating cutting and patching with other construction activities.

B. Refer to other sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1. Requirements of Division 31 and 33 sections apply to cutting, patching, and restoration of areas of the site outside the boundaries of unlimited Contractor access. Cutting, patching, and restoration of such areas must be completed according to the requirements of the Owner’s schedule for use of limited access areas, and so as to avoid creating safety hazards or inconvenience for the public using such areas of limited Contractor access.

1.03 SUBMITTALS

A. Cutting and Patching Proposal: When Owner’s approval of cutting and patching procedures is required, submit a proposal for Owner’s review describing procedures well in advance of the time cutting and patching will be performed. Request approval to proceed. Include the following information, as applicable, in the proposal:

1. Describe the extent of cutting and patching required. Show how it will be performed and indicate why it cannot be avoided.

2. Describe anticipated results in terms of changes to existing construction. Include changes to structural elements and operating components as well as changes in the Work’s appearance and other significant visual elements.

3. List products to be used and firms or entities that will perform work.

4. Indicate dates when cutting and patching will be performed.

5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted.
6. Where cutting and patching involves adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with the original structure.

7. Approval by the Owner to proceed with cutting and patching does not waive the Owner’s right to later require complete removal and replacement of the unsatisfactory work.

1.04 QUALITY ASSURANCE

A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would change their load-carrying capacity or load-deflection ratio.

1. Obtain approval of the cutting and patching proposal before cutting and patching the following structural elements:

   a) Foundation construction
   b) Bearing and retaining walls
   c) Structural concrete
   d) Structural steel
   e) Lintels
   f) Timber and primary wood framing
   g) Structural decking
   h) Stair systems
   i) Miscellaneous structural metals
   j) Equipment supports
   k) Piping, ductwork, vessels, and equipment

B. Operational Limitations: Do not cut and patch operating elements or related components in a manner that would result in reducing their capacity to perform as intended. Do not cut and patch operating elements or related components in a manner that would result in increased maintenance or decreased operational life or safety.

1. Obtain approval of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:

   a) Primary operational systems and equipment
b) Air or smoke barriers  

c) Water, moisture, or vapor barriers  

d) Membranes and flashings  

e) Fire protection systems  

f) Noise and vibration control elements and systems  

g) Control systems  

h) Communication systems  

i) Conveying systems  

j) Electrical wiring systems  

C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in the Owner’s opinion, reduce the Work’s aesthetic qualities. Do not cut and patch construction in a manner that would result in visual evidence of cutting and patching. Remove and replace any construction cut and patched in a visually unsatisfactory manner, as determined by the Owner.

1.05 WARRANTY

A. Existing Warranties: Replace, patch, and repair material and surfaces cut or damaged by methods and with materials in such a manner as to maintain in effect any warranties required or existing.

PART 2 – PRODUCTS

2.01 MATERIALS – GENERAL

A. Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible if identical materials are unavailable or cannot be used. Use materials whose installed performance will equal or surpass that of existing materials.

PART 3 – EXECUTION

3.01 INSPECTION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed before cutting. If unsafe or unsatisfactory conditions are encountered, take corrective action before proceeding.
1. Before proceeding, meet at the project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

3.02 PREPARATION

A. Temporary Support: Provide temporary support of work to be cut.

B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Work that might be exposed during cutting and patching operations.

C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Avoid cutting existing pipe, conduit, or ductwork serving the project but schedule to be removed or relocated until provisions have been made to bypass them.

3.03 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.

1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.

B. Cutting: Cut existing construction using methods least likely to damage elements retained or adjoining construction. Where possible, review proposed procedures with the original Installer; comply with the original Installer’s recommendations.

1. In general, where cutting, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.

2. To avoid marring existing finished surfaces, but or drill from the exposed or finished side into concealed surfaces.

3. Cut through concrete and masonry using a cutting machine, such as a carborundum saw or a diamond-core drill.

4. Comply with requirements of applicable Division 31 and 33 sections where cutting and patching requires excavating and backfilling.
5. Where services are required to be removed, relocated, or abandoned, bypass utility services, such as pipe or conduit, before cutting. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug-and-seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after bypassing and cutting.

C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.

1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.

2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

3. Where removal of walls and partitions extends one finished area into another, patch and repair floor, wall, and ceiling surfaces in the new space. Provide an even surface of uniform color and appearance. Remove existing ceiling system or finish, and floor and wall coverings, and replace with new materials, if necessary, to achieve uniform color and appearance.

   a) Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing the patch after the area has received primer and second coat.

4. Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

3.04 CLEANING

A. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar items. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

END OF SECTION
SECTION 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.01 WASTE MANAGEMENT REQUIREMENTS

A. Owner requires that this project generate the least amount of trash and waste possible, including for the demolition of the existing building and site elements.

B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.

C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.

D. Required Recycling, Salvage, and Reuse: The following may not be disposed of in landfills or by incineration:
   1. Aluminum and plastic beverage containers.
   2. Corrugated cardboard.
   3. Wood pallets.
   4. Clean dimensional wood.
   5. Land clearing debris, including brush, branches, logs, and stumps; see Section 31 10 00 - Site Clearing for use options.
   6. Asphalt paving: May be recycled into paving for project.
   7. Metals, including packaging banding, metal studs, sheet metal, structural steel, piping, reinforcing bars, door frames, and other items made of steel, iron, galvanized steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.
   8. Paint.
   9. Rigid foam insulation.
   10. Windows, doors, and door hardware.
   11. Plumbing fixtures.
   12. Fluorescent lamps (light bulbs).
   13. Acoustical ceiling tile and panels.

E. Contractor shall submit periodic Waste Disposal Reports; all landfill disposal, recycling, salvage, and reuse must be reported regardless of to whom the cost or savings accrues; use the same units of measure on all reports.

F. Contractor shall develop and follow a Waste Management Plan designed to implement these requirements.

G. The following sources may be useful in developing the Waste Management Plan:

H. Methods of trash/waste disposal that are not acceptable are:
   1. Burning on the project site.
   2. Burying on the project site.
3. Dumping or burying on other property, public or private.
4. Other illegal dumping or burying.

I. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

1.02 RELATED REQUIREMENTS
A. Section 01 14 00 - Work Restrictions
B. Section 01 31 00 - Project Management and Coordination: Additional requirements for project meetings, reports, submittal procedures, and project documentation.
C. Section 01 32 00 - Construction Progress Documentation: Additional requirements for Waste Disposal Reports
D. Section 01 50 00 - Temporary Facilities and Controls: Additional requirements related to trash/waste collection and removal facilities and services.
E. Section 01 70 00 - Execution and Closeout Requirements: Trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.
F. Section 31 10 00 - Site Clearing: Handling and disposal of land clearing debris.

1.03 DEFINITIONS
A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.
B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.
C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.
D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.
E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.
F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.
G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.
H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

I. Return: To give back reusable items or unused products to vendors for credit.

J. Reuse: To reuse a construction waste material in some manner on the project site.

K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.

L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.

M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.

N. Toxic: Poisonous to humans either immediately or after a long period of exposure.

O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.

P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.04 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Submit Waste Management Plan within 10 calendar days after receipt of Notice of Award of Bid, or prior to any trash or waste removal, whichever occurs sooner; submit projection of all trash and waste that will require disposal and alternatives to landfilling.

C. Waste Management Plan: Include the following information:
   1. Analysis of the trash and waste projected to be generated during the entire project construction cycle, including types and quantities.
   2. Landfill Options: The name, address, and telephone number of the landfill(s) where trash/waste will be disposed of, the applicable landfill tipping fee(s), and the projected cost of disposing of all project trash/waste in the landfill(s).
   3. Landfill Alternatives: List all waste materials that will be diverted from landfills by reuse, salvage, or recycling.
   4. Meetings: Describe regular meetings to be held to address waste prevention, reduction, recycling, salvage, reuse, and disposal.
   5. Materials Handling Procedures: Describe the means by which materials to be diverted from landfills will be protected from contamination and prepared for acceptance by designated facilities; include separation procedures for recyclables, storage, and packaging.
   6. Transportation: Identify the destination and means of transportation of materials to be recycled; i.e. whether materials will be site-separated and self-hauled to
designated centers, or whether mixed materials will be collected by a waste hauler.

D. Waste Disposal Reports: Submit at specified intervals, with details of quantities of trash and waste, means of disposal or reuse, and costs; show both totals to date and since last report.

1. Submit updated Report with each Application for Progress Payment; failure to submit Report will delay payment.
2. Submit Report on a form acceptable to Owner.
3. Landfill Disposal: Include the following information:
   a. Identification of material.
   b. Amount, in tons or cubic yards, of trash/waste material from the project disposed of in landfills.
   c. State the identity of landfills, total amount of tipping fees paid to landfill, and total disposal cost.
   d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
4. Recycled and Salvaged Materials: Include the following information for each:
   a. Identification of material, including those retrieved by installer for use on other projects.
   b. Amount, in tons or cubic yards, date removed from the project site, and receiving party.
   c. Transportation cost, amount paid or received for the material, and the net total cost or savings of salvage or recycling each material.
   d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
   e. Certification by receiving party that materials will not be disposed of in landfills or by incineration.
5. Material Reused on Project: Include the following information for each:
   a. Identification of material and how it was used in the project.
   b. Amount, in tons or cubic yards.
   c. Include weight tickets as evidence of quantity.
6. Other Disposal Methods: Include information similar to that described above, as appropriate to disposal method.

PART 2 NOT USED

PART 3 EXECUTION

3.01 WASTE MANAGEMENT PROCEDURES

A. See Section 01 50 00 for additional requirements related to trash/waste collection and removal facilities and services.
B. See Section 01 70 00 for trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

3.02 WASTE MANAGEMENT PLAN IMPLEMENTATION

A. Manager: Designate an on-site person or persons responsible for instructing workers and overseeing and documenting results of the Waste Management Plan.

B. Communication: Distribute copies of the Waste Management Plan to job site foreman, each subcontractor, Owner, and Architect.

C. Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.

D. Meetings: Discuss trash/waste management goals and issues at project meetings.
   1. Pre-bid meeting.
   2. Pre-construction meeting.
   3. Regular job-site meetings.

E. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers.
   1. Provide containers as required.
   2. Provide adequate space for pick-up and delivery and convenience to subcontractors.
   3. Keep recycling and trash/waste bin areas neat and clean and clearly marked in order to avoid contamination of materials.

F. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations.

G. Recycling: Separate, store, protect, and handle at the site identified recyclable waste products in order to prevent contamination of materials and to maximize recyclability of identified materials. Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.

H. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.

I. Salvage: Set aside, sort, and protect products to be salvaged for reuse off-site.

END OF SECTION
DIVISION 02

EXISTING CONDITIONS
PART 1 - GENERAL

1.01 SUMMARY

A. This Section specifies procedures for screening, handling, stockpiling, sampling, analysis, and disposing of contaminated soils that will be encountered during this Work. Excavated Soil will include Petroleum-Contaminated Soil, soils that have been pre-identified as Contaminated Soil and Suspect Soil.

1.02 QUALITY ASSURANCE

A. Referenced Standards: This Section incorporates by reference the latest revision of the following documents. These references are part of this Section as specified and modified. In case of conflict between the requirements of this Section and those of the listed documents, the requirements of this Section shall prevail.

<table>
<thead>
<tr>
<th>Reference</th>
<th>Title</th>
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<tbody>
<tr>
<td>29 CFR 1910</td>
<td>Occupational Safety and Health Standards (OSHA)</td>
</tr>
<tr>
<td>Chapter 173-50 WAC</td>
<td>Accreditation of Environmental Laboratories</td>
</tr>
<tr>
<td>Chapter 173-303 WAC</td>
<td>Dangerous Waste Regulations</td>
</tr>
<tr>
<td>Chapter 296-62 WAC</td>
<td>General Occupational Health Standards</td>
</tr>
<tr>
<td>Chapter 173-340 WAC</td>
<td>Model Toxics Control Act (MTCA) Cleanup Regulations</td>
</tr>
<tr>
<td>Chapter 173-350 WAC</td>
<td>Solid Waste Handling Standards</td>
</tr>
<tr>
<td>Ecology Pub. No. 10-09-057</td>
<td>Guidance for Remediation of Petroleum Contaminated Sites</td>
</tr>
<tr>
<td>Ecology Pub. 94-115</td>
<td>Natural Background Soil Metals Concentrations in Washington State</td>
</tr>
<tr>
<td>49 CFR 171-178</td>
<td>Department of Transportation (DOT)</td>
</tr>
</tbody>
</table>

B. Qualifications:

1. Personnel assigned for the purpose of performing or supervising contaminated soil work shall have received appropriate safety training in compliance with OSHA standard 29 CFR 1910.120 and 29 CFR 1910.134 and Chapter 296-62 WAC.
   a. Minimum of 40 hours of HAZWOPER training.
   b. 24 hours of “on the job” training.
   c. Eight hours annual refresher training and annual medical monitoring by an occupational physician is required.
   d. Minimum of eight hours additional specialized training in managing contaminated soil operations is required for supervisory personnel.

2. Personnel taking and managing samples shall have the necessary training and have a minimum of 1-year experience in environmental sampling.

3. Analytical laboratory: accredited in accordance with Chapter 173-050 WAC.
4. Documentation of experience:
   a. Certifications, permits and/or licenses as required by Federal, State or local authorities and their expiration date.
   b. Waste Transporter: Documentation of licensing and equipment capabilities with trucks equipped with containment and cover systems to transport solid and liquid waste materials on public streets and roads without spillage.
      1) Offsite Disposal, Re-use and/or Treatment Facilities:
         Documentation of permitting, disposal requirements, and acceptance of waste.

1.03 SUBMITTALS

A. Procedures: Section 01 33 00.
B. Qualifications.
C. Contaminated Soil Handling (CSH) Plan.
D. Certification of the selected disposal site(s) prior to any offsite transport of Excavated Soil.
   1. Permits and acceptance requirements for proposed soil and debris disposal and/or treatment facilities, including expiration dates.
   2. Offsite Waste Disposal, Re-use and/or Treatment Facility Qualification - Contractor shall identify transportation and disposal facilities for County approval. Once Contractor has submitted the information on transporters and the facilities, Contractor cannot deviate from the intended facilities submitted with their proposal without Project Representative’s prior approval.
E. Evidence that a state-licensed transporter shall be used.
   1. Permits and certification for nonhazardous waste haulers, including documentation indicating that the selected transporter has appropriate licenses as a commercial transporter of non-hazardous waste including valid U.S. DOT numbers, names and addresses. Permits and certification documentation must include expiration dates. Transporter will be in satisfactory standing with DOT.
   2. Permits and certification for Dangerous Waste haulers, including documentation indicating that the selected transporter has appropriate licenses as a commercial transporter of Dangerous Waste including valid U.S. DOT numbers, names and addresses. Permits and certification documentation must include expiration dates. Transporter will be in satisfactory standing with DOT.
DIVISION 02—EXISTING CONDITIONS
Section 02 06 00—Contaminated Soil Handling and Disposal

F. Documentation of soil disposal at an offsite permitted facility, Petroleum-Contaminated Soil reuse site and/or treatment facility.

G. Daily inventory of stockpiles.

1.04 DEFINITIONS

A. Contaminated Soil: Soil containing contaminant concentrations in excess of MTCA, Dangerous Waste regulations, Solid Waste Handling regulations, natural background as defined by Ecology Publication No. 94-115 or other regulatory criteria.

B. Excavated Soil: Soil removed for this Work.

C. Petroleum-Contaminated Soil – Excavated Soil which has detections of petroleum hydrocarbon compounds below MTCA cleanup levels but which are considered to contain potentially “harmful substances” by Ecology in Chapter 173-303-WAC. Petroleum-contaminated soil can be disposed offsite at a permitted facility or reused per Ecology guidance for Class 1, Class 2, Class 3 or Class 4 re-use categories (Ecology Publication No 10-09-057, June 2016, Guidance for Remediation of Petroleum Contaminated Sites).

D. Potholing Waste: Soil generated during potholing activities including utility location and extent of contaminated soil areas.

E. Suspect Material: Material in the excavation which is potentially contaminated or impacted based on visual observation and odor, and/or field instrument screening; includes soil or foreign material found with the excavation limits.

1.05 GENERAL REQUIREMENTS

A. During construction, Contaminated Soil will be encountered. Work requires management and disposal of Contaminated Soil generated to complete the Work.

B. Contractor shall conduct work in accordance with the CSH Plan and applicable federal, state, and local statutes, regulations, and standards.

C. During excavation work, have onsite personnel trained in identifying potential soil contamination using visual and olfactory observations, and field instrumentation.

D. Contractor shall notify the Project Representative immediately if Suspect Materials (i.e. soils displaying odors, staining, or foreign materials) are discovered which had not been previously identified or if other discrepancies between data provided and actual field conditions are discovered.

1.06 CONTAMINATED SOIL HANDLING (CSH) PLAN

A. The CSH Plan is a detailed plan prepared by the Contractor outlining the procedures for excavation, screening, identification, stockpiling, sampling, testing, and disposal of all...
DIVISION 02—EXISTING CONDITIONS
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Excavated Soil for this Work including but not limited to Petroleum-Contaminated Soil, Contaminated Soil, and Suspect Material.

B. At a minimum, the CSH Plan shall include:

1. Schedule of activities.
2. Methods and procedures of excavation and equipment and personnel to be used.
3. Shoring or side-wall slopes proposed.
4. Generation and Management of Excavated Soil including accumulation and staging and storage methods, procedures, and proposed locations and sizes for stockpiling Contaminated Soil and Suspect Material.
5. Haul routes.
6. Methods, procedures, and proposed documentation for the transportation and disposal of Excavated Soil including Petroleum-Contaminated Soil, Contaminated Soil and Suspect Material including the identification of offsite permitted disposal facilities and licensed transporters.
7. Decontamination procedures.
8. Disposal facility, re-use facility and/or treatment facility acceptability determination procedures.

1.07 SITE CONDITIONS

A. Petroleum-Contaminated Soil and Contaminated Soil are present within the limits of the Work.

B. Data from environmental sampling and analysis completed for the project is included in the appendix.

1. Contaminated Soil has been identified in shallow fill soils underlying the former Yuppie Pawn building.

2. Additional Contaminated Soil or Suspect Material may be encountered during execution of this Contract during excavation.

3. Contractor is to confirm characterization for Excavated Soil generated and arrange for disposal or reuse per this Section. Areas of Contaminated Soil or Suspect Material are to be handled per this Section including segregation, stockpiling, testing and disposal. Other potentially hazardous chemicals may be present. Comply with all Federal, State and local regulations for worker protection and health and safety.
C. None of the Excavated Soil, including areas of known Contaminated Soil is expected to be designated as a state of Washington Dangerous Waste. If Contaminated Soil or Suspect Material designates as a Dangerous Waste, it will be removed from the stockpile and placed in containers and removed from the site for offsite disposal in accordance with this Section and Chapter 173-303 WAC.

PART 2 - PRODUCTS

2.01 STOCKPILE BOTTOM LINER AND COVER

A. Stockpile liner and cover material shall be 10mil, reinforced polyethylene, impermeable and resistant to long-term (two years) ultraviolet radiation, weathering, and degradation due to contact with Contaminated Soils. It shall be free from holes, oil, foreign matter, scathes, cracks, bubbles, undispersed raw materials, and blisters. Install in single thickness parallel to the direction of drainage. Maintain cover tightly in place by using sand bags on ropes with a maximum 10-foot grid spacing in all directions. Overlap seams at least 12 inches. The cover will be in place except while soil is actively being placed or removed.

2.02 STRAW BALES

A. Tied with twine, with no excessive quantities of mature seed of noxious weed or other plant species.

2.03 SAND BAGS

A. Close knit, sunlight-resistant nylon or equivalent bags filled with clean sand and tied or fastened closed; suitable for frequent handling and all-season use.

2.04 MATERIALS

A. Trucks: Solid bulk trucks (end dump, tandem) in good condition, clean and without leaks. Trucks shall have back up alarm, automatic tarps in good condition, and lined beds.

B. Drying agent: To meet industry standards and be used if necessary if excavated soils require solidification prior to placing in trucks.

C. Truck Liners: To meet industry standard specifications, as a minimum.

D. Tarping Station: To be used if required. Personnel may not climb on trucks for lining or tarping of rucks.

PART 3 - EXECUTION

3.01 CONTRACTOR’S RESPONSIBILITY
A. Personnel working with Petroleum-Contaminated Soil, Contaminated Soil, and Suspect Material shall have received training and have experience for the Work to be performed.

B. Identify areas and sizes for stockpiling based on the Contractor’s rate of production for the excavation and the turnaround time for sampling and testing.

C. Dispose of Excavated Soil. Follow protocols defined in this Section.
   1. Excavate and screen soil (visual, odor and field instrumentation).
   2. Stockpile Contaminated Soil and Suspect Material separately from remaining soil.
   3. Provide assistance to Project Representative for sample collection of Contaminated Soil and Suspect Material in accordance with this Section.
   4. Transport and dispose of soil in accordance with the requirements of this Section.

D. Manage stormwater and process water discharges in accordance with Section 01 57 13.

E. Comply with federal, state and local regulations in handling and transporting wastes and in performing the Work.

F. Prior to commencing removal operations, obtain applicable local, state and federal permits and licenses that directly impact Contractor’s ability to perform Work.

3.02 CITY’S RESPONSIBILITY

A. If unexpected or suspect soil contamination differing from that identified in Contract documents is discovered, the City will collect and analyze soil samples from Suspect Material stockpile and collect and analyze confirmation soil samples in the respective excavation areas:
   1. Project Representative will sample and test stockpiled soil to determine waste designation for disposal facility selection.
   2. Project Representative will complete the waste designation of Contaminated Soil and Suspect Material for disposal on the basis of testing results.
   3. The City will sign the waste profiles as generator or owner of the stockpiled soil, unless otherwise determined by the City.

B. If soils are found to be Dangerous Wastes, the City will be responsible for additional costs associated with testing and disposal.

C. Sampling, testing and analysis of Suspect Materials including soil identified as such.
3.03 SOIL FIELD SCREENING

A. Excavated Soil shall be screened by the Contractor for contamination in accordance with Ecology Pub. No. 10-09-057, Section 5.3 Field Screening.

3.04 STOCKPILING, SAMPLING, AND ANALYSIS

A. Contaminated Soil and Suspect Material shall be stockpiled separate from other soils to allow for testing, as needed.

B. Stockpiling:

1. General Requirements:
   a. Prevent intermixing of stockpiled materials with underlying soils.
   b. Prevent influx of rainwater.
   c. Prevent erosion of stockpiled materials.
   d. Apply Stormwater Best Management Practices (BMPs) as appropriate for stockpile construction and maintenance.
   e. Maintain daily inventory of stockpile areas and sizes and provide information to Project Representative as requested.

2. Construction:
   a. The stockpile shall be a contained system that may include ready-made structures or facilities to contain soil and liquids.
   b. Construct stockpiles with geomembrane bottom liner over prepared subgrade and bedding material as recommended by manufacturer.
   c. Provide retention berm around entire perimeter of stockpile consisting of hay bales or ecology blocks.
   d. Overlay retention berm with bottom liner and secure liner to outside of berm.
   e. Place stockpiled material on bottom liner within retention berm.
   f. Place geomembrane cover over stockpiled material overlapping retention berm.
   g. Adequately secure cover with sand bags, or equivalent, at not less than 10-foot intervals around entire perimeter of stockpile.

3. Operation and Maintenance:
   a. Maintain a separate stockpile for each day’s generation of suspect material.
b. Do not stockpile soils containing free flowing liquids.
c. Prevent intermixing of contaminated and clean soils and water.
d. Prevent damage to stockpile berms during in-loading and out-loading.
e. Prevent formation of rainwater ponding on the surface of the cover.
f. Collect and dispose of water that accumulates within bermed area.
g. Segregate suspect material for disposal according to analytical results from sampling.
h. Decontaminate excavation equipment after working with Contaminated Soil and Suspect Material.

C. Sampling by City:

1. Sampling of Contaminated Soil and Suspect Material stockpiles will be completed by Project Representative. Samples will be removed from site by Project Representative for analysis.

2. Contractor shall provide access and facilitate collection of samples throughout the stockpile areas and excavation areas for purposes of collecting waste characterization samples and soil confirmation samples, respectively.

D. Analysis by City:

1. General Requirements:

   a. Samples of stockpiled soil shall be analyzed for the following contaminants:

      1) Total Metals (MTCA 5 metals) by EPA Method 6010/7471
      2) Diesel-range extended total petroleum hydrocarbons (TPH-Dx) by NWTPH.
      3) Polynuclear Aromatic Hydrocarbons (PAHs) by EPA Method 8270
      4) Any additional analyses required by the Contractor-selected disposal facility and/or based on field observations.

   b. Samples shall be analyzed on 48-hour turn-around times or other time set by the Project Representative. The analytical results of the soil samples will be used to determine the waste designation of the soil (e.g., Contaminated Soil, Petroleum-Contaminated Soil).

2. Contractor will be provided analytical results and proposed waste designation(s) by the Project.
E. Representative for disposal off Site by the Contractor of Excavated Soil.

F. Contractor is responsible for selecting an appropriate permitted facility and obtaining acceptance from that facility.

1. Contractor will provide acceptance paperwork to Project Representative PRIOR to any offsite shipments of soil from the site.

2. The Contractor will prepare all disposal paperwork, including waste profile forms, applicable example manifests and labels. This paperwork will be to the Project Representative a minimum of one (1) week prior to disposal for review and obtaining generator signature. Once the example manifest has been approved, Contractor will provide pre-printed manifests for transportation and disposal of all waste.

3. Based on existing or supplemental laboratory analytical results, the City will propose the Contractor to dispose of Excavated Soils at the appropriate approved disposal facility. The City will provide direction within 24 hours of receipt of analytical results.

3.05 DISPOSITION OF EXCAVATED SOILS

A. Provide labor, equipment, and materials to solidify or process Excavated Soils as necessary to meet minimum requirements for offsite transport and disposal. Contractor will be prepared to solidify soil as needed for load out and transportation of Excavated Soil. No soil will be loaded or shipped with free liquids nor arrive at the disposal facility with free liquids.

B. Offsite Waste Disposal, Re-use and/or Treatment Facility Qualification - Contractor shall identify transportation and disposal facilities and provide information in the bid proposal. This information shall be provided to Project Representative for their approval of the facilities upon receiving the proposals. Once Contractor has submitted the information on transporters and the facilities, Subcontractor cannot deviate from the intended facilities submitted with their proposal, without Project Representative’s prior approval.

C. Offsite Disposal of Excavated Soil including Contaminated Soil and Suspect Material:

1. Provide transportation in accordance with Department of Transportation (DOT) Hazardous Material Regulations and Federal, State, and local requirements, including obtaining necessary permits, licenses, and approvals.

2. Dispose at an approved facility (e.g., RCRA Subtitle D landfill) in accordance with applicable laws and regulations and conditions specified herein.
3. Disposal Records:
   
a. Records of waste determinations, including appropriate results of analyses performed, substances and sample location, the time of collection, and other pertinent data in accordance with Chapter 173-303-210 WAC and 40 CFR 262 Subpart D, and other applicable regulations.
   
b. Transportation, disposal methods and dates, the quantities of waste, the names and addresses of each transporter and the disposal or reclamation facility, as well as copies of the following documents:
   1) Manifests.
   2) Waste analyses or waste profile sheets.
   3) Certifications of final disposal signed by the responsible disposal facility official.
   4) Records shall be provided in accordance with applicable Federal, State, and local regulations. The records shall become the property of the County.

D. Transportation:

1. Provide lined vehicles and/or other measures necessary to prevent spillage of waste materials, mud, or other debris on local streets or roads.

2. The Contractor will set-up a tarping station at the site where the drivers can safely line, untarp and tarp truck beds without climbing on the truck (safety hazard). Individuals will not be allowed to climb on trucks to cover load. Means and methods of the tarping station will be detailed in the Contaminated Soil Handling Plan.

3. Drivers will remain in their trucks at all times while onsite. The Contractor will provide personnel to tarp/untarp the trucks while on site so that the Driver does not need to leave the vehicle.

4. Inspect and document vehicles and containers for proper operation and covering.

5. Inspect vehicles and containers for proper markings, manifests, and other requirements for waste shipment.

6. Perform and document decontamination procedures prior to leaving Site.

7. Obtain and submit receipts of confirmation from disposal or treatment facilities that wastes were accepted for disposal or treatment, including weight tickets or other confirmation of quantities received.
8. The Transportation Subcontractor will dispatch bulk truck transportation in good condition (clean, no leaks, etc.) to the project site appropriate for transportation of nonhazardous waste. Soil trucks shall have liners, backup alarm, and automatic tarps which will also be in good condition (no tears/holes).

9. The Project Representative reserves the right to inspect and reject any container arriving on-site or leaving the site. The Transportation Subcontractor will incur all costs associated with truck rejection and truck transfer and replacement.

10. The transporter shall adhere by and be in compliance with all regulatory requirements under 49 CFR and any state requirements as applicable.

11. Every load of waste will be sent offsite using appropriate shipping paperwork as required by the disposal or re-use facility (e.g., bill of lading, non-hazardous manifests). Hazardous waste manifests will be signed by the Project Representative. Project Representative MUST be aware of all shipments.

12. Any changes in transporters will be communicated to Project Representative before arrival at the site. Project Representative reserves the right to turn away transporters that have not been previously reviewed and approved for work at the site. Project Representative is not responsible for demurrage or other costs as a result of turning away transporters who have not been reviewed and approved.

13. Each driver will also be required to produce proof of insurance for his truck, and the driver’s valid commercial driver’s license.

END OF SECTION
PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Building demolition.
B. Selective demolition of built site elements.

1.02 RELATED REQUIREMENTS

A. Section 01 74 19 – Construction Waste Management and Disposal
B. Section 02 06 00 – Contaminated Soil Handling & Disposal
C. Section 02 82 33 – Removal and Disposal of Asbestos Coating

1.03 RELATED DOCUMENTS

B. Phase I and limited phase II Environmental Site Assessment 12031 Totem Lake Way Parcel No 692840-0032 Kirkland WA 98034, December 14th, 2018.

1.04 REFERENCES

A. The following is a list of standards which may be referenced in this Section:


6. Environmental Protection Agency (EPA), U.S. Code of Federal Regulations (CFR), Title 40:

b. Part 82—Protection of Stratospheric Ozone.


1.05 DEFINITIONS

A. ACM: Asbestos-containing material.

B. Demolition: Dismantling, razing, destroying, or wrecking of any fixed building or structure or any part thereof. Demolition also includes removal of pipes, manholes, tanks, conduit, and other underground facilities, whether as a separate activity or in conjunction with construction of new facilities.

C. Modify: Provide all necessary material and labor to modify an existing item to the condition indicated or specified.

D. Relocate: Remove, protect, clean and reinstall equipment, including electrical, instrumentation, and all ancillary components required to make the equipment fully functional, to the new location identified on the Drawings.

E. Renovation: Altering a facility or one or more facility components in any way.

F. Salvage/Salvageable: Remove and deliver, to the specified location(s), the equipment, building materials, or other items so identified to be saved from destruction, damage, or waste; such property to remain that of Owner. Unless otherwise specified, title to items identified for demolition shall revert to Contractor.

G. Universal Waste Lamp: In accordance with 40 CFR 273, the bulb or tube portion of an electric lighting device, examples of which include, but are not limited to, fluorescent, high-intensity discharge, neon, mercury vapor, high-pressure sodium, and metal halide lamps.

H. Universal Waste Thermostat: A temperature control device that contains metallic mercury in an ampule attached to a bimetal sensing element, and mercury- containing ampules that have been removed from these temperature control devices in compliance with the requirements of 40 CFR 273.

1.06 SUBMITTALS

A. Informational Submittals:
1. Submit proposed Demolition/Renovation Plan, in accordance with requirements specified herein and elsewhere, for approval before such Work is started.


3. Submit copies of any notifications, authorizations and permits required to perform the Work.

4. Submit copies of reports and other documentation required for all wells abandoned during this phase of work.

5. Submit a shipping receipt or bill of lading for all universal waste shipped.

1.07 REGULATORY AND SAFETY REQUIREMENTS

A. When applicable, demolition Work shall be accomplished in strict accordance with 29 CFR 1926-Subpart T.

B. Comply with federal, state, and local hauling and disposal regulations. In addition to the requirements of the General Conditions, Contractor’s safety requirements shall conform to ANSI A10.6.

C. Furnish timely notification of this demolition project to applicable federal, state, regional, and local authorities in accordance with 40 CFR 61-Subpart M.

1.08 DEMOLITION/RENOVATION PLAN

A. Demolition/Renovation Plan shall provide for safe conduct of the Work as specified by OSHA and local authorities, and shall include:

1. Detailed description of methods and equipment to be used for each operation;

2. The Contractor’s planned extent of demolition, sequence of operations, bracing and shoring, and location and construction of barricades and fences, including coordination with other work in progress;

3. Disconnection schedule of utility services. Accurately record actual locations of capped and active utilities and subsurface construction in Project Record Documents.

B. Include hazardous material reporting (location delivered, material, type, etc.)
C. Include statements affirming Contractor inspection of the existing roof deck, floors, walls, and framing members, and their suitability to perform as a safe working platform or, if inspection reveals a safety hazard to workers, state provisions for securing the safety of the workers throughout the performance of the Work.

1.09 SEQUENCING AND SCHEDULING

A. The Work of this Specification shall not commence until Contractor’s Demolition Plan has been approved by Engineer.

B. Include the Work of this Specification in the progress schedule, as specified in Section 01 32 00, Construction Progress Documentation.

1.10 USE OF EXPLOSIVES IS NOT PERMITTED

1.11 ENVIRONMENTAL PROTECTION

A. Comply with conditions of State of Washington.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 EXISTING FACILITIES TO BE DEMOLISED OR RENOVATED

A. Facilities:

1. Buildings scheduled for complete demolition are as shown.

2. See Section 01 74 19 - Construction Waste Management and Disposal

B. Structures:

1. Remove the entire building designated as “Yuppie Pawn Shop.”

2. Building foundations, grade beams, and piles shall be removed to a minimum of 3 feet below finished grade.

3. All interior and retaining walls and concrete slabs shall be completely removed.

4. Sidewalks, curbs, gutters and street light bases shall be removed as indicated.
5. Wood decking at existing boardwalk shall be removed, including existing joists as indicated on the plans. Exiting piers and lagging to remain to allow for re-surfacing.

C. Substructure:
   1. Extract conflicting existing creosote-treated wood pilings prior to driving new piles.

D. Utilities and Related Equipment:
   1. Notify Engineer, Owner, and appropriate utilities to turn off affected services at least 48 hours before starting demolition activities.
   2. Remove existing utilities as indicated and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by Engineer.
   3. When utility lines are encountered that are not indicated on the Drawings, notify Engineer and Owner prior to further work in that area.
   4. Remove meters and related equipment and deliver to a location as determined by the Engineer.
   5. Excavate and remove utility lines serving buildings to be demolished within property limits unless otherwise indicated on the drawings.

E. Groundwater Observation Wells: Remove groundwater observation wells at the end of construction.

F. Paving and Slabs:
   1. Remove concrete and asphaltic concrete paving and slabs within the limits of work unless shown otherwise.
   2. Provide neat sawcuts at limits of pavement removal as indicated.
   3. No stockpiling of demolished concrete is allowed on the site.

G. Patching:
   1. Where removals leave holes and damaged surfaces exposed in the finished Work, patch and repair to match adjacent finished surfaces as to texture and finish.
   2. Where new Work is to be applied to existing surfaces, perform removals and patching in a manner to produce surfaces suitable for receiving new Work.
H. Cylinders and Canisters: Remove all fire suppression system cylinders and canisters and dispose as specified in Paragraph Ozone Depleting Substances (ODS).

I. Universal Waste Lamps and Thermostats: Manage, contain, package, and label in strict accordance with 40 CFR 273.

3.02 PROTECTION

A. Sweep pavements as often as necessary to control the spread of debris that may result in foreign object damage potential to vehicular traffic.

B. Sweep pavements as often as necessary to control the spread of debris that may result in foreign object damage potential to vehicular traffic.

C. Traffic Control Signs: Where pedestrian and driver safety is endangered in the area of removal Work, use traffic barricades with flashing lights.

1. Do not close or obstruct roadways or sidewalks without permit.

2. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.

D. Existing Work:

1. Survey the site and examine the Drawings and Specifications to determine the extent of the Work before beginning any demolition or renovation.

2. Take necessary precautions to avoid damage to existing items scheduled to remain in place, to be reused, or to remain the property of Owner; any Contractor-damaged items shall be repaired or replaced as directed by Engineer.

3. Work elements occur on adjacent parcels that are private property. Access is granted through easements as noted on the drawings. Coordinate all work with the Owner to ensure no damage occurs to adjacent land owner’s property.

4. Provide temporary weather protection during interval between removal of existing exterior surfaces and installation of new to ensure that no water leakage or damage occurs to structure or interior areas of existing building.

5. Ensure that structural elements are not overloaded as a result of or during performance of the Work. Responsibility for additional structural elements or increasing the strength of existing structural elements as may
be required as a result of any Work performed under this Contract shall be that of the Contractor. Repairs, reinforcement, or structural replacement must have Engineer approval.

6. Do not overload pavements to remain.

E. Trees: Protect trees within the Site that might be damaged during demolition and are indicated to be left in place, by a 6-foot-high fence, unless otherwise indicated on the drawings. The fence shall be securely erected a minimum of 5 feet from the trunk of individual trees or follow the outer perimeter of branches or clumps of trees. Any tree designated to remain that is damaged during the Work shall be replaced in kind, as approved by the Engineer.

F. Facilities:

1. Protect electrical and mechanical services and utilities. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities.

2. Floors, roofs, walls, columns, pilasters, and other structural elements that are designed and constructed to stand without lateral support or shoring, and are determined by Contractor to be in stable condition, shall remain standing without additional bracing, shoring, or lateral support until demolished, unless directed otherwise by the Engineer.

3. Protect all facility elements not scheduled for demolition.

4. Provide interior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished and adjacent facilities.

G. Protection of Personnel:

1. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.

2. During demolition, continuously evaluate the condition of the structure being demolished and take immediate action to protect all personnel working in and around the demolition site.

3. Provide temporary barricades and other forms of protection to protect Owner’s personnel and the general public from injury due to demolition Work.
4. Provide protective measures as required to provide free and safe passage of Owner’s personnel and the general public to occupied portions of the structure.

3.03 BURNING
A. The use of burning at the Site for the disposal of refuse and debris will not be permitted.

3.04 RELOCATIONS
A. Perform the removal and reinstallation of relocated items as indicated with workmen skilled in the trades involved. Clean all items to be relocated prior to reinstallation, to the satisfaction of Engineer. Repair items to be relocated which are damaged or replace damaged items with new undamaged items as approved by Engineer.

3.05 BACKFILL
A. Do not use demolition debris as backfill material.
B. Fill excavations and backfill after demolition activities to existing ground level or foundation level of new construction in accordance with Section 31 23 23, Fill and Backfill.

3.06 TITLE TO MATERIALS
A. All items designated to be removed shall become the property of Contractor.

3.07 DISPOSITION OF MATERIAL
A. Do not remove equipment and materials without approval of Contractor’s Demolition/Renovation Plan by Engineer.
B. Salvage equipment and material to the maximum extent possible.
C. Owner will not be responsible for the condition or loss of, or damage to, property scheduled to become Contractor’s property after Engineer’s authorization to begin demolition. Materials and equipment shall not be viewed by prospective purchasers or sold on the site.
D. Owner will not be responsible for the condition or loss of, or damage to, such property after Engineer’s authorization to begin demolition.
E. Store salvaged items as approved by Engineer and remove them from Owner’s property before completion of the Contract. Materials and equipment shall not be either viewed by prospective purchasers or sold on the Site.

3.08 UNSALVAGEABLE MATERIAL
A. Concrete, masonry, and other noncombustible material shall be recycled or disposed of offsite in a legal manner.

B. No disposal is permitted on the site. All materials removed shall be disposed of offsite in a legal manner.

C. Combustible material shall be disposed of off the Site. Combustible material shall not be burned onsite.


E. Dispose of piles per Washington State Department of Ecology 03-04-038 Focus on Treated Wood Exclusion

3.09 CLEANUP

A. Debris and rubbish shall be removed from the site. Debris and rubbish shall be removed and transported in a manner that prevents spillage on streets or adjacent areas. Leave site in clean condition, ready for subsequent work. Clean up spillage and wind-blown debris from public and private lands.

B. Local regulations regarding hauling and disposal shall apply.

END OF SECTION
PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes requirements for removal, handling, transportation, and disposal of asbestos containing materials from structures scheduled for demolition.

1.02 REFERENCES

A. This Section incorporates by reference the latest revisions of the following documents:
   1. International Building Code (IBC)
   2. Code of Federal Regulations (CFR)
      a. 29 CFR 1910 Occupational Safety and Health Standards
      b. 29 CFR 1926 OSHA Construction Standards
      c. 40 CFR 61 National Emission Standards for Hazardous Air Pollutants Subpart M—Asbestos
      d. 40 CFR 763 Asbestos
   3. Washington Administrative Code (WAC)
      a. WAC 296-24 General Safety and Health Standards
      b. WAC 296-62 General Occupational Health Standards
      c. WAC 296-65 Asbestos Removal and Encapsulation
   4. National Institute for Occupational Safety and Health (NIOSH)
   5. Washington Department of Labor and Industries
   6. Revised Code of Washington (RCW)
      a. RCW 49.17 Washington Industrial Safety and Health Act (WISHA)

1.03 DEFINITIONS

A. Abatement: Procedures to control fiber release from asbestos containing building materials. Includes encapsulation, enclosure, and removal.

B. Adequately Wetted: Sufficiently mixed or coated with water or an aqueous solution to prevent dust emissions.
C. Asbestos Abatement Project: Any demolition, renovation, repair, construction, or maintenance activity of any public or private facility that involves the repair, enclosure, encapsulation, removal, salvage, handling, or disposal of any material with potential for releasing asbestos fibers from asbestos containing material into the air.

D. ACM: Asbestos-containing material. Asbestos or material containing asbestos in excess of one (1) percent by weight.

E. Air Cell: Insulation usually used on pipes and ductwork comprised of corrugated cardboard containing asbestos.

F. Airlock: A system for permitting restricted ingress or egress while allowing air movement from an uncontaminated area to a contaminated area during negative air pressure conditions in the work area, typically including two curtained doorways at least 6-feet apart.

G. Amended Water: Water containing a wetting agent or surfactant.

H. Area Monitoring: Sampling of asbestos fiber concentrations within the asbestos removal area which is representative of the airborne concentrations of asbestos fibers which may reach the breathing zone.

I. Asbestos: The term asbestos includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.

J. ACM Waste: Asbestos containing or contaminated materials or objects requiring disposal.

K. Asbestos Fibers: This expression refers to asbestos fibers having an aspect ratio of three to one and longer than 5 micrometers.

L. Asbestos Removal Contractor: The Washington state certified asbestos abatement firm contracted to perform the asbestos abatement services addressed in these Specifications.

M. Authorized Visitor: City of Kirkland personnel, Resident Engineer, or a representative of any of the regulatory agencies having jurisdiction over the project.

N. Bridging Encapsulant: A liquid material that can be applied to ACM that controls the possible release of asbestos fibers from the material by creating a membrane over the surface.

O. Breathing Zone: An area within a hemisphere, forward of the shoulders, with a radius of 6- to 9-inches and the center at the nose or mouth of an employee.
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P. Certified Asbestos Workers: Workers who have received training through an accredited training center in accordance with regulations as set forth in 40 CFR Part 763 and as required by WAC 296-62-077 in accordance with the requirement of WAC 296-65.

Q. Clean Room: An uncontaminated area or room, which is part of the decontamination enclosure system, with provisions for storage of workers’ street clothes and protective equipment.

R. Clearance Air Sample: The air monitoring sample taken after all abatement is completed and prior to deregulation of work areas. Provide clearance air samples equal to or better than the pre-abatement air samples or outside ambient air at the (less than 0.01 fiber/cubic centimeter), whichever is less.

S. Containment: An enclosure with restricted access where the air is filtered.

T. Control Device Asbestos Waste: Any ACM Waste that is collected in a pollution control device.

U. Curtained Doorway: A device to allow ingress or egress from one (1) room to another while permitting minimal air movement between the rooms, typically constructed by placing three overlapping sheets of plastic over an existing or temporarily framed doorway, securing each along the top of the doorway, securing the vertical edge of one sheet along one (1) side of the doorway, and securing the vertical edge of the other sheets along the opposite vertical side of the doorway.

V. Decontamination Enclosure System: A decontamination enclosure system for workers, materials and equipment, including a designated area of the work area adjacent and connected to the regulated area including an equipment room, shower room, and clean room formed by connecting a series of rooms with curtained doorways forming airlocks between any two (2) adjacent rooms.

W. Demolition: The wrecking or removing of any load-supporting structural member and any related removing or stripping of friable asbestos materials.

X. Encapsulant: A material which is applied to ACM to minimize or eliminate potential release of asbestos fibers, either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding the components together (penetrating encapsulant).

Y. Equipment Room: A contaminated area or room, which is part of the decontamination enclosure system, with provisions for storage of contaminated clothing and equipment.

Z. Excursion Limit: The maximum personal exposure concentration of asbestos fibers for any 30-minute period (1.0 fiber per cubic centimeter of air (f/cc)).
AA. Friable Asbestos Material: Material that contains more than one (1) percent asbestos by weight and that can be crumbled, pulverized, or reduced to power by hand pressure when dry.

BB. Glovebag: A customized bag for covering friable ACM with gloves to allow work inside the bag.

CC. Hazardous Air Contaminant: As defined in Hazardous and Contaminated Substance Health and Safety Program, elsewhere in the Contract Documents.

DD. HEPA Filtered Equipment: High efficiency particulate air filtered equipment with a filter capable of collecting and retaining asbestos fibers.

EE. Mini Enclosure Method: An abatement method that establishes an isolation zone as a sub-area of the total area. Air exchanges requirements are a minimum of four (4) per hour. Decontamination facilities include two (2) air chamber airlock, double suiting and HEPA vacuuming.

FF. Mini Isolation Method: A method of isolation area preparation where only the portion or portions of the total room area containing ACM are isolated. Decontamination facilities and air exchanges are identical to those under standard isolation.

GG. Modified Glove Bag: An abatement method utilizing a standard glove bag within an isolation area under negative pressure of at least four (4) air exchanges per hour.

HH. Mudded Pipe Insulation Section: A section of pipe insulation covering plumbing fittings, usually 12-inch diameter or less.

II. Negative Air System: A localized and HEPA filtered exhaust system capable of maintaining a constant, low velocity air flow into the Decontamination Enclosure Systems and Work Area from adjacent uncontaminated and unsealed areas.

JJ. Non-Friable Asbestos Material: Material that contains asbestos in which the fibers have been locked in by a bonding agent, coating, binder, or other material so that the asbestos is well bound and will not release fibers in excess of the asbestos control limit during any appropriate use, handling, demolition, storage, transportation, processing, or disposal.

KK. Outside Air: The air outside buildings and structures.

LL. Particulate Asbestos Material: Finely divided particles of asbestos material.

MM. PCM: Phase Contrast Microscopy.
NN. PLM: Polarized Light Microscopy.

OO. Personal Monitoring: Sampling of asbestos fiber concentrations within the breathing zone of an employee.

PP. Removal: All herein specified procedures necessary to strip all ACMs from the designated areas and to dispose of these materials in a permitted facility.

QQ. Renovation: The removing or stripping of friable asbestos materials used on any pipe, duct, boiler, tank, turbine, furnace or structural member. Operations in which load supporting structural members are wrecked or taken out are included.

RR. Sealing Agent: A liquid product similar to a Bridging Encapsulant that is applied to surfaces from which asbestos has been removed to prevent release of any residual asbestos fibers into the environment. Commonly referred to as penetrating encapsulant.

SS. Shower Room: A room between the clean room and the equipment room in the worker decontamination enclosure system, with hot and cold or warm running water and suitably arranged for complete showering during decontamination. The shower room comprises an airlock between contaminated and clean areas.

TT. Standard Isolation: An asbestos removal process, which includes enclosing the entire area prior to and during the removal.

UU. Stripping: Removing friable asbestos materials from any pipe, duct, boiler, tank, turbine, furnace, or structural member from any building, structure, facility, or installation.

VV. Structural Member: Any load-supporting member, such as beams and load-supporting walls, or any non-load-supporting member, such as ceilings and non-load-supporting walls.

WW. Supervisor for Full-Scale Asbestos Abatement: A person who has been trained and certified in accordance with a state-approved EPA Asbestos Training Center. Such persons are required for any asbestos abatement project.

XX. Surfactant: A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.

YY. Suspect ACM: Material encountered during removal work that is suspected of being ACM, based on proximity to other ACM, or other indicators.

AAA. Time Weighted Average: The TWA is an eight (8) hour time weighted average airborne concentration of fibers longer than five (5) micrometers per cubic centimeter of air.

BBB. Visible Emissions: Emissions containing particulate asbestos material that are visually detectable without the aid of instruments. These do not include condensed uncombined water vapor.

CCC. Waste Manifest: A record of shipment and disposal of ACM waste.

DDD. Wet Cleaning: The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with amended water, and by afterwards disposing of these cleaning tools as asbestos-contaminated waste. Use of HEPA filtered vacuums are recommended during wet cleaning.

EEE. Work Area: The area where asbestos-related work or removal operations are performed that is defined and/or isolated to prevent the spread of asbestos dust, fibers, or debris, and entry by unauthorized personnel.

1.04 SUBMITTALS AND TRANSMITTALS

A. Submit the following:

B. Transmit the following:
   1. Documentation of air monitoring results:
      a. Copies of air monitoring sample chains-of-custody
      b. Analysis reports
   2. Record of abatement activities including disposition of ACM Waste removed from the Site, copies of every completed waste manifest to verify proper disposal, all Contract changes clearly indicated, project photographs, supervisor’s daily field reports, and similar final record documentation after completion of the project. Project photographs will show conditions before and after asbestos removal.
   3. Copies of waste profiles, transportation, disposal certification, and signed manifests from the landfill after completion. Documentation shall include:
      a. Name and address of landfill
      b. Name of landfill employee authorized to accept asbestos waste
      c. Quantity removed from work site
d. Quantity disposed of at landfill

4. Copies of all applicable permits and notifications required for work, including those for the Puget Sound Clean Air Agency (PSCAA) and Washington Department of Labor and Industries (L&I).

1.05 QUALITY ASSURANCE

A. Qualifications

1. Work shall be completed by a licensed asbestos removal contractor with the following minimum experience:
   a. Satisfactory completion of at least three asbestos abatement projects of similar scope
   b. Licensed in the state of Washington

2. Contractor personnel performing the work shall have the following experience:
   a. One (1) year experience in the task they are to perform
   b. Three (3) years or more experience in asbestos abatement
   c. Supervisor: Certified asbestos supervisor

B. Certification

1. Personnel working within the control areas shall be certified asbestos workers.

2. The asbestos supervisor shall be certified by the state of Washington.

3. Personnel shall have respirator fit test certification (qualitative/quantitative) for the respirators they intend to use.

C. The Resident Engineer may conduct perimeter and clearance air monitoring for quality assurance/quality control (QA/QC) purposes.

D. The independent qualified testing laboratory for air samples shall be a satisfactory participant in the NIOSH Proficiency Analytical Testing (PAT) program.

1.06 SITE CONDITIONS

A. Existing utilities may be used if active and of adequate capacity. The power and water distribution systems in any existing buildings may be disconnected
or not be suitable for use. Any work the Contractor finds necessary for power
distribution and water distribution shall be at the Contractor’s expense.

1.07 ASBESTOS WORK PLAN

A. Present the methods to be used for removal and disposal of ACM. Include a
detailed plan of the work procedures to be used in the removal of materials
containing asbestos in compliance with all applicable Federal, State, and
local regulations. As a minimum, include the following components in the plan:

1. Subcontractor qualifications, experience, and license number
2. Work procedures and sequences
3. Required Permits and Notifications
4. Exposure Monitoring Plan, include person responsible for air monitoring
   program
5. Respiratory Protection Program
6. Personal Protective Equipment
7. Personnel Decontamination Procedures
8. Administrative Controls
9. Emergency Plan
10. Housekeeping Practices
11. Engineering Controls/Equipment
12. Medical Surveillance Program
13. Heat and/or Cold Stress Monitoring and Management
14. Employee Training Certificates and Medical Surveillance
15. Certifications and qualifications of the asbestos supervisor/competent
    person
16. Signage
17. Laboratory qualification information
18. Plans for disposing of ACMs
19. Decontamination of Equipment and Areas
20. Manufacturers literature on equipment and materials
21. Material safety data sheets for any chemicals
22. Record Keeping
23. Disposal facility information
24. Respirator fit test records
25. Job Hazard Analysis and Hazard Communication
26. Schedule of Activities

PART 2 - PRODUCTS

2.01 MATERIALS

A. Warning signs as required by WISHA Chapter 296-62-07721.

B. For surfactant (Wetting Agent) use Fiberlock Penewet, Foster 32-90 or equivalent approved by the Resident Engineer including 50-percent polyoxyethylene ether and 50-percent polyoxyethylene or polyglycol ether and mix with water in accordance with manufacturer’s directions.

C. Use encapsulation materials that are non-flammable, non-hazardous (non-solvent or petroleum based) penetrating type.

D. Use non-hazardous solvent mastic remover capable of effectively removing mastic or other adhesive.

E. Danger Signs and Labels: Provide danger signs and labeled barricades at all approaches to asbestos work areas. Locate signs at such a distance that personnel may read the sign and take the necessary protective steps required before entering the area. Provide and affix labels to all asbestos materials, scrap, waste, debris, and other products contaminated with asbestos.


2. Warning Labels: Provide labels of sufficient size to be clearly legible, displaying the following warning:

   DANGER
   CONTAINS ASBESTOS FIBERS
   AVOID CREATING DUST
   BREATHING ASBESTOS DUST MAY
   CAUSE SERIOUS BODILY HARM
3. Warning Signs: Provide signs of sufficient size to be clearly legible, displaying the following warning:

**DANGER**
**ASBESTOS**
**CANCER AND LUNG DISEASE HAZARD**
**AUTHORIZED PERSONNEL ONLY**
**RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA**

F. Provide full body disposable protective clothing, including head, body and foot coverings including material impenetrable by asbestos fibers (Tyvek® or equivalent) for workers and authorized visitors in sizes adequate to accommodate movement without tearing.

G. Provide additional safety and fall protection as necessary to workers and authorized visitors.

H. Provide non-skid footwear to abatement workers. Ensure disposable clothing is adequately sealed to the footwear to prevent body contamination.

I. Provide goggles to personnel engaged in asbestos operations when the use of a full-face respirator is not required.

2.02 EQUIPMENT

A. Select respirators from those approved by the Mine Safety and Health Administration (MSHA), or by the National Institute for Occupational Safety and Health (NIOSH). Provide personnel engaged in the removal and demolition of asbestos from negative pressure enclosures and visitors with Type C supplied air respirators, continuous flow or pressure demand, operated with either an auxiliary positive pressure self-contained apparatus or HEPA filter.

B. Provide miscellaneous equipment, such as scaffolds, in accordance with task requirements.

C. HEPA filtered vacuums:

1. With disposable collection bags for the project

2. Filters that are 99.97 percent efficient for retaining fibers of 0.3 micron or larger

D. Respirator Protection
1. Provide the necessary respiratory protection for the work to be performed. Don respiratory protection equipment and level of protection in accordance with applicable regulations and standards.

2. Half-face respirators may be used for abatement of non-friable ACM and glovebag procedure. The air monitoring results may be used to justify upgrades or downgrades of the respiratory protection. The Site Safety and Health Officer (SSHO) may propose changes to the Resident Engineer for evaluation. Downgrades of respiratory protection will only be allowed after approval by the Resident Engineer. Disposable half-face respirators may not be used.

3. Properly maintain, clean, and store the respirators.

4. Provide respiratory protection for authorized visitors wishing to enter a negative air enclosure, as needed. These include, but are not limited to, inspectors from the regulatory agencies and City of Kirkland monitors.

PART 3 - EXECUTION

3.01 PERFORMANCE REQUIREMENTS

A. Provide necessary labor, equipment, and material to remove, transport and dispose of ACM in accordance with all Federal, State, and local regulations and standards. Work includes obtaining required permits, notifying appropriate agencies, and performing required air monitoring.

B. In accordance with State of Washington Administrative Code (WAC) 296-62-07721(1)(c)(iii), a good faith survey of each structure that is to be renovated or demolished has been conducted. A summary of findings is shown on the Contract Drawings for each building to be demolished, and individual reports are available as reference documents. Review each survey and become familiar with its contents. Maintain copies of each survey at the project site and make available for review upon request by regulatory agencies.

3.02 EXAMINATION AND PROTECTION

A. Suspect ACM: If suspect ACM is discovered during demolition activities, notify Resident Engineer immediately and stop work in the immediate area. Cordon off area to prevent contamination of clean areas. Allow access for the Resident Engineer to collect representative sample(s) of the material and submit for testing using PLM, as well as TEM if necessary. Estimate quantity of additional suspect ACM to Resident Engineer for appropriate documentation.
B. Take necessary precautions to avoid damage to existing structures, their appurtenances, monitoring wells, or utilities that may be affected by work activities outside of the limits of construction. Repair any damage to those features resulting from operations at no expense to Sound Transit. Coordinate with the Resident Engineer and/or property owners to locate underground utilities prior to beginning construction. Do not disturb utilities encountered which were not previously shown or otherwise located without approval from the Resident Engineer.

C. Air Monitoring

1. Collect air samples required by regulations for the abatement activity on the project. These may include pre-abatement, area and perimeter, personal, short-term excursion limit, and clearance samples. The Resident Engineer may elect to conduct air sampling for quality assurance/quality control (QA/QC) purposes.

2. Collect air samples in accordance with established procedures and protocols (i.e. NIOSH Method 7400, as revised). Take air samples at an approximate height of 60-inches from the work floor. Be responsible for regular calibration of the sample pumps.

3. Submit the air samples to an independent qualified testing laboratory

4. Analyze the samples by PCM method. Fiber concentrations detected above the allowable limit may have to be tested by TEM method at the expense of the Asbestos Removal Contractor. Make test results available for review prior to the start of work the next day.

5. Take pre-abatement samples prior to start of asbestos abatement activities. If the fiber count exceeds 0.1 f/cc, provide workers with appropriate personal protective equipment including respiratory protection.

6. Take the perimeter air samples upwind and downwind of the work area where there is no enclosure. Obtain the perimeter samples for a negative air enclosure at the personnel decontamination station, waste loadout, and HEPA/negative air machine exhaust(s). If the fiber count exceeds 0.01 f/cc, the Resident Engineer may request analysis of the sample by TEM procedure; the Resident Engineer may request to clean the perimeter area prior to start of a shift.

7. Take personal and short-term exposure limit (STEL) samples as required by the activities and the regulations. Post the personal air sample test results within 24 hours from collection.
8. Take the clearance air sample at the completion of abatement activities inside an enclosure prior to inspection and encapsulation. Take additional clearance samples if the area fails inspection, requiring additional abatement. For acceptable fiber count, use the pre-abatement result or less than 0.01 f/cc, whichever is less.

9. If there is a conflict between the Contractor sample test results and the Resident Engineer’s QA/QC sample test results, re-take the sample. Repeat if necessary, until the test results are in the same range, as determined by the Resident Engineer.

10. Limit the maximum flow rate of collecting air samples to 2.5 liters/minute for personal samples and 10.5 liters/minute for inside and outside work area air samples.

3.03 PREPARATION

A. Notifications: Prepare and submit necessary permits and notifications, amendments, and/or request for alternate means of compliance to the regulatory agencies including, but not limited to, Puget Sound Clean Air Agency (PSCAA) and Washington Department of Labor and Industries (L&I). Provide timely notification of asbestos removal, abatement, hauling and disposition as may be required by such agencies. Have a copy of all said permits and notifications at the Site.

B. Utilities

1. Provide temporary power and lighting in the area where abatement is taking place and ensure safe installation of temporary power sources and equipment in accordance with applicable electrical code requirements. Use ground fault interrupters to service any temporary and existing power sources utilized during project performance. Refer to OSHA requirements for temporary lighting under the construction standard, 29 CFR 1926.56 and WAC 296-62-3120 (Illumination),

2. 1926.400 (Electrical Standards), and 1926.401 (Temporary Lights).

3. Provide necessary water for the work. This includes potable water for consumption and shower, if necessary, and for abatement activities. If a source of water is available on Site, use the source with approval from the Resident Engineer.

4. Properly dispose of wastewater generated during the project, in accordance with requirements of temporary site water discharge as stated elsewhere in the Contract Documents.
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5. Be responsible for utility connections and subsequent disconnects. This includes repairs that may be necessary to restore the connection.

3.04 REMOVAL OF ASBESTOS

A. Spray asbestos material with amended water, using spray equipment capable of providing a “mist” application to reduce the release of fibers. Saturate the material sufficiently to wet it thoroughly. Spray the asbestos material repeatedly during work process to maintain wet condition and to minimize asbestos fiber dispersion.

B. Place removed ACM in labeled disposal bags of 6-mils thickness immediately upon removal. Thoroughly clean the external surfaces of bags by wet sponging in the designated area of the work area. Place the waste bags in a second, clean bag at the waste loadout for disposal. Do not drop or drag the waste bags. Ensure that containers are removed from the regulated area by workers who have entered from uncontaminated areas dressed in clean coveralls. Ensure that workers do not enter from contaminated areas into the clean area during any phase of project performance.

C. Bag and secure ACM in a locked container at the end of each workday. Do not leave any debris, unsecured equipment, or tools on the work site past the end of each workday.

D. Conduct work in a manner that prevents spread of ACM. Be responsible for the cost associated with cleanup of ACM spread outside the work areas.

E. Asbestos-containing wallboard systems, which contain less than one (1) percent ACM as a composite of the drywall and associated joint compound, shall be removed in accordance with WRD 23.30. If removal is accomplished by hand, then wet, non-aggressive methods and HEPA filtered vacuums should be used followed by a prompt cleanup. For removal by hand, asbestos awareness and hands-on training as prescribed in WAC 296-62-07722(5) is required for workers. Supervision is required by a competent person as defined in WAC 296-62-07703.

1. Ensure workers and authorized visitors, upon entering the job site, remove street clothes in the clean change room and put on the required PPE.

2. Ensure workers and authorized visitors, each time they leave the work area, remove gross contamination from clothing before leaving the work area. Dispose contaminated protective clothing in receptacles for disposal with other asbestos contaminated material.

3. Do not allow workers to eat, drink, smoke, or chew gum or tobacco in regulated areas.
4. Ensure workers are fully protected with appropriate respirators and protective clothing from the time of first disturbance of ACMs prior to commencing actual asbestos abatement and until final clean-up is completed.

5. Ensure that barriers and plastic linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.

6. Visually inspect enclosures at the beginning of each work period. Dispersive smoke methods will be used to test effectiveness of barriers. Repair all damage immediately.

7. Clean external surfaces of contaminated containers and equipment thoroughly by wet cleaning before moving such items into the decontamination enclosure system for final cleaning and removal to uncontaminated areas.

3.05 CLEANING

A. For friable and non-friable material, remove visible accumulations of asbestos material and debris. Wet-clean all surfaces within the work area.

B. Include sealed drums and equipment used in the work area in the clean-up and removal from work areas, via the waste load-out system, at an appropriate time in the cleaning sequence.

C. Disposal of ACM Waste

1. Bag gross asbestos debris by the end of each workday. Dispose of ACM Waste as the work progresses to prevent exceeding available storage capacity on site. Provide caution signs as specified herein. Remove sealed and labeled containers as asbestos waste and dispose of containers at an authorized disposal site in accordance with the requirements of the Puget Sound Clean Air Agency. Transport in a vehicle compartment completely lined with 6 mils polyethylene sheeting and dispose of at the permitted disposal site. Submit documentation including name and address of landfill, name of landfill employee authorized to accept asbestos waste, quantity removed from work site, and quantity disposed of at the landfill.

2. For hauling and disposal, comply with 40 CFR 61, Subpart M, and state, regional, and local standards. Ensure workers unloading material wear appropriate PPE when handling asbestos materials at the disposal site.
D. Only undamaged and sealed plastic bags will be disposed of in the landfill. If the bags have been broken or damaged, place the damaged bags in a sealed drum and dispose.

END OF SECTION
DIVISION 03

CONCRETE
PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Concrete formwork.
B. Floors and slabs on grade.
C. Concrete foundation walls
D. Concrete reinforcement.
E. Miscellaneous concrete elements, including equipment pads and light pole bases.
F. Concrete curing.

1.02 RELATED DOCUMENTS

A. Refer to Structural Drawing Sheet S001 for specifications pertaining to the Restroom Building. The drawings shall take precedence over the specifications for the building.

B. Refer to Structural Drawing Sheet SS001 for specifications pertaining to site related development. The drawings shall take precedence over the specifications for elements identified on Sheets SS101, SS102 and SS103.

1.03 REGULATIONS

A. Conform to requirements of the IBC and Building Code as it pertains to structural cast-in-place concrete, except as supplemented and modified herein. The items of work to be performed shall include but are not necessarily limited to:

1. Walls, steps, foundations or footings, flatwork and associated work.

1.04 REFERENCE STANDARDS

A. Conform to requirements of the following Reference Standards or as modified and supplemented hereinafter:

1. American Concrete Institute (ACI) Specifications for Structural Concrete for Buildings, ACI 301.

2. ACI Recommended Practice for Selecting Proportions for Concrete, ACI 613.

3. ACI Recommended practices for Cold Weather Concreting, ACI 306.
4. ACI Recommended Practice for Hot Weather Concreting, ACI 605.
5. ACI 302.1R - Guide for Concrete Floor and Slab Construction; 2004 (Errata 2007).
7. ACI 308R - Guide to Curing Concrete; 2001 (Reapproved 2008).
15. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2011.

1.05 RELATED SECTIONS:

A. Section 01 45 00 – Quality Control
B. Section 31 23 16 – Excavation
C. Section 31 23 23.00 – Fill and Backfill
D. Section 31 23 23.15 – Trench Backfill
E. Section 31 23 19.16 – Geotextile
F. Section 31 37 00 – Riprap
G. Section 32 33 00 – Site Furnishings

1.06 QUALITY ASSURANCE

A. Special Inspection: Inspection shall be required immediately prior to any intended pours or placement of concrete.

B. Concrete Work: Concrete work, where indicated, shall be exposed, as finished. Special care must be taken to provide specified, finished surfaces without gravel pockets, and other defacements.

1.07 SUBMITTALS

A. Submit, for approval, all layout drawings for all cast-in-place concrete work. Show joint locations and other pertinent information. Refer to Section 01 33 00 for additional requirements.

B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.

C. Mix Design: Submit proposed concrete mix design.

D. Samples: Submit samples of underslab vapor retarder to be used.

E. Records: Maintain records of all concrete placements; indicate exact mix proportions, list time, date, location in the project, weather conditions at the time of placement, and the source of the concrete supply. Make records available to Engineer at any time during the course of construction and submit at end of concrete placement phase of project for the purposes of preparing record documents.

F. Certificates: Submit certification of previously tested mix designs.

PART 2 - PRODUCTS

2.01 GENERAL

A. Concrete materials provided under this section shall comply with the Referenced Standards, Specifications, applicable Codes and Drawings, including Structural Engineer’s General Structural Notes. Where these may be in conflict, the more stringent shall govern.

2.02 FORMWORK

A. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
1. Form Facing for Exposed Finish Concrete: Metal forms are only allowed, except when forming a radius. All materials shall provide a smooth, stain-free final appearance.

2. Earth Cuts: Do not use earth cuts as forms for vertical surfaces. Natural rock formations that maintain a stable vertical edge may be used as side forms.

3. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.

4. Form Ties: Cone snap type that will leave no metal within 1-1/2 inches of concrete surface.

5. Spray cure will be clear in color.

2.03 REINFORCEMENT MATERIALS

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).
   1. Type: Deformed billet-steel bars.
   2. Finish: Unfinished, unless otherwise indicated.

B. Dowels for concrete paving:
   1. Dowel schedule to match rebar schedule and at a minimum spacing of 18” O.C. Dowels shall be steel smooth and free of dirt, grease and oils. Size per the drawings. Encase 50 percent of each dowel in a speed dowel plastic sleeve to allow parallel movement of each dowel. Verify steel dowel to speed dowel tolerance to ensure snug fit.
   2. Provide and install Greenstreek speed dowel or approved equal.

C. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gage, 0.0508 inch.
   2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

2.04 CONCRETE MATERIALS

A. Aggregates: Standard: ASTM C33-86.

B. Cements:
1. Provide cements obtained from same source or of same brand for concrete in same element or portion of the work.


C. Cementitious Materials: Fly ash, ASTM C618 type F, except that the maximum allowable loss on ignition shall be 0.75%. Use for all concrete. Ground granulated blast-furnace slag (GGBF) is acceptable.

D. Admixtures:
   1. Use only one brand of admixtures.
   2. Water-Reducing Admixture: Master Builders Pozzolith 300-N. Chemical admixture conforming to requirements of ASTM C494-86, Type A.
   3. Retarder-Densifying Admixture: Master Builders Retarding Pozzolith, or approved equal: Conforming to requirements of ASTM C494-86, Type B.
   4. Accelerator: Chemical admixture designed to accelerate set on concrete but not corrode reinforcing steel; ASTM C494-86, Type C.
   5. Air Entraining Agent: Conforming to requirements of ASTM C260-86.

E. Other Ingredients: Provide other ingredients as indicated or as required by Code or Reference Standards.

2.05 CONCRETE MIX

A. Concrete mix for exterior flatwork shall have a 28 day compressive strength of 4,000 psi (unless noted otherwise on plans).

B. Concrete mix for structural building components shall have a 28 day compressive strength of 4,000 psi (unless noted otherwise on plans).

C. Concrete mixes shall be Class 5 (3/4) and have minimum characteristics as follows:
   
   Sacks Cement (5.5) per CY
   Fine Aggregate (Type 1) (291 lbs.) per Sack. - (see "Aggregates", below)
   Coarse Aggregate (Type 5) (387 lbs.) per Sack, - (see "Aggregates", below)
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Max. Water (6.5 bags) per Sack
Slump (inches) (2 - 3.5) per ASTM C143-78 (or higher if utilizing a high range water reducer).

2.06 AGGREGATES

A. Fine Aggregates: Generally, fine aggregate class 1 shall be per standard specification for Road, Bridge and Municipal Construction (WSDOT) latest edition, 9-031(2). Mineral Aggregate (Type 1), Aggregates shall consist of sand or other inert materials, or combinations thereof, having hard, strong, durable particles free from an adherent coating. Fine Aggregate shall be washed thoroughly to remove clay, loam, alkali, organic matter, or other deleterious matter. Mineral Aggregate Type 1, particle gradation is as follows:

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>% Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>#4</td>
<td>95 - 100</td>
</tr>
<tr>
<td>#8</td>
<td>68 - 86</td>
</tr>
<tr>
<td>#16</td>
<td>47 - 65</td>
</tr>
<tr>
<td>#30</td>
<td>27 - 42</td>
</tr>
<tr>
<td>#50</td>
<td>9 - 20</td>
</tr>
<tr>
<td>#100</td>
<td>0 - 7</td>
</tr>
<tr>
<td>#200 (wet)</td>
<td>0 - 2</td>
</tr>
</tbody>
</table>

B. Coarse Aggregates: Generally, coarse aggregate #5 per standard specification for Road, Bridge and Municipal Construction (WSDOT) latest edition, 9-031(4). Course Aggregate (Type 5), Coarse Aggregate shall consist of gravel, crushed stone, or other inert material or combination thereof having hard, strong, and durable pieces free from adherent coatings. Coarse Aggregate shall be washed to thoroughly remove clay, silt, bark, sticks, alkali, organic matter, or other deleterious material. Mineral Aggregate (Type 5) particle gradation is as follows:

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>% Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1/2&quot; Square</td>
<td>100</td>
</tr>
<tr>
<td>3/4&quot; Square</td>
<td>80 - 100</td>
</tr>
</tbody>
</table>
2.07 BONDING AGENTS AND ADHESIVES:

A. Bonding Agents as required.

B. Primers and Sealers: As recommended by the adhesive and bonding agent manufacturers.

2.08 CONCRETE MIXES:

A. Quality of Concrete: Assumed compressive strengths and locations of same are noted on drawings.

B. The fly ash content shall not exceed 7% by weight of the total cementitious material.

C. Admixtures:

1. Add in accordance with manufacturer's directions.

2. If approved, water-reducing retardant may be used when the temperature of the concrete, as placed, exceeds 65 degrees F.

3. If approved, accelerator may be used when temperature of concrete is less than 40 degrees F.

4. No calcium chloride or other water-soluble chloride ion admixtures will be permitted, unless otherwise approved by Engineer.

5. Use retarder/densifier when placing other concrete in warm weather conditions or when ambient temperature exceeds 65 degrees F.

6. Use air-entraining agent in concrete subjected to freezing temperatures after curing. Total air content shall be in accordance with Table 26-B of the IBC.

D. Mix Design:

1. Determine mixes as noted on the drawings.

2. If the Contractor elects not to use the approved design mix, Contractor shall pay for special batch plant inspection costs.
2.09 MIXING CONCRETE:
   A. Standard Concrete - Ready-Mixed Concrete: Mix and transport in accordance with ASTM C94-86.

2.10 RELATED MATERIALS
   A. Waterstops: Provide waterstops at all building construction joints and other joints in all foundation walls below grade and where shown on the drawings. Size to suit joints. Provide flat, dumbbell type or center bulb type where shown on drawings.
      1. W.R. Grace & Co. ADCOR ES WATERSTOPS.
      2. American Volclay Products BENTONITE WATERSTOP.
      3. or reviewed and accepted alternate
   B. Expansion Joints in Slabs:
      1. Joint Filler: Pre-formed, non-extruding asphalt impregnated resilient material; ASTM D1752, Type I, 3/8" wide by depth required to bring top surface within 1/2" of slab surface.
         a. Supplier: Salmon Bay Concrete or approved equal
   C. Underslab Vapor Retarder: Sheet material complying with ASTM E1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. The use of single ply polyethylene is prohibited.
      1. Installation: Comply with ASTM E1643.
      2. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations. Vapor Retarder: refer to Section 07 26 00/Vapor Retarders
   D. Expanded or Extruded Polystyrene Insulation (XPS or EPS): refer to Section 07 21 00/Thermal Insulation.
E. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz. per sq. yd., complying with AASHTO M 182, Class 2.

F. Non-Shrink Grout:

1. Type: Grout for base plates, bearing plates and grouting under precast or tilt-up wall panels shall be a non-metallic, shrinkage resistant, premixed, non-corrosive, non-staining product containing Portland cement, silica sands, shrinkage compensating agents and fluidity improving compounds.

2. Specifications: Non-shrink grout shall conform to ASTM C 1107.

3. Compressive Strength: Provide minimum 4,000 PSI strength in 7 days as determined by grout cube tests.

4. Products: Acceptable non-shrink grouts are listed below:
   a. "Crystex"; L & M Construction Chemicals, Inc.
   b. "Masterflow 713 Plus"; BASF Building Systems
   d. "Five Star Grout"; U. S. Grout Corp.
   e. "Sonogruot 10K"; BASF Building Systems
   f. "NS Grout"; the Euclid Chemical Company
   g. "Sure-Grip High Performance Grout"; Dayton Superior Corp.
   h. "CG 200 PC", Hilti, Inc.
   i. “CG-86 Grout”, W. R. Meadows

G. Contraction and Construction Joint-Filler Material for Slabs-on-Grade:

1. Provide a 2- component semi-rigid, 100% solids epoxy having a minimum shore A hardness of 80 when tested in accordance with ASTM D 2240 and an elongation below 25% when measured in accordance with ASTM D 638. Subject to compliance with requirements, provide one of the following:
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a. "Euco 700", the Euclid Chemical Company
c. "Masterfill 300 I", BASF Building Systems
d. "MM-80", Metzger/McGuire Co.
e. “Rezi-Weld Flex”, W. R. Meadows

H. Bond breaker for Construction Joints in Slabs-on-Grade:
1. A dissipating bond breaking compound containing no silicones, resins, or waxes, and that conforms to ASTM C 309. Subject to compliance with requirements, acceptable manufacturers include the following:
   c. or reviewed and accepted alternate.

2.11 CAST-IN CONCRETE ANCHORS

A. General: Refer to “Reference Standards,” Specifications, Drawings and General Structural Notes. Where these may be at variance, the more stringent requirements shall govern.

B. Expansion and Undercut Anchors in Concrete:
1. ICC Approval: Only anchors evaluated by the ICC Evaluation Service, Inc. (ICC-ES) with a published, currently valid, Evaluation Report showing it as having passed Acceptance Criteria 193 and approval for use in cracked concrete and resisting wind and seismic loads shall be approved for use.
2. Type: All expansion and undercut anchors in concrete shall be only wedge type expansion, sleeve-type expansion, or undercut type anchors.
3. Interior Use: All anchors, nuts and washers for use in interior conditioned environments free of potential moisture shall be manufactured from carbon steel zinc plated in accordance with Federal Specification QQ-Z-325C, Type II, Class 3.
4. Exterior or Exposed Use: All anchors, nuts and washers for use in exposed or potentially wet environments, or for attachment of exterior cladding materials shall be galvanized or stainless steel. Galvanized anchors, nuts and washers shall conform to ASTM A 153. Stainless steel anchors shall be manufactured from 300 series stainless steel and nuts and washers from 300 series or Type 18-8 stainless steel.

5. Nuts and Washers: Nuts and washers shall be furnished from the manufacturer and used with the anchors.

   a. “HDA Undercut Anchor” Hilti Fastening Systems (continuous inspection)
   b. “HSL-3 Heavy Duty Sleeve Anchor”, Hilti Fastening Systems (continuous inspection)
   c. “Strong-Bolt Wedge Anchor”, Simpson Strong-Tie, Co., Inc. (continuous inspection)
   d. “Red Head Trubolt + Wedge Anchor”, ITW Red Head (periodic inspection)
   e. “DUC Undercut Anchor”, USP Structural Connectors (continuous inspection)
   f. “Power Stud + SD1”, Powers Fasteners, Inc. (periodic inspection)
   g. “Power Stud + SD2”, Powers Fasteners, Inc. (periodic inspection)
   h. “SRS TZ Carbon Steel Anchor”, MKT Metall-Kunststoff-Technik (continuous inspection)

7. Install only anchors identified on the drawings by manufacturer and product. Substitutions using products approved by this Specification may be permitted provided complete design calculations, as required by and in accordance with the proposed product’s current and valid ICC Evaluation Service Report (ESR) and ACI 318 Appendix D, are signed and sealed by a professional engineer licensed in the state where the project is located.
and furnished to the Engineer for review and approval prior to commencement of work. The contractor shall request design criteria for all conditions where a product substitution is considered. Failure to obtain approval for an anchor substitution may result in the request by the Engineer to remove installed anchors and replace with the product specified on the drawings at the Contractor’s expense.

C. Screw and Insert Anchors in Concrete

1. Approvals: Only anchors evaluated by the ICC Evaluation Service, Inc. (ICC-ES) with a published, currently valid, Evaluation Report showing it as having passed Acceptance Criteria 193 and approved for use in cracked concrete and resisting wind and seismic loads shall be approved for use.

2. Interior Use: All screw anchors for use in interior conditioned environments free of potential moisture shall be manufactured from carbon steel zinc plated in accordance with Federal Specification QQ-Z-325C, Type II, Class 3.

3. Exterior or Exposed Use: All screw anchors for use in exposed or potentially wet environments, or for attachment of exterior cladding materials shall be galvanized or stainless steel. Galvanized anchors shall conform to ASTM A 153. Stainless steel anchors shall be manufactured from 300 series stainless steel.

4. Acceptable Products and Manufacturers – All Conditions:
   b. "Snake+Anchor" Powers Fasteners, Inc. (periodic inspection)
   c. “Wedge-Bolt+”, Powers Fasteners, Inc. (greater than 1/4 in. diameter) (periodic inspection)

5. Install only anchors identified on the drawings by manufacturer and product.

6. Substitutions using products approved by this Specification may be permitted provided complete design calculations, as required by and in accordance with the proposed product’s current and valid ICC Evaluation Service Report (ESR) and ACI 318 Appendix D, are signed and sealed by a professional engineer licensed in the state of Washington and furnished to the Engineer for review and approval prior to commencement of work. The contractor shall request design criteria for all conditions where a product substitution is considered. Failure to obtain approval for an anchor substitution may result in the request by the Engineer to remove installed
anchors and replace with the product specified on the drawings at the Contractor’s expense.

PART 3 - EXECUTION

3.01 CONCRETE PLACEMENT

A. Place concrete in accordance with ACI 304R.

B. Place concrete for floor slabs in accordance with ACI 302.1R.

C. Inspection: Before placing concrete, inspect and complete any unfinished formwork, reinforcing steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.

D. General: Comply with ACI 304, "Guide for Measuring, Mixing, Transporting, and Placing Concrete", and as specified.

E. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened sufficiently to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation at its final location.

F. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers no deeper than 24 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.

1. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping. Use equipment and procedures for consolidation of concrete complying with ACI 309.

2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the machine. Place vibrators to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix to segregate.

G. Cold Weather Placement: Comply with provisions of ACI 306 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing action, or low temperatures.

H. When air temperature has fallen to or is expected to fall below, 40 degrees F (4 degrees C), uniformly heat water and aggregates before mixing, to obtain a
concrete mixture temperature of not less than 50 degrees F (10 degrees C) and not more than 80 degrees F (27 degrees C), at point of placement.

1. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen sub-grade or on sub-grade containing frozen materials.

2. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise accepted in mix designs.

I. Hot Weather Placement: When hot weather conditions exist that would impair quality and strength of concrete, place concrete complying with ACI 305 and as specified.

1. Cool ingredients before mixing to maintain concrete temperature at time of placement to below 90 degrees F (32 deg C). Mixing water may be chilled or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

2. Cover reinforcing steel with water soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedding in concrete.

3. Fog spray forms, reinforcing steel, and sub-grade just before placing concrete. Keep sub-grade moisture uniform without puddles or dry areas.

4. Use water reducing retarding admixture when required by high temperatures, low humidity, or other adverse placing conditions, as acceptable to the Engineer.

3.02 CONSTRUCTION JOINTS

A. Form all joints perpendicular to main reinforcement. Continue reinforcing across joints, unless otherwise indicated; provide longitudinal keys at least 1-1/2 inch deep at all joints in walls between walls and slabs or footings. Remove key forming wood inserts and thoroughly clean surface of concrete at all joints before placing next lift.

B. Roughen surface of concrete at joints and remove laitance to obtain bond before placing next lift; if use of keys is impractical due to congestion or inaccessibility or if it is inadvisable to disturb surface before it has hardened, use only wet sandblast method for preparing surface.

C. Dampen hardened concrete of joints between footings and walls, joints in unexposed walls, and all others not specifically mentioned here in after and roughen by air water cutting.
D. Dampen hardened concrete joints in exposed work and roughens by air/water cutting. Thoroughly cover joint surfaces with neat cement mortar of similar proportions to mortar in concrete; apply mortar as thick as practicable on vertical surfaces and a minimum of 1/2 inch thick on horizontal surfaces; place next lift before mortar has reached its initial set.

E. For bonding new concrete to existing concrete use bonding agent. For grouting dowels and reinforcing bars use specified adhesives in accordance with manufacturer's instructions.

F. Provide key forming wood inserts strips in walls; pour concrete to 1/2 inch above lower edge or strip.

G. Waterstops: Provide waterstops in construction joints as indicated on the Architectural and Structural Drawings. Install waterstops to form continuous diaphragm in each joint. Make provisions to support and protect exposed waterstops during progress of work. Fabricate field joints in waterstops in accordance with manufacturer's printed instructions.

H. Isolation Joints in Slabs-on-Ground: Construct isolation joints (without dowels) in slabs-on-ground at points of contact between slabs on ground and vertical surfaces only where specifically detailed on the drawings. Install joint-filler strips at joints where indicated. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated on the drawings. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together. Provide construction joints with dowels at all locations unless isolation joints are detailed.

I. Contraction joints in slabs-on-grade and unbonded topping slabs: Maximum joint spacing shall be 36 times the slab thickness or 20 feet, whichever is less and at a minimum on column lines unless otherwise noted on the drawings. Use one of the two following methods (sawed or formed) to create the joints. Do not use the formed joint in areas subject to vehicular traffic or in industrial slabs.

3.03 CONTROL JOINTS

A. In slabs on grade, saw-cut control joints to true, straight lines, maximum variance from true line of 1/4 inch in 10 feet and no irregularities across joint in excess of 1/8 inch.

B. Locate Control Joints as indicated on drawings.

3.04 EXPANSION JOINTS

A. Provide pre-molded 3/8” joint filler for expansion joints abutting concrete curbs, catch basins, manholes, inlets, structures, walks and other fixed objects, unless otherwise indicated.
B. Locate expansion joints as noted on drawings.

C. Extend joint fillers full width and depth of joint and not less than 1/2 inch or more than 1 inch below finished surface where joint sealer is indicated. Furnish joint fillers in one-piece lengths for full width being placed, wherever possible. Where more than one length is required, lace or clip joint filler sections together. Protect top edge of joint filler during concrete placement with a metal or plastic temporary strip. Remove protection after concrete has been placed on both sides of joint before sealant is applied.

D. Fillers and Sealants: Install polyurethane sealant in a continuous, smooth joint, wiping excess sealant from adjacent concrete.

E. Provide expansion joints not more than 30 feet apart in footings. Run no reinforcement or other metal trim continuously through joints, unless otherwise indicated.

3.05 NON-SHRINKING GROUT

A. Apply in accordance with manufacturer’s direction; protect adjacent finished surfaces from defacement. Provide for sleeves, and where indicated.

3.06 INSTALLATION REINFORCEMENT AND OTHER EMBEDDED ITEMS

A. General: Comply with requirements of ACI 301. Set and build into work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions and directions provided by suppliers of items to be attached thereto unless directed otherwise by these specifications. Install reglets to receive top edge of foundation sheet waterproofing where specified by the Architect/Engineer, and to receive thru-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, relieving angles and other conditions.

B. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.

C. Anchor Rods: Furnish anchor rods and other connectors required for securing structural steel to foundations and other in-place work as shown on the drawings. Furnish 1/8" minimum steel templates for presetting rods and other anchors to accurate locations as shown on the drawings in keeping with the tolerances noted in ACI 117 for embedded anchor rods. Steel template shall be clearly marked with the following information:

1. Grid line intersection where template is to be used.
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2. Orientation of the plate relative to the building grid lines.


4. Anchor rod projection above top of template.

D. Edge Forms and Screed Strips for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in finished slab surface. Provide and secure units sufficiently strong to support types of screed strips by use of strike-off templates or accepted compacting type screeds.

E. Do not install sleeves and blockouts in concrete slabs, pier caps, footings or walls except where shown on the structural drawings or approved by the Architect/Engineer.

3.07 CONCRETE CURING AND PROTECTION

A. General:

1. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Maintain concrete with minimal moisture loss at a relatively constant temperature for the period necessary for hydration of the cement and hardening of concrete. Limit moisture loss to a maximum of 0.05 lb. /sq. ft – hr for concrete containing silica fume and 0.2 lb. /sq. ft - hr for all other concrete before and during finishing operations. If using an evaporation retarder, apply in accordance with manufacturer's instructions after screeding and bull floating, but before power floating and troweling.

2. Curing shall commence as soon as free water has disappeared from the concrete surface after placing and finishing. The curing period shall be 7 days for all concrete except high early strength concrete which shall be cured for 3 days minimum. Alternatively, curing times may be reduced if either of the following provisions is complied with:

   a. If tests are made of cylinders kept adjacent to the structure and cured by the same methods, curing measures may be terminated when the average compressive strength has reached 70% of the specified 28 day compressive strength.

   b. If the temperature of the concrete is maintained at a minimum of 50°F for the same length of time required for laboratory cured cylinders of the same concrete to reach 85% of the 28 day compressive strength, then curing may be terminated thereafter.
3. Curing shall be in accordance with ACI 301 procedures. Avoid rapid drying at the end of the curing period.

B. Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, floor topping and other flat surfaces by one or a combination of the methods specified below, as applicable. The Contractor shall choose a curing method that is compatible with the requirements for subsequent material usage on the concrete surface.

1. Ramps and Horizontal Surfaces of Parking Areas: Cure using only methods 1 or 2 as specified below.

2. Floors Directly Exposed to Vehicular or Foot Traffic not in Parking Areas and not otherwise receiving a chemical hardener or penetrating sealer finish: See Section 07 19 00 – Water repellants.

3. All Other Surfaces: Cure using methods 1, 2 or 3 as specified below. Use a water-based dissipating resin type curing compound conforming to ASTM C 309, type 1, class A or B for method 3.

C. Curing Methods:

1. Method 1 - Moisture Curing: Provide moisture curing by one of the following methods:
   a. Keep concrete surface continuously wet by covering with water.
   b. Continuous water-fog spray.
   c. Covering concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4" lap over adjacent absorptive covers.

2. Method 2 - Moisture-Retaining Cover Curing: Provide moisture-retaining cover curing as follows: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3" and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape. Water may be added to concrete surface to prevent drying before the cover is installed, but the surface shall not be flooded with water if a non-absorptive cover is used.

3.08 DEFECTIVE CONCRETE

A. Repair or replacement of defective concrete will be determined by the Project Engineer. The cost of additional testing shall be borne by the Contractor when defective concrete is identified.
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3.09 PROTECTION
   A. Do not permit traffic over unprotected concrete floor surface until fully cured.

3.10 CLEANING
   A. Leave premises completely clean and free of residue from work of this section.

END OF SECTION
DIVISION 04

MASSONRY
DIVISION 04 - MASONRY
Section 04 29 00 - ENGINEERED UNIT MASONRY

SECTION 04 29 00 - ENGINEERED UNIT MASONRY

PART 1  GENERAL

1.01 SECTION INCLUDES
   A. Concrete Block.
   B. Mortar and Grout.
   C. Reinforcement and Anchorage.
   D. Accessories.

1.02 RELATED REQUIREMENTS
   A. Section 06 10 00 - Rough Carpentry: Nailing strips built into masonry.

1.03 REFERENCE STANDARDS
   F. BIA Technical Notes No. 28B - Brick Veneer/Steel Stud Walls; 2005.

1.04 ADMINISTRATIVE REQUIREMENTS
   A. Preinstallation Meeting: Convene one week before starting work of this section.

1.05 SUBMITTALS
   A. See Section 01 33 00 – Submittal Procedures.
   B. Product Data: Provide data for masonry units, fabricated wire reinforcement, and mortar and grout.
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C. Shop Drawings: Indicate bar sizes, spacings, reinforcement quantities, bending and cutting schedules, reinforcement supporting and spacing devices, and accessories.

D. Samples: Submit four samples of decorative block units to illustrate color, texture, and extremes of color range.

E. Manufacturer's Certificate: Certify that masonry units meet or exceed specified requirements.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.07 MOCK-UP

A. Construct a masonry wall as a mock-up panel sized 8 feet long by 9'-4" feet high; include mortar and accessories, structural backup, reinforcement, and grout in mock-up.

B. Mock-up may remain as part of the Work.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

1.09 FIELD CONDITIONS

A. Cold and Hot Weather Requirements: Comply with requirements of TMS 402/602 or applicable building code, whichever is more stringent.

PART 2 PRODUCTS

2.01 CONCRETE MASONRY UNITS

A. Concrete Block: Comply with referenced standards and as follows:

1. Size: Standard units with nominal face dimensions of 16 by 8 inches and nominal depth of 8 inches.

2. Special Shapes: Provide non-standard blocks configured for corners, headers, control joint edges, and other detailed conditions.

3. Load-Bearing Units: ASTM C90, normal weight.

   a. Hollow block, as indicated.

   b. Exposed Faces: Manufacturer's standard color and texture where indicated.

   c. Pattern: Stack Bond.
d. Colors: To be verified based on samples provided:

2.02 MORTAR AND GROUT MATERIALS
A. Mortar and Grout: As specified on Structural Drawings
B. Packaged Dry Material for Mortar for Unit Masonry: Premixed Portland cement, hydrated lime, and sand; complying with ASTM C387/C387M and capable of producing mortar of the specified strength in accordance with ASTM C270 with the addition of water only.
   1. Type: S or M per the structural drawings.
C. Pigments for Colored Mortar: Pure, concentrated mineral pigments specifically intended for mixing into mortar and complying with ASTM C979/C979M.
D. Water: Clean and potable.

2.03 REINFORCEMENT AND ANCHORAGE
A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi) yield strength.
   1. Deformed billet-steel bars.
   2. Unfinished.
B. Joint Reinforcement: Use ladder type joint reinforcement where vertical reinforcement is involved and truss type elsewhere, unless otherwise indicated.

2.04 ACCESSORIES
A. Joint Filler: Closed cell polyvinyl chloride; oversized 50 percent to joint width; self expanding; in maximum lengths available.
B. Nailing Strips: Softwood lumber, preservative treated; as specified in Section 06 10 00.
C. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

2.05 MORTAR AND GROUT MIXES
A. Mortar for Unit Masonry: ASTM C270, using the Proportion Specification.
   1. Exterior, loadbearing masonry: S or M per structural notes.
B. Grout: ASTM C476; per structural notes

PART 3 EXECUTION

3.01 EXAMINATION
A. Verify that field conditions are acceptable and are ready to receive masonry.
B. Verify that related items provided under other sections are properly sized and located.

3.02 PREPARATION
A. Direct and coordinate placement of metal anchors supplied for installation under other sections.

3.03 COURSING
A. Establish lines, levels, and coursing indicated. Protect from displacement.
B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
C. Concrete Masonry Units:
   1. Bond: Stacked.
   2. Coursing: One unit and one mortar joint to equal 8 inches.

3.04 PLACING AND BONDING
A. Lay hollow masonry units with face shell bedding on head and bed joints.
B. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.
C. Remove excess mortar as work progresses.
D. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.
E. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.
F. Refer to manufacturer's instructions for additional information at glazed units.

3.05 REINFORCEMENT AND ANCHORAGE
A. Place per Structural Drawings
B. Reinforced Hollow Unit Masonry: Keep vertical cores to be grouted clear of mortar, including bed area of first course.
   1. Bond Beams: At bond beams or other locations for horizontally reinforced masonry, provide special masonry units or saw to accommodate reinforcement.

3.06 MASONRY FLASHINGS
A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.
B. Lap end joints of flashings at least 6 inches, minimum, and seal watertight with flashing sealant/adhesive.

3.07 TOLERANCES

A. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.

B. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.

C. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.

D. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.

E. Maximum Variation of Joint Thickness: 1/8 inch in 3 ft.

3.08 CLEANING

A. Remove excess mortar and mortar smears as work progresses.

B. Replace defective mortar. Match adjacent work.

C. Clean soiled surfaces with cleaning solution.

D. Use non-metallic tools in cleaning operations.

3.09 PROTECTION

A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

END OF SECTION
DIVISION 05

METALS
PART 1 GENERAL

1.01 SECTION INCLUDES
A. Structural steel framing members.
B. Structural steel support members.
C. Base plates, shear stud connectors.

1.02 RELATED REQUIREMENTS
A. Section 05 12 13 - Architecturally-Exposed Structural Steel Framing: Additional requirements for structural steel members designated as architecturally-exposed structural steel (AESS).
B. This project is not required to utilize “Buy American Steel.”

1.03 REFERENCE STANDARDS
I. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2013.
DIVISION 05 - METALS
Section 05 12 00 - STRUCTURAL STEEL FRAMING

M. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum Tensile Strength, Inch and Metric Dimensions; 2015a.
O. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; 2012.
P. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2015 (with March 2016 Errata).

1.04 SUBMITTALS
A. See Section 01 33 00 – Submittal Procedures.
B. Shop Drawings:
   1. Indicate profiles, sizes, spacing, locations of structural members, openings, attachments, and fasteners.
   2. Connections not detailed.
   3. Indicate welded connections with AWS A2.4 welding symbols. Indicate net weld lengths.
C. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within the previous 12 months. All welders shall be WABO Certified for each weld type required for materials being welded.

1.05 QUALITY ASSURANCE
A. Fabricate structural steel members in accordance with AISC (MAN) "Steel Construction Manual."
B. Structural steel members designated as architecturally-exposed structural steel (AESS) to also comply with Section 05 12 13.

PART 2 PRODUCTS

2.01 MATERIALS
A. Steel Angles and Plates: ASTM A36/A36M.
B. Steel W Shapes and Tees: ASTM A992/A992M.
DIVISION 05 - METALS
Section 05 12 00 - STRUCTURAL STEEL FRAMING

C. Rolled Steel Structural Shapes: ASTM A992/A992M.

D. Cold-Formed HSS Structural Tubing: ASTM A500/A500M, Grade B, Round, Finish galvanized.


F. Structural Bolts and Nuts: Carbon steel, ASTM A307, Grade A and galvanized in compliance with ASTM A153/A153M, Class C.

G. High-Strength Structural Bolts, Nuts, and Washers: ASTM A325-N, ASTM F3125/F3125M, Type 1, with matching compatible ASTM A563 or ASTM A563M nuts and ASTM F436/F436M washers.


I. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

2.02 FABRICATION

A. Shop fabricate to greatest extent possible. Steel fabrication shop shall be WABO Certified.

B. Fabricate connections for bolt, nut, and washer connectors to the extent possible.

2.03 FINISH

A. Except where visible, shop prime structural steel members. Do not prime surfaces that will be fireproofed, field welded, in contact with concrete, or high strength bolted.

B. Galvanize structural steel pipe and exposed members to comply with ASTM A123/A123M. Provide minimum 1.7 oz/sq ft galvanized coating.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that conditions are appropriate for erection of structural steel and that the work may properly proceed.

3.02 ERECTION

A. Erect structural steel in compliance with AISC 303.

B. Do not field cut or alter structural members without approval of Architect.
3.03 TOLERANCES

A. Maximum Offset From True Alignment: 1/4 inch.

END OF SECTION
SECTION 05 12 13 - ARCHITECTURALLY-EXPOSED STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Additional requirements for structural steel members designated as architecturally-exposed structural steel (AESS).

1.02 RELATED REQUIREMENTS

A. Section 05 12 00 - Structural Steel Framing: General requirements for structural steel members, including AESS framing specified in this section.

1.03 REFERENCE STANDARDS

E. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2013.
F. ASTM A1085/A1085M - Standard Specification for Cold-Formed Welded Carbon Steel Hollow Structural Sections (HSS); 2015.
G. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; 2012.

1.04 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.
B. Shop Drawings: Detailing for fabrication of AESS components.
   1. Provide erection documents clearly indicating which members are AESS members and the AESS category of each part.
   2. Include details that clearly identify AESS requirements found in this specification. Provide connections for AESS consistent with concepts shown on drawings.
3. Indicate welds by AWS A2.4 symbols, distinguishing between shop and field welds, and show size, length and type of each weld. Identify grinding, finish and profile of welds as defined by the designated AESS category.

4. Indicate which surfaces or edges are exposed and what class of surface preparation is being used.

5. Indicate special tolerances and erection requirements as noted on drawings or defined by the designated AESS category.

1.05 QUALITY ASSURANCE

A. Fabricator Qualifications: In addition to those qualifications listed in Section 05 12 00, (including all steel fabricators shall be WABO Certified) engage an AISC Certified Fabricator, experienced in fabricating AESS similar to that indicated for this project with a record of successful in-service performance, as well as sufficient production capacity to fabricate AESS without delaying the work.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Handle finished pieces in accordance with Section 10 of AISC 303, using nylon-type slings, or chains with softeners, or wire ropes with softeners such that they are not damaged.

B. Store materials to permit easy access for inspection and identification. Keep steel members off ground by using pallets, platforms, or other supports. Protect steel members and packaged materials from erosion and deterioration. Use special care in handling to prevent twisting or warping of AESS members.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Comply with Section 05 12 00, except as amended in this section for aesthetic purposes.

2.02 FABRICATION

A. Fabricate and assemble AESS in shop to greatest extent possible. Locate field joints in AESS assemblies at concealed locations or as approved by Architect. Detail AESS assemblies to minimize field handling and expedite erection.

B. Permissible tolerances for member depth, width, out of square, and camber and sweep to be as specified in ASTM A6/A6M, ASTM A500/A500M, and ASTM A1085/A1085M.

C. Use special care in handling and shipping of AESS both before and after shop painting to minimize damage to any shop finish. Use nylon-type slings or softeners when using chains or wire rope slings.
DIVISION 05 - METALS
Section 05 12 13 - ARCHITECTURALLY-EXPOSED STRUCTURAL STEEL FRAMING

D. Welded Connections:
   1. Assemble and weld built-up sections by methods that will maintain alignment of members without warp exceeding tolerances of this section.

E. Fabricate AESS in accordance with categories defined in AISC 303, as follows:

2.03 GALVANIZING

A. Hot-Dip Galvanized Finish: Apply zinc coating by hot-dip process to AESS indicated for galvanizing according to ASTM A123/A123M. Fabricate such that all connections of assemblies are made in the field with bolted connections where possible.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Erector to check all AESS members upon delivery for twist, kinks, gouges or other imperfections which may result in rejection of appearance of member. Coordinate remedial action with fabricator prior to erecting steel.

3.02 PREPARATION

A. Handle, lift and align pieces using nylon straps or chains with softeners required to maintain appearance of AESS through process of erection.

END OF SECTION
PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Stainless steel structural support wire rope assemblies.
   1. Structural Ties.
   2. Suspension Cables.
   3. Tension Elements.

B. Stainless steel structural support rod assemblies.
   1. Suspension Rods.
   2. Tension Elements.
   3. Structural Ties.
   4. Support rods.

C. Stainless steel protective barrier netting wire rope assemblies.

1.02 RELATED SECTIONS

A. Section 05 50 00 - Metal Fabrications: Metal posts and framework to receive anchors and cables.

1.03 REFERENCES


B. American Iron and Steel Institute (AISI) - Steel Product Manual; Stainless and Heat Resisting Steel.

C. American Iron and Steel Institute (AISI): The Design of Fabrication of Cold Formed Steel Structures.

D. ASTM A 276 - Stainless and Heat-Resisting Steel Bars and Shapes.

E. ASTM A 380 - Practice for Cleaning and Descaling Stainless Steel Parts, Equipment and Systems.


G. ASTM A 555 - Stainless Steel Wire.


K. MIL-C-5688 - Pre-Stretching and Proof-Testing of Wire Rope Assemblies.

1.04 DESIGN / PERFORMANCE REQUIREMENTS

A. Structural Requirements: Provide stainless steel wire rope assemblies capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated on the Drawings:

1. Components: to withstand dead load, applicable snow load, vertical and horizontal seismic loads, and design loads due to pressure and suction of wind calculated in accordance with applicable building code.

2. Cooperate with regulatory agency or authority and provide data as requested authority having jurisdiction.

3. Primary and secondary support framing shall comply with current issues of AISC, AISI, and ASTM specifications, as applicable.

4. Design supports and hardware to withstand loads encountered without excessive deflection or distortion when cables are tensioned to required loading and to conform to building codes.

B. Wire rope assemblies shall be designed, fabricated, and installed to accommodate expansion and contraction of metal components without causing undue stress, buckling, opening of joints, and distortion. Design for the following minimum temperature ranges.

1. Ambient Temperature Range: 120 degrees F (67 degrees C).


C. Design supports and hardware to withstand loads encountered without excessive deflection or distortion when cables are tensioned to required amounts required to conform to applicable building codes.

D. Components shall be free from defects impairing strength, durability and appearance. Exposed surfaces throughout system shall have same inherent texture and color for similar locations.
E. Design system to prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

F. Exposed fasteners shall be of same materials, color and finish as material to which applied. Exposed surfaces throughout project shall have same inherent texture and color for similar locations.

1.05 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Provide manufacturer's standard catalog data for specified products demonstrating compliance with referenced standards. Provide list of fittings being provided with descriptions, load capabilities, and either photographs or drawings for each type.

C. Shop Drawings: Submit Shop Drawings for fabrication and installation. Include the following:
   1. Plans, elevations, and detail sections.
   2. Indicate materials, methods, finishes, fittings, fasteners, anchorages, and accessory items.
   3. Provide setting diagrams and templates for anchorages, sleeves, and bolts to be installed by others.
   4. Where materials or fabrications are indicated to comply with design loadings, include material and safety factor properties, and other information needed for structural analysis.

D. Verification Samples: Two samples representing actual products and finishes as follows:
   1. Wire rope with fitting, minimum size 12 inches (300 mm) long.
   2. Rods, minimum size 12 inches (300 mm) long.
   3. Typical fittings.

E. Installation Instructions: Manufacturer's printed installation instructions.

F. Operation and Maintenance Data: Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.

G. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.06 QUALITY ASSURANCE
A. Manufacturer Qualifications: Company specializing in manufacturer of stainless steel wire rope, fittings, and other stainless steel components with 10 years minimum successful experience.

B. Installer Qualifications: Experienced in performing work of this section that has specialized in installation of work similar to that required for this project.

C. Mock-Up: Provide a mock-up for evaluation of preparation techniques and installation workmanship.
   1. Locate in area designated by Landscape Architect.
   2. Size: Minimum of 10 SF and including typical anchors and connections.
   3. Do not proceed with remaining work until workmanship is approved by Architect.
   4. Test spacing of wire rope in mock up to ensure a four inch sphere cannot pass through the guardrail.
   5. Do not proceed with remaining work until workmanship is approved by Architect.
   6. Rework mock-up as required to produce acceptable work.
   7. Incorporation: Incorporate approved mock-up into final construction.

D. Preinstallation Meetings: Conduct meetings including Contractor, Landscape Architect, fabricator, installer and other subcontractors whose work involves wire rope assemblies to verify project requirements, foundations, supports, framing and support conditions, mounting surfaces and manufacturer's installation requirements.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. All individual parts and packages of identical parts are to be clearly marked for identification. The packing list shall include the description, quantity and piece mark of the parts, components and elements.

C. Handle and store products according to manufacturer's recommendations. Leave products wrapped or otherwise protected and under clean and dry storage conditions until required for installation.

D. Exercise care not to scratch, mark, dent, or bend metal components during delivery, storage, and installation.
1.08  PROJECT CONDITIONS

A. Verify actual openings by field measurements before fabrication; show recorded measurements on shop drawings.

B. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

PART 2 - PRODUCTS

2.01  MANUFACTURERS

A. Acceptable Manufacturer: Jakob, Inc., which is located at: 955 NW 17 Ave. Unit B; Delray Beach, FL 33445; Toll Free Tel: 866-215-1421; Tel: 561-330-6502; Fax: 561-330-6508; Email: info@jakob-usa.com; Web: www.jakob-usa.com

B. Requests for substitutions will be considered in accordance with provisions of Section 01 25 00.

C. Provide all cable, materials, fittings and components from a single manufacturer.

2.02  ASSEMBLIES

A. Provide Jakob, Inc. INOX Line stainless steel wire rope assembly components as specified and as indicated on the Drawings. Manufacturer shall engineer and fabricate components and assemblies for installation. Design requirements for individual components and wire rope shall be as indicated on the Drawings.

B. Stainless steel structural support wire rope assemblies including.

1. Structural Ties.
2. Suspension Cables.
3. Tension Elements.

C. Stainless steel structural support rod assemblies including.

1. Suspension Rods.
2. Tension Elements.
3. Structural Ties.
4. Support rods.

D. Stainless steel protective barrier netting wire rope assemblies.
2.03 SPACERS/BRACKETS

A. Provide spacers, brackets and fittings required for attachment and connection to the structure and for support of stainless steel wire rope, wire netting, and metal rod as indicated on the Drawings.

B. Spacer Load: Design Lateral Force: Per manufacturer’s recommendations as necessary to achieve the system requirements indicated on the Drawings and meet Applicable Codes.

C. Mounting Types: Fabricate from AISI Type 316 and 316L stainless steel complying with ASTM F 1145; INOX Line anchors as manufactured by Jakob, Inc. Provide sizes and types as required to meet project design conditions specified and indicated on Drawings including:

1. Shop applied swaged rope ends: Threaded external and internal swivel ends, turnbuckles, tensioning screws, end stops, clevis ends, eye ends, loop ends, and end cones.

D. Stainless Steel Bars and Shapes: Type 316 stainless steel conforming to ASTM A 276. Provide sizes and shapes as required to meet project design conditions specified and indicated on Drawings.

2.04 WIRE ROPE

A. Material: ASTM A 492 and ASTM A 555, Type 316 stainless steel. Fabricate wire rope with integral colored filament designating specific manufacturer.

B. 6x7 wire rope as manufactured by Jakob, Inc.

1. Diameter: 3/8 inches (10 mm).

2. Breaking load including safety factor: Per manufacturer’s recommendations as necessary to achieve the system requirements indicated on the Drawings and meet Applicable Codes.

C. Length: Provide wire rope tendons in lengths indicated on Drawings and approved shop drawings.

1. Provide optimum adjustment in both directions by calculating final tendon lengths with allowance for tensioning fittings with 2/3 open and with 1/3 of thread length engaged.

2. Measure tendon length from center of pin to center of pin, or center of eye to center of eye.

2.05 WIRE NETTING (MESH)
A. Material: Webnet as manufactured by Jakob, Inc. Parallel stainless steel wire ropes connected by reciprocally curved offset sleeves or clamps such that ropes are neither knotted nor crossed. Wire rope shall be fabricated from cold-drawn, AISI Type 316 stainless steel wire complying with ASTM A 492 and ASTM A 555.

B. Type 1: Webnet as manufactured by Jakob, Inc.
   1. Diameter: 5/64 inches (2 mm).
   2. Breaking load including safety factor: Per manufacturer’s recommendations as necessary to achieve the system requirements indicated on the Drawings and meet Applicable Codes.

C. Perimeter configurations:
   1. As indicated on the drawings
      a. Suitable for:
         1) Vertical installation.
         2) Horizontal installation.

2.06 STAINLESS STEEL RODS

A. Rod spindles: Solid stainless steel rods, AISI Type 316 complying with ASTM A 276.

B. Size:
   1. Select size suitable for use with the wire rope and wire netting (mesh) sizes indicated on the Specifications and Drawings.

C. Rod termination:
   1. External threads for on-site attachment.
   2. Swaged with end connector fittings.

2.07 FITTINGS AND CONNECTORS

A. Provide fittings and connectors required for wire rope assemblies and for attachment and connection of stainless steel wire rope, wire netting and metal rods to support framework and substrates.

B. Provide tamper resistant fittings that cannot be easily removed or easily loosen over time.
C. Fitting minimum breaking strength:
   1. Per manufacturer’s recommendations as necessary to achieve the system requirements indicated on the Drawings and meet Applicable Codes.
   2. As selected by manufacturer to suit application and design requirements specified.

D. Types: Fabricate from AISI Type 316 and 316L stainless steel complying with ASTM F 1145; INOX Line Fittings as manufactured by Jakob, Inc. Provide sizes and types as required to meet project design conditions specified and indicated on Drawings and reviewed shop drawings including:
   1. Shop applied swaged rope ends: Threaded external and internal swivel ends, turnbuckles, tensioning screws, end stops, clevis ends, eye ends, loop ends, and end cones.
   2. Screwed rope ends for on-site assembly: Threaded external and internal swivel ends, turnbuckles, tensioning screws, end stops, clevis ends, eye ends, loop ends, and end cones.
   3. Clamps: Ring clamps, cross clamps, wire rope clamping cones, and connecting wire rope clamps.
   4. Post fittings: Straight, angled, and spherical
   5. Anchoring systems: Studs, clevis, eye end, eye bolt, slotted, spacer baskets, radial clevis holder, cross clamp with support disk, slotted rope deflector, ball cage.

E. Accessories: Provide threaded couplings, tensioning screws, cover disks, eye bolts, eye nuts, carabineers, shackles, clips, welded rings, screws, washers, lock nuts, hexagonal nuts, dome nuts, wall anchors, screws, and wire end caps as required to complete the installation.

2.08 FINISH

A. After fabrication, clean and de-scale stainless steel wire rope, fittings, and other components in accordance with ASTM A 380.

B. Finish components with AISI No. 4 brushed satin finish in accordance with ASTM B 912.

2.09 FABRICATION

A. Tolerances: Verify dimensions on site prior to shop fabrication.
B. Fabricate stainless steel in accordance with AISI Steel Product Manual and the manufacturers requirements.

C. Shop fabricate to designs indicated on Drawings and to meet performance requirements specified.

D. Shop fabricate fittings, interfacing parts and assemblies so that field cutting adjustments are not necessary.

E. Coordinate requirements, dimensions and spacing of wire rope assemblies to ensure required factory drilled holes in supporting framework are correctly located.

F. Make exposed joints butt, flush, and hairline.

G. Fabricate connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Before beginning installation, verify that conditions installed under other sections are acceptable for installation of cable trellis systems in accordance with manufacturer's installation instructions.

B. Supply items required to be cast into concrete or embedded in masonry with setting templates, to appropriate Sections.

C. Verify supporting system for stainless steel wire rope assemblies is prepared for attachment of anchors, fittings, wire rope, and wire netting and transfer of calculated loads.

D. If conditions are the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Verify alignment, support dimensions, and tolerances are correct.

B. Inventory components to ensure all required items are available for installation. Inspect components for damage. Remove damaged components from site and replace.

C. Provide for erection and wind loads. Provide temporary bracing to maintain structure plumb and in alignment until completion of erection and installation of permanent bracing.
3.03 INSTALLATION

A. Install wire rope assemblies in accordance with manufacturer's instructions and the approved shop drawings.

B. Provide anchorage devices and fittings to secure to in-place construction; including but not limited to threaded fittings, toggle bolts and through-bolts.

C. Install components plumb, level, square, and rigid without kinks or sags.

D. Anchor to mounting surfaces as indicated on the Drawings.

E. Separate dissimilar materials with bushings, grommets or washers to prevent electrolytic corrosion.

F. Use only manufacturer's supplied cable hardware.

G. Ensure cables are clean, parallel to each other, and without kinks or sags.

H. Tension cable with hand or hydraulic equipment so that no slack is visible.

I. After final adjustment provide tamper resistant locktight materials on all fittings.

3.04 ADJUSTING AND CLEANING

A. Adjust wire rope tension and connecting hardware.

B. Remove temporary coverings and protection of adjacent work areas. Clean installed products in accordance with manufacturer's instructions before owner's acceptance.

C. Do not use abrasive cleaners.

D. Remove from project site and legally dispose of construction debris associated with this work.

3.05 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

C. Protect installed products and finished surfaces from damage during construction.

D. Replace defective or damaged components as directed by Architect.

END OF SECTION
DIVISION 05—METALS  
Section 05 50 00—Metal Fabrications

PART 1 - GENERAL

1.01 DESCRIPTION

A. Furnish materials, labor, transportation, services, and equipment necessary to install all Metal Fabrications for the Project as indicated on the Drawings complete as shown and as specified herein. Items covered by this section include, but are not limited to:

B. Boardwalk Railing
   1. Posts and Frame Materials
   2. Precut Metal Panels

C. Overlook Guardrail

D. Paving Transition Steel L

E. Handrail

F. Picnic Table

1.02 RELATED SECTIONS

A. Section 01 45 00 – Quality Control

B. Section 03 20 00 - Concrete Reinforcement

C. Section 03 30 00 - Cast-In-Place Concrete

D. Section 05 15 00 – Wire Rope Assemblies

1.03 QUALITY ASSURANCE

A. Qualifications of Fabricators: Experienced in fabrication of miscellaneous metals.

B. Qualifications of Welders: Welding shall be done only by certified welding operators currently qualified according to AWS D1.1.

C. Qualifications of Welders: Shall be certified by Washington Association of Building Officials (WABO) for structural welding.

D. Qualifications of Workmen: Provide at least one person who shall be present at all times during execution of this portion of the Work, and who shall be thoroughly familiar with the type of materials being installed, the referenced standards, the
requirements of this Work, and who shall direct all work performed under this Section. Welds indicated may be made in shop or field with approval.

E. Comply with the applicable reference specifications as specified in the GENERAL PROVISIONS and in accordance with applicable laws, codes and regulations required by the City of Bellevue. At a minimum comply with the current provisions of the following Codes and Standards:

1. International Building Code (IBC)
2. ASTM - American Society for Testing and Materials:
4. ASTM A36 - Structural Steel.
5. ASTM A 120 - Steel Pipe and Tubing.
6. ASTM A153 / A153M - 09 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
7. ASTM A325-04b – Structural Bolts, Steel
8. ASTM A490-04a – Structural Bolts, Alloy Steel
9. AWS - American Welding Society
10. AWS D1.1 - Structural Welding Code (latest edition)
13. Green Seal Environmental Standards (GS)
15. The Master Painters Institute (MPI)

1.04 SUBMITTALS:

A. Product Data
1. Submit manufacturer's published literature for specified products and accessories as applicable including manufacturer's specifications, performance calculations, and physical characteristics.

2. Submit color samples representing manufacturer’s standard color line.

B. Shop Drawings

1. Submit shop drawings for all custom fabricated items under this section for Review. Indicate profiles, sizes, connection attachments, reinforcing, anchorage, materials, finishes, size and type of fasteners and accessories. Indicate welded connections using standard AWS welding symbols.

2. Verification: Verify all measurements at the job. Show dimensions, sizes, thicknesses, gauges, finishes, joining, attachments, and relationship of work to adjoining construction. Where items must fit and coordinate with finished surfaces and/or constructed spaces, take measurements at site and not from drawings.

C. Samples

1. Contractor to provide fabricated, onsite sample of metal item(s), complete with approved finish, for approval by the Engineer before fabrication of total quantities.

2. Any fabrication of project item(s) by Contractor before Owner review and approval is subject to rejection.

3. Approved sample(s) shall be used as the standard of workmanship and shall remain on site until work has been completed and accepted in writing by the Engineer.

4. The Engineer must approve all samples prior to delivery to site.

5. Attach name, address of manufacturer and/or supplier to each sample.

1.05 DELIVERY, STORAGE AND HANDLING

A. Ship, store, and handle all items so as to protect metal components from damage on site.

B. Store in a safe location, out of pedestrian and vehicular traffic and protected from weather.

C. Repair or replace any damaged components before installation.
D. Where items must be incorporated or built into adjacent work, deliver to trade responsible for such work in sufficient time that progress of work is not delayed. Be responsible for proper location of such items.

PART 2 - PRODUCTS

2.01 MATERIALS

A. STEEL PIPE: shall be Schedule 40 Steel pipe


C. GUARD RAIL PANELS:

   1. Complex nest pattern. Height, extent, and fastener hole pattern per Drawings. Contractor shall field verify length based on as-built locations of posts in order to achieve extent shown in Drawings. Panel color to be selected from Manufacturer standard line of colors. Contact: REVAMP Panels - Shawn McCartney: 509-919-0460

   2. Or approved equal

D. GUARD RAIL MISC MATERIALS: As indicated on the Drawings.

2.02 GROUT

A. Non-shrinking Master Builder'S ''Embedco'', Conrad Sovig's ''Metel-Mxs, Sonneborn's ''Ferrolith G Redi-Mixed Grout'', or approved equal.

2.03 OTHER MATERIALS

A. All other materials, not specifically described but required for a complete and proper installation of miscellaneous metals, shall be new, first quality of their respective kinds and subject to the approval of the Architect/Engineer.

PART 3 - EXECUTION

3.01 EXISTING CONDITIONS

A. Prior to commencing any work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

B. Notify the Engineer if conditions are unacceptable to begin work.

C. Do not proceed with the work until all unsatisfactory conditions have been corrected.
3.02 COORDINATION

A. General:
   1. Carefully coordinate with all other trades to insure proper and adequate interface of the work of other trades with the Work of this Section.

B. Templates and Built-ins:
   1. Furnish all anchors, fastenings, sleeves, setting templates and layouts affecting or installed in the work of other trades in sufficient time that progress of work is not delayed.

C. Delivery:
   1. Insure timely delivery of all metal fabrications where items must be incorporated or built into adjacent work.
   2. Be responsible for to field verify the proper location all metal fabrications prior to final installation in sufficient time that progress of work is not delayed.

3.03 INSTALLATION

A. Workmanship:
   1. Employ only workmen specifically skilled in such work.
   2. Install metal fabrications in strict accordance with the Drawings, the approved Shop Drawings, and all applicable codes, regulations and standards.
   3. Obtain Engineers review prior to site cutting or making adjustments which are not part of the scheduled work.
   4. Set all work plumb, true, rigid, and neatly trimmed out.
   5. Miter corners and angles of exposed molding and frames unless otherwise noted.
   6. Fit exposed connections accurately together to form tight hairline joints.
   7. Align all metal fabrications as shown on the Drawings, and where vertical or horizontal members are shown. Align them straight, plumb and level within tolerance.
9. Replace all work damaged in course of installation. Perform field welding in accordance with AWS D1.1.

10. After installation, grind smooth and touch-up field welds.

3.04 FABRICATION

A. The Contractor shall shop assemble all work in the largest practicable dimensions, making members true to length so assembling may be done without fillers.

B. Provide all surfaces free of file marks, dents, hammer marks, wire edges or any unsightly surface defects.

C. Roll all steel pipe coping to conform with top radius curve of each bowl and/or ledge as shown on drawings. Refer to drawings for relational tolerance to concrete surface and other steel.

D. For all attachments and reinforcements do all cutting, shearing, drilling, punching, threading, tapping, etc., required for site metalwork or for attachment of adjacent work. If applicable, drill or punch holes; do not use cutting torch.

E. Make all permanent connections in ferrous metal surfaces using welds where at all possible; do not use bolts or screws.

F. Field welds performed on painted or coated surfaces shall be properly prepared to receive protective coatings to match the adjacent finishes.

3.05 WELDING

A. Preparation: Remove all rust, paint, scale and other foreign matter. Wire brush all flame-cut edges. Clamp members as required and alternate welds, all as necessary to prevent warping or misalignment.

B. Exposed Welds: Uniformly grind smooth (no tolerance) all welds normally exposed to view and feel in the finished work.

C. Faulty and Defective Welding: Chip out and replace all welding showing cracks, slag inclusion, lack of fusion, bad undercut or other defects ascertained by visual or other means of inspection. Replace and re-weld at no cost to Owner.

D. Field Welding:

1. Procedure: Comply with AWS code of manual shielded metal-arc welding, appearance and quality of welds made, and methods used in correcting welding work.
2. Protection: Protect all adjacent surfaces from damage due to weld sparks, spatter, or tramp metal.

3.06 SURFACE TREATMENT & PROTECTIVE COATINGS

A. Cleaning:

1. Thoroughly clean all mill scale, rust, dirt, grease and other foreign matter from ferrous metal prior to any galvanizing, or painting except where weathering/corten steel is used.

2. Conditions which are too severe to be removed by hand cleaning, shall be cleaned using appropriate methods for solvent cleaning, power tool cleaning and brush-off blast cleaning.

B. Exterior Ferrous Metal:

1. Grind smooth all welds, burrs, and rough surfaces. Clean all coping from grease.

3.07 CLEAN-UP

A. Keep all areas of work clean, neat and orderly at all times. Keep paved areas clean during installation.

B. Clean up and remove all debris from the entire work area prior to final acceptance.

END OF SECTION
DIVISION 06

WOOD, PLASTICS, AND COMPOSITES
1.01 SECTION INCLUDES

A. Materials intended for the Restroom Building
   1. Non-structural dimension lumber framing.
   2. Sheathing.
   3. Roofing nailers.
   4. Preservative treated wood materials.
   5. Communications and electrical room mounting boards.
   6. Concealed wood blocking, nailers, and supports.

1.02 REFERENCE STANDARDS

E. PS 1 - Structural Plywood; 2009.
F. PS 2 - Performance Standard for Wood-Based Structural-Use Panels; 2010.

1.03 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

1.04 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.
PART 2  PRODUCTS

2.01  GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. Species: Douglas Fir-Larch, unless otherwise indicated.
   2. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
   3. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

B. Lumber fabricated from old growth timber is not permitted.

C. Provide wood harvested within a 500 mile radius of the project site.

2.02  DIMENSION LUMBER

A. Sizes: Nominal sizes as indicated on drawings, S4S.

B. Moisture Content: S-dry or MC19.

C. Stud Framing (2 by 2 through 2 by 6 ):
   2. Grade: No. 2.

D. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
   1. Lumber: S4S, No. 2 or Standard Grade.
   2. Boards: Standard or No. 3.

2.03  EXPOSED DIMENSION LUMBER

A. Submit manufacturer's certificate that products meet or exceed specified requirements, in lieu of grade stamping.

B. Sizes: Nominal sizes as indicated on drawings.

C. Surfacing: S4S.

D. Moisture Content: S-dry or MC19.

E. Stud Framing (2 by 2 through 2 by 6 ):
   1. Species: Douglas Fir.
   2. Grade: Select.

F. Structural Framing (2 by 6 through 4 by 16 ):
1. Species: Douglas Fir.
2. Grade: Select Structural Dense.

2.04 EXPOSED BOARDS
A. Submit manufacturer's certificate that products meet or exceed specified requirements, in lieu of grade stamping.
B. Moisture Content: Kiln-dry (15 percent maximum).
C. Surfacing: S4S.
D. Species: Douglas Fir.
E. Grade: No. 1, 1 Common, or Select.

2.05 CONSTRUCTION PANELS
A. Roof Sheathing: Sturd-I-Floor Structural Plywood Sheathing
   3. Edges: Tongue and groove.
   4. Performance Category: 3/4 PERF CAT.
B. Shear Wall Sheathing, Refer to Structural Drawings: Any PS 2 type.
   2. Grade: Structural I Sheathing.
   4. Edge Profile: Square edge.
C. Wall Sheathing, For interior finish: Plywood, PS 1, Grade C-C, Exterior Exposure.
D. Communications and Electrical Room Mounting Boards: PS 1 A-D plywood; 3/4 inch thick; flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.

2.06 ACCESSORIES
A. Fasteners and Anchors:
B. Sill Gasket on Top of Masonry Wall: 1/4 inch thick, plate width, closed cell plastic foam from continuous rolls.
2.07 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
   1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

B. Preservative Treatment:
      a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
      b. Treat lumber in contact with roofing, flashing, or waterproofing.
      c. Treat lumber in contact with masonry or concrete.

PART 3 EXECUTION

3.01 PREPARATION

A. Install sill gasket under sill plate of framed walls bearing on foundations and masonry; puncture gasket cleanly to fit tightly around protruding anchor bolts.

3.02 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.03 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.

B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

C. Install structural members full length without splices unless otherwise specifically detailed.
D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AWC (WFCM) Wood Frame Construction Manual.

E. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.

F. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.04 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

B. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.

C. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

3.05 ROOF-RELATED CARPENTRY

A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

3.06 INSTALLATION OF CONSTRUCTION PANELS

A. Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using nails, screws, or staples.

B. Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches on center on all edges and into studs in field of board.
   1. At fire-rated walls, install board over wall board indicated as part of the fire-rated assembly.
   2. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
   3. Install adjacent boards without gaps.

3.07 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.

B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.
DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES
Section 06 10 00 - ROUGH CARPENTRY

3.08 CLEANING

A. Waste Disposal: Comply with the requirements of Section 01 74 19 - Construction Waste Management and Disposal.
   1. Comply with applicable regulations.
   2. Do not burn scrap on project site.
   3. Do not burn scraps that have been pressure treated.
   4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities. Refer to Hazardous Wastes requirements.

B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.

C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION
SECTION 06 20 00 - FINISH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Finish carpentry items - ceiling of Restroom Building
   B. Wood casings and moldings.

1.02 RELATED REQUIREMENTS
   A. Section 06 10 00 - Rough Carpentry: Support framing, grounds, and concealed blocking.

1.03 REFERENCE STANDARDS
   A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014, with Errata (2016).
   C. PS 1 - Structural Plywood; 2009.

1.04 SUBMITTALS
   A. See Section 01 33 00 – Submittal Procedures
   B. Product Data:
      1. Provide manufacturer's product data, storage and handling instructions for factory-fabricated units.
      2. Provide instructions for attachment hardware and fasteners.
   C. Samples: Submit two samples of wood trim 36 inch long.
   D. Samples: Submit two samples of finished ipe wood ceiling soffit 36 inches long.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS
   A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
   B. Woodwork Items:
      1. Window Casings, Wall Caps, and Moldings: Ipe, sanded and oiled.
      2. Soffits, Underside of Interior and Exterior Ceiling Surface: Ipe, 1"x 6" pregrooved, sanded and oiled.
2.02 SHEET MATERIALS
   A. Softwood Plywood: Any face species, medium density fiberboard core; PS 1 Grade A-B, glue type as recommended for application.

2.03 FASTENINGS
   B. Concealed Fasteners for Ceiling Soffit Applications: Stainless steel; length required to penetrate wood substrate 1-1/2 inch minimum.

2.04 ACCESSORIES
   A. Adhesive: Type recommended by fabricator to suit application.
   B. Aluminum Sheet: ASTM B209 (ASTM B209M), 6060 alloy, T6 temper, 0.04" thick, Mill finish.
   C. Primer: Alkyd primer sealer.

2.05 FABRICATION
   A. Shop assemble work for delivery to site, permitting passage through building openings.
   B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

PART 3 EXECUTION

3.01 EXAMINATION
   A. Verify adequacy of backing and support framing.

3.02 INSTALLATION
   A. Install custom fabrications in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade indicated.
   B. Set and secure materials and components in place, plumb and level.
   C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.

3.03 PREPARATION FOR SITE FINISHING
   A. Set exposed fasteners. Sand work smooth.
   B. Before installation, prime paint surfaces of items or assemblies to be in contact with cementitious materials.

3.04 TOLERANCES
   A. Maximum Variation from True Position: 1/16 inch.
B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

END OF SECTION
SECTION 06 83 16 - FIBERGLASS REINFORCED PANELING

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Fiberglass reinforced plastic (FRP) wall panels - factory laminated.

1.02 REFERENCE STANDARDS
   G. FM 4880 - Approval Standard for Class 1 Fire Rating of Building Panels or Interior Finish Materials; 2015.
   I. UL 2818 – GREenguARD Certification Program For Chemical Emissions For Building Materials, Finishes And Furnishings.

1.03 SUBMITTALS
   A. See Section 01 33 00 – Submittal Procedures.
   B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.
   C. Samples: Submit two samples 12 by 12 inch in size illustrating material and surface design of panels.

1.04 DELIVERY, STORAGE, AND HANDLING
   A. Store panels flat, indoors, on a clean, dry surface. Remove packaging and allow panels to acclimate to room temperature for 48 hours prior to installation.
PART 2 PRODUCTS

2.01 MANUFACTURERS
A. Fiberglass Reinforced Plastic Panels:

2.02 PANEL SYSTEMS
A. Wall Panels at interior face of insulated walls:
   1. Panel Size: 4 by 8 feet.
   2. Panel Substrate: Fluted Polypropylene
   3. Panel Thickness: 0.32 inch.
   5. Color: Gray.
   6. Attachment Method: Mechanical fasteners concealed by trim, with sealant in joints.

2.03 MATERIALS
A. Panels: Pre-Engineered Fiberglass reinforced plastic (FRP), complying with ASTM D5319.
   1. Surface Burning Characteristics: Maximum flame spread index of 25 and smoke developed index of 450; when system tested in accordance with ASTM E84.
   2. Class 1 fire rated when tested in accordance with FM 4880.
   3. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
   4. Scratch Resistance: Barcol hardness score greater than 35, when tested in accordance with ASTM D2583.
   5. Impact Strength: Greater than 6 ft lb force per inch, when tested in accordance with ASTM D256.
   7. Chemical Cleanability: Excellent chemical resistance to common cleaners and detergents when tested in accordance with ISO 2812-1.
B. Sealant: Type recommended by panel manufacturer; color matching panel.

PART 3 EXECUTION

3.01 EXAMINATION
A. Verify existing conditions and substrate flatness before starting work.
B. Verify that substrate conditions are ready to receive the work of this section.
3.02 INSTALLATION - WALLS

A. Install panels in accordance with manufacturer's instructions.
B. Cut and drill panels with carbide tipped saw blades, drill bits, or snips.
C. Pre-drill fastener holes in panels, 1/8 inch greater in diameter than fastener, spaced as indicated by panel manufacturer.
D. Apply adhesive to the back side of the panel using trowel as recommended by adhesive manufacturer.
E. Apply panels to wall with seams plumb and pattern aligned with adjoining panels.
F. Install panels with manufacturer's recommended gap for panel field and corner joints.
G. Seal gaps at floor, ceiling, and between panels with applicable sealant to prevent moisture intrusion.
H. Remove excess sealant after paneling is installed and prior to curing.

END OF SECTION
DIVISION 07

THERMAL AND MOISTURE PROTECTION
PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Water repellents applied to interior concrete slab surfaces of the Restroom Building.
   B. Water repellents applied to exterior and interior masonry surfaces, not indicated to be painted.

1.02 RELATED REQUIREMENTS
   A. Section 09 91 13 - Exterior Painting

1.03 REFERENCE STANDARDS
   A. ASTM C140/C140M - Standard Test Methods of Sampling and Testing Concrete Masonry Units and Related Units; 2016.

1.04 SUBMITTALS
   A. See Section 01 33 00 – Submittal Procedures.
   B. Product Data: Provide product description and chemical composition.
   C. Manufacturer's Qualification Statement.

1.05 QUALITY ASSURANCE
   A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years documented experience.

1.06 FIELD CONDITIONS
   A. Do not apply water repellent when ambient temperature is lower than 45 degrees F or higher than 90 degrees F.
PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Silane, Siloxane, Silane-Siloxane Blend, and Siliconate Water Repellents:
   2. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 MATERIALS

A. Water Repellent: Non-glossy, colorless, penetrating, water-vapor-permeable, non-
yellowing sealer, that dries invisibly leaving appearance of substrate unchanged.

B. TYPE I - Clear Penetrating Sealer at concrete slabs:
   1. Manufacturer: CHEMPROBE CORPORATION, 2805 Industrial Lane, Garland,
      TX 75041, (214) 271-5551
      a. Local Representative: TNW, 7929 - 2nd Avenue South, Seattle, WA 98108
   2. Trade Name: Series 636 Dura Pell 20
   3. Type: Polysiloxane/silane formulation; non-film forming, clear, water-based;
      penetrating sealer.
   4. Color: Clear, filmless
   5. Guarantee: Manufacturer's standard five (5) years

C. Miscellaneous Materials: Provide application equipment, protective masking, cleaning
materials and other incidentals required for a complete application.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work. New concrete must cure 28 days prior
   to application.

B. Verify surfaces to be coated are dry, clean, and free of efflorescence, oil, or other matter
detrimental to application of water repellent.

3.02 PREPARATION

A. Protection of Adjacent Work:
   1. Protect adjacent landscaping, property, and vehicles from drips and overspray.
   2. Protect adjacent surfaces not intended to receive water repellent.

B. Prepare surfaces to be coated as recommended by water repellent manufacturer for best
results.

C. Allow surfaces to dry completely to degree recommended by water repellent
manufacturer before starting coating work.
3.03 APPLICATION

A. Apply water repellent in accordance with manufacturer's instructions, using procedures and application methods recommended as producing the best results.

B. Remove water repellent from unintended surfaces immediately by a method instructed by water repellent manufacturer.

END OF SECTION
PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Board insulation at perimeter foundation wall of Restroom Building.
   B. Batt insulation in exterior wall and roof construction of Restroom Building.
   C. Batt insulation for filling perimeter window and door shim spaces and crevices in exterior wall and roof.

1.02 RELATED REQUIREMENTS
   A. Section 03 30 00 - Cast-in-Place Concrete
   B. Section 06 10 00 - Rough Carpentry: Supporting construction for batt insulation.
   C. Section 07 21 23 - Loose-Fill Insulation: Granular and bead insulation.
   D. Section 07 25 00 - Weather Barriers: Separate air barrier and vapor retarder materials.

1.03 REFERENCE STANDARDS

1.04 SUBMITTALS
   A. See Section 01 33 00 – Submittal Procedures.
   B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.
DIVISION 07 - THERMAL AND MOISTURE PROTECTION
Section 07 21 00 - THERMAL INSULATION

1.05 FIELD CONDITIONS
   A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

PART 2 PRODUCTS

2.01 APPLICATIONS
   A. Insulation at Perimeter of Foundation: Extruded polystyrene (XPS) board.
   B. Insulation in Wood Framed Walls: Batt insulation with separate vapor retarder.

2.02 FOAM BOARD INSULATION MATERIALS
   A. Extruded Polystyrene (XPS) Board Insulation: Complies with ASTM C578 with either natural skin or cut cell surfaces.
      1. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
      2. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
      3. Type and Thermal Resistance, R-value: Type IV, 5.0 (0.88) per 1 inch thickness at 75 degrees F mean temperature.

2.03 BATT INSULATION MATERIALS
   A. Glass Fiber Batt Insulation: Flexible preformed batt or blanket, complying with ASTM C665; friction fit.
      1. Combustibility: Non-combustible, when tested in accordance with ASTM E136, except for facing, if any.
      2. Formaldehyde Content: Zero.
      3. Thermal Resistance: Minimum R-value of R-10 at framed walls.

2.04 ACCESSORIES
   A. Sheet Vapor Retarder: Specified in Section 07 25 00.

PART 3 EXECUTION

3.01 BOARD INSTALLATION AT FOUNDATION PERIMETER
   A. Install boards horizontally on foundation perimeter.
   B. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.
3.02 BATT INSTALLATION

A. Install insulation in accordance with manufacturer's instructions.

B. Install in exterior wall and roof spaces without gaps or voids. Do not compress insulation.

C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids with batt.

D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.

END OF SECTION
SECTION 07 21 23 - LOOSE-FILL INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Granular insulation in cells of concrete masonry unit walls.

1.02 RELATED REQUIREMENTS
   A. Section 04 29 00 – Engineered Unit Masonry: Masonry wall system to receive loose-fill insulation.

1.03 REFERENCE STANDARDS

1.04 SYSTEM DESCRIPTION
   A. Provide thermal barrier at portion of building as indicated on drawings.

PART 2 PRODUCTS

2.01 MATERIALS
   A. Vermiculite Loose-Fill Insulation: ASTM C516, vermiculite type, water repellent, fire resistant; flame spread/smoke developed index of 0/0, when tested in accordance with ASTM E84.

2.02 APPLICATIONS
   A. Provide loose-fill insulation in the following application(s) as indicated on drawings:
      1. Fill un-grouted voids in exterior masonry walls.

PART 3 EXECUTION

3.01 EXAMINATION
   A. Verify that substrate and adjacent materials are dry and ready to receive insulation.
B. Verify wall spaces are free of mortar blockage allowing for free flow of insulation.

3.02 PREPARATION
A. Verify holes and openings have been sealed to prevent escape of insulation.

3.03 INSTALLATION
A. Install loose-fill insulation in accordance with manufacturer's instructions.
B. Deposit loose-fill insulation after masonry wall has sufficiently dried to manufacturer's suggested optimum moisture content prior to covering cores with bond beams or lintels.
C. Deposit loose-fill insulation as wall is erected and completely fill spaces.

3.04 PROTECTION
A. Place temporary signs warning workers in areas that contain loose-fill insulated walls to use caution and to prevent loss of insulation when cutting into walls.

END OF SECTION
SECTION 07 21 29 - SPRAYED INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Cellulosic insulation within the ceiling structure.

1.02 REFERENCE STANDARDS
   A. ASHRAE Std 90.1 I-P - Energy Standard for Buildings Except Low-Rise Residential Buildings; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
   F. ITS (DIR) - Directory of Listed Products; current edition.
   G. UL (DIR) - Online Certifications Directory; Current Edition.

1.03 SUBMITTALS
   A. See Section 01 33 00 – Submittal Procedure
   B. Product Data: Provide data on materials, describing insulation properties.
   C. Certificates: Certify that products of this section meet or exceed specified requirements.
   D. Manufacturer's Qualification Statement.
   E. Installer's Qualification Statement.

1.04 QUALITY ASSURANCE
   A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.
   B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience and approved by manufacturer.
1.05 FIELD CONDITIONS

A. Maintain acceptable ambient and substrate surface temperatures prior to, during, and after installation of primer and insulation materials and overcoat.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Cellulosic Fiber Sprayed Insulation:

2.02 MATERIALS

A. Cellulosic Fiber Insulation: ASTM C739; treated cellulosic fiber.
   1. Thermal Resistance (R-value): 3.9, at 1 inch thick when tested in accordance with
      ASTM C177 at 75 degrees F temperature
   3. Flame Spread / Smoke Developed Index: 0-25 / 0-450, Class A, when tested in
      accordance with ASTM E84.

2.03 ACCESSORIES

A. Primer: As required by insulation manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are clean, dry, and free of matter that may inhibit adhesion.

B. Verify other work on and within spaces to be insulated is complete prior to application.

3.02 PREPARATION

A. Mask and protect adjacent surfaces from overspray or damage.

B. Apply primer in accordance with manufacturer's instructions.

3.03 INSTALLATION

A. Install sprayed insulation in accordance with manufacturer's instructions.

B. Install sprayed insulation to a uniform monolithic density without voids.

C. Install to completely fill ceiling cavity for complete air and vapor barrier.
3.04 PROTECTION

   A. Do not permit subsequent construction work to disturb applied sprayed insulation.
PART 1 GENERAL

1.01 SECTIONS INCLUDES

A. Vapor Retarders: Materials to make exterior walls and joints around frames of openings.

1.02 in exterior walls water vapor resistant and air tight.

1.02 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-in-Place Concrete: Vapor retarder under concrete slabs on grade.

B. Section 07 62 00 - Sheet Metal Flashing and Trim: Metal flashings installed in conjunction with weather barriers.

C. Section 07 92 00 - Joint Sealants: Sealing building expansion joints.

1.03 DEFINITIONS

A. Weather Barrier: Assemblies that form either water-resistive barriers, air barriers, or vapor retarders.

B. Vapor Retarder: Air tight barrier made of material that is relatively water vapor impermeable, to the degree specified, with sealed seams and with sealed joints to adjacent surfaces.
   1. Water Vapor Permeance: For purposes of conversion, $57.2 \text{ ng/(Pa s sq m)} = 1 \text{ perm}$.

C. Water-Resistive Barrier: Water-shedding barrier made of material that is moisture resistant, to the degree specified, intended to be installed to shed water without sealed seams.

1.04 REFERENCE STANDARDS


DIVISION 07 - THERMAL AND MOISTURE PROTECTION
Section 07 25 00 - WEATHER BARRIERS

1.05 SUBMITTALS
   A. See Section 01 33 00 – Submittal Procedures.
   B. Product Data: Provide data on material characteristics.
   C. Manufacturer's Installation Instructions: Indicate preparation.

1.06 FIELD CONDITIONS
   A. Maintain temperature and humidity recommended by the materials manufacturers before, during and after installation.

PART 2 PRODUCTS

2.01 WEATHER BARRIER ASSEMBLIES
   A. Interior Vapor Retarder:
      1. On inside face of studs of exterior walls, under cladding, use mechanically fastened vapor retarder sheet.

2.02 VAPOR RETARDER MATERIALS (AIR BARRIER AND WATER-RESISTIVE)
   A. Vapor Retarder Sheet: ASTM D4397 polyethylene film, clear.
      1. Thickness: 10 mil, 0.010 inch.
      2. Water Vapor Permeance: As required by referenced standard for thickness specified.
      3. Seam and Perimeter Tape: Polyethylene self adhering type, mesh reinforced, 2 inches wide, compatible with sheet material.

2.03 ACCESSORIES

PART 3 EXECUTION

3.01 EXAMINATION
   A. Verify that surfaces and conditions are ready to accept the work of this section.

3.02 PREPARATION
   A. Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.
3.03 INSTALLATION
   A. Install materials in accordance with manufacturer's instructions.
   B. Vapor Retarders: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.
   C. Mechanically Fastened Sheets - Vapor Retarder On Interior:
      1. When insulation is to be installed in assembly, install vapor retarder over insulation.
      2. Seal seams, laps, perimeter edges, penetrations, tears, and cuts with self-adhesive tape, making air tight seal.
      3. Locate laps at a framing member; at laps fasten one sheet to framing member then tape overlapping sheet to first sheet.
      4. Seal entire perimeter to structure, window and door frames, and other penetrations.
      5. Where conduit, pipes, wires, ducts, outlet boxes, and other items are installed in insulation cavity, pass vapor retarder sheet behind item but over insulation and maintain air tight seal.

3.04 PROTECTION
   A. Do not leave materials exposed to weather longer than recommended by manufacturer.

END OF SECTION
PART 1 GENERAL

1.01 SECTION INCLUDES

A. Architectural roofing system of preformed standing seam steel panels with continuous interlocking seams.
B. Attachment system.
C. Finishes
D. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry: Roof sheathing.
B. Section 07 92 00 - Joint Sealants: Sealing joints between metal roof panel system and adjacent construction.

1.03 REFERENCE STANDARDS


1.04 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.
B. Shop Drawings: Include layouts of roof panels, details of edge and penetration conditions, spacing and type of connections, flashings, underlayments, and special conditions.
   1. Show work to be field-fabricated or field-assembled.
C. Selection Samples: For each roofing system specified, submit color chips representing manufacturer's full range of available colors and patterns.
D. Warranty: Submit specified manufacturer's warranty and ensure that forms have been completed in Owner's name and are registered with manufacturer.
1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Provide strippable plastic protection on prefinished roofing panels for removal after installation.

B. Store roofing panels on project site as recommended by manufacturer to minimize damage to panels prior to installation.

1.07 WARRANTY

A. See Section 01 70 00 – Execution and Closeout Requirements, for additional warranty requirements.

B. Finish Warranty: Provide manufacturer's special warranty covering failure of factory-applied exterior finish on metal roof panels and agreeing to repair or replace panels that show evidence of finish degradation, including significant fading, chalking, cracking, or peeling within specified warranty period of five years from Date of Substantial Completion.

C. Waterproofing Warranty: Provide manufacturer's warranty for weathertightness of roofing system, including agreement to repair or replace roofing that fails to keep out water within specified warranty period of five years from Date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design: Span-Lok hp, manufactured by AEP Span, A Division of ASC Profiles, Inc..

2.02 ARCHITECTURAL METAL ROOF PANELS

A. Architectural Metal Roofing: Provide complete engineered system complying with specified requirements and capable of remaining weathertight while withstanding anticipated movement of substrate and thermally induced movement of roofing system.

B. Metal Panels: Factory-formed panels with factory-applied finish.
   1. Steel Panels:
a. Yield strength 50,000 psi; with aluminum-zinc alloy coating conforming to ASTM A792, Class AZ50.

b. Primed and finished with manufacturer's DuraTech® 5000 finish system.

c. Steel Thickness: Minimum 24 gage (0.024 inch).

2. Profile: Standing seam, with minimum 2.0 inch seam height; concealed fastener system lapped seam in standing seam profile.

3. Texture: Smooth.

4. Color: Zincalume Plus

5. Length: Full length of roof slope, without lapped horizontal joints.

6. Seam Sealant: Factory apply high-grade butyl mastic sealant within the confines of panel’s female leg, designed to seal against adjacent male panel leg.

2.03 ATTACHMENT SYSTEM

A. Concealed System: Provide manufacturer's standard stainless steel or nylon-coated aluminum concealed anchor clips designed for specific roofing system and engineered to meet performance requirements, including anticipated thermal movement.

B. Provide additional clips for owner maintenance after construction is complete.

2.04 FABRICATION

A. Panels: Provide factory or field fabricated panels with applied finish and accessory items, using manufacturer's standard processes as required to achieve specified appearance and performance requirements.

B. Joints: Provide captive gaskets, sealants, or separator strips at panel joints to ensure weathertight seals, eliminate metal-to-metal contact, and minimize noise from panel movements.

2.05 ACCESSORIES

A. Miscellaneous Sheet Metal Items: Provide flashings, gutters, downspouts, closure strips, and similar sheet metal items of the same material, thickness, and finish as used for the roofing panels. Items completely concealed after installation may optionally be made of stainless steel.

1. Downspouts: Open face, rectangular profile.

B. Rib and Ridge Closures: Provide prefabricated, close-fitting components of steel with corrosion resistant finish or combination steel and closed-cell foam.

C. Sealants:

1. Exposed Sealant: Elastomeric; silicone, polyurethane, or silyl-terminated polyether/polyurethane.

2. Concealed Sealant: Non-curing butyl sealant or tape sealant.


PART 3  EXECUTION

3.01  EXAMINATION

A. Do not begin installation of preformed metal roof panels until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02  PREPARATION

A. Broom clean wood sheathing prior to installation of roofing system.

B. Coordinate roofing work with provisions for roof drainage, flashing, trim, penetrations, and other adjoining work to assure that the completed roof will be free of leaks.

C. Remove protective film from surface of roof panels immediately prior to installation. Strip film carefully, to avoid damage to prefinished surfaces.

D. Separate dissimilar metals by applying a bituminous coating, self-adhering rubberized asphalt sheet, or other permanent method approved by roof panel manufacturer.

E. Where metal will be in contact with wood or other absorbent material subject to wetting, seal joints with sealing compound and apply one coat of heavy-bodied bituminous paint.

3.03  INSTALLATION

A. Overall: Install roofing system in accordance with approved shop drawings and panel manufacturer's instructions and recommendations, as applicable to specific project conditions. Anchor all components of roofing system securely in place while allowing for thermal and structural movement.

1. Install roofing system with concealed clips and fasteners.

2. Minimize field cutting of panels. Where field cutting is absolutely required, use methods that will not distort panel profiles. Use of torches for field cutting is absolutely prohibited.
B. Accessories: Install all components required for a complete roofing assembly, including flashings, gutters, downspouts, trim, closure strips, and similar roof accessory items.

C. Install roofing felt and building paper slip sheet on roof deck before installing preformed metal roof panels. Secure by methods acceptable to roof panel manufacturer, minimizing use of metal fasteners. Apply from eaves to ridge in shingle fashion, overlapping horizontal joints a minimum of 2 inches and side and end laps a minimum of 3 inches. Offset seams in building paper and seams in roofing felt.

D. Roof Panels: Install panels in strict accordance with manufacturer's instructions, minimizing transverse joints except at junction with penetrations.

3.04 CLEANING

A. Clean exposed sheet metal work at completion of installation. Remove grease and oil films, excess joint sealer, handling marks, and debris from installation, leaving the work clean and unmarked, free from dents, creases, waves, scratch marks, or other damage to the finish.

3.05 PROTECTION

A. Do not permit storage of materials or roof traffic on installed roof panels. Provide temporary walkways or planks as necessary to avoid damage to completed work. Protect roofing until completion of project.

B. Touch-up, repair, or replace damaged roof panels or accessories before Date of Substantial Completion.

END OF SECTION
SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM

PART 1  GENERAL

1.01  SECTION INCLUDES
   A. Fabricated sheet metal items, including flashings, counterflashings, gutters, downspouts.
   B. Sealants for joints within sheet metal fabrications.

1.02  RELATED REQUIREMENTS
   A. Section 07 41 13 - Metal Roof Panels.

1.03  REFERENCE STANDARDS

1.04  SUBMITTALS
   A. See Section 01 33 00 – Submittal Procedures.
   B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

1.05  QUALITY ASSURANCE
   A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.

1.06  DELIVERY, STORAGE, AND HANDLING
   A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
   B. Prevent contact with materials that could cause discoloration or staining.
PART 2  PRODUCTS

2.01  SHEET MATERIALS
A. Pre-Finished Steel with aluminum-zinc alloy coating conforming to ASTM A792, Class AZ50; minimum 24 gage, (0.0239) inch thick base metal, shop pre-coated to match Metal Roof

2.02  FABRICATION
A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
B. Form pieces in longest possible lengths.
C. Hem exposed edges on underside 1/2 inch; miter and seam corners.
D. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
E. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.
F. Fabricate flashings to allow toe to extend 2 inches over roofing gravel. Return and brake edges.

2.03  GUTTER AND DOWNSPOUT FABRICATION
A. Gutters: SMACNA (ASMM), Rectangular profile.
B. Downspouts: Round profile.
C. Gutters and Downspouts: Custom size indicated.
D. Accessories: Profiled to suit gutters and downspouts.
   1. Anchorage Devices: In accordance with SMACNA (ASMM) requirements.
   2. Downspout Supports: per drawings.
E. Downspout Boots: Cast iron.
F. Seal metal joints.

2.04  ACCESSORIES
A. Fasteners: Same material and finish as flashing metal, with soft neoprene washers.
B. Primer: Zinc chromate type.
C. Concealed Sealants: Non-curing butyl sealant.
DIVISION 07 - THERMAL AND MOISTURE PROTECTION  
Section 07 62 00 - SHEET METAL FLASHING AND TRIM

D. Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.

E. Plastic Cement: ASTM D4586/D4586M, Type I.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify roofing termination and base flashings are in place, sealed, and secure.

3.02 PREPARATION

A. Install starter and edge strips, and cleats before starting installation.

INSTALLATION

A. Secure flashings in place using concealed fasteners.

B. Apply plastic cement compound between metal flashings and felt flashings.

C. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.

D. Secure gutters and downspouts in place with concealed fasteners.

E. Connect downspouts to downspout boots, and grout connection watertight.

END OF SECTION
PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Nonsag gunnable joint sealants.
   B. Self-leveling pourable joint sealants.
   C. Joint backings and accessories.

1.02 RELATED REQUIREMENTS
   A. Section 03 30 00 - Cast-in-Place Concrete
   B. Section 07 25 00 - Weather Barriers: Sealants required in conjunction with air barriers and vapor retarders.
   C. Section 08 80 00 - Glazing: Glazing sealants and accessories.

1.03 REFERENCE STANDARDS
   G. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition.

1.04 SUBMITTALS
   A. See Section 01 33 00 – Submittal Procedures.
   B. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
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Section 07 92 00 - JOINT SEALANTS

1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
2. List of backing materials approved for use with the specific product.
3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
4. Substrates the product should not be used on.

C. Preconstruction Laboratory Test Reports: Submit at least four weeks prior to start of installation.

1.05 QUALITY ASSURANCE

A. Preconstruction Laboratory Testing: Arrange for sealant manufacturer(s) to test each combination of sealant, substrate, backing, and accessories.
3. Allow sufficient time for testing to avoid delaying the work.
4. Deliver to manufacturer sufficient samples for testing.
5. Report manufacturer's recommended corrective measures, if any, including primers or techniques not indicated in product data submittals.
6. Testing is not required if sealant manufacturer provides data showing previous testing, not older than 24 months, that shows satisfactory adhesion, lack of staining, and compatibility.

PART 2 PRODUCTS

2.01 JOINT SEALANT APPLICATIONS

A. Scope:
1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
   a. Wall expansion and control joints.
   b. Joints between door, glazing, and other frames and adjacent construction.
   c. Joints between different exposed materials.
   d. Openings below ledge angles in masonry.
   e. Other joints indicated below.
2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
   a. Joints between door, window, and other frames and adjacent construction.
   b. Control Joints in concrete slab on grade
   c. Other joints indicated below.
3. Do not seal the following types of joints.
   a. Intentional weepholes in masonry.
b. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.

c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.

d. Joints where installation of sealant is specified in another section.

e. Joints between suspended panel ceilings/grid and walls.

B. Exterior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.

C. Interior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.
   2. Wall and Floor Joints Where Tamper-Resistance is Required: Non-sag tamper-resistant polyurethane sealant.
   3. Joints between Fixtures in Wet Areas and Floors, Walls, and Ceilings: Mildew-resistant silicone sealant; white.

D. Interior Wet Areas: Restrooms areas; fixtures in wet areas include plumbing fixtures, food service equipment, countertops, and other similar items.

E. Areas Where Tamper-Resistance is Required: Areas below 8’-6” height.

2.02 JOINT SEALANTS - GENERAL

A. Sealants and Primers: Provide products having lower volatile organic compound (VOC) content than indicated in SCAQMD 1168.

2.03 NONSAG JOINT SEALANTS

A. Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic.
   1. Color: To match adjacent material.

B. Tamper-Resistant Polyurethane Sealant: ASTM C920, Grade NS, Uses M, G, and A; single or multi-component; not expected to withstand continuous water immersion or traffic.
   1. Movement Capability: Plus and minus 12-1/2 percent, minimum.
   2. Hardness Range: 50 to 60, Shore A, when tested in accordance with ASTM C661.
   3. Color: Match adjacent finished surfaces.

2.04 ACCESSORIES

A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
   1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type O - Open Cell Polyurethane.
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Section 07 92 00 - JOINT SEALANTS

2. Open Cell: 40 to 50 percent larger in diameter than joint width.

B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

C. Primers: Type recommended by sealant manufacturer to suit application; non-staining.

PART 3 EXECUTION

3.01 EXAMINATION
A. Verify that joints are ready to receive work.
B. Verify that backing materials are compatible with sealants.
C. Verify that backer rods are of the correct size.

3.02 PREPARATION
A. Remove loose materials and foreign matter that could impair adhesion of sealant.
B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.
C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

3.03 INSTALLATION
A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
B. Perform installation in accordance with ASTM C1193.
C. Install bond breaker backing tape where backer rod cannot be used.
D. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.
E. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.
F. Nonsag Sealants: Tool surface slightly recessed, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

END OF SECTION
DIVISION 08

OPENINGS
PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Preliminary schedule of door hardware sets for swinging as indicated on drawings.

1.02 RELATED REQUIREMENTS
   A. Section 08 71 00 - Door Hardware: Requirements to comply with in coordination with this section.

1.03 REFERENCE STANDARDS
   A. BHMA A156.3 - American National Standard for Exit Devices; 2014.
   B. BHMA A156.18 - American National Standard for Materials and Finishes; 2012.
   C. DHI (H&S) - Sequence and Format for the Hardware Schedule; 1996.

1.04 SUBMITTALS
   A. See Section 01 33 00 – Submittal Procedures.
   B. Comply with submittal requirements as indicated in Section 08 71 00.

PART 2 PRODUCTS

2.01 MANUFACTURERS
   A. Only manufacturers listed in Door Hardware Schedule or Section 08 71 00 are considered acceptable, unless noted otherwise.
   B. Obtain each type of door hardware as indicated from a single manufacturer and single supplier.
   C. Manufacturer's Abbreviations: Coordinate with manufacturers listed in Section 08 71 00.
      1. BAS - Best Access Systems. 2.01

DESCRIPTION
   A. Door hardware sets provided represent the design intent, they are only a guideline and should not be considered a detailed or complete hardware schedule.
1. Provide door hardware item(s) as required for similar purposes, even when item is not listed for a door in Door Hardware Schedule.

2. Necessary items that are not included in a Hardware Set should be added and have the appropriate additional hardware as required for proper application and functionality.

3. Door hardware supplier is responsible for providing proper size and hand of door for products required in accordance with Door Hardware Schedule and as indicated on drawings.

4. Quantities listed are for each Pair (PR) of doors, or for each Single (SGL) door, as indicated in hardware sets.

2.02 LOCK FUNCTION CODES

A. Function Codes for Mortise Locks: Complying with BHMA A156.13.

1. Code F07; Storeroom/Exit Lock: Deadlocking latch bolt by inside knob or key outside. Outside knob rigid.

2. Code F13; Dormitory Lock: Latch bolt by knobs except when outside knob is locked by projecting deadbolt. Key outside retracts deadbolt and unlocks outside knob. Rotating inside knob retracts both bolts.

2.04 FINISHES

A. Finishes: Complying with BHMA A156.18.

1. Code 626: Satin chromium plated over nickel, with brass or bronze base material (former US equivalent US26D).

PART 3 EXECUTION

3.01 DOOR HARDWARE SCHEDULE

A. Organize listing of door hardware components within each hardware set in compliance with 10-Part scheduling sequence indicated in DHI (H&S), unless otherwise indicated.

B. Ensure locks can utilize NL of NLA key from Best; no alternatives.

3.02 HARDWARE SET # 01: "RESTROOM"

A. For use on Door Number(s): 01, 02, 03.

B. Provide for each Single (SGL) door(s).

<table>
<thead>
<tr>
<th>UNITS</th>
<th>LOCK</th>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>FINISH</th>
<th>MFR</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Each</td>
<td></td>
<td>HINGE</td>
<td>5BB1 4.5 X 4.5</td>
<td>626</td>
<td>BAS</td>
</tr>
<tr>
<td>1 Each</td>
<td>F13</td>
<td>DORMITORY LOCK</td>
<td>45H T 15 H</td>
<td>626</td>
<td>BAS</td>
</tr>
<tr>
<td>1 Each</td>
<td></td>
<td>CONCEALED CLOSER</td>
<td>2010</td>
<td>626</td>
<td>LCN</td>
</tr>
</tbody>
</table>
C. OPERATIONAL DESCRIPTION: PRIVACY LOCK WITH LEVER ON INSIDE AND KEY ON OUTSIDE. PROVIDE LOCK INDICATOR TO OUTSIDE TO INDICATE OCCUPIED OR VACANT.

3.03 HARDWARE SET # 02: "JANITOR / UTILITY / STORAGE"

A. For use on Door Number(s): 04.

B. Provide for each Pair (SGL) door(s).

<table>
<thead>
<tr>
<th>UNITS</th>
<th>LOCK</th>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>FINISH</th>
<th>MFR</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Each</td>
<td></td>
<td>HINGE</td>
<td>5BB1 4.5 X 4.5</td>
<td>626</td>
<td>BAS</td>
</tr>
<tr>
<td>1 Each</td>
<td>F07</td>
<td>STOREROOM LOCK</td>
<td>45H D 15 H</td>
<td>626</td>
<td>BAS</td>
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<td>1 Each</td>
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<td>OH STOP</td>
<td>410S</td>
<td>626</td>
<td>IVE</td>
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<td>1 Each</td>
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<td>CONCEaled CLOSER</td>
<td>2010</td>
<td>626</td>
<td>LCN</td>
</tr>
<tr>
<td>3 Each</td>
<td></td>
<td>SILENCER</td>
<td>SR64</td>
<td>GRY</td>
<td>IVE</td>
</tr>
</tbody>
</table>

C. OPERATIONAL DESCRIPTION: LOCKED DOOR WITH KEY ACCESS. CANNOT BE LEFT UNLOCKED. INSIDE ALWAYS FREE. HOLD OPEN.

END OF SECTION
SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Thermally insulated hollow metal doors with frames.

1.02 RELATED REQUIREMENTS
   A. Section 08 71 00 - Door Hardware.

1.03 REFERENCE STANDARDS
   C. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2014.
   E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
DIVISION 08 - OPENINGS
Section 08 11 13 - HOLLOW METAL DOORS AND FRAMES

1.04 SUBMITTALS
A. See Section 01 33 00 – Submittal Procedures.
B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced standards/guidelines.
C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.

1.05 QUALITY ASSURANCE
A. Maintain at project site copies of reference standards relating to installation of products specified.

1.06 DELIVERY, STORAGE, AND HANDLING
A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

PART 2 PRODUCTS

2.01 DESIGN CRITERIA
A. Requirements for Hollow Metal Doors and Frames:
   1. Steel used for fabrication of doors and frames shall comply with one or more of the following requirements; Galvannealed steel conforming to ASTM A653/A653M, cold-rolled steel conforming to ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel conforming to ASTM A1011/A1011M, Commercial Steel (CS) Type B for each.
   2. Accessibility: Comply with ICC A117.1 and ADA Standards.
B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.02 HOLLOW METAL DOORS
A. Exterior Doors: Thermally insulated. Storage.Utility Room
   1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
      a. Level 4 - Maximum-duty.
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b. Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.
c. Model 1 - Full Flush.
d. Door Face Metal Thickness: 14 gage, 0.067 inch, minimum.
e. Zinc Coating: A60/ZF180 galvannealed coating; ASTM A653/A653M.

2. Door Thermal Resistance: R-Value of 8.7, minimum, for installed thickness of polyurethane.
5. Weatherstripping: Integral, recessed into door edge or frame.
6. Door Sweep: Pemko 216_FG Door Shoe; 216DFG

B. Exterior and Interior Doors, Non-Fire Rated:
1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
   a. Level 4 - Maximum-duty.
   b. Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.
   c. Model 1 - Full Flush.
   d. Door Face Metal Thickness: 14 gage, 0.067 inch, minimum.
   e. Zinc Coating: A60/ZF180 galvannealed coating; ASTM A653/A653M.

2.03 HOLLOW METAL FRAMES
A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.

B. Exterior Door Frames: Full profile/continuously welded type.
1. Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with coating thickness in accordance with requirements indicated.
2. Frame Metal Thickness: 12 gage, 0.093 inch, minimum.
3. Frame Finish: Factory primed and field finished.
4. Weatherstripping: Separate, see Section 08 71 00.

C. Interior Door Frames, Non-Fire Rated: Full profile/continuously welded type.
1. Terminated Stops: Provide at interior doors; closed end stop terminated 6 inch, maximum, above floor at 45 degree angle.
2. Frame Metal Thickness: 12 gage, 0.093 inch, minimum.

D. Frames in Masonry Walls: Size to suit masonry coursing with head member 4 inch high to fill opening without cutting masonry units.
E. Frames Wider than 48 inches: Reinforce with steel channel fitted tightly into frame head, flush with top.

2.04 FINISHES
A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer’s standard.

2.05 ACCESSORIES
A. Louvers: Roll formed steel with overlapping frame; finish same as door components; factory-installed.
   1. Style: Sightproof inverted V blade.
   2. Provide with insect screen at interior face of doors.
   3. See drawings for size and free area
   4. Fasteners: Concealed fasteners.
B. Hardware: Coordinate installation of concealed closers in frame.
C. Grout for Frames: Portland cement grout with maximum 4 inch slump for hand troweling; thinner pumpable grout is prohibited.
D. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.
E. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

PART 3 EXECUTION

3.01 EXAMINATION
A. Verify existing conditions before starting work.
B. Verify that opening sizes and tolerances are acceptable.
C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 PREPARATION
A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

3.03 INSTALLATION
A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.
B. Coordinate frame anchor placement with wall construction.
C. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.

D. Install door hardware as specified in Section 08 71 00.

E. Touch up damaged factory finishes.

3.04 TOLERANCES

A. Clearances Between Door and Frame: Comply with related requirements of specified frame standards or custom guidelines indicated in accordance with SDI 117 or NAAMM HMMA 861.

B. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.05 ADJUSTING

A. Adjust for smooth and balanced door movement.

3.06 SCHEDULE

A. Refer to Door and Frame Schedule on the drawings.

END OF SECTION
SECTION 08 31 00 - ACCESS DOORS AND PANELS

PART 1  GENERAL

1.01  SECTION INCLUDES
A. Wall access door and frame units.

1.02  RELATED REQUIREMENTS
A. Section 04 29 00 - Engineered Unit Masonry.

1.03  SUBMITTALS
A. See Section 01 33 00 – Submittal Procedures.
B. Product Data: Provide sizes, types, finishes, hardware, scheduled locations, and details of adjoining work.

PART 2  PRODUCTS

2.01  ACCESS DOORS AND PANELS ASSEMBLIES
A. Wall-Mounted Units:
   1. Location: As required by code.

PART 3  EXECUTION

3.01  EXAMINATION
A. Verify that rough openings are correctly sized and located.

3.02  INSTALLATION
A. Install units in accordance with manufacturer's instructions.
B. Install frames plumb and level in openings, and secure units rigidly in place.
C. Position units to provide convenient access to concealed equipment when necessary.

END OF SECTION
DIVISION 08 - OPENINGS
Section 08 71 00 - DOOR HARDWARE

SECTION 08 71 00 - DOOR HARDWARE

PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Hardware for wood, hollow metal, and coiling doors.
   B. Lock cylinders for doors that hardware is specified in other sections.
   C. Thresholds.
   D. Weatherstripping and gasketing.

1.02 RELATED REQUIREMENTS
   A. Section 07 92 00 – Joint Sealants: Sealants for setting exterior door thresholds.
   B. Section 08 06 71 – Door Hardware Schedule: Schedule of door hardware sets.
   C. Section 08 11 13 - Hollow Metal Doors and Frames.

1.03 REFERENCE STANDARDS
   B. BHMA A156.1 - American National Standard for Butts and Hinges; 2013.
   C. BHMA A156.4 - American National Standard for Door Controls - Closers; 2013.
   D. BHMA A156.8 - American National Standard for Door Controls - Overhead Stops and Holders; 2010.
   F. BHMA A156.18 - American National Standard for Materials and Finishes; 2012.
   G. BHMA A156.21 - American National Standard for Thresholds; 2014.
   I. BHMA A156.115 - American National Standard for Hardware Preparation in Steel Doors and Steel Frames; 2014.
1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the manufacture, fabrication, and installation of products that door hardware is installed on.

B. Preinstallation Meeting: Convene a preinstallation meeting one week prior to commencing work of this section; attendance is required by affected installers and the following:
   1. Architect.
   2. Installer’s Architectural Hardware Consultant (AHC).
   3. Hardware Installer.
   4. Owner’s Security Consultant.

C. Keying Requirements Meeting:
   1. Schedule meeting at project site prior to Contractor occupancy.
   2. Attendance Required:
      a. Contractor.
      b. Owner.
      c. Installer’s Architectural Hardware Consultant (AHC).
   3. Agenda:
      a. Establish keying requirements.
      b. Verify locksets and locking hardware are functionally correct for project requirements.
   4. Incorporate "Keying Requirements Meeting" decisions into keying submittal upon review of door hardware keying system including, but not limited to, the following:
   5. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.
   6. Deliver established keying requirements to manufacturers.

1.05 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project, and includes construction details, material descriptions, finishes, and dimensions and profiles of individual components.

C. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

D. Keying Schedule:
   1. Submit three (3) copies of Keying Schedule in compliance with requirements established during Keying Requirements Meeting unless otherwise indicated.
1.06 WARRANTY
   A. See Section 01 70 00 – Execution and Closeout Requirements, for additional warranty requirements.
   B. Warranty against defects in material and workmanship for period indicated, from Date of Substantial Completion.
      1. Locksets and Cylinders: Three years, minimum.
      2. Other Hardware: Two years, minimum.

PART 2 PRODUCTS

2.01 DESIGN AND PERFORMANCE CRITERIA
   A. Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.
   B. Provide individual items of single type, of same model, and by same manufacturer.
   C. Provide door hardware products that comply with the following requirements:
      1. Applicable provisions of federal, state, and local codes.
      3. Hardware Preparation for Steel Doors and Steel Frames: BHMA A156.115.

2.02 HINGES
   A. Hinges: Complying with BHMA A156.1, Grade 1.
      1. Provide hinges on every swinging door.
      2. Provide following quantity of butt hinges for each door:
         a. Doors From 60 inches High up to 90 inches High: four hinges.

2.03 LOCK CYLINDERS
   A. Manufacturers:
      1. Best, dormakaba Group; Match to owners existing system: Best NLA/NL key core; www.bestaccess.com/#sle.
   B. Lock Cylinders: Provide key access on outside of each lock, unless otherwise indicated.
      1. Provide cylinders from same manufacturer as locking device.
      2. Provide cams and/or tailpieces as required for locking devices.
      3. Within specific Door Sections, when provisions for lock cylinder are being referenced to this Section, provide specified lock cylinder and keyed to building keying system, unless otherwise indicated.
2.04 MORTISE LOCKS

A. Manufacturers:
   1. Best, dormakaba Group; 40H Series: www.bestaccess.com/#sle

B. Mortise Locks: Complying with BHMA A156.13, Grade 1, Security, 1000 Series.
   1. Latchbolt Throw: 3/4 inch, minimum.
   2. Deadbolt Throw: 1 inch, minimum.
   4. Lever Style: 15 - contour/angle return; ADA compliant
   5. Strikes: Provide manufacturer's standard latchbolt/deadbolt strike (S6) for each latchset or lockset with strike box and curved lip extending to protect frame in compliance with indicated requirements.
      a. Finish: To match lock or latch.

2.05 CLOSERS

A. Closers: Complying with BHMA A156.4, Grade 1.
   1. Type: Concealed, overhead mounted.
   2. Provide door closer on each exterior door.
   3. At outswinging exterior doors, mount closer on interior side of door.

2.06 KICK PLATES

A. Kick Plates: Provide along bottom edge of push side of every door with closer, unless otherwise indicated.
   1. Size: 12 inch high by 2 inch less door width (LDW) on push side of door.

2.07 WALL STOPS

A. Wall Stops: Complying with BHMA A156.16, Grade 1 and Resilient Material Retention Test as described in this standard.
   1. Type: Bumper, concave, wall stop.

2.08 THRESHOLDS

A. Thresholds: Complying with BHMA A156.21.
   1. Provide threshold at each exterior door, unless otherwise indicated.
   2. Type: Flat surface.
   4. Threshold Surface: Fluted horizontal grooves across full width.
   5. Field cut threshold to profile of frame and width of door sill for tight fit.
   6. Provide non-corroding fasteners at exterior locations.
2.09 WEATHERSTRIPPING AND GASKETING

A. Weatherstripping and Gasketing: Complying with BHMA A156.22.
1. Head and Jamb Type: Adjustable.
2. Door Sweep Type: Door shoe with drip cap.
3. Material: Aluminum, with brush weatherstripping.
4. Provide weatherstripping on each exterior door at head, jambs, and meeting stiles of door pairs, unless otherwise indicated.
5. Provide door bottom sweep on each exterior door, unless otherwise indicated.

2.10 SIGNAGE

A. Signage (Room Name Plates): Provide on doors for individuals to easily identify room names and/or numbers.
1. Text Required: "RESTROOM" with symbols and braille text.
2. Text Required: "UTILITY" with symbols and braille text.
3. Material: In metal with paint used to create necessary text, adhered to door.
4. Prepare Shop Drawings of each sign for Architects approval prior to manufacturing.

2.11 SILENCERS

A. Silencers: Provide at equal locations on door frame to mute sound of door's impact upon closing.
1. Single Door: Provide three on strike jamb of frame.

2.12 FINISHES

A. Finishes: Provide door hardware of same finish, unless otherwise indicated.
1. Primary Finish: 626; satin chromium plated over nickel, with brass or bronze base material (former US equivalent US26D); BHMA A156.18.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions and applicable codes.
B. Use templates provided by hardware item manufacturer.
C. Set exterior door thresholds with full-width bead of elastomeric sealant at each point of contact with floor providing a continuous weather seal; anchor thresholds with stainless steel countersunk screws.
3.02 ADJUSTING

A. Adjust work under provisions of Section 01 70 00 - Execution and Closeout Requirements.
B. Adjust hardware for smooth operation.
C. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.03 CLEANING

A. Clean finished hardware in accordance with manufacturer's written instructions after final adjustments have been made.
B. Clean adjacent surfaces soiled by hardware installation.

3.04 PROTECTION

A. Do not permit adjacent work to damage hardware or finish.

END OF SECTION
PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Plastic (Polycarbonate) sheet glazing units. Assume this product is a special order to meet the requirements and account for the appropriate lead times from the manufacturer.
   B. Glazing compounds and accessories.

1.02 RELATED REQUIREMENTS
   A. Section 06 10 00 - Rough Carpentry
   B. Section 07 92 00 - Joint Sealants: Sealants for other than glazing purposes.

1.03 SUBMITTALS
   A. See Section 01 33 00 – Submittal Procedures.
   B. Product Data on Plastic Sheet Glazing Unit (Polycarbonate) Glazing Types: Provide structural, physical and environmental characteristics, size limitations, special handling and installation requirements.
   C. Product Data on Glazing Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements, and identify available colors.
   D. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.04 QUALITY ASSURANCE
   A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

1.05 MOCK-UPS
   A. Provide on-site glazing mock-up with the specified glazing components and framing/blocking per the drawings.
   B. Mock-ups may remain as part of the Work.
DIVISION 08 - OPENINGS
Section 08 80 00 - GLAZING

1.06 FIELD CONDITIONS
A. Do not install glazing when ambient temperature is less than 40 degrees F.

1.07 WARRANTY
A. See Section 01 70 00 – Execution and Closeout Requirements, for additional warranty requirements.
B. Polycarbonate Sheet Glazing: Provide a ten (10) year manufacturer warranty to include coverage for breakage, coating failure, abrasion resistance, including providing products to replace failed units.

PART 2 PRODUCTS

2.01 MANUFACTURERS
A. Plastic Sheet Glazing Manufacturers; Basis of Design:

2.02 PERFORMANCE REQUIREMENTS - EXTERIOR GLAZING ASSEMBLIES
A. Vapor Retarder and Air Barrier Seals: Provide completed assemblies that maintain continuity of building enclosure vapor retarder and air barrier.
   1. In conjunction with vapor retarder and joint sealer materials described in other sections.
B. Thermal and Optical Performance: Provide exterior glazing products with performance properties as indicated. Performance properties are in accordance with manufacturer's published data:
   1. U-Value: 0.37 Btu/hr/square foot/F (2.1 W/square meter/K)
   2. Light Transmittance: 35%

2.03 PLASTIC SHEET GLAZING UNITS
A. Multiwall Polycarbonate Sheet: Ultraviolet (UV) protected.
   1. Applications: Locations as indicated on drawings.
   2. Type: Cellular (multiwall structure) sheet.
   3. Tint: Bronze.
   4. Multiwall Thickness: 5/8 inch (16 mm) overall
   7. Solar Heat Gain Coefficient (SHGC): 0.58, nominal.
   8. Manufacturers:
      b. Substitutions: Refer to Section 01 60 00 - Product Requirements.
2.04 ACCESSORIES

A. Setting Blocks: Silicone, with 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot of glazing or minimum 4 inch by width of glazing rabbet space minus 1/16 inch by height to suit glazing method and pane weight and area.

B. Glazing Tape, Aluminum Sealing Type per manufacture.
   1. Install impermeable tape at top of sheet
   2. Install ventilated tape at bottom of the sheet

C. Glazing Fasteners: Polygal Mega-Lock Aluminum Glazing System 6-16
   1. Provide complete system with base, cap, cap cover, and gasket.

D. Glazing Clips: Manufacturer's standard type.
   1. R-Profile Polycarbonate corners

PART 3 EXECUTION

3.01 VERIFICATION OF CONDITIONS

A. Verify that openings for glazing are correctly sized and within tolerances, including those for size, squareness, and offsets at corners.

B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and support framing is ready to receive glazing system.

3.02 INSTALLATION, GENERAL

A. Install glazing in compliance with written instructions of glass, gaskets, and other glazing material manufacturers, unless more stringent requirements are indicated, including those in glazing referenced standards.

B. Do not exceed edge pressures around perimeter of glass lites as stipulated by glass manufacturer.

C. Set glass lites of system with uniform pattern, draw, bow, and similar characteristics.

D. Set glass lites in proper orientation so that coatings face exterior or interior as indicated.

3.03 INSTALLATION - DRY GLAZING METHOD (TAPE AND GASKET SPLINE GLAZING)

A. Application - Exterior Glazed: Set glazing infills from the exterior of the building.

B. Cut glazing tape to length; install on glazing pane. Seal corners by butting tape and sealing junctions with butyl sealant.
C. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.

D. Rest glazing on setting blocks and push against fixed stop with sufficient pressure to attain full contact.

E. Install removable stops without displacing glazing spline. Exert pressure for full continuous contact.

F. Carefully trim protruding tape with knife.

3.04 CLEANING

A. Remove excess glazing materials from finish surfaces immediately after application using solvents or cleaners recommended by manufacturers.

B. Remove non-permanent labels immediately after glazing installation is complete.

C. Clean glazing and adjacent surfaces after sealants are fully cured.

D. Clean glazing on both exposed surfaces not more than 4 days prior to Date of Substantial Completion in accordance with glass manufacturer's written recommendations.

END OF SECTION
PART 1 GENERAL

1.01 SECTION INCLUDES

   A. Surface preparation for all surfaces of the Restroom Building, interior and exterior.

   B. Field application of paints and stains.

   C. Scope: Finish exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
       1. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
       2. CMU exterior walls.
       4. Mechanical and Electrical:
           a. On the roof and outdoors, paint equipment that is exposed to weather or to view, including factory-finished materials.

   D. Do Not Paint or Finish the Following Items:
       1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
       2. Items indicated to receive other finishes, including wood ceiling and trim to be sanded and oiled.
       3. Items indicated to remain unfinished.
       4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
       5. Floors, unless specifically indicated.
       8. Concealed pipes, ducts, and conduits.

1.02 RELATED REQUIREMENTS

   A. Section 07 19 00 Water Repellents: Concrete Masonry Unit finish

1.03 REFERENCE STANDARDS


   B. ASTM D4258 - Standard Practice for Surface Cleaning Concrete for Coating; 2005 (Reapproved 2012).
DIVISION 09 - FINISHES
Section 09 91 13 - EXTERIOR PAINTING


D. SSPC-SP 1 - Solvent Cleaning; 2015.

E. SSPC-SP 6 - Commercial Blast Cleaning; 2007.

1.04 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Product Data: Provide complete list of products to be used, with the following information for each:
   1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
   2. MPI product number (e.g. MPI #47).
   3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.

C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
   1. Where sheen is specified, submit samples in only that sheen.

D. Final Artwork: Submit final artwork for west elevation for approval by the owner and architect.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.07 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Do not apply exterior paint and finishes during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

D. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.

B. Paints:

2.02 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes: Ready mixed, unless required to be a field-catalyzed paint.
   1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
   2. Supply each paint material in quantity required to complete entire project's work from a single production run.
   3. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.

B. Volatile Organic Compound (VOC) Content:
   1. Provide paints and finishes that comply with the most stringent requirements specified in the following:
   2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

2.03 PAINT SYSTEMS - EXTERIOR

A. Concrete/Masonry, Opaque, Alkyd, 3 Coat:
   1. One coat of block filler;
   2. Flat: Two coats of alkyd enamel;
B. Medium Duty Door/Frame: For surfaces subject to frequent contact by occupants, including metals:
   1. Medium duty applications include doors and door frames.
   2. Two top coats and one coat primer.
   3. Top Coat(s): Interior Light Industrial Coating; Tenemic Series 73 EnduraShield, two component polyurethane.
   4. Top Coat Sheen:
      a. Semi-Gloss: MPI gloss level 5; use this sheen at all locations.
   5. Primer: As recommended by top coat manufacturer for specific substrate.

C. Wood Trim and Ceiling: For Ipe wood to match Site Furnishings called to be sanded and oiled:
   1. Linseed Oil

2.04 ACCESSORY MATERIALS

A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

B. Sacrificial Anti-Graffiti Coating: Clear, wax emulsion for coating porous or painted surfaces; capable of being removed from substrate with only hot water.
   1. Products:
      a. DryWired; Anti-Graffiti: www.drywired.com

C. Patching Material: Latex filler.

D. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.

C. Test shop-applied primer for compatibility with subsequent cover materials.

D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
   1. Masonry, Concrete, and Concrete Masonry Units: 12 percent.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.
DIVISION 09 - FINISHES
Section 09 91 13 - EXTERIOR PAINTING

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces for finishing.

D. Seal surfaces that might cause bleed through or staining of topcoat.

E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

F. Concrete:
   1. Remove release agents, curing compounds, efflorescence, and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
   2. Clean concrete according to ASTM D4258. Allow to dry.

G. Masonry:
   1. Remove efflorescence and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces or if alkalinity of mortar joints exceed that permitted in manufacturer's written instructions. Allow to dry.
   2. Prepare surface as recommended by top coat manufacturer.

H. Galvanized Surfaces:
   1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.

I. Ferrous Metal:
   1. Solvent clean according to SSPC-SP 1.
   3. Remove rust, loose mill scale, and other foreign substances using using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 "Commercial Blast Cleaning". Protect from corrosion until coated.

3.03 APPLICATION

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately

B. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".

C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

D. Apply each coat to uniform appearance.

E. Sand wood surfaces lightly between coats to achieve required finish.
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F. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

G. Wood to Receive Transparent Finishes: Tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.

H. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.05 PROTECTION

A. Protect finishes until completion of project.

B. Touch-up damaged finishes after Substantial Completion.

3.06 COLOR SCHEDULE

A. CMU Walls, and Masonry Louvers: SW 6424 Tansy Green.

B. Doors & Frames: SW 7016 Mindful Gray

C. Graphics: SW 7020 Black Fox

END OF SECTION
DIVISION 10

SPECIALTIES
SECTION 10 28 00 - TOILET AND BATH ACCESSORIES

PART 1  GENERAL

1.01  SECTION INCLUDES

A. Commercial toilet accessories.
B. Commercial shower and bath accessories.
C. Under-lavatory pipe supply covers.
D. Electric hand/hair dryers.
E. Diaper changing stations.
F. Utility room accessories.

1.02  REFERENCE STANDARDS


1.03  SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.
B. Product Data: Submit data on accessories describing size, finish, details of function, and attachment methods.

PART 2  PRODUCTS

2.01  MANUFACTURERS

A. Commercial Toilet and Bath Accessories:
   2. Substitutions: Section 01 25 00 – Substitution Procedures.
DIVISION 10 - SPECIALTIES
Section 10 28 00 - TOILET AND BATH ACCESSORIES

B. Diaper Changing Stations:

2.02 MATERIALS

A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.
   1. Grind welded joints smooth.

B. Mirror Glass: Annealed float glass, ASTM C1036 Type I, Class 1, Quality Q2, with silvering, protective and physical characteristics complying with ASTM C1503.

2.03 FINISHES

A. Stainless Steel: Satin finish, unless otherwise noted.

2.04 Commercial Toilet Accessories

A. Toilet Paper Dispenser: Double roll, surface mounted bracket type, stainless steel, spindleless type for tension spring delivery designed to prevent theft of tissue roll.

B. Soap Dispenser: Soap lather dispenser, wall-mounted, surface, with stainless steel cover and horizontal stainless steel tank and working parts; push type soap valve, check valve, and window gage refill indicator, tumbler lock.

C. Mirrors: Stainless steel framed, 1/4 inch thick annealed float glass; ASTM C1036.
   1. Annealed Float Glass: Silvering, protective and physical characteristics in compliance with ASTM C1503.
   2. Backing: Full-mirror sized, minimum 0.03 inch galvanized steel sheet and nonabsorptive filler material.

D. Grab Bars: Stainless steel, smooth surface.
   1. Heavy Duty Grab Bars: Floor supports are acceptable if necessary to achieve load rating.
      a. Push/Pull Point Load: Minimum 1000 pound-force, minimum.
      b. Dimensions: 1-1/2 inch outside diameter, minimum 0.125 inch wall thickness, exposed flange mounting, 1-1/2 inch clearance between wall and inside of grab bar.
      c. Length and Configuration: As indicated on drawings.

E. Sanitary Napkin Disposal Unit: Stainless steel, surface-mounted, self-closing door, locking bottom panel with full-length stainless steel piano-type hinge, removable receptacle.
2.05 UNDER-LAVATORY PIPE AND SUPPLY COVERS

A. Under-Lavatory Pipe and Supply Covers:
   1. Insulate exposed drainage piping including hot, cold, and tempered water supplies under lavatories or sinks to comply with ADA Standards.
   2. Exterior Surfaces: Smooth non-absorbent, non-abrasive surfaces.
   4. Fasteners: Reusable, snap-locking fasteners with no sharp or abrasive external surfaces.

2.07 Electric Hand/Hair Dryers

A. Electric Hand and Hair Dryers: Traditional fan-in-case type, with downward fixed nozzle.
   3. Cover: Stainless steel with brushed finish.
      a. Tamper-resistant screw attachment of cover to mounting plate.
   4. Air Velocity: 18,000 linear feet per minute, minimum, at full power.
   5. Heater: 500 W, minimum, at full power.
   6. Runtime as Hair Dryer: 80 seconds, nominal.

2.08 Diaper Changing Stations

A. Diaper Changing Station: Wall-mounted folding diaper changing station for use in commercial toilet facilities, meeting or exceeding ASTM F2285.
   4. Products:
      a. Koala Kare: Horizontal Stainless Steel Wall Mounted KB110-SSWM.

2.09 Utility Room Accessories

A. Mop and Broom Holder: 0.05 inch thick stainless steel, Type 304, hat-shaped channel.
   2. Length: 36 inches.

B. Hose Reel: Wall-Mount swivel type
   1. Pawder-coated steel
   2. 180 degree swivel radius
   3. Capacity: 100 feet of 5/8" hose, or 75 feet of 3/4" hose
   4. Products:
      a. Lee Valley Tools: Wall-Mount Swivel Hose Reel
PART 3  EXECUTION

3.01  EXAMINATION
   A. Verify existing conditions before starting work.
   B. Verify exact location of accessories for installation.
   C. For electrically-operated accessories, verify that electrical power connections are ready
      and in the correct locations.

3.02  INSTALLATION
   A. Install accessories in accordance with manufacturers' instructions in locations indicated
      on drawings.
   B. Install plumb and level, securely and rigidly anchored to substrate.
   C. Mounting Heights:  As required by accessibility regulations, unless otherwise indicated.

3.03  PROTECTION
   A. Protect installed accessories from damage due to subsequent construction operations.

END OF SECTION
DIVISION 11

EQUIPMENT
DIVISION 11—EQUIPMENT
Section 11 68 13—Play Area Equipment

PART 1 - GENERAL

1.01 DESCRIPTION

A. Furnish all labor, materials and equipment required to install the play equipment and structures as indicated on the drawings or as approved and specified herein. The work shall include any incidentals required to provide a finished job.

1.02 RELATED SECTIONS

A. Section 03 30 00 - Cast-In-Place Concrete
B. Section 32 18 16.12 - Synthetic Safety Surfacing

1.03 REFERENCE SAFETY GUIDELINES AND STANDARDS

A. All materials and equipment shall conform to the current issue of the "Handbook for Public Playground Safety" published by the Consumer Product Safety Commission (C.P.S.C.) and ASTM F1487-07.
B. The manufacturer and installation contractor shall be responsible for correcting any product violations of the C.P.S.C. Guidelines and ASTM F1487-07, to the satisfaction of the Architect/Engineer, should they be found after installation.
C. ADA Accessibility Guidelines (ADAAG) Section 15.6 Play Areas.
D. The Contractor must also be a Manufacturer Certified Installer and shall hold current National Playground Safety Institute Certification for Playground Safety Inspectors.
E. All Play Equipment shall be IPEMA certified.

1.04 QUALITY ASSURANCE

A. The Contractor shall have at least 3 recent (within the last 3 years) installations of Play Equipment and shall, within 48 hours of the Architect/Engineer’s request, produce written proof of such.

1.05 SUBMITTALS

A. The Contractor/Manufacturer’s Representative shall submit for approval prior to delivery scaled drawings of each specified component including dimensioned plans, color charts, erection drawings, installation details, parts list, and technical data for correct assembly of all components, clamp details, and anchoring details.

1.06 SUBSTITUTIONS
The Contractor/manufacturer shall submit requests for substitutions per Division 01 requirements.

1.07 WARRANTIES

A. Contractor shall warranty installation workmanship of all play equipment for a period of two (2) years starting on the date of Physical Completion of the Project. The Contractor shall provide information on the equipment manufacturer's guarantee.

B. Warranties shall include:

1. Lifetime warranties on steel and aluminum posts, all stainless steel hardware, clamps, deck hangers, post caps, and cast aluminum parts.

2. 15 year warranties on all perforated steel decks and stairs, steel rails, loops, rungs, sheet steel, rotationally-molded and sheet plastic components, recycled plastic lumber, roofs and crawl tubes.

3. 5 year Limited Warranty on Glass Fiber Reinforced Concrete (GFRC) material, against structural failure due to natural deterioration or manufacturing defects.

4. 3 year Limited Warranty on Flexible net climbers and ropes against natural deterioration or manufacturing defects.

PART 2 - PRODUCTS

2.01 GENERAL

A. Equivalent Products - Requests for substitution of specific play equipment products shall conform strictly to Section 01 25 00 - Substitution & Product Option.

B. Site Specificity of Design - Equipment selection is based on specific program requirements, physical constraints within the site, and public input. Requests for Product Substitution may be subject to certain subjective criteria including (in no particular order):

1. Play value
2. Footprint
3. Color Availability
4. Geometry
5. Apparent Mass and/or Visual Density
6. Adherence to ADA requirements (ADAAG)

2.02 PLAY EQUIPMENT

A. All play equipment is purchased and installed by Contractor.

B. Play equipment - manufactured by Playworld:
   a. Reference project 18-3649D for an itemized list of product information.
   c. Or, approved equals.

C. Colors shall be as identified from design 18-3649D. Provide manufacturer’s standard color options for review upon product submittal.

2.03 FINISHES

A. Polyester (Powder) Coating - The polyester coating shall be uniformly applied by the electrostatic method to a thickness of three to five mils. Promptly after application of the powder, the coating shall be oven-cured at 400 degrees Fahrenheit. The color(s) of the polyester coating shall be as selected by the Architect/Engineer from the manufacturer's standard and/or custom color selection charts.

B. Vinyl - The vinyl coating shall be oven-cured poly-vinyl chloride plastisol with a minimum thickness of 1/8". The coating shall contain ultraviolet inhibitors and mold resistors. The color(s) of the vinyl coating shall be as selected by the Architect/Engineer from the manufacturer's standard and/or custom color selection chart.

C. Galvanized Finish - All components calling for a galvanized finish shall be hot-dipped galvanized to the manufacturer's standard after fabrication. All galvanized surfaces shall be free of burs, splinters, and sharp edges.

2.04 ADDITIONAL HARDWARE

A. Additional hardware shall be provided in sufficient quantity to complete assembly of the play equipment. All hardware shall be non-ferrous or if ferrous material is used shall be galvanized, electrostatic zinc plated or polyester powder coated in accordance with the approved manufacturer's standard. Provide the Architect/Engineer with any and all maintenance and repair supplies installation
PART 3 - EXECUTION

3.01 EXAMINATION OF WORK AREA

A. Examine the areas and conditions under which work of this Section will be performed. Verify safety zones of all equipment before setting posts in concrete footings. Do not proceed until conditions detrimental to proper and timely completion of the work have been satisfactorily corrected and thus meet the manufacturer's instructions and the requirements as described above. Beginning work constitutes acceptance of conditions as satisfactory.

3.02 INSTALLATION OF COMPOUND STRUCTURES AND INDEPENDENT ACTIVITIES

A. Conform strictly to manufacturer's instructions using all appropriate materials, tools, and accessories as required. Use only experienced personnel trained in play equipment construction. The installer shall layout all equipment prior to construction to insure compliance with safety zone clearances.

B. Provide all concrete footings as required to properly place the equipment components. It is the Contractor’s responsibility to adjust drainage pipe or other new utility locations to accommodate the equipment footings.

3.03 PROTECTION

A. During construction of the play equipment structures, provide PVC web fence material in sufficient quantities and wrap the structures to prevent public access onto the equipment. Maintain the fencing wrap after completion of the play equipment and safety surfacing installation through Physical Completion of the project.

3.04 INSPECTION

A. Following the Architect/Engineer’s inspection of the completed play equipment installation, perform repairs as necessary to meet or exceed the Architect/Engineer’s requirements for fit and finish and the specifications and guidelines as referenced in 1.03 Safety Guidelines and Standards, above.

B. Warranty

1. The Contractor shall warranty that all work performed under this section shall be free from any defects in materials and workmanship. Upon notice
in writing, within two (2) years of Physical Completion, from the
Architect/Engineer to the Contractor shall, at no cost to the Owner, make
all necessary repairs or replacements of the defective work in question.
During this period of warranty, the Owner shall perform normal
maintenance and cleaning of the play area equipment.

END OF SECTION
DIVISION 22

PLUMBING
DIVISION 22—PLUMBING
Section 22 05 00—Common Work Results For Plumbing

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Common work results for Division 22 (plumbing).

1.02 SUMMARY

A. Section includes general requirements that apply to the entirety of Division 22 – Plumbing, both interior and exterior to the building, as indicated on the plans and specified herein.

B. All specification sections with Division 22 – Plumbing are complementary. All specification sections within Division 22 shall be considered to reference each other.

C. Provide all plumbing work as indicated in the drawings and specified herein.

1.03 REFERENCE STANDARDS

A. General: References used throughout Division 22 are generally accepted industry standards. The edition of the criteria cited shall be that in force at the time of bid. The Contractor shall provide all work in accordance with codes and standards in force in the Authority Having Jurisdiction for the project, to include all local amendments.

B. AISC Steel Handbook.

C. ASHRAE Applications Manual

D. ASME 31.9 - Building Services Piping.

E. ASTM D1557 - Method of Test for Moisture Density Relations of Soils.


H. MSS SP-69 - Pipe Hangers and Supports - Selection and Application.

I. NFPA 70 - National Electrical Code.

J. RCW 18.106 - Plumbers.

K. SMACNA Duct Construction Standards, Metal and Flexible.

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M. UPC - Uniform Plumbing Code.


1.04 SUBMITTALS

A. See Division 1 for submittal procedures.

B. Product Data: Provide product data for all components and equipment provided under this Division.
   1. Product sheets with more than one item or option shown shall have the product(s) and options to be used on the project clearly identified.
   2. Any equipment or materials installed or furnished without prior approval of the Owner's Representative shall be rejected and such materials will be required to be removed and replaced with approved materials at the expense of the Contractor.

C. Manufacturer's Installation Instructions: Indicate installation instructions and recommendations.

D. Field Quality Control Submittals: Indicate test reports and inspection reports.

E. Project Record Documents:
   1. Record actual routing of installed piping, including elevation (or depth for buried piping).
   2. Record actual equipment and components installed, as well as locations.
   3. RFI's, change orders, and the like shall be noted on the Record Documents where these affect the layout or other aspect of project shown on the documents. References to these shall include the RFI/change order number as well as written description(s), sketch(es), etc., indicating the change or clarification.
   4. Record actual location of installed valves and control components.
      a. Include riser diagram(s) and schedule of valve tags and locations.
   5. Final record documents:
      a. Upon completion of the project the as-built information shall be neatly transferred to a clean set Plans. This set of Plans shall be submitted for final approval and acceptance.
F. Operation and Maintenance (O&M) Data:

1. Include manufacturer's descriptive literature, operating instructions of equipment and controls, maintenance and repair data, and parts listings.

2. Include manufacturer's warranty information, including any extended warranties, or certifications of warranties required for specific products, systems, or installations.

3. Include certification of inspection(s) from the Authority Having Jurisdiction for the applicable work scope(s).

4. Include certification of training.

5. Include certification of Contractor's one-year warranty of materials and workmanship, including effective date(s) of warranty period.

6. Include SDS sheets for all chemicals, adhesives, etc., utilized in the construction process as well as those utilized by or in the constructed system(s).

G. Seismic support calculations and any related required certification(s).

1.05 QUALITY ASSURANCE

A. Manufacturer: A company specializing in manufacturing products specified in Division 22 with a minimum of three years documented experience.

B. Contractor: The contractor shall be a Washington State Licensed Plumber.

C. Backflow Testing: All testing of backflow prevention equipment shall be done by a Washington State Certified Backflow Assembly Tester (BAT) certified to work in buildings.

D. Electrical Work:

1. Contractor: Electrical work required under this Division shall be performed by a Washington State Licensed Electrician.

2. Electrical work required under this Division shall require an Electrical Permit.
   
   a. The Owner shall procure the main electrical permit for the project. Any additional permits required shall be procured by the Contractor.

3. Electrical Equipment
a. Any piece of equipment used in this project and hereinafter specified which, by its nature, requires electrical hookup, such as fans, pumps, hot water tanks, boosters, air handling equipment, etc., shall be provided with an approved label from either Underwriters Laboratories (UL), the American Gas Association (AGA) or the Canadian Standards Association (CSA).

b. Approval of agency must be for the total package (approval of individual components not acceptable) and all labels must be located outside of equipment and shall be visible to inspector.

c. It shall be the responsibility of the Contractor to meet the Agency Approval requirements of this section. Any allowance for agency costs to provide appropriate label for a piece of equipment must be included in this Bid and Contract.

E. Performance Certification: All equipment performance (water flow, heating capacity, etc.) shall be certified by a recognized national agency such as the Air Conditioning and Refrigeration Institute (ARI), Air Movement and Control Association (AMCA) and the American Society of Mechanical Engineers (ASME).

1.06 DELIVERY, STORAGE AND HANDLING

A. Refer to Division 1 for product storage and handling requirements.

B. Lift only with lugs provided. Handle carefully to avoid damage to components, enclosure and finish.

C. Protect products from weather and moisture. Provide coverings of plastic or canvas. Cover openings into pipe and duct. Isolate components from contact with the soil. Provide a means of heating for those components that may become damaged by high or low temperatures.

D. For extended outdoor storage, remove motors and other electrical equipment from enclosures not designed for outdoor use and store separately.

1.07 DEFINITIONS

A. The term "provide" means the furnishing and installing of equipment (including connections and appurtenances) complete and ready for use.

B. The terms "Electrical Contractor (EC)", "Mechanical Contractor (MC)", or "Plumbing Contractor (PC)" as used in these Specifications or on the Contract Drawings, refer to those subcontractors working under the direction of the General Contractor (GC).
1.08 MISCELLANEOUS REQUIREMENTS

A. Intent of Drawings

1. The drawings are intended to depict the general scope of arrangement. The drawings are diagrammatic and do not show the exact details and locations, nor all offsets in ductwork and piping. Provide additional fittings, offsets and extensions in piping, ductwork and related mechanical insulation to provide full systems functionality and to assure access for equipment maintenance and as detailed elsewhere in the contract. Relocate or shift piping and ductwork where conflict exists with other mechanical systems, Structure, Architecture or Electrical. Report conflicts before proceeding with work. Provide reasonable planning and layout in advance of installation in order to avoid conflicts and delays. The Contractor will be directed to adjust systems due to conflicts that could have been reasonably foreseen at the Contractor’s own expense.

2. Examine the Architectural, Civil, Structural, Mechanical, and Electrical Drawings before work is started, consult with each of the other Contractors regarding locations and spaces required for the work and lay out work to avoid interference. Failure to provide reasonable coordination shall result in the Contractor, at his own expense, moving his work to provide the necessary space for the other Contractors.

B. Permits and Fees:

1. The Owner has procured initial construction permits (including mechanical) for this project. Any additional permits required shall be procured by the Contractor.

C. Scheduling: Comply with requirements of Division 1.

D. As-Specified Equipment: These specifications and drawings; generally list only one make and model number for each item of equipment or material required for the project. This is not intended to be restrictive but is intended to indicate the standard of quality, design and features required. In addition the listed product is the basis of the design regarding physical size, capacity, electrical power requirements and performance. The product so identified is designated "as specified."

E. Prior Approvals:

1. Specifications have been written around equipment and materials selected for this project based on quality, size, capacity, and performance required to meet building design criteria. All equipment and materials used in this project that have been specified around a specific product or products shall have prior approval for product substitutions.

2. Request for Approval must be submitted in accordance with Division 1 requirements.
3. Supplier and/or Plumbing Contractor shall be responsible to ensure that substituted material or equipment is of same size, quality, capacity, weight and electrical characteristics as that specified or shown on the drawings. Any changes and cost increases required during construction due to substituted equipment; shall be paid by the Contractor/Supplier. Prior approval to bid does not mean final approval of material or equipment. Final approval will be given after final submitted data has been presented, complete with full information regarding weights, capacities, size, electrical requirements and quality.

F. Contractor’s Cost Breakdown: Submit a cost breakdown (schedule of values) of the major portions of the work. Provide this submittal along with the equipment submittals. Organize the costs generally by specification section. If one Section (Copper Pipe, for example) applies to both plumbing and hydronics, apportion the appropriate amount to each area of work.

1.09 CLOSEOUT REQUIREMENTS

A. Refer to Division 1 for execution and closeout requirements.

B. Refer to Division 1 for closeout submittal procedures.

C. Refer to Division 1 for demonstration and training requirements.

1.10 REQUESTS FOR INFORMATION

A. A Request For Information (RFI) is a formal way to ask questions, document answers and generally expedite project progress. Information requests may be submitted on any form the Contractor finds convenient, but should include the project name, a complete description of the item requested, reference drawing numbers (with location on the drawing indicated) or specification section references of where to find the item in question, and a suggested solution.

B. The Contractor shall number each of the RFI’s. This numbering system; shall be sequential, and shall generally be that established by the General Contractor, unless approved otherwise.

C. Information requests submitted with a suggested solution will be processed more rapidly than those without.

PART 2 PRODUCTS

2.01 GENERAL

A. See technical specifications for detailed product specifications.
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2.02 DAMAGED OR REJECTED MATERIALS

A. Damaged or rejected materials shall be removed from the site immediately upon discovery.

2.03 MOTORS

A. Motors shall comply with the current edition of the Washington State Energy Code. Service factor for poly-phase motors shall be 1.15. Service factor for single phase motors shall be 1.35.

PART 3 EXECUTION

3.01 EXECUTION

A. Provide all work in accordance with ASME B31.9, Building Services Piping, the UPC, State and local Health Codes, and the requirements of the Authority Having Jurisdiction.

B. The Contractor shall comply with all applicable codes and requirements including but not limited to:

1. ASME B31.9, Building Services Piping.

2. The Uniform Plumbing Code (UPC), including local amendments.

3. Washington State Department of Health requirements.


5. International Building Code requirements as they pertain to plumbing for potable water systems, except as supplemented or modified herein.

6. Requirements of the local Authority Having Jurisdiction (AHJ).

   a. Authority Having Jurisdiction: city of Kirkland.

3.02 LAYING OUT WORK

A. Locate all general reference points as established by the General Contractor and take such action as is necessary to prevent their destruction; lay out work and be responsible for all lines, elevations, grading for utilities and other work required under the Contract. Exercise proper precaution to verify figures shown on drawings before laying out work and be responsible for any error resulting from failure to exercise such precaution. Coordinate the utility installation with the final site grading and elevations. Locate existing utility lines that will be affected by the building location before any footing
work begins. Report conflicts with the Plans before proceeding with the work. Failure to follow reasonable precautions with regards to this instruction will require Contractor to alter the work at the Contractor’s expense.

3.03 ELECTRICAL WORK

A. All electrical work performed under this Section of the Specifications shall conform to all applicable portions of the Electrical Section of the Specifications, and shall conform to the NEC (NFPA 70) and all applicable codes.

B. All electrical work performed under this Section of the Specifications shall require a permit. Contractor shall obtain & pay for all required permits & fees other than those initially paid for by the Owner.

C. All electrical work performed under this Section of the Specifications shall be performed by a electrician licensed in the jurisdiction where the work is performed.

3.04 WORKMANSHIP

A. Furnish and install all equipment in a neat and finished appearance. If any portion of the work has not been installed in a workmanlike manner, or has been left in a rough, unfinished manner, the Contractor shall remove the equipment, reinstall and patch and paint surrounding surfaces without any increase in cost.

3.05 EXCAVATION - GENERAL

A. Provide all necessary excavation, shoring and backfilling required for the proper installation mechanical systems. Slope sides of excavation to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. Sewer trenches shall be excavated to the grade with the bottom rounded to the outside of sewer pipes. Bell holes shall be hand excavated to ensure the pipes resting for their entire length upon the bottom of the trench.

B. Excess excavation shall be backfilled with gravel or sand and mechanically compacted to give full support to the pipe. In case of sewer lines in rock excavation, the excavation shall be made at least 4” deeper than required and backfilled with sand to outside invert grades to provide cushion. No underground lines; shall be covered until the installation has been approved by both project personnel and the Local Inspector Having Jurisdiction. Maintain sides and slopes of excavations in safe condition until completion of backfilling. All backfill shall be thoroughly compacted.

C. No cinders shall be used for backfilling where steel, iron or copper pipe is used. Secure approval to excavate for all trenches near or under footings and for backfilling of such trenches.
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D. All soil foundation areas which will in any manner support any load bearing building components shall be compacted, by the use of mechanical tampers, to at least 95% of the maximum density of the soil foundations as determined by the compaction control test in accordance with the "Method of Test for Moisture Density Relations of Soils, ASTM D1557." The moisture control at the time of compaction shall be uniform throughout the area and shall not vary more than 5% above or below the optimum moisture content as determined by the above described "Compaction Control Test." Place fill in 8" loose layers, each layer compacted.

3.06 EXCAVATION DEWATERING

A. Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.

B. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

C. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rainwater and water removed from excavations to collection or run off areas. Do not use trench excavations as temporary drainage ditches.

3.07 EXCESS EXCAVATION MATERIAL

A. Legally dispose of dirt and debris from excavation at an off-site location.

3.08 PIPE INSTALLATION

A. Lay pipe in straight lines with uniform slope, leaving no pockets. Care shall be taken to keep all foreign materials out of the pipes during installation. Where ground water is present, provide suction pumps to keep trenches free of water, and cap end of piping exposed to ground water when work is interrupted.

B. All underground piping used for the distribution of domestic water or waste drainage systems, which are located outside the building perimeter, shall be buried a minimum of 36" from finish grade to top of pipe.

C. All piping and ductwork run above the floor shall not be located over electrical panels or switchboards except where located above the structural ceiling. This piping shall include, but not be limited to, sanitary waste and vent, storm drain and rainleaders, domestic water, and condensate drain.
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D. Isolation valves shall be provided on inlets and outlets of all major pieces of equipment to facilitate serving and removal of such equipment without the necessity of draining the associated system.

E. Provide detectable metallic underground tape for all buried piping. Install between 6”-12” above piping. Color scheme and text shall be appropriate to the associated system, and can be the manufacturer’s standard color and description.

3.09 OPENINGS IN PIPES

A. Keep closed during the work.

3.10 PIPE SLEEVES AND SEALANTS

A. General: Provide pipe sleeves or sealants for piping passing through foundations, walls, floors, partitions, and roof to allow piping to pass freely through.

B. Floor Slabs On Grade: Standard weight (Schedule 40) galvanized steel pipe. Extend the sleeve 1” above the floor. Provide “Link Seal” or equivalent for moisture resistance. Fill the space above the “Link Seal” with foam or other product to prevent debris build-up in the annular space.

C. Building Walls Above Grade

1. Non-Masonry Construction
   a. Non-Fire Rated Assembly: No sleeve is required. If the interior wall contains insulation, insure that the pipe is sealed to the wall on either side. Also insure that the pipe cannot move with respect to the wall so that the sealing system will not become damaged.

2. Masonry Construction
   a. Non-Fire Rated Assembly: Core drill and seal with an expanding foam. A galvanized Schedule 40 pipe sleeve is acceptable in lieu of a core drill opening.

D. Floors Above Grade

1. Non-Masonry Construction
   a. Non-Fire Rated Assembly: Make a hole in the floor just larger than the pipe and install the pipe. Provide a galvanized sheetmetal flashing around the pipe; install the riser clamp over the sheetmetal flashing. Insure that the galvanized sheetmetal flashing is galvanically isolated from non-ferrous piping. Also insure that standing water will not collect on top of the galvanized flashing.
material. The flanged sleeve specified above is also acceptable, provided the annular space is filled with expanding foam.

2. Masonry Construction

a. Non-Fire Rated Assembly: Same as for the non-fire rated non-masonry floor above. Cast in place sleeves and the specified flanged sleeve are also acceptable, provided the annular space is filled with expanding foam.

3.11 WALL AND FLOOR PLATES AND ESCUTCHEONS

A. Where pipes pass through finished walls, floors or ceilings, provide chromium plates, with suitable set screws or other approved holding devices. Where extended sleeves are necessary, the plates shall be of sufficient depth to cover the sleeves.

3.12 INSERTS

A. Inserts in concrete for the suspension of piping and equipment; shall be provided by this Contractor unless otherwise noted on the Plans. Provide as necessary for support of systems installed.

B. Inserts in "poured in place" concrete shall be Grinnell, Kinsdorf, Elcen, or approved equal.

3.13 PIPE HANGERS AND SUPPORTS

A. General: It shall be the responsibility of the Contractor to provide an adequate pipe suspension system in accordance with recognized engineering practices, using, where possible, standard, commercially accepted pipe hangers and accessories. Use a safety factor of five unless otherwise approved in writing.

B. All pipe hangers and supports shall conform to the latest requirements of the ANSI Code for Pressure Piping, B31.9, and Manufacturers Standardization Society Documents MSS SP-58 and MSS-SP-69. Seismic restraints shall be in accordance with the Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) Seismic Restraint Manual Guidelines for Mechanical Systems. Use Seismic Hazard Level-A unless otherwise indicated.

C. Where thermal movement in the pipe will occur, the pipe hanger assembly must be capable of support in all operating conditions. Accurate weight balance calculations shall be made to determine the supporting force at each hanger location in order to prevent excessive stress in either pipe or equipment connection.

D. Concrete Inserts: Where piping is supported from the concrete structure, inserts shall be provided for rod sizes up to 3/4". Where support rod sizes exceed 3/4" diameter or
where pipe load exceeds the recommended load for the inserts, use two inserts with a trapeze type connecting member below the concrete.

E. Riser Clamps (Vertical Piping): Pipe shall be supported at each floor with a riser clamp or at sufficient intervals to carry the weight and its contents. See the specification for hanger spacing in this section. Stacks shall be supported at their base by a concrete pier or by a suitable hanger located on the horizontal run, close to the riser. Riser clamp extensions shall rest on the building structure where possible; auxiliary steel supports shall be provided where it is impractical to rest directly on the building structure.

F. Hangers shall be subject to tensile loading only. Where lateral or axial movement is anticipated, provide a suitable linkage in hanger rod to permit swing.

G. Materials:

1. Threaded rod: electro-plated steel or hot-dip galvanized steel.

2. Strut and fittings: hot-dip galvanized steel.

3. Auxiliary support materials: hot-dip galvanized steel.

4. All support materials shall be hot dip galvanized if located outdoors, in wet/damp areas, or in corrosive environments.

H. Hanger Spacing: Special instructions for pipe support intervals shall be as detailed on the drawings. General pipe support interval instructions shall be as specified below. For any missing pipe systems, support intervals shall be per the Manufacturer’s Standardization Society of the Valve and Fitting Industry (MSS) Standard SP-69, “Pipe Hangers and Supports - Selection and Application” and the current mechanical code in force in the jurisdiction of the work. Where concentrated loads of valves, fittings, etc., occur, closer spacing will be necessary and shall be based on the weight supported and the recommended loads for the hanger components.

1. Cast iron pipe with compression gasket joints
   a. Horizontal: Every other joint unless over 4', then support each joint.
      1) Where 10' pipe sections are used, 10' horizontal spacing, support within 18" of each joint and at each horizontal branch connection. Brace at every 40' (maximum).
   b. Vertical: Base and each floor, 15' maximum.

2. Cast iron (hubless) with shielded coupling joints
   a. Horizontal: Every other joint unless over 4', then support each joint.
1) Where 10' pipe sections are used, 10' horizontal spacing, support within 18" of each joint and at each horizontal branch connection. Brace at every 40' (maximum).

2) Hangers shall not be placed on the coupling.

b. Vertical: Base and each floor, 15' maximum.

3. Copper tube & pipe with soldered or brazed joints
   a. 1-1/2" and smaller:
      1) Horizontal: 6'
      2) Vertical: Each floor, 10' maximum.
   b. 2" and larger:
      1) Horizontal: 10'
      2) Vertical: Each floor, 10' maximum.

4. Schedule 40 PVC & ABS DWV piping with solvent cemented joints
   a. Horizontal: 4'
      1) Allow for expansion every 30'.
   b. Vertical: Base and each floor.
      1) Provide mid-story guides.
      2) Allow for expansion every 30'.

5. Schedule 80 PVC piping, 60-100 deg F operating temperature
   a. 1" and smaller:
      1) Horizontal: 4-1/2'
      2) Vertical:
   b. 1-1/4" - 3":
      1) Horizontal: 5-1/2'
      2) Vertical:
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c. 4" - 8":
   1) Horizontal: 7-1/2'
   2) Vertical:

d. 10" and larger:
   1) Horizontal: 10'
   2) Vertical:

6. Copper piping with mechanical joints
   a. 1" and smaller:
      1) Horizontal: 6'
      2) Vertical: 10'
   b. 1-1/4" to 2-1/2":
      1) Horizontal: 10'
      2) Vertical: 10'

7. PEX-a piping, rigid:
   a. Horizontal: 5'
   b. Vertical: 10'

8. PEX-a piping, flexible:
   a. Horizontal: 5'
   b. Vertical: 5'

I. Hangers (Horizontal Piping):
   1. General: All hangers shall be provided with means of vertical adjustment. Hanger components shall be in accordance with the Manufacturer’s Standardization Society of the Valve and Fitting Industry (MSS) Standard SP-58, “Pipe Hangers and Supports - Materials, Design and Manufacture”.

   2. Pipe hangers and supports that are in direct contact with piping shall be of materials that are compatible with the piping and do not support galvanic action.
3. Pipe hangers and supports that are in direct contact with plastic or other malleable piping shall be constructed of materials that do not damage the surface of the piping.

4. Shields shall be placed by Mechanical Contractor on the outside of the insulation and shall be sized to prevent crushing of the high density insert at each hanger location. Do not damage the vapor barrier.

5. Roller Hangers: Provide roller hangers for all applications where thermal movement causes hanger rods to deviate more than 4” from vertical or longitudinal movement exceeds 1/2”. Provide roller hangers used in conjunction with protection saddles to suit the insulation thickness.

6. Vibration Control: Provide a vibration control hanger for all piping within a mechanical room and at the first three hanger locations from any motor operated equipment. Hanger shall consist of steel frame and spring with neoprene washers.

7. Anchors, Guides, And Sliding Supports: Shall be provided as necessary to prevent excessive stress in either piping or equipment.

8. Auxiliary Steel: All auxiliary steel necessary for the installation of the pipe hangers and supports shall be designed in accordance with the AISC Steel Handbook, and furnished by the Contractor.
   a. All auxiliary steel shall receive one shop coat of primer paint.

9. Submittals: Submittals on pipe supports will not be required if the Contractor employs items as specified in MSS SP-58, or standard “strut” based products. Submit specifics on all other support types and methodologies.

### 3.14 CUTTING AND PATCHING

#### A. General:

1. Prior to cutting, saw cutting, or core drilling any concrete, Contractor shall locate any reinforcing steel (rebar) and the like located in the concrete where the cutting is to be performed. Obtain specific approval prior to cutting any concrete reinforcement. Approval must be obtained for each specific instance of cutting reinforcement.

2. Unless directed otherwise by Structural Documents, maintain the following minimum clearances from any concrete reinforcement:
   a. Reinforcing steel: 2”
B. New Work: Furnish dimensions and locations of openings to other Contractors doing the work. Provide ample time to avoid delays and unnecessary labor. The expense for cutting and patching made necessary to admit work, repair defective material or workmanship, or by neglect to anticipate proper requirements shall be borne by this Contractor.

C. Existing Structure:

1. All necessary cutting and patching of existing structures necessary for the installation of mechanical work shall be as part of this Contract. Unless cutting and patching locations are specifically shown on the drawings, obtain approval prior to proceeding.

2. All surfaces must be patched upon completion of work. Final finish of all patched surfaces (walls, ceilings, floors etc.) shall be done patched to match the adjacent surface.

3.15 ACCESSIBILITY

A. Locate valves, traps, damper operators, access doors, etc., with easy accessibility, either accessible in mechanical spaces or through access panels specified hereinafter. The Contractor shall insure that all maintainable items are easily accessible. New work items not reasonably accessible shall be modified, relocated or otherwise changed for adequate accessibility.

3.16 COORDINATION WITH CONTROLS INSTALLATION

A. Review the controls section of Division 23 and the drawings. Provide installation of any components normally done by mechanical trades (installation of pipe wells, fittings, etc.) that are provided in the Control Specification Section specific to systems in Division 22.

3.17 MAINTENANCE AND OPERATION ACCESS

A. Provide suitable access to all mechanical equipment requiring servicing, maintenance, replacement, or repair.

1. In concealed spaces where access has not been provided by means of doors, hatchways, walkways or other means, provide wall or ceiling access doors of a type suitable to the service intended, sized to provide easy access to all equipment. Location of such doors shall be coordinated with the work of the other trades to avoid conflicts.

2. Access door locations; shall be approved by the Architect prior to installation.

B. Access Panels
1. Provide access panels for all concealed equipment, valves, and the like that requires adjustment or service access, as well as for all wall cleanouts. Panel locations shall be carefully selected on the job so as not to be located behind cabinets, lights, etc.
   a. Coordinate with the work of other Contractors before installing panels.
   b. Panels shall be prime coated and painted to match surrounding surface.
   c. In finished areas, including ceilings, all access panels shall have the same type of finished surface as that of the surrounding area.
   d. Panels shall be size appropriate for the service intended.
   e. Install before surrounding surfaces have been painted.
   f. Access panel doors shall have cylinder lock latch, all keyed alike.
   g. Provide access doors in ceiling or wall adjacent to all fire damper locations.
   h. Verify with Architect the location and finish of all access panels.
   i. Panels shall be J.R. Smith, or equal.

3.18 VIBRATION ISOLATORS

A. General: Provide vibration isolation per the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Applications Manual, Chapter “Noise and Vibration Control”. Vibration isolation shall be provided for both isolation from the building structure (devices such as spring hangers, rubber in shear isolators, etc.) and isolation from the mechanical system (devices such as pipe and duct flexible connections). This ASHRAE reference details specifically the method, type of device, and device selection required. Refer to Table 47, “Selection Guide for Vibration Isolation”.

B. Equipment that has internal isolation for all internal rotating equipment need not be provided with external vibration isolation.

C. Generally, pumps less than five horsepower will not require vibration isolation from structure.

D. Piping shall be isolated from the structure in accordance with the ASHRAE Applications Manual requirements cited above.

E. Vibration isolation may be combined with the seismic support system, if certified by the isolation equipment manufacturer.
F. Provide vibration isolation in accordance with these Specifications. Specific vibration isolation requirements may be shown on the drawings or specified in other sections. Such specific requirements supercede the general requirements in this paragraph.

3.19 SEISMIC SUPPORT


B. Equipment: Provide lateral bracing in accordance with the requirements of the Authority Having Jurisdiction. Seismic restraints shall be either factory fabricated for that purpose and selected based on local seismic design criteria, or engineered to local seismic design criteria. Provide all engineering calculation and certification required by the Authority Having Jurisdiction.

3.20 FIRE INTEGRITY

A. Maintain the fire rating of all assemblies (wall, ceiling, floor, etc) penetrated by mechanical systems. Provide approved firestopping materials as previously specified, and install in accordance with the conditions of the material UL listing.

3.21 PRESSURE TESTS AND IN-SERVICE TEST

A. All work under this Contract shall be thoroughly and systematically tested, both during construction and after completion. Pipe testing shall be either as specified in the appropriate specification section, or as specified in the applicable plumbing or mechanical code. Tests shall be maintained until approved.

B. Notifications shall be sent to the following parties 48 hours in advance of all tests:

1. Architect.

2. Owner.

3. Authority Having Jurisdiction over the specific work to be inspected.
   
   a. Notifications to AHJ shall be provided in accordance with requirements of each specific AHJ, including amount of advance notice allowed.

C. No systems, whether prescribed for testing or not, shall be covered or concealed below ground, in walls, in ceiling spaces, or generally from ease of viewing without first notifying all of the above-listed parties for inspection. Failure to provide such notification of concealed systems shall be cause to require this Contractor to uncover and re-cover such systems at no additional cost.
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D. A log of all tests shall be kept. The log shall note date, time of day test started, system or portion of system tested, length of test and test results.

E. The Contractor shall test the completed installation as in regular service. The systems provided under this Contract shall be operated in normal service for a period of at least a week prior to requesting substantial completion inspection, and any resulting defects repaired.

F. The Contractor; shall guarantee the entire system and all parts thereof for a period of one-year from the date of final acceptance, and shall repair or replace any part which may show signs of failure in that time if such failure is due to imperfections in material or to improper workmanship.

3.22 STARTUP, BALANCING AND COMMISSIONING

A. Equipment startup; shall be performed by qualified personnel. The technical specification sections will detail other special requirements, if any. Provide a statement of the startup technician’s qualifications if requested by the Architect or elsewhere specified.

B. Balancing, if required under this contract, will be specified in the “Tests and Adjustments” Specification Section in Division 23, or will be detailed on the drawings. Provide any necessary impeller trimming or other modifications to mechanical equipment required for specified performance. The Contractor will not be required to provide new impeller(s) without cost reimbursement unless specifically specified elsewhere in Division 22 or Division 23.

C. Provide startup, functional testing, and documentation to comply with basic commissioning requirements of Washington State Energy Code section C408.

3.23 CLEANING UP

A. Comply with requirements of General Specifications (Division 1, General Conditions, Etc.).

B. Pipes shall be maintained as clean as possible during construction, and shall be blown clean before the building field painting operations are started. Piping shall be thoroughly cleaned before systems are operational. Strainers shall be cleaned prior to turning the system(s) over to the owner.

C. All equipment and material installed by this Contractor shall be properly protected from damage during the course of construction. Fixtures around which plaster is installed or paint is applied shall be covered with heavy wrapping paper thoroughly secured. Fixtures and equipment shall be thoroughly cleaned before final inspection. Remove all labels from plumbing fixtures.
3.24 SPECIAL PROTECTION

A. Exercise maximum precaution to provide positive protection for the building and equipment from damage of any kind, and in particular, prevent water and dust seepage into new equipment.

B. Any damage to the building, systems, or property, caused by the Contractor shall result in the Contractor repairing or replacing the damaged item(s) at no additional cost to the Owner. This provision shall include any preventable damage caused by lack of due diligence in planning and investigation, and shall not be applied to field conditions which could not reasonably be ascertained prior to the activity causing damage.

3.25 CAULKING

A. Caulk all openings and flash around all piping, equipment, and ducts passing through roof, floor, and walls.

B. All caulking shall be waterproof, low-VOC, and zero mold growth type.

3.26 FINAL INSPECTION

A. This Contractor shall thoroughly review and inspect the project to determine when final inspection is required, and shall provide notification. It shall be understood that the work shall be essentially complete, and the open items list provided at that time. The warranty period will not start until the punchlist and back-check are complete. Additional inspections required because of lack of diligence by the Contractor will be conducted on a schedule convenient to the inspectors.

3.27 INSTRUCTION PERIODS

A. Scope: Following installation of plumbing work, have representatives of installation tradesmen conduct demonstrations and instruction periods to point out locations of servicing points and required points of maintenance to Owner’s staff.

B. General Description Of Instruction Period: Each period shall include preliminary discussion and presentation of information from maintenance manuals with appropriate references to drawings; followed by tours of building areas explaining maintenance requirements, access methods, servicing and maintenance procedures, and equipment cleaning procedures, temperature control settings and available adjustments.

C. Scheduling Of Instruction Period: Notice of Contractor's readiness to conduct such instruction and demonstration shall be given at least two-weeks prior to the instruction period, and agreement finalized as to the date at which the instruction period is to be performed. Notify two-weeks prior to date when ready to conduct instruction and demonstrations; receive approvals of proposed date prior to making final arrangements.
3.28 ON SITE OBSERVATIONS AND SAFETY MEASURES

A. The Contractor is solely responsible to provide design and construction review services relating to the Contractor's safety precautions or to means, methods, techniques, sequences or procedures required for the Contractor to perform his work. The duty of any other individual or organization to conduct construction observations of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures in, on, or near the construction site. The contractor shall be responsible for providing all safety measures and shall consult with the State and/or Federal Safety Agency or Inspector for interpretation whenever in doubt as to compliance with State and/or Federal regulations. Furthermore, the Contractor distinctly assumes all risk or damages or injury to any persons or property wherever located resulting from any action or operation under this Contract or in connection with the work.

END OF SECTION
PART 1 GENERAL

1.01 SECTION INCLUDES

A. Pressure gauges and pressure gauge taps.

B. Thermometers and thermometer wells.

1.02 REFERENCE STANDARDS

A. ASME B40.100 - Pressure Gauges and Gauge Attachments; 2013.


D. UL 393 - Indicating Pressure Gauges for Fire-Protection Service; Current Edition, Including All Revisions.

1.03 SUBMITTALS

A. Refer to Division 1 for submittal procedures.

B. Product Data: Provide list that indicates use, operating range, total range and location for manufactured components.

C. Project Record Documents: Record actual locations of components and instrumentation.

D. Operation and Maintenance Data: Manufacturer's maintenance and operational information.

1.04 FIELD CONDITIONS

A. Do not install instrumentation when areas are under construction, except for required rough-in, taps, supports and test plugs.

PART 2 PRODUCTS

2.01 PRESSURE GAUGES

A. Pressure Gauges: ASME B40.100, UL 393 drawn steel case, phosphor bronze bourdon tube, rotary brass movement, brass socket, with front recalibration adjustment, black scale on white background.
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1. Case: Steel with brass bourdon tube.

2. Size: 4-1/2 inch diameter.

3. Mid-Scale Accuracy: One percent.


2.02 PRESSURE GAUGE TAPPINGS

A. Gauge Cock: Tee or lever handle, brass for maximum 150 psi.

B. Needle Valve: Brass, 1/4 inch NPT for minimum 150 psi.

C. Pulsation Damper: Pressure snubber, brass with 1/4 inch connections.

D. Syphon: Steel, Schedule 40, 1/4 inch angle or straight pattern.

2.03 STEM TYPE THERMOMETERS

A. Thermometers - Adjustable Angle: Red- or blue-appearing non-toxic liquid in glass; ASTM E1; lens front tube, cast aluminum case with enamel finish, cast aluminum adjustable joint with positive locking device; adjustable 360 degrees in horizontal plane, 180 degrees in vertical plane.

   1. Size: 7 inch scale.

   2. Window: Clear Lexan.

   3. Accuracy: 2 percent, per ASTM E77.

   4. Calibration: Degrees F.

2.04 DIAL THERMOMETERS

A. Thermometers - Adjustable Angle: Dial type bimetallic actuated; ASTM E1; stainless steel case, adjustable angle with front recalibration, silicone fluid damping, white with black markings and black pointer, hermetically sealed lens, stainless steel stem.

   1. Size: 3 inch diameter dial.

   2. Accuracy: 1 percent.

   3. Calibration: Degrees F.
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2.05 THERMOMETER SUPPORTS

A. Socket: Brass separable sockets for thermometer stems with or without extensions as required, and with cap and chain.

B. Flange: 3 inch outside diameter reversible flange, designed to fasten to sheet metal air ducts, with brass perforated stem.

2.06 TEST PLUGS

A. Test Plug: 1/4 inch or 1/2 inch brass fitting and cap for receiving 1/8 inch outside diameter pressure or temperature probe with Nordel core for temperatures up to 350 degrees F.

B. Test Kit: Carrying case, internally padded and fitted containing one 2-1/2 inch diameter pressure gauges, one gauge adapters with 1/8 inch probes, two 1 inch dial thermometers.

PART 3  EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install two pressure gages per pump, one at suction and one at discharge. Suction side gage shall be compound type.

C. Install pressure gages with pulsation dampers. Provide gage cock to isolate each gage. Extend nipples and siphons to allow clearance from insulation.

D. Install thermometers in piping systems in sockets in short couplings. Enlarge pipes smaller than 2-1/2 inch for installation of thermometer sockets. Ensure sockets allow clearance from insulation.

E. Coil and conceal excess capillary on remote element instruments.

F. Provide instruments with scale ranges selected according to service with largest appropriate scale.

G. Install gauges and thermometers in locations where they are easily read from normal operating level. Install vertical to 45 degrees off vertical.

H. Adjust gauges and thermometers to final angle, clean windows and lenses, and calibrate to zero.
I. Locate test plugs where indicated.

END OF SECTION
PART 1 GENERAL

1.01 SECTION INCLUDES

A. Applications.
B. General requirements.
C. Ball valves.
D. Butterfly valves.
E. Check valves.

1.02 ABBREVIATIONS AND ACRONYMS

A. CWP: Cold working pressure.
B. EPDM: Ethylene propylene copolymer rubber.
C. NBR: Acrylonitrile-butadiene, Buna-N, or nitrile rubber.
D. NRS: Non-rising stem.
E. OS&Y: Outside screw and yoke.
F. PTFE: Polytetrafluoroethylene.
G. RS: Rising stem.
H. SWP: Steam working pressure.
I. TFE: Tetrafluoroethylene.

1.03 REFERENCE STANDARDS

A. ASME B1.20.1 - Pipe Threads, General Purpose (Inch); 2013 (Reaffirmed 2018).
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Section 22 05 23—General-Duty Valves For Plumbing Piping

E. ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves; 2009.

F. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2018.


I. ASME B31.9 - Building Services Piping; 2017.


K. AWWA C606 - Grooved and Shouldered Joints; 2015.

L. MSS SP-80 - Bronze Gate, Globe, Angle and Check Valves; 2013.

M. MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends; 2010.


1.04 SUBMITTALS

A. Refer to Division 1 for submittal procedures.

B. Product Data: Provide data on valves including manufacturers catalog information. Submit performance ratings, rough-in details, weights, support requirements, and piping connections.

C. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

D. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, maintenance and repair data, and parts listings.

1.05 QUALITY ASSURANCE

A. Manufacturer:

1. Obtain valves for each valve type from single manufacturer.

2. Company must specialize in manufacturing products specified in this section, with not less than three years of documented experience.
1.06 DELIVERY, STORAGE, AND HANDLING

A. Prepare valves for shipping as follows:
   1. Minimize exposure of operable surfaces by setting plug and ball valves to open position.
   2. Protect valve parts exposed to piped medium against rust and corrosion.
   3. Protect valve piping connections such as grooves, weld ends, threads, and flange faces.
   4. Adjust globe, gate, and angle valves to the closed position to avoid clattering.
   5. Secure check valves in either the closed position or open position.
   6. Adjust butterfly valves to closed or partially closed position.

B. Use the following precautions during storage:
   1. Maintain valve end protection and protect flanges and specialties from dirt.
      a. Provide temporary inlet and outlet caps.
      b. Maintain caps in place until installation.
   2. Store valves in shipping containers and maintain in place until installation.
      a. Store valves indoors in dry environment.
      b. Store valves off the ground in watertight enclosures when indoor storage is not an option.

1.07 EXERCISE THE FOLLOWING PRECAUTIONS FOR HANDLING:

A. Handle large valves with sling, modified to avoid damage to exposed parts.

B. Avoid the use of operating handles or stems as rigging or lifting points.

PART 2 PRODUCTS

2.01 APPLICATIONS

A. Provide the following valves for the applications if not indicated on drawings:
   1. Shutoff: Ball or butterfly.
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Section 22 05 23—General-Duty Valves For Plumbing Piping

2. Swing Check (Pump Outlet):
   a. 2 inch and Smaller: Bronze swing check valves with bronze disc.

B. Substitutions of valves with higher CWP classes or SWP ratings for same valve types are permitted when specified CWP ratings or SWP classes are not available.

C. Domestic, Hot and Cold Water Valves:
   1. 2 NPS and Smaller:
      b. Ball: One piece, full port, brass or bronze with bronze trim.
      c. Bronze Swing Check: Class 125, bronze disc.
      d. Bronze Globe: Class 125, bronze disc.

2.02 GENERAL REQUIREMENTS

A. Valve Pressure and Temperature Ratings: No less than rating indicated; as required for system pressures and temperatures.

B. Valve Sizes: Match upstream piping unless otherwise indicated.

C. Valve Actuator Types:

D. Valves in Insulated Piping: With 2 NPS stem extensions and the following features:
   1. Ball Valves: Extended operating handle of non-thermal-conductive material, and protective sleeve that allows operation of valve without breaking the vapor seal or disturbing insulation.
   3. Memory Stops: Fully adjustable after insulation is installed.

E. Valve-End Connections:

5. Grooved End Connections: AWWA C606.

F. General ASME Compliance:


H. Bronze Valves:

1. Fabricate from dezincification resistant material.

2. Copper alloys containing more than 15 percent zinc are not permitted.

I. Source Limitations: Obtain each valve type from a single manufacturer.

2.03 BRASS BALL VALVES

A. Two Piece, Full Port with Brass or Bronze Trim:

1. Comply with MSS SP-110.

2. SWP Rating: 150 psig.

3. CWP Rating: 600 psig.


5. Ends: Threaded.

6. Seats: PTFE.

7. Stem: Brass.

8. Ball: Chrome-plated brass.

B. Three Piece, Full Port with Brass or Bronze Trim:

1. Comply with MSS SP-110.
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2. SWP Rating: 150 psig.
3. CWP Rating: 600 psig.
5. Ends: Threaded.
6. Seats: PTFE or TFE.
7. Stem: Stainless steel.

2.04 BRONZE BALL VALVES

A. Two Piece, Full Port with Brass or Bronze Trim:
   1. Comply with MSS SP-110.
   2. SWP Rating: 150 psig.
   3. CWP Rating: 600 psig.
   5. Ends: Threaded.
   6. Seats: PTFE or TFE.
   7. Stem: Bronze.
   8. Ball: Chrome plated brass.

B. Three Piece, Full Port with Bronze or Brass Trim:
   1. Comply with MSS SP-110.
   2. SWP Rating: 150 psig.
   3. CWP Rating: 600 psig.
   5. Ends: Threaded.
   6. Seats: PTFE or _____
DIVISION 22—PLUMBING
Section 22 05 23—General-Duty Valves For Plumbing Piping

7. Stem: Bronze.

8. Ball: Chrome plated brass.

2.05 BRONZE SWING CHECK VALVES

A. Class 125: CWP Rating: 200 psig (1380 kPa).
   1. Comply with MSS SP-80, Type 3.
   2. Design: Horizontal flow.
   4. Ends: Threaded as indicated.
   5. Disc: Bronze.

PART 3 EXECUTION

3.01 EXAMINATION

A. Discard all packing materials and verify that valve interior, including threads and flanges are completely clean without signs of damage or degradation that could result in leakage.

B. Verify valve parts to be fully operational in all positions from closed to fully open.

C. Confirm gasket material to be suitable for the service, to be of correct size, and without defects that could compromise effectiveness.

D. Should valve is determined to be defective, replace with new valve.

3.02 INSTALLATION

A. Provide unions or flanges with valves to facilitate equipment removal and maintenance while maintaining system operation and full accessibility for servicing.

B. Provide separate valve support as required and locate valve with stem at or above center of piping, maintaining unimpeded stem movement.

C. Where valve support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welds.

D. Install check valves where necessary to maintain direction of flow as follows:
   1. Lift Check: Install with stem plumb and vertical.
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Section 22 05 23—General-Duty Valves For Plumbing Piping

2. Swing Check: Install horizontal maintaining hinge pin level.

END OF SECTION
DIVISION 22—PLUMBING
Section 22 05 53—Identification For Plumbing Piping And Equipment

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nameplates.
B. Tags.
C. Pipe markers.

1.02 REFERENCE STANDARDS


1.03 SUBMITTALS

A. Refer to Division 1 for submittal procedures.
B. List: Submit list of wording, symbols, letter size, and color coding for mechanical identification.
C. Chart and Schedule: Submit valve chart and schedule, including valve tag number, location, function, and valve manufacturer's name and model number.
D. Product Data: Provide manufacturers catalog literature for each product required.
E. Project Record Documents: Record actual locations of tagged valves.

PART 2 PRODUCTS

2.01 IDENTIFICATION APPLICATIONS

A. Instrumentation: Tags.
B. Piping: Pipe markers.
C. Pumps: Nameplates.
D. Small-sized Equipment: Tags.
E. Tanks: Nameplates.
F. Valves: Tags.
DIVISION 22—PLUMBING
Section 22 05 53—Identification For Plumbing Piping And Equipment

2.02 NAMEPLATES

A. Description: Laminated three-layer plastic with engraved letters.


2. Letter Height: 1/4 inch.


2.03 TAGS

A. Plastic Tags: Laminated three-layer plastic with engraved black letters on light contrasting background color. Tag size minimum 1-1/2 inch diameter.

B. Valve Tag Chart: Typewritten letter size list in anodized aluminum frame.

2.04 PIPE MARKERS

A. Comply with ASME A13.1.

B. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

C. Underground Plastic Pipe Markers: Bright colored continuously printed plastic ribbon tape, minimum 6 inches wide by 4 mil thick, manufactured for direct burial service.

1. Pipe marking/warning ribbon tape used at plastic piping locations shall be detectable type.

D. Color code as follows:

1. Potable and Other Water: Green with white letters.


PART 3 EXECUTION

3.01 PREPARATION

A. Degrease and clean surfaces to receive adhesive for identification materials.
DIVISION 22—PLUMBING
Section 22 05 53—Identification For Plumbing Piping And Equipment

3.02 INSTALLATION

A. Install plastic nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.

B. Install tags with corrosion resistant chain.

C. Install plastic tape pipe markers complete around pipe in accordance with manufacturer's instructions.

D. Install underground plastic pipe markers 6 to 8 inches below finished grade, directly above buried pipe.

END OF SECTION
PART 1  GENERAL

1.01 SECTION INCLUDES

A. Piping insulation.

B. Jackets and accessories.

1.02 RELATED REQUIREMENTS

A. Section 22 10 05 - Plumbing Piping: Placement of hangers and hanger inserts.

1.03 REFERENCE STANDARDS


1.04 SUBMITTALS

A. Refer to Division 1 for submittal procedures.

B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.
C. Operation & Maintenance Data: Provide product information and manufacturer's operation & maintenance information for all products used.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years of documented experience.

B. Applicator Qualifications: Company specializing in performing the type of work specified in this section with minimum two years of experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Accept materials on site, labeled with manufacturer's identification, product density, and thickness.

1.07 FIELD CONDITIONS

A. Maintain ambient conditions required by manufacturers of each product.

B. Maintain temperature before, during, and after installation for minimum of 24 hours.

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84 or UL 723.

2.02 GLASS FIBER

A. Insulation: ASTM C547 and ASTM C795; rigid molded, noncombustible.

1. K Value: ASTM C177, 0.24 at 75 degrees F.

2. Maximum Service Temperature: 850 degrees F.

3. Maximum Moisture Absorption: 0.2 percent by volume.

B. Insulation: ASTM C547 and ASTM C795; semi-rigid, noncombustible, end grain adhered to jacket.

1. K Value: ASTM C177, 0.24 at 75 degrees F.

2. Maximum Service Temperature: 650 degrees F.

3. Maximum Moisture Absorption: 0.2 percent by volume.
DIVISION 22—PLUMBING
Section 22 07 19—Plumbing Piping Insulation

C. Vapor Barrier Jacket: White Kraft paper with glass fiber yarn, bonded to aluminized film; moisture vapor transmission when tested in accordance with ASTM E96/E96M of 0.02 perm-inches.

D. Tie Wire: 0.048 inch stainless steel with twisted ends on maximum 12 inch centers.

E. Vapor Barrier Lap Adhesive: Compatible with insulation.

F. Insulating Cement/Mastic: ASTM C195; hydraulic setting on mineral wool.

G. Fibrous Glass Fabric:
   1. Cloth: Untreated; 9 oz/sq yd weight.
   2. Blanket: 1.0 lb/cu ft density.

H. Indoor Vapor Barrier Finish:
   1. Cloth: Untreated; 9 oz/sq yd weight.
   2. Vinyl emulsion type acrylic, compatible with insulation, black color.

I. Outdoor Vapor Barrier Mastic: Vinyl emulsion type acrylic or mastic, compatible with insulation, black color.

J. Outdoor Breather Mastic: Vinyl emulsion type acrylic or mastic, compatible with insulation, black color.


2.03 FLEXIBLE ELASTOMERIC CELLULAR INSULATION

A. Insulation: Preformed flexible elastomeric cellular rubber insulation complying with ASTM C534/C534M Grade 1; use molded tubular material wherever possible.
   1. Minimum Service Temperature: Minus 40 degrees F.
   2. Maximum Service Temperature: 220 degrees F.

2.04 JACKETS

A. PVC Plastic.
   1. Jacket: One piece molded type fitting covers and sheet material, off-white color.
DIVISION 22—PLUMBING
Section 22 07 19—Plumbing Piping Insulation

a. Minimum Service Temperature: 0 degrees F.

b. Maximum Service Temperature: 150 degrees F.

c. Moisture Vapor Permeability: 0.002 perm inch, maximum, when tested in accordance with ASTM E96/E96M.

d. Thickness: 10 mil.

e. Connections: Brush on welding adhesive.

2. Covering Adhesive Mastic: Compatible with insulation.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that piping has been tested before applying insulation materials.

B. Verify that surfaces are clean and dry, with foreign material removed.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install in accordance with North American Insulation Manufacturers Association (NAIMA) National Insulation Standards.

C. Exposed Piping: Locate insulation and cover seams in least visible locations.

D. Insulated pipes conveying fluids below ambient temperature: Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, and expansion joints.

E. Glass fiber insulated pipes conveying fluids below ambient temperature:

1. Provide vapor barrier jackets, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples and vapor barrier mastic.

2. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe. Finish with glass cloth and vapor barrier adhesive or PVC fitting covers.

F. For hot piping conveying fluids 140 degrees F or less, do not insulate flanges and unions at equipment, but bevel and seal ends of insulation.
G. Glass fiber insulated pipes conveying fluids above ambient temperature:

1. Provide standard jackets, with or without vapor barrier, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples.

2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with glass cloth and adhesive or PVC fitting covers.

H. Inserts and Shields:

1. Application: Piping 1-1/2 inches diameter or larger.

2. Shields: Galvanized steel between pipe hangers or pipe hanger rolls and inserts.

3. Insert Location: Between support shield and piping and under the finish jacket.

4. Insert Configuration: Minimum 6 inches long, of same thickness and contour as adjoining insulation; may be factory fabricated.

5. Insert Material: Hydrous calcium silicate insulation or other heavy density insulating material suitable for the planned temperature range.

I. Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations. Finish at supports, protrusions, and interruptions. At fire separations, refer to Section 07 84 00.

J. Pipe Exposed in Mechanical Equipment Rooms or Finished Spaces (less than 10 feet above finished floor): Finish with PVC jacket and fitting covers.

K. Buried Piping: Provide factory fabricated assembly with inner all-purpose service jacket with self-sealing lap, and asphalt impregnated open mesh glass fabric, with one mil thick aluminum foil sandwiched between three layers of bituminous compound; outer surface faced with a polyester film.

L. Heat Traced Piping: Insulate fittings, joints, and valves with insulation of like material, thickness, and finish as adjoining pipe. Size large enough to enclose pipe and heat tracer. Cover with PVC jacket with seams located on bottom side of horizontal piping.

END OF SECTION
PART 1  GENERAL

1.01 SECTION INCLUDES

A. Copper pipe and fittings.
B. PE pipe and fittings.

1.02 REFERENCE STANDARDS

A. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2018.

1.03 SUBMITTALS

A. Refer to Division 1 for submittal procedures.
B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.
C. Coordination Drawings (Site Piping): For piping and specialties including relation to other services in same area, drawn to scale. Show piping and specialty sizes and valves, meter and specialty locations, and elevations.
D. Project Record Documents:
   1. Record actual installed locations of piping, valves, & equipment.
   2. Identify and describe unexpected variations to subsoil conditions or discovery of undocumented utilities.
E. Operation & Maintenance Data: Provide product information and manufacturer's operation & maintenance information for all products used.
F. Purging and Disinfecting Reports
1.04 QUALITY ASSURANCE

A. Perform work in accordance with applicable codes.

B. Manufacturers: A company specializing in manufacturing products specified in this section with a minimum of three years documented experience.

C. Installers: The installer shall have a minimum of five continuous years’ experience installing systems specified in this section and at least ten projects of similar size and scope.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

1.06 FIELD CONDITIONS

A. Do not install underground piping when bedding is wet or frozen.

B. Perform site survey, research public utility records, and verify existing utility locations. Contact utility-locating service for area where Project is located. Pothole and locate existing utilities prior to connection to existing utility. Locations shown on the plans have not been verified, and Contractor shall anticipate the actual location may differ from that shown. Service line serving the picnic area has not been field located.

C. Verify that water-service piping may be installed to comply with original design and referenced standards.

1.07 COORDINATION

A. Coordinate connection to water service with utility provider.

PART 2 PRODUCTS

2.01 COPPER PIPE AND FITTINGS

A. Pipe: ASTM B88, Type-L.

B. Fittings and flanges:


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C. Alternate Fittings and Flanges:

1. Press fitting, Viega Rigid, conforming to the material and sizing requirements of ASME B16.18 or ASME B16.22. O-ring for copper press fittings shall be EPDM.

D. Solder: ASTM B32, lead free.

E. Expansion Joints

1. Lateral Motion: Braided stainless steel, flanged, 270 PSI working pressure at 70 degrees F, similar to Keflex KE-VIBES 4" KDCS-FLG.

2. Axial Motion: Multiple bellows, flanged end, 150 PSI working pressure, stainless bellows, 2" travel, similar to Keflex Multi-flex expansion joint, Model M-15-00-P15-020, single unit.

3. Flexible couplings may be used where required to accommodate thermal expansion and vibration movement. Provide a minimum of (3) flexible couplings in close proximity as recommended by manufacturer to attenuate equipment vibration at all rotating equipment, including pumps.

2.02 POLYETHYLENE (PE) PIPING

A. SDR 9 conforming to AWWA, C901. Service lines shall be copper-tube size with a minimum pressure rating of 200 psi and standard dimension ratio not to exceed 9. Pipe shall be either black with blue striping or blue in color. Stainless steel stiffening inserts are required at all connection points.

PART 3 EXECUTION

3.01 GENERAL PIPING INSTALLATION

A. General: Install per the Uniform Plumbing Code (UPC). Any UPC installation instructions located in Appendix “I” (“Installation Standards”) for a specific piping material specified in this section applies to the work of this section.

B. Preparation:

1. Clean off scale and dirt inside and outside before assembly. Cut pipes and tubes square and ream to remove all burrs.

2. Cut pipe accurately to field measurements so work can be placed without springing or forcing.
DIVISION 22—PLUMBING  
Section 22 11 13—Facility Water Distribution Piping

C. Installation:

1. Install so piping is free to expand, provide for all expansion with offsets or loops where necessary. Branch connections shall have three elbow spring pieces to allow for expansion.

2. All changes in direction shall be made with fittings. All radius; shall be long radius.

3. Arrange piping so as not to interfere with access or removal of other equipment or devices, block access to doors, windows, manholes or other access openings.

4. Arrange piping to facilitate the removal of tube bundles, coils, etc. Provide unions ahead of screwed valves, traps or strainers on each side of each piece of equipment and wherever needed to dismantle piping.

5. All piping shall be properly pitched and graded to drain moisture and/or vent air.

6. Each low point shall have an accessible blind flange or screwed plug or cap.

7. Route pipe to avoid liquid or air pockets throughout the work. Provide at high points of closed systems, collecting chambers and automatic air vents.

8. Make reductions in pipe size using eccentric reducing fittings installed to provide drainage and venting.

9. Nipples shall be of the same material as pipe. Close nipples shall not be used.

10. Install pipe in neat and workmanlike manner, in accordance with best trade practice. Install to conserve headroom and interfere as little as possible with use of space. Run exposed piping parallel to walls unless otherwise shown. Where possible, group runs and rises.

11. Install concealed pipes in walls with clearance around piping to prevent contact with structure.

12. Pipes passing through concrete or masonry construction shall be fitted with sleeves. The inside diameter of pipe sleeves shall be at least 1/2” larger than the outside diameter of the pipe or pipe covering. See Section 22 05 00, Common Work Results for Plumbing, for sleeve fabrication and installation instructions.

13. At all connections between ferrous and non-ferrous pipe:

   a. Small Bore Pipe: Provide dielectric waterway fittings that maintain external electrical continuity while maintaining internal isolation.
b. Large Bore Pipe: Provide dielectric flanges.


15. For site piping, ensure that minimum vertical clearances, as required by local Water Utility, are provided where crossing other utilities.

16. Transition couplings and special fittings with pressure ratings at least equal to piping pressure rating may be used, unless otherwise indicated.

17. Do not use unions for underground piping.

D. Installation, Building Service Connection

1. Install piping, connecting to existing building service line. Ensure that minimum vertical clearances, as required by utility provider, are provided where crossing other utilities.

2. Install piping as indicated, unless deviations to layout are approved on Coordination Drawings.

3. Piping Connections: Conforming to utility provider requirements.

3.02 APPLICATIONS

A. Within Building Footprint:

1. Above-grade, exposed areas, domestic water CW, HW, TW, and HWC: Copper

2. Above grade, concealed areas, domestic water CW, HW, TW, and HWC: Copper

3. Below grade, domestic water CW: Copper

B. Outside Building Footprint:

1. Below grade, domestic water CW: Copper or PE

3.03 EARTHWORK

A. Preparation

1. Identify required lines, levels, contours, and datum locations.

2. Locate, identify, and protect utilities that remain and protect from damage.
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3. Protect bench marks, survey control points, and existing structures from excavating equipment and vehicular traffic.

4. Grade top perimeter of trenching area to prevent surface water from draining into trench. Provide temporary means and methods, as required, to maintain surface water diversion until no longer needed, or as directed by the Architect.

B. Trenching

1. Notify Architect of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

2. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored.

3. Do not interfere with 45 degree bearing splay of foundations.

4. Cut trenches wide enough to allow inspection of installed utilities.


6. Remove large stones and other hard matter that could damage piping or impede consistent backfilling or compaction.

7. Remove excavated material that is unsuitable for re-use from site.

8. Remove excess excavated material from site.

9. Provide temporary means and methods, as required, to remove all water from trenching until directed by the Architect. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.

10. Determine the prevailing groundwater level prior to trenching. If the proposed trench extends less than 1 foot into the prevailing groundwater, control groundwater intrusion with perimeter drains routed to sump pumps, or as directed by the Architect.

C. Preparation for Utility Placement

1. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.

2. Compact subgrade to density equal to or greater than requirements for subsequent fill material.
3. Until ready to backfill, maintain excavations and prevent loose soil from falling into excavation.

D. Backfilling

1. Backfill to contours and elevations indicated using unfrozen materials.

2. Fill up to subgrade elevations unless otherwise indicated.

3. Employ a placement method that does not disturb or damage other work.

4. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.

5. Maintain optimum moisture content of fill materials to attain required compaction density.


7. Soil Fill: Place and compact material in equal continuous layers not exceeding 8 inches compacted depth.

8. Slope grade away from building minimum 2 inches in 10 feet, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.

9. Correct areas that are over-excavated.

   a. Other areas: Use general fill, flush to required elevation, compacted to minimum 97 percent of maximum dry density.

10. Compaction Density Unless Otherwise Specified or Indicated:

11. Reshape and re-compact fills subjected to vehicular traffic.

E. Bedding and Fill at Specific Locations

1. Piping:

   a. Bedding: Use pipe zone bedding or sand.

   b. Cover with general fill.

   c. Fill up to subgrade elevation.

   d. Compact in maximum 6 inch lifts to 95 percent of maximum dry density.
3.04 COPPER PIPING INSTALLATION

A. Copper Tube

1. Solder joints shall be made in accordance with the methods of ASTM B828. All cut tube ends shall be reamed to the full inside diameter of the tube end. All joint surfaces shall be cleaned. A flux conforming to ASTM B812 shall be applied. The joint shall be soldered with a solder conforming to ASTM B32. The joining of water supply piping shall be made with lead free solders and fluxes. “Lead free” shall mean a chemical composition equal to or less than 0.2 % lead.

2. Braze all below ground copper tube joints. All joint surfaces shall be cleaned. An approved flux shall be applied where required. The joint shall be brazed with a filler metal conforming to AWS A5.8.

B. Press Connections: Copper press fittings shall be made in accordance with the manufacturer’s installation instructions. The tubing shall be fully inserted into the fitting and the tubing marked at the shoulder of the fitting. The fitting alignment shall be checked against the mark on the tubing to assure the tubing is fully engaged (inserted) in the fitting. The joints shall be pressed using the tool approved by the manufacturer.

3.05 PE PIPING INSTALLATION

A. General

1. Install PE pipe according to ASTM D 2774 and ASTM F 645.

2. Bury piping with depth of cover over top at least 36 inches.

3. Extend water-service piping from connection point to existing water service line connect to building-water-piping systems at outside face of building wall in locations and pipe sizes indicated.

   a. Terminate water-service piping at 5 feet from building wall until building-water-piping systems are installed. Terminate piping with caps, plugs, or flanges as required for piping material. Make connections to building-water-piping systems when those systems are installed.

B. Joint Construction

1. Make pipe joints according to the following:

   a. PE Piping Insert-Fitting Joints: Use plastic insert fittings and fasteners according to fitting manufacturer’s written instructions.
b. Dissimilar Materials Piping Joints: Use adapters compatible with both piping materials, with OD, and with system working pressure.

C. Connections

1. Piping installation requirements: Conform to utility provider requirements.

2. Connect water-distribution piping at downstream end of meters.

3. Connect water-distribution piping to interior domestic water piping.

D. Field Quality Control

1. Piping Tests: Conform to utility provider requirements.

2. Hydrostatic Tests: Conform to utility provider requirements.

3. Prepare reports of testing activities.

4. Conform to utility provider requirements for service connections.

E. Identification

1. Install continuous underground detectable warning tape during backfilling of trench for underground water-distribution piping. Locate 6 to 8 inches below finished grade, directly over piping.

3.06 FIELD QUALITY CONTROL

A. Inspect water distribution piping:

1. Do not enclose, cover, or put into operation water distribution piping system until it has been inspected and approved by the appropriate authority having jurisdiction.

2. During progress of the installation, notify the plumbing official having jurisdiction at least two (2) working days prior to the time inspection must be made. Perform tests specified below in the presence of the Plumbing Inspector.

   a. Ground work Inspection: Arrange for inspection of all plumbing systems located beneath any poured concrete slabs or foundations.

   b. Roughing-In Inspection: Arrange for inspection of piping system before concealed or closed-in after system roughing-in and prior to setting fixtures.
c. Final Inspection: Arrange for final inspection by plumbing official to observe tests specified below and to ensure compliance with requirements of plumbing code.

3. Re-inspections: When a Plumbing Inspector finds that piping system will not pass test or inspection, make required corrections and arrange for re-inspection by the Plumbing Inspector.

4. Reports: Prepare and submit inspection reports signed by the Plumbing Inspector.

B. Testing water distribution system:

1. Test for leaks and defects in new water distribution piping systems and parts of existing systems that have been altered, extended, or repaired. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of system tested.

2. Leave uncovered and unconcealed in new, altered, extended, or replaced water distribution piping until it has been tested and approved. Expose work that has been covered or concealed before it has been tested and approved for testing.

3. Cap and subject the piping system to a static water pressure of 50 psi above the operating pressure without exceeding pressure rating of piping system materials. Isolate test-source and allow it to stand for 4 hours. Leaks and loss in test pressure constitute defects that must be repaired.

4. Repair leaks and defects with new materials and retest system or portion thereof until satisfactory results are obtained.

3.07 CLEANING:

A. Clean and disinfect water distribution piping:

1. Purge new potable water distribution piping systems and parts of existing potable water systems that have been altered, extended, or repaired prior to use.

2. Use purging and disinfecting procedure prescribed by authority having jurisdiction or, if a method is not prescribed by that authority, the procedure described in either AWWA C651 or AQQA C652 or as described below:

   a. Flush piping system with clean, potable water until dirty water does not appear at outlets.

   b. Fill system or part thereof with water/chlorine solution containing at least 50 parts per million of chlorine. Isolate (valve off) and allow it to stand for 24 hours.
c. Drain system or part thereof of previous solution and refill with water/chlorine solution containing at least 200 parts per million of chlorine. Isolate and allow it to stand for 3 hours.

d. Flush system with clean, potable water until chlorine does not remain in water coming from system following allowed standing time.

e. Submit water samples in sterile bottles to authority having jurisdiction. Repeat procedure if biological examination made by authority shows evidence of contamination.

B. Prepare and submit reports for purging and disinfecting activities.

C. Clean interior of piping system. Remove dirt and debris as work progresses.

3.08 COMMISSIONING

A. Fill water systems.

B. Before operating systems, perform these steps:
   1. Close drain valves, hydrants, and hose bibs.
   2. Open shutoff valves to full open position.
   3. Remove plugs used during testing of piping systems and plugs used for temporary sealing of piping during installation.
   4. Check plumbing equipment and verify proper settings, adjustments, and operation.
   5. Do not operate water heaters before filling with water.
   6. Check plumbing specialties and verify proper settings, adjustments, and operation.
   7. Energize pumps and verify proper operation.

END OF SECTION
PART 1  GENERAL

1.01 SECTION INCLUDES
   A.  Strainers
   B.  Trap Primers
   C.  Dielectric Connections
   D.  Automatic Air Vents
   E.  Water Hammer Arrestors
   F.  Pressure Reducing Valves
   G.  Backflow Preventers
   H.  Thermostatic Mixing Valve Assemblies
   I.  Wall Hydrants

1.02 REFERENCE STANDARDS
   A.  International Association of Plumbing and Mechanical Officials (IAPMO)
      1.  Uniform Plumbing Code (UPC)

1.03 SUBMITTALS
   A.  See Division 1 for submittal procedures.
   B.  Product data.
   C.  Installation instructions.

1.04 DELIVERY, STORAGE AND HANDLING
   A.  Refer to Division 1 for product storage and handling requirements.

1.05 CLOSEOUT REQUIREMENTS
   A.  Refer to Division 1 for closeout submittal procedures.
   B.  Refer to Division 1 for demonstration and training requirements.
PART 2 PRODUCTS

2.01 STRAINERS

A. Provide on high pressure side of pressure reducing valves, on suction side of pumps, on inlet side of indicating and control instruments and equipment subject to sediment damage and where shown on drawings. Strainer element shall be removable without disconnection of piping.

B. Water: Strainers shall be wye-type with easily removable cover and brass strainer basket.

C. Body: Smaller than 80mm (3”), brass or bronze; 80mm (3”) and larger, cast iron or semi-steel.

D. Accessories:
   1. Provide blowdown valves for strainers. Blowdown valves shall be ball valves with 3/4" hose connection and thread-on hose cap.

2.02 TRAP PRIMERS

A. J.R. Smith, PPP Inc., or equal.

2.03 DIELECTRIC CONNECTIONS

A. Union Type

B. Flange Type

2.04 AUTOMATIC AIR VENTS:

A. Float type with isolating valves, brass or semi-steel body, copper float, stainless steel valve and valve seat. Suitable for system operating temperature and pressure, but not less than 80 PSIG.

2.05 WATER HAMMER ARRESTORS

A. Stainless steel shell and bellows, nitrogen pressurized compression chamber, Jay R. Smith Hydrotrol or approved equal.

2.06 PRESSURE REDUCING VALVES

A. Single-seated, for dead end service for 30lb to 125lb range on low-pressure side. Composition diaphragm and stainless steel springs, bronze body with threaded
connections for sizes 1/2" to 2”, cast iron or semi-steel body with brass or bronze trimmings and flanged connections for sizes 2½” to 4“.

B. Operation: Diaphragm and spring to act directly on valve stem. Delivered pressure shall vary not more than 1lb for each 10lb variation on inlet pressure.

C. Setting: Entering water pressure, discharge pressure, capacity, size, and related measurements shall be as shown on the drawings.

D. Connections at Valves And Strainers: Install shut off valve on each side of reducing valve and full sized bypass with shut off valve. Install strainer on inlet side of, and same size as pressure reducing valve. Install pressure gauge on low pressure side of line.

2.07 BACKFLOW PREVENTERS

A. Install backflow preventers per the requirements of the Uniform Plumbing Code; Article 603 "Cross Connection Control". All backflow preventers shall be listed by the State of Washington, Department of Health, as an approved cross-connection control device.

B. Reduced Pressure Backflow Preventer: ASSE 1013.

2.08 THERMOSTATIC MIXING VALVE ASSEMBLIES

A. Point Of Use Mixing Valves

1. Point-of-use thermostatic tempering valve with lead-free brass, bronze, and stainless steel construction. Valve shall be pressure tested to 125 PSI. Valve shall have tamper resistant temperature control handle & protective cap.

2.09 WALL HYDRANTS

A. Freezeproof

1. Box type with integral vacuum breaker.

PART 3 EXECUTION

3.01 STRAINERS

A. Provide blowdown valves with 3/4" hose connections at all strainer locations.

3.02 DIELECTRIC CONNECTIONS

A. Provide dielectric connections at all connections between ferrous and non-ferrous pipe:
DIVISION 22—PLUMBING
Section 22 11 19—Domestic Water Piping Specialties

1. Small Bore Pipe: Provide dielectric waterway fittings that maintain external electrical continuity while maintaining internal isolation.

2. Large Bore Pipe: Provide dielectric flanges.

3.03 AUTOMATIC AIR VENTS

A. Locate automatic air vents at high points in piping system.

B. Where air vents are located in inaccessible locations, covered locations, or in locations where leakage could potentially damage the building in any way, provide drain piping from the air vent to the nearest approved indirect drain receptor.

1. Drain piping shall not be run to drain locations in public areas.

3.04 WATER HAMMER ARRESTORS

A. Provide water hammer arrestors for all restroom groups. Size and provide in accordance with the Manufacturer’s Instructions.

3.05 BACKFLOW PREVENTERS

A. Provide isolation valves and strainers for all backflow preventer assemblies.

3.06 THERMOSTATIC MIXING VALVE ASSEMBLIES

A. General

1. Install temperature-actuated water mixing valves with check stops or shutoff valves on inlets and with shutoff valve on outlet.

B. Labelling

1. Provide explanatory text on signs. Identify units. Distinguish among units, inform operator of operating requirements, indicate safety and emergency precautions, and warn of hazards and improper operations.

C. Setup, Testing & Adjusting

1. Startup of mixing valve assemblies shall be performed by factory-trained technicians. Perform startup of valve system in accordance with manufacturer's instructions.

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Section 22 11 19—Domestic Water Piping Specialties

3. Remove and replace malfunctioning thermostatic mixing valves and retest.

3.07 TRAP PRIMERS

A. Provide trap primers and connections for all floor drains and low-usage traps.

END OF SECTION
DIVISION 22—PLUMBING
Section 22 13 16—Sanitary Waste And Vent Piping

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cast iron piping.

1.02 REFERENCE STANDARDS

A. General: References used throughout Division 22 are generally accepted industry standards. The edition of the criteria cited shall be that in force at the time of bid. The Contractor shall provide all work in accordance with codes and standards in force in the Authority Having Jurisdiction for the project, to include all local amendments.


I. IAPMO IS 1 – Non-Metallic Building Sewers

J. IAPMO IS 5 – ABS Building Drain, Waste and Vent Pipe and Fittings

K. IAPMO IS 9 – PVC Building Drain, Waste and Vent Pipe and Fittings

L. IAPMO IS 11 – ABS Sewer Pipe and Fittings

M. UPC - Uniform Plumbing Code
DIVISION 22—PLUMBING
Section 22 13 16—Sanitary Waste And Vent Piping

1.03 SUBMITTALS

A. See Division 1 for submittal procedures.

B. Product Data: Pipe, fittings and accessories.

C. Operation & Maintenance Data: Provide product information and manufacturer's operation & maintenance information for all products used.

D. Project Record Documents: Record actual locations of equipment and cleanouts. Record actual locations, including invert elevations, of buried sanitary waste piping.

1.04 QUALITY ASSURANCE

A. Perform work in accordance with applicable codes.

B. Manufacturers: A company specializing in manufacturing products specified in this section with a minimum of three years documented experience.

C. Installers: The installer shall have a minimum of five continuous years’ experience installing systems specified in this section and at least ten projects of similar size and scope.

1.05 DELIVERY, STORAGE AND HANDLING

A. Refer to Division 1 for product storage and handling requirements.

1.06 CLOSEOUT REQUIREMENTS

A. Refer to Division 1 for execution and closeout requirements.

B. Refer to Division 1 for closeout submittal procedures.

C. Refer to Division 1 for demonstration and training requirements.

PART 2 PRODUCTS

2.01 CAST IRON PIPE AND FITTINGS

A. Soil, Drain, Waste & Vent Piping: Hubless cast iron (ASTM A888/CISPI 301) or bell and spigot cast iron (ASTM A74).

B. Bell & Spigot Fittings: ASTM A74 with ASTM C564 compression gaskets.

C. Hubless Fittings: ASTM A888/CISPI 310

1. Couplings: CISPI 310 or ASTM C1277
DIVISION 22—PLUMBING
Section 22 13 16—Sanitary Waste And Vent Piping

2. Elastomeric Sealing Sleeve: ASTM C564 or CSA CAN/CSA B602M, with center stop.

PART 3 EXECUTION

3.01 DRAINAGE, WASTE, VENT & SEWER

A. General: Except as modified herein all DWV piping installation shall be in accordance with the plumbing code in place at the Authority Having Jurisdiction, including all reference standards and installation instructions.

B. A horizontal soil and waste pipe shall be given a grade of 1/4" per foot where possible, but in no case less than 1/8" per foot. All main vertical soil and waste stacks shall be installed with provision for expansion and shall be extended full-size to and above roof lines as vents, except where otherwise specifically indicated. All vent lines shall be run through roof and shall terminate not less than 12' 0" from any opening to building, in roof, or 1' 0" above such openings.

C. Where practical, two or more vent pipes shall be connected together and extended as one pipe through roof. Vent pipes in roof spaces shall be run as close as possible to underside of roof, with horizontal piping pitched down to stacks without forming traps in pipes, using fittings as required.

D. Vertical vent pipes may be connected into one main riser above vented fixture. Where an end or circuit vent pipe from fixture or line of fixtures is connected to a vent line serving other fixtures, connections shall be located to prevent use of any vent line as a waste.

E. Provide cleanouts at all locations required to permit cleaning of all sewer piping. Cleanouts shall be full-sized of pipe, but not larger than 4". This shall include cleanouts at base of all vertical lines, ends of all horizontal main runs, and elsewhere as shown on Drawings. Cleanout openings shall be closed with brass screw plugs. Where cleanouts occur in floor, furnish and install a brass ferrule, complete with screwed brass cover, flush with floor.

F. All pipes passing through roof shall be flashed with 4lb sheet lead, which shall extend at least 10" in all directions from pipe and run at least 12" above roof around pipe. Each pipe shall be counter flashed with 4lb lead sleeve, turned down inside of pipe and overlapping lower flashing at least 2". Adjustable neoprene or santoprene vent flashings, manufactured and certified for that specific purpose, are also acceptable if installed in accordance with manufacturer’s recommendations.

G. Tests: Sanitary and waste lines shall be tested with water at a pressure of not less than 5lb PSI. Duration of test shall be not less than 24-hours, and shall be witnessed by Architect. If any piping is found to leak, all defects shall be remedied and test repeated.
DIVISION 22—PLUMBING
Section 22 13 16—Sanitary Waste And Vent Piping

H. Provide cleanouts as specified in Section 22 13 19, Sanitary Waste Piping Specialties.

3.02 APPLICATIONS

A. Within Building Footprint:
   1. Below grade, sanitary sewer, general use: Cast iron
   2. Below grade, vent, general use: Cast iron
   3. Above grade, sanitary sewer, general use: Cast iron
   4. Above grade, vent, general use: Cast iron

B. Outside Building Footprint:
   1. Below grade, sanitary sewer, general use: Cast iron
   2. Below grade, vent, general use: Cast iron
   3. Above grade, vent, general use: Cast iron

3.03 CAST IRON PIPE INSTALLATION

A. Hub & Spigot Compression Gasket: Conform to manufacturer’s instructions. Gaskets shall be compressed with the pipe is fully inserted.

B. Mechanical Joints for Hubless Cast Iron: Install in accordance with manufacturer’s instructions and CISPI standards (except for acid-resistant piping).

END OF SECTION
DIVISION 22—PLUMBING
Section 22 13 19—Sanitary Waste Piping Specialties

PART 1  GENERAL

1.01 SECTION INCLUDES
   A. Flexible pipe joints
   B. Drains
   C. Cleanouts

1.02 REFERENCE STANDARDS
   A. American Society of Sanitary Engineers (ASSE)
      1. ASSE 1051 – Individual and Branch Type Air Admittance Valves for Sanitary Drainage Systems
   B. American Society of Testing and Materials (ASTM)
      1. ASTM D4101 – Standard Specification for Polypropylene Injection and Extrusion Materials
   C. International Association of Plumbing and Mechanical Officials
      1. UPC – Uniform Plumbing Code
   D. National Sanitation Foundation International (NSF)
      1. NSF 14 - Plastics Piping System Components and Related Materials

1.03 SUBMITTALS
   A. See Division 1 for submittal procedures.
   B. Product Data: Valves, pipe joints, drains and all other specialty components specified herein.
   C. Installation instructions.

1.04 DELIVERY, STORAGE AND HANDLING
   A. Refer to Division 1 for product storage and handling requirements.

1.05 CLOSEOUT REQUIREMENTS
   A. Refer to Division 1 for execution and closeout requirements.
PART 2 PRODUCTS

2.01 FLEXIBLE PIPE JOINTS

A. Expansion Joints: Waste/Vent/Storm Drain Stacks: JR Smith Model 1710 or approved equal.

B. Flexible Pipe Joints: Waste/Vent/Storm Drain: Metraflex Model 201 or approved equal.

2.02 FLOOR DRAINS, FUNNEL DRAINS, AND FLOOR SINKS

A. Drains shall be Josam, Jay R. Smith, Sioux Chief, Wade, Zurn, or approved equal.

B. Floor Drains: duco cast iron body with flashing collar, square polished nickel bronze adjustable strainer head and grate, trap primer connection and vandal proof screws. Size as per Plans.

C. Floor And Funnel Drains: Duco cast iron two piece body with flashing collar, seepage openings, round polished nickel bronze adjustable strainer head and grate complete with 4" diameter polished nickel bronze funnel, trap primer connection and vandal proof screws.

2.03 CLEANOUTS

A. Cleanouts shall be Josam, Jay R. Smith, Sioux Chief, Wade, Zurn, or approved equal.

B. Floor: Duco cast iron body with round adjustable scoriated secured nickel bronze top, gasket seal-ABS countersunk closure plug, complete with flashing flange and clamp.

C. Wall: Duco cast iron caulk ferrule with cast iron countersunk closure plug. Provide with stainless steel cover and screw.

PART 3 EXECUTION

3.01 GENERAL

A. Install specialties in accordance with the International Plumbing Code and the Manufacturer’s installation instructions.
DIVISION 22—PLUMBING
Section 22 13 19—Sanitary Waste Piping Specialties

3.02 DRAINS

A. Provide the drainage equipment and all piping, for a complete drainage system as shown and detailed on Plans.

B. Provide water pipe connections to trap primers and run the primer lines to the drains. Verify location of trap primers with Architect before installing.

C. See Section 22 11 19, Domestic Water Piping Specialties, for trap primers.

3.03 CLEANOUTS

A. Provide cleanouts as indicated on the plans, and as required by the Uniform Plumbing Code.

B. Provide cleanouts at the locations specified below, regardless of whether or not indicated on the drawings:

1. Drains Within Buildings: Not more than 100’ apart.

2. Drains Outside Of Buildings: Not more than 100’ apart.

3. Changes of Direction Inside Buildings: At each fitting of greater than 45 degrees. Where more than one change of direction occurs in a run of piping, only one cleanout shall be required for each 40’ of developed length of the drainage piping.

4. Building Sewer Junction: Provide a cleanout at the junction between the building drain and building exterior sewer. Provide a 2-way cleanout at this junction.

C. Install in accordance with Manufacturer’s instructions.

END OF SECTION
PART 1  GENERAL

1.01 SECTION INCLUDES

A. Water Heaters:
   1. Commercial electric (tank type).

B. Diaphragm-type compression tanks.

C. In-line circulator pumps.

1.02 REFERENCE STANDARDS


B. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2018.

C. NEMA MG 1 - Motors and Generators; 2017.

D. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.


1.03 SUBMITTALS

A. Refer to Division 1 for submittal procedures.

B. Product Data:
   1. Provide dimension drawings of water heaters indicating components and connections to other equipment and piping.
   2. Indicate pump type, capacity, power requirements.
   3. Provide certified pump curves showing pump performance characteristics with pump and system operating point plotted. Include NPSH curve when applicable.
DIVISION 22—PLUMBING
Section 22 30 00—Plumbing Equipment

4. Provide electrical characteristics and connection requirements.

C. Project Record Documents: Record actual locations of components.

D. Operation and Maintenance Data: Include operation, maintenance, and inspection data, replacement part numbers and availability, and service depot location and telephone number.

E. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

B. Certifications:


2. Electric Water Heaters: UL listed and labeled to UL 174.

3. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc., as suitable for the purpose specified and indicated.

C. Identification: Provide pumps with manufacturer's name, model number, and rating/capacity identified by permanently attached label.

D. Performance: Ensure pumps operate at specified system fluid temperatures without vapor binding and cavitation, are non-overloading in parallel or individual operation, operate within 25 percent of midpoint of published maximum efficiency curve.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Provide temporary inlet and outlet caps. Maintain caps in place until installation.

1.06 WARRANTY

A. Refer to Division 1 for additional warranty requirements.

B. Provide five year manufacturer warranty for domestic water heaters.

PART 2 PRODUCTS

2.01 WATER HEATERS

A. Commercial Electric (Tank Type)
DIVISION 22—PLUMBING
Section 22 30 00—Plumbing Equipment

1. Type: Tank-type commercial electric water heater, single element, vertical orientation, configured for wall mount installation.

2. Construction: Non-ASME construction, steel shell with foam insulation and metal outer jacket, glass lined, factory dielectric fittings, bottom-mounted pipe connections, protective magnesium anode rod, factory-installed temperature & pressure relief valve, screw-in type single immersed heating element.

3. Electrical: Field convertible between voltage options, single element operation.


5. Accessories:
   a. Provide with wall mounting bracket and drain pan with mounting bracket.

2.02 DIAPHRAGM-TYPE COMPRESSION TANKS

A. Welded steel, rated for working pressure of 150 psig, with flexible EPDM diaphragm sealed into tank, with antimicrobial tank liner. Factory pre-charged to 40 psig.

2.03 IN-LINE CIRCULATOR PUMPS

A. Casing: Bronze, rated for 125 psig working pressure, with stainless steel rotor assembly.

B. Impeller: Bronze.

C. Shaft: Alloy steel with integral thrust collar and two oil lubricated bronze sleeve bearings.

D. Seal: Carbon rotating against a stationary ceramic seat.

E. Drive: Flexible coupling.

F. Accessories:
   1. Provide with aquastat and timer for pump control.

2.04 ELECTRICAL WORK

A. Provide electrical motor driven equipment specified complete with motors, motor starters, controls, and wiring.
DIVISION 22—PLUMBING
Section 22 30 00—Plumbing Equipment

B. Furnish motor starters complete with thermal overload protection and other appurtenances necessary for the motor control specified.

C. Supply manual or automatic control and protective or signal devices required for the operation specified, and any control wiring required for controls and devices not shown.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install plumbing equipment in accordance with manufacturer's instructions, as required by code, and complying with conditions of certification, if any.

B. Coordinate with plumbing piping and related electrical work to achieve operating system.

C. Pumps:

1. Provide line sized isolating valve and strainer on suction and line sized soft seated check valve and balancing valve on discharge.

2. Ensure pumps operate at specified system fluid temperatures without vapor binding and cavitation, are non-overloading in parallel or individual operation, and operate within 25 percent of midpoint of published maximum efficiency curve.

END OF SECTION
PART 1 GENERAL

1.01 SECTION INCLUDES

A. Water closets.

B. Lavatories.

C. Service sinks.

D. Under-lavatory pipe supply covers.

E. Drinking fountains.

1.02 REFERENCE STANDARDS


B. ASME A112.18.9 - Protectors/Insulators for Exposed Waste and Supplies on Accessible Fixtures; 2011 (Reaffirmed 2017).


1.03 SUBMITTALS

A. Refer to Division 1 for submittal procedures.

B. Product Data: Provide catalog illustrations of fixtures, sizes, rough-in dimensions, utility sizes, trim, and finishes.

C. Maintenance Data: Include fixture trim exploded view and replacement parts lists.

D. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

   1. Refer to Division 1 for execution and closeout requirements.

   2. Flush Valve Service Kits: Two for each type and size.
1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Accept fixtures on site in factory packaging. Inspect for damage.

B. Protect installed fixtures from damage by securing areas and by leaving factory packaging in place to protect fixtures and prevent use.

1.06 WARRANTY

A. Refer to Division 1 for additional warranty requirements.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Potable Water Systems: Provide plumbing fittings and faucets that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

2.02 FLUSH VALVE WATER CLOSETS

A. Wall Hung Water Closets (P-1)

1. Fixture shall be wall hung blowout-jet type water closet. Fixture shall be constructed of 14 gauge 304 stainless steel. Exposed surfaces shall have a satin finish with seamless welded construction. Fixture shall have an elongated bowl shape, with self-draining flushing rim. Fixture shall be ASME A112.19.3 and CSA B45.4 compliant. Trap shall have a minimum 3-1/2" seal, and shall pass a 2-1/8" diameter ball, and be fully enclosed. Toilet waste outlet shall be a gasketed waste. Fixture shall be designed for 1.28 gpf operation.

2. Provide with hinged seat with open front.

3. Provide with wall carrier.

4. Flush valve
   
   a. Exposed type sensor-operated flush valve.
   
   b. Flush valve shall be designed for 1.28 gpf operation.
   
   c. Flush valve shall be battery operated.
Cover, valve body, control stop, and sweat solder kit shall be constructed of semi-red brass.

Valve shall have chrome plated finish.

Diaphragm shall be synthetic rubber.

Valve shall be ASSE 1037 compliant.

Valve shall be ADA compliant.

2.03 LAVATORIES

A. Wall Hung Lavatories (P-2)

1. Fixture shall be wall mount type. Fixture shall be fabricated from 14 gauge 304 stainless steel. Exposed surfaces shall be seamless welded and polished to satin finish.

2. Provide with wall carrier.

3. Provide with grid strainer and tailpiece.

4. Provide with trap enclosure.

5. Fixture shall be ADA compliant.

6. Faucet

   a. Provide with sensor-operated faucet with fixed outlet temperature and 0.50 gpm aerator.

   b. Faucet shall be single-hole, single supply type for tempered water supply.

   c. Faucet shall be battery operated.

   d. Faucet shall be field-adjustable with multiple selectable modes and operational ranges.

   e. Faucet body shall have total lead content equal to or less than 0.25% by weighted average.

   f. Faucet shall be ASME A112.18.1 and ADA ANSI/ICC A117.1 compliant.

2.04 UNDER-LAVATORY PIPE SUPPLY COVERS

A. General:
DIVISION 22—PLUMBING
Section 22 40 00—Plumbing Fixtures

1. Insulate exposed drainage piping including hot, cold and tempered water supplies under lavatories or sinks per ADA Standards.

2. Adhesives, sewing threads and two ply laminated materials are prohibited.

3. Exterior Surfaces: Smooth nonabsorbent with no finger recessed indentations for easy cleaning.

4. Construction: 1/8 inch PVC with antimicrobial, antifungal and UV resistant properties.
   a. Comply with ASME A112.18.9 for covers on accessible lavatory piping.

5. Color: High gloss white.

6. Fasteners: Reusable, snap-locking fasteners with no sharp or abrasive external surfaces. No cable ties allowed.

2.05 DRINKING FOUNTAINS

A. Wall Mount Drinking Fountains (P-3)
   1. Drinking fountain shall be wall mount, high-low type. Fixture shall be constructed of 14-gauge stainless steel with satin finish. Fixture shall have push-button operators with front-accessible cartridges. Waterways shall be 100% lead-free. Bubblers shall be chrome-plated brass, with vandal-resistant design. Waste strainers shall be chrome-plated brass. Fixture shall have integral 1-1/4" traps.

2. Fixture shall be freeze-resistant configuration.

3. Provide with wall mounting bracket(s).

4. Provide with fountain manufacturer's satin-stainless steel wall finish plates.

5. Provide with bottle filler attachment.
   a. Provide with upper front panel for bottle filler attachment.
   b. Provide with bottle filler splash tray.

B. Wall Mount Pet Drinking Fountain (P-3A)
   1. Pet fountain shall be wall mount type. Pedestal and arm shall be powder coated steel pipe construction. Receptor shall be 18 gauge stainless steel with slow-
draining pebble guard covered chrome plated brass drain plug. Spout shall be brushed aluminum, locked to receptor with vandal resistant steel guard. Valve shall be chrome plated brass pushbutton assembly recessed in steel plate with adjustable flow regulation.

a. Mounting shall include base and wall mount attachment points.

b. Supply pipe connections shall be 1/2\" reinforced vinyl tubing with 1/2\" IPS connections and stainless steel fittings.

c. Provide with powdercoat finish. Color shall be as selected by architect from manufacturer's optional color range.

2.06 SERVICE SINKS

A. Service Sinks (P-4)

1. Fixture shall be rectangular floor mount utility sink. Fixture shall be constructed from terazzo material with compressive strength of no less than 3000 psi. All exposed surfaces shall be ground smooth and sealed. Sink shall have coved corners and the bottom shall be pitched for positive drainage to the drain outlet.

a. Service sink shall be 36"x24", with 12" height.


3. Faucet: Chrome finish wall mount faucet with integral vacuum breaker, pail hook, & hose attachment threads.

4. Accessories:

   a. Rubber drain gasket.

   b. Mop hanger.

   c. Stainless steel wall guard panels, for 2 sides.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that walls and floor finishes are prepared and ready for installation of fixtures.
3.02 PREPARATION

A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.

3.03 INSTALLATION

A. Install each fixture with trap, easily removable for servicing and cleaning.

B. Provide chrome plated rigid or flexible supplies to fixtures with loose key stops, reducers, and escutcheons.

C. Install components level and plumb.

D. Install and secure fixtures in place with wall carriers and bolts.
   1. Wall carriers shall be JR Smith or Zurn.

E. Caulk wall mounted fixtures where the fixture is in contact with the wall.

F. Supply connections shall be hard piped with copper piping only. Slip joint fittings shall not be acceptable.

G. Waste, drain, and soil connections to be of full size of trap or fixture outlet. All fixtures shall be firmly fastened in place by the use of anchored bolts and backing. Wherever the weight of the fixture requires, this Contractor shall make special provisions for the attachment of fixtures as directed and approved. Traps shall comply with UPC Section 1003.1 with a minimum 17-gauge. Thickness and with manufacturer’s name and gauge stamped legibly in the metal of the trap.

3.04 ADJUSTING

A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.

3.05 CLEANING

A. Clean plumbing fixtures and equipment.

3.06 PROTECTION

A. Protect installed products from damage due to subsequent construction operations.

B. Repair or replace damaged products before Date of Substantial Completion.

END OF SECTION
DIVISION 22—PLUMBING
Section 22 40 00—Plumbing Fixtures
DIVISION 23

HEATING, VENTILATING, & AIR CONDITIONING (HVAC)
PART 1  GENERAL

1.01 SECTION INCLUDES

A. General requirements for Division 23 (HVAC).

1.02 SUMMARY

A. Section includes all general requirements that apply to the entirety of Division 23 – HVAC, both interior and exterior to the building, as indicated on the plans and specified herein.

B. All specification sections with Division 23 – HVAC are complementary. All specification sections within Division 23 shall be considered to reference each other.

C. Provide all HVAC work as indicated in the drawings and specified herein.

1.03 REFERENCE STANDARDS

A. General: References used throughout Division 23 are generally accepted industry standards. The edition of the criteria cited shall be that in force at the time of bid. The Contractor shall provide all work in accordance with codes and standards in force in the Authority Having Jurisdiction for the project, to include all local amendments.

1.04 SUBMITTALS

A. See Division 1 for submittal procedures.

B. Product Data: Provide product data for all components and equipment provided under this Division.

1. Product sheets with more than one item or option shown shall have the product(s) and options to be used on the project clearly identified.

2. Any equipment or materials installed or furnished without prior approval of the Owner's Representative shall be rejected and such materials will be required to be removed and replaced with approved materials at the expense of the Contractor.

C. Manufacturer's Installation Instructions: Indicate installation instructions and recommendations.

D. Field Quality Control Submittals: Indicate test reports and inspection reports.

E. Project Record Documents:
1. Record actual routing of installed piping and ductwork, including elevation (or depth for buried items).

2. Record actual equipment and components installed, as well as locations.

3. RFI's, change orders, and the like shall be noted on the Record Documents where these affect the layout or other aspect of project shown on the documents. References to these shall include the RFI/change order number as well as written description(s), sketch(es), etc., indicating the change or clarification.

4. Record actual location of installed valves, sensors, dampers, and other control components.
   a. Include riser diagram(s) and schedule of valve tags and locations.

5. Record actual location and type of vibration isolation devices.

6. Final record documents:
   a. Upon completion of the project the as-built information shall be neatly transferred to a clean set Plans. This set of Plans shall be submitted for final approval and acceptance.

F. Operation and Maintenance (O&M) Data:

1. Include manufacturer's descriptive literature, operating instructions of equipment and controls, maintenance and repair data, and parts listings.

2. Include manufacturer's warranty information, including any extended warranties, or certifications of warranties required for specific products, systems, or installations.

3. Include certification of inspection(s) from the Authority Having Jurisdiction for the applicable work scope(s).

4. Include certification of training.

5. Include certification of Contractor's one-year warranty of materials and workmanship, including effective date(s) of warranty period.

G. Seismic support calculations and any related required certification(s).

H. Design-build Scope(s):
1. Provide shop drawings, design calculations, and other design information for design-build or contractor-design scopes required by these documents. This information shall be provided for review and approval prior to beginning work.

1.05 QUALITY ASSURANCE

A. Manufacturer: A company specializing in manufacturing products specified in Division 23 with a minimum of three years documented experience.

B. Contractor: Mechanical work required under this Division shall be performed by a Washington State Licensed Mechanical Contractor.

C. Electrical work required under this Division shall require an Electrical Permit.

1. The Owner shall procure the main electrical permit for the project. Any additional permits required shall be procured by the Contractor.

D. Electrical Equipment

1. Any piece of equipment used in this project and hereinafter specified which, by its nature, requires electrical hookup, such as fans, pumps, hot water tanks, boosters, air handling equipment, etc., shall be provided with an approved label from either Underwriters Laboratories (UL), the American Gas Association (AGA) or the Canadian Standards Association (CSA).

2. Approval of agency must be for the total package (approval of individual components not acceptable) and all labels must be located outside of equipment and shall be visible to inspector.

E. Performance Certification: All equipment performance (airflow, heating capacity, cooling capacity, etc.) shall be certified by a recognized national agency such as the Air Conditioning and Refrigeration Institute (ARI), Air Movement and Control Association (AMCA) and the American Society of Mechanical Engineers (ASME).

1.06 DELIVERY, STORAGE AND HANDLING

A. Refer to Division 1 for product storage and handling requirements.

B. Lift only with lugs provided. Handle carefully to avoid damage to components, enclosure and finish.

C. Protect products from weather and moisture. Provide coverings of plastic or canvas. Cover openings into pipe and duct. Isolate components from contact with the soil. Provide a means of heating for those components that may become damaged by high or low temperatures.
D. For extended outdoor storage, remove motors and other electrical equipment from enclosures not designed for outdoor use and store separately.

1.07 DEFINITIONS

A. The term "approved equal" means final approval by the Architect of a material or piece of equipment substituted for that which is shown in the Specifications or Plans.

B. The term "provide" means the furnishing and installing of equipment (including connections and appurtenances) complete and ready for use.

C. The term "Mechanical Contractor (MC)" and "Electrical Contractor (EC)" as used in these Specifications or on the Contract Drawings, refer to those subcontractors working under the direction of the General Contractor (GC).

1.08 MISCELLANEOUS REQUIREMENTS

A. Intent of Drawings

1. The drawings are intended to depict the general scope of arrangement. The drawings are diagrammatic and do not show the exact details and locations, nor all offsets in ductwork and piping. Provide additional fittings, offsets and extensions in piping, ductwork and related mechanical insulation to provide full systems functionality and to assure access for equipment maintenance and as detailed elsewhere in the contract. Relocate or shift piping and ductwork where conflict exists with other mechanical systems, Structure, Architecture or Electrical. Report conflicts before proceeding with work. Provide reasonable planning and layout in advance of installation in order to avoid conflicts and delays.

2. Examine the Architectural, Civil, Structural and Electrical Drawings before work is started, coordinate locations and spaces required for the work and lay out work to avoid interference.

B. Permits and Fees:

1. The Owner has procured initial construction permits (including mechanical) for this project. Any additional permits required shall be procured by the Contractor.

C. Scheduling: Comply with requirements of Division 1.

D. As-Specified Equipment: These specifications and drawings generally list only one make and model number for each item of equipment or material required for the project. This is not intended to be restrictive but is intended to indicate the standard of quality, design and features required. In addition the listed product is the basis of the design regarding physical size, capacity, electrical power requirements and performance. The product so identified is designated "as specified."
E. Prior Approvals:

1. Specifications have been written around equipment and materials selected for this project based on quality, size, capacity, and performance required to meet building design criteria. All equipment and materials used in this project that have been specified around a specific product or products shall have prior approval for product substitutions.

2. Request for Approval must be submitted in accordance to Division 1 requirements, including allowable review time and type of form. If no form is specified, use the form published by the Construction Specifications Institute. Submittal information shall be accompanied with full data information regarding items to be substituted.

3. Supplier and/or Mechanical Contractor shall be responsible to ensure that substituted material or equipment is of same size, quality, capacity, weight and electrical characteristics as that specified or shown on the drawings. Any changes and cost increases required during construction due to substituted equipment shall be paid by the Contractor/Supplier. Prior approval to bid does not mean final approval of material or equipment. Final approval will be given after final submitted data has been presented, complete with full information regarding weights, capacities, size, electrical requirements and quality.

F. Contractor’s Cost Breakdown: Submit a cost breakdown (schedule of values) of the major portions of the work. Provide this submittal along with the equipment submittals. Organize the costs generally by specification section.

1.09 CLOSEOUT REQUIREMENTS

A. Refer to Division 1 for execution and closeout requirements.

B. Refer to Division 1 for closeout submittal procedures.

C. Refer to Division 1 for demonstration and training requirements.

1.10 REQUESTS FOR INFORMATION

A. Refer to Division 1 for general requirements for RFI procedures and forms.

B. Information requests may be submitted on any form the Contractor finds convenient, but should include the project name, a complete description of the item requested, reference drawing numbers (with location on the drawing indicated) or specification section references of where to find the item in question, and a suggested solution.

C. The Contractor shall number each of the RFI’s. This numbering system shall be sequential, and shall generally be that established by the General Contractor, unless approved otherwise.
D. Information requests submitted with a suggested solution will be processed more rapidly than those without.

PART 2 PRODUCTS

2.01 DAMAGED OR REJECTED MATERIALS

A. Damaged or rejected materials shall be removed from the site immediately upon discovery.

2.02 MOTORS

A. Motors shall comply with the current edition of the Washington State Energy Code. Service factor for poly-phase motors shall be 1.15. Service factor for single phase motors shall be 1.35.

B. In addition to the requirements in Paragraph “A” above, motors for variable frequency drives shall be of premium efficiency and are suitable for VFD operation (“Inverter Ready”) in accordance with NEMA MG-1, Part 31.4.4.2. Additionally, motors shall be acceptable to the manufacturer of the drive for inverter use. “Inverter Duty” motors are not necessarily required.

PART 3 EXECUTION

3.01 LAYING OUT WORK

A. Locate all general reference points and take such action as is necessary to prevent their destruction lay out work and be responsible for all lines, elevations, grading for utilities and other work required under the Contract. Exercise proper precaution to verify figures shown on drawings before laying out work and be responsible for any error resulting from failure to exercise such precaution. Coordinate the utility installation with the final site grading and elevations. Locate existing utility lines that will be affected by the building location before any footing work begins. Report conflicts with the Plans before proceeding with the work. Failure to follow reasonable precautions with regards to this instruction will require Contractor to alter the work at the Contractor’s expense.

3.02 ELECTRICAL WORK

A. All electrical work performed under this Section of the Specifications shall conform to all applicable portions of the Electrical Section of the Specifications, and shall conform to the NEC and other all applicable codes.

B. All electrical work performed under this Section of the Specifications shall require a permit. Contractor shall obtain & pay for all required permits & fees other than those initially paid for by the Owner.
C. All electrical work performed under this Section of the Specifications shall be performed by an electrician licensed in the jurisdiction where the work is performed.

3.03 WORKMANSHIP

A. Furnish and install all equipment in a neat and finished appearance. If any portion of the work has not been installed in a workmanlike manner, or has been left in a rough, unfinished manner, the Contractor shall remove the equipment, reinstall and patch and paint surrounding surfaces without any increase in cost.

3.04 OPENINGS IN PIPES AND DUCTS

A. Keep closed during the work.

3.05 INSERTS

A. Inserts in concrete for the suspension of piping and equipment shall be provided by this Contractor unless otherwise noted on the Plans.

B. Inserts in "poured in place" concrete shall be Grinnell, Kinsdorf, Elcen, or approved equal. Provide as necessary for support of systems installed.

3.06 CUTTING AND PATCHING

A. General:

1. Prior to cutting, saw cutting, or core drilling any concrete, Contractor shall locate any reinforcing steel (rebar) and the like located in the concrete where the cutting is to be performed. Obtain specific approval from the Architect prior to cutting any concrete reinforcement. Approval must be obtained for each specific instance of cutting reinforcement.

2. Unless directed otherwise by Structural Documents, maintain the following minimum clearances from any concrete reinforcement:

   a. Reinforcing steel: 2"

B. New Work: Provide openings in walls, floors, foundations, etc. for pipe, duct and associated items required for installation under Division 23 are provided. Furnish dimensions and locations of openings to other Contractors doing the work. Provide ample coordination time to avoid delays and unnecessary labor. The expense for cutting and patching made necessary to admit work, repair defective material or workmanship, or by neglect to anticipate proper requirements shall be borne by this Contractor.

C. Existing Structure:
1. All necessary cutting and patching of existing structures necessary for the installation of mechanical work shall be as part of this Contract. Unless cutting and patching locations are specifically shown on the drawings, obtain approval prior to proceeding.

2. All surfaces must be patched upon completion of work. Final finish of all patched surfaces (walls, ceilings, floors etc.) shall be done per finish schedules shown on the Architectural Drawings or patched to match the adjacent surface.

3.07 ACCESSIBILITY

A. Locate valves, traps, damper operators, access doors, etc., with easy accessibility, either accessible in mechanical spaces or through access panels specified hereinafter. The Contractor shall insure that all maintainable items are easily accessible. New work items not reasonably accessible shall be modified, relocated or otherwise changed for adequate accessibility.

3.08 MAINTENANCE AND OPERATION ACCESS

A. Provide suitable access to all mechanical equipment requiring servicing, maintenance, replacement, or repair.

B. Access Panels

1. Provide access panels for all concealed equipment and the like that requires adjustment or service access. Panel locations shall be carefully selected on the job so as not to be located behind cabinets, lights, etc.
   a. Coordinate with the work of other Contractors before installing panels.
   b. Panels shall be prime coated and painted to match surrounding surface.
   c. In finished areas, including ceilings, all access panels shall have the same type of finished surface as that of the surrounding area.
   d. Panels shall be size appropriate for the service intended.
   e. Provide UL labeled fire rated access doors for one or two-hour rated walls and ceilings.
   f. Install before surrounding surfaces have been painted.
   g. Access panel doors shall have cylinder lock latch, all keyed alike.
   h. Provide access doors in ceiling or wall adjacent to all fire damper locations.
i. Verify with Architect the location and finish of all access panels.

j. Panels shall be J.R. Smith, or equal.

C. In addition to building access openings, provide access panels on ducts where required to service damper operators and other equipment requiring adjustment or maintenance.

1. Duct access openings shall be constructed in accordance with SMACNA Duct Construction Standards, Metal and Flexible.

2. All access doors to mechanically furnished panels, control boxes and filter compartments shall be provided with fully hinged, easily opened access doors.

3.09 VIBRATION ISOLATORS

A. General: Provide vibration isolation per the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Applications Manual, Chapter “Sound and Vibration Control”. Vibration isolation shall be provided for both isolation from the building structure (devices such as spring hangers, rubber in shear isolators, etc.) and isolation from the mechanical system (devices such as pipe and duct flexible connections). This ASHRAE reference details specifically the method, type of device, and device selection required. Refer to Table 47, “Selection Guide for Vibration Isolation”.

B. Equipment that has internal isolation for all internal rotating equipment need not be provided with external vibration isolation.

C. Generally, pumps less than five horsepower will not require vibration isolation from structure.

D. Piping shall be isolated from the structure in accordance with the ASHRAE Applications Manual requirements cited above.

E. Vibration isolation may be combined with the seismic support system, if certified by the isolation equipment manufacturer.

F. Provide vibration isolation in accordance with these Specifications. Specific vibration isolation requirements may be shown on the drawings or specified in other sections. Such specific requirements supercede the general requirements in this paragraph.

3.10 SEISMIC SUPPORT

B. Equipment: Provide lateral bracing in accordance with the requirements of the Authority Having Jurisdiction. Seismic restraints shall be either factory fabricated for that purpose and selected based on local seismic design criteria, or engineered to local seismic design criteria. Provide all engineering calculation and certification required by the Authority Having Jurisdiction.

3.11 EQUIPMENT LUBRICATION

A. All exhaust fans air handling units, and heat pumps shall have all lubrication fittings on the equipment exterior.

3.12 PRESSURE TESTS AND IN-SERVICE TEST

A. All work under this Contract shall be thoroughly and systematically tested, both during construction and after completion. Pipe testing shall be either as specified in the appropriate specification section, or as specified in the applicable mechanical code. Ductwork shall be tested as part of the air balancing process. Notify the Architect 48-hours in advance of all tests. Tests shall be maintained until approved.

B. No systems, whether prescribed for testing or not, shall be covered or concealed below ground, in walls, in ceiling spaces, or generally from ease of viewing without first notifying Architect. Failure to notify Architect for inspection of concealed systems shall be cause to require this Contractor to uncover such systems at no additional cost.

C. A log of all tests shall be kept. The log shall note date, time of day test started, system or portion of system tested, length of test and test results.

D. The Contractor shall test the completed installation as in regular service. The systems provided under this Contract shall be operated in normal service for a period of at least a week, and any resulting defects repaired.

E. The Contractor shall guarantee the entire system and all parts thereof for a period of one-year from the date of final acceptance, and shall repair or replace any part which may show signs of failure in that time if such failure is due to imperfections in material or to improper workmanship.

3.13 STARTUP, BALANCING AND COMMISSIONING

A. Equipment startup shall be performed by qualified personnel. The technical specification sections will detail other special requirements, if any. Provide a statement of the startup technician’s qualifications if requested by the Architect or elsewhere specified.

B. Balancing: See Section 23 05 93 - Testing, Adjusting, and Balancing for HVAC. Provide all necessary drive changes (sheaves), impeller trimming or other modifications to mechanical equipment required for specified performance. The Contractor will not
be required to provide new impeller(s) without cost reimbursement unless specifically specified elsewhere in Division 23.

C. Provide startup, functional testing, and documentation to comply with basic commissioning requirements of Washington State Energy Code section C408.

3.14 CLEANING UP

A. Comply with requirements of General Specifications (Division 1, General Conditions, Etc.).

B. Ducts shall be maintained as clean as possible during erection, and shall be blown clean before the building field painting operations are started. Ducts and apparatus casings shall be thoroughly cleaned before fans and filters are operated. After equipment has been used for any purposes, such as adjusting, testing, or temporary ventilation, filters shall be cleaned or renewed and exhaust/return ducts shall be cleaned. Use temporary filters with 80% to 85% filter efficiency during construction.

C. All equipment and material installed shall be properly protected from damage during the course of construction.

D. In attic or other spaces where piping such as domestic water, condensate drains, heating lines, refrigeration lines, etc., have been installed at floor level and interfere with foot traffic, the Mechanical Contractor shall provide covers to protect these pipes. Wood or other such material is acceptable. Where duct plenums or duct runs interfere with normal traffic pattern of maintenance personnel, shall provide a wooden "bridge" over the ducts to prevent damage.

3.15 SPECIAL PROTECTION

A. Exercise maximum precaution to provide positive protection for the building and equipment from damage of any kind, and in particular, prevent water and dust seepage into new equipment.

B. Repair all damage to the building, systems, or property, caused by the Contractor at no additional cost to the Owner. This provision shall include any preventable damage caused by lack of due diligence in planning and investigation, and shall not be applied to field conditions which could not reasonably be ascertained prior to the activity causing damage.

3.16 CAULKING

A. Caulk all openings and flash around all piping, equipment, and ducts passing through roof, floor, and walls.

B. All caulking shall be waterproof, low-VOC, and zero mold growth type.
3.17 FINAL INSPECTION

A. This Contractor shall thoroughly review and inspect the project to determine when final inspection is required, and shall provide notification. It shall be understood that the work shall be essentially complete, and the open items list provided at that time. The warranty period will not start until the punchlist and back-check are complete. Additional inspections required because of lack of diligence by the Contractor will be conducted on a schedule convenient to the inspectors.

3.18 INSTRUCTION PERIODS

A. Scope: Following installation of mechanical work, have representatives of installation tradesmen conduct demonstrations and instruction periods to point out locations of servicing points and required points of maintenance to Owner’s staff.

B. General Description Of Instruction Period: Each period shall include preliminary discussion and presentation of information from maintenance manuals with appropriate references to drawings followed by tours of building areas explaining maintenance requirements, access methods, servicing and maintenance procedures, and equipment cleaning procedures, temperature control settings and available adjustments.

C. Scheduling Of Instruction Period: Notice of Contractor's readiness to conduct such instruction and demonstration shall be given at least two-weeks prior to the instruction period, and agreement finalized as to the date at which the instruction period is to be performed. Notify two-weeks prior to date when ready to conduct instruction and demonstrations receive approvals of proposed date prior to making final arrangements.

D. Comply with training and training reporting requirements enumerated in Chapter 14 of the Washington State Energy Code, WAC 51-11.

3.19 ON SITE OBSERVATIONS AND SAFETY MEASURES

A. The Contractor is solely responsible to provide design and construction review services relating to the Contractor's safety precautions or to means, methods, techniques, sequences or procedures required for the Contractor to perform his work. The duty of any other individual or organization to conduct construction observations of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures in, on, or near the construction site. The contractor shall be responsible for providing all safety measures and shall consult with the State and/or Federal Safety Agency or Inspector for interpretation whenever in doubt as to compliance with State and/or Federal regulations. Furthermore, the Contractor distinctly assumes all risk or damages or injury to any persons or property wherever located resulting from any action or operation under this Contract or in connection with the work.

END OF SECTION
PART 1  GENERAL

1.01  SECTION INCLUDES

A. Nameplates.
B. Tags.

1.02  REFERENCE STANDARDS


1.03  SUBMITTALS

A. Refer to Division 1 for submittal procedures.
B. List: Submit list of wording, symbols, letter size, and color coding for mechanical identification.
C. Product Data: Provide manufacturers catalog literature for each product required.

PART 2  PRODUCTS

2.01  IDENTIFICATION APPLICATIONS

A. Small-sized Equipment: Tags or nameplates.

2.02  NAMEPLATES

B. Letter Height: 1/4 inch.
C. Background Color: Black.

2.03  TAGS

A. Manufacturers:
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Section 23 05 53— Identification For HVAC Piping And Equipment


B. Plastic Tags: Laminated three-layer plastic with engraved black letters on light contrasting background color. Tag size minimum 1-1/2 inch diameter.

PART 3 EXECUTION

3.01 PREPARATION

A. Degrease and clean surfaces to receive adhesive for identification materials.

3.02 INSTALLATION

A. Install nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.

B. Install tags with corrosion resistant chain.

END OF SECTION
PART 1 GENERAL

1.01 SECTION INCLUDES

A. Testing, adjustment, and balancing of air systems.

B. Testing, adjustment, and balancing of plumbing systems.

C. Measurement of final operating condition of HVAC systems.

1.02 REFERENCE STANDARDS


1.03 SUBMITTALS

A. Refer to Division 1 for submittal procedures.

B. TAB Plan: Submit a written plan indicating the testing, adjusting, and balancing standard to be followed and the specific approach for each system and component.

1. Submit to Architect.

2. Submit six weeks prior to starting the testing, adjusting, and balancing work.

3. Include at least the following in the plan:

   a. List of all air flow, water flow, sound level, system capacity and efficiency measurements to be performed and a description of specific test procedures, parameters, formulas to be used.

   b. Copy of field checkout sheets and logs to be used, listing each piece of equipment to be tested, adjusted and balanced with the data cells to be gathered for each.

   c. Discussion of what notations and markings will be made on the duct and piping drawings during the process.

   d. Final test report forms to be used.
e. Details of how TOTAL flow will be determined; for example:

1) Air: Sum of terminal flows via control system calibrated readings or via hood readings of all terminals, supply (SA) and return air (RA) pitot traverse, SA or RA flow stations.

2) Water: Pump curves, circuit setter, flow station, ultrasonic, etc.

f. Specific procedures that will ensure that both air and water side are operating at the lowest possible pressures and methods to verify this.

g. Confirmation of understanding of the outside air ventilation criteria under all conditions.

h. Method of verifying and setting minimum outside air flow rate will be verified and set and for what level (total building, zone, etc.).

i. Method of checking building static and exhaust fan and/or relief damper capacity.

j. False loading of systems to complete TAB work, if specified.

k. Exhaust fan balancing and capacity verifications, including any required room pressure differentials.

l. Procedures for field technician logs of discrepancies, deficient or uncompleted work by others, contract interpretation requests and lists of completed tests (scope and frequency).

m. Procedures for formal deficiency reports, including scope, frequency and distribution.

C. Field Logs: Submit at least once a week to the Owner's Representative.

D. Progress Reports.

E. Final Report: Indicate deficiencies in systems that would prevent proper testing, adjusting, and balancing of systems and equipment to achieve specified performance.

1. Revise TAB plan to reflect actual procedures and submit as part of final report.

2. Submit draft copies of report for review prior to final acceptance of Project. Provide final copies for Architect and for inclusion in operating and maintenance manuals.
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Section 23 05 93—Testing, Adjusting, And Balancing For HVAC

3. Include actual instrument list, with manufacturer name, serial number, and date of calibration.

4. Form of Test Reports: Where the TAB standard being followed recommends a report format use that; otherwise, follow ASHRAE Std 111.

5. Units of Measure: Report data in both I-P (inch-pound) and SI (metric) units.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

A. Perform total system balance in accordance with one of the following:

1. AABC (NSTSB), AABC National Standards for Total System Balance.


B. Begin work after completion of systems to be tested, adjusted, or balanced and complete work prior to Substantial Completion of the project.

C. TAB Agency Qualifications:

1. Company specializing in the testing, adjusting, and balancing of systems specified in this section.

2. Having minimum of three years documented experience.

3. Certified by one of the following:


   b. NEBB, National Environmental Balancing Bureau: www.nebb.org/#sle.

D. TAB Supervisor and Technician Qualifications: Certified by same organization as TAB agency.
3.02 EXAMINATION

A. Verify that systems are complete and operable before commencing work. Ensure the following conditions:

1. Systems are started and operating in a safe and normal condition.
2. Temperature control systems are installed complete and operable.
3. Proper thermal overload protection is in place for electrical equipment.
4. Final filters are clean and in place. If required, install temporary media in addition to final filters.
5. Duct systems are clean of debris.
6. Fans are rotating correctly.
7. Fire and volume dampers are in place and open.
8. Access doors are closed and duct end caps are in place.
9. Air outlets are installed and connected.
10. Duct system leakage is minimized.
11. Pumps are rotating correctly.
12. Proper strainer baskets are clean and in place.
13. Service and balance valves are open.

B. Submit field reports. Report defects and deficiencies that will or could prevent proper system balance.

C. Beginning of work means acceptance of existing conditions.

3.03 PREPARATION

A. Hold a pre-balancing meeting at least one week prior to starting TAB work.

1. Require attendance by all installers whose work will be tested, adjusted, or balanced.
3.04 ADJUSTMENT TOLERANCES

A. Air Handling Systems: Adjust to within plus or minus 5 percent of design for supply systems and plus or minus 10 percent of design for return and exhaust systems.

B. Air Outlets and Inlets: Adjust total to within plus 10 percent and minus 5 percent of design to space. Adjust outlets and inlets in space to within plus or minus 10 percent of design.

C. Plumbing Systems: Adjust to within plus or minus 10 percent of design.

3.05 RECORDING AND ADJUSTING

A. Field Logs: Maintain written logs including:

1. Running log of events and issues.

2. Discrepancies, deficient or uncompleted work by others.


4. Lists of completed tests.

B. Ensure recorded data represents actual measured or observed conditions.

C. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops.

D. Mark on drawings the locations where traverse and other critical measurements were taken and cross reference the location in the final report.

E. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.

F. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.

3.06 AIR SYSTEM PROCEDURE

A. Adjust air handling and distribution systems to provide required or design supply, return, and exhaust air quantities at site altitude.

B. Make air quantity measurements in ducts by Pitot tube traverse of entire cross sectional area of duct.

C. Measure air quantities at air inlets and outlets.
D. Adjust distribution system to obtain uniform space temperatures free from objectionable drafts and noise.

E. Use volume control devices to regulate air quantities only to extend that adjustments do not create objectionable air motion or sound levels. Effect volume control by duct internal devices such as dampers and splitters.

F. Vary total system air quantities by adjustment of fan speeds. Provide drive changes required. Vary branch air quantities by damper regulation.

G. Provide system schematic with required and actual air quantities recorded at each outlet or inlet.

H. Measure static air pressure conditions on air supply units, including filter and coil pressure drops, and total pressure across the fan. Make allowances for 50 percent loading of filters.

3.07 WATER SYSTEM PROCEDURE

A. Adjust water systems to provide required or design quantities.

B. Use calibrated Venturi tubes, orifices, or other metered fittings and pressure gages to determine flow rates for system balance. Where flow metering devices are not installed, base flow balance on temperature difference across various heat transfer elements in the system.

C. Adjust systems to provide specified pressure drops and flows through heat transfer elements prior to thermal testing. Perform balancing by measurement of temperature differential in conjunction with air balancing.

D. Effect system balance with automatic control valves fully open to heat transfer elements.

E. Effect adjustment of water distribution systems by means of balancing cocks, valves, and fittings. Do not use service or shut-off valves for balancing unless indexed for balance point.

F. Where available pump capacity is less than total flow requirements or individual system parts, full flow in one part may be simulated by temporary restriction of flow to other parts.

3.08 SCOPE

A. Test, adjust, and balance the following:

1. Plumbing Pumps.
2. Fans.

3. Air Inlets and Outlets.

4. Energy Recovery Ventilator Units.

3.09 MINIMUM DATA TO BE REPORTED

A. Electric Motors:
   1. Manufacturer.
   2. Model/Frame.
   3. HP/BHP.
   4. Phase, voltage, amperage; nameplate, actual, no load.
   5. RPM.
   7. Sheave Make/Size/Bore.

B. V-Belt Drives:
   1. Identification/location.
   2. Required driven RPM.
   3. Driven sheave, diameter and RPM.
   4. Belt, size and quantity.
   5. Motor sheave diameter and RPM.
   6. Center to center distance, maximum, minimum, and actual.

C. Pumps:
   1. Identification/number.
   2. Manufacturer.
   3. Size/model.
   4. Impeller.
5. Service.

6. Design flow rate, pressure drop, BHP.

7. Actual flow rate, pressure drop, BHP.

8. Discharge pressure.


10. Total operating head pressure.

11. Shut off, discharge and suction pressures.

12. Shut off, total head pressure.

D. Exhaust Fans:

1. Location.

2. Manufacturer.

3. Model number.

4. Serial number.

5. Air flow, specified and actual.

6. Total static pressure (total external), specified and actual.

7. Inlet pressure.

8. Discharge pressure.


10. Number of Belts/Make/Size.

11. Fan RPM.

E. Air Distribution Tests:

1. Air terminal number.

2. Room number/location.

3. Terminal type.
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4. Terminal size.
5. Area factor.
6. Design velocity.
7. Design air flow.
8. Test (final) velocity.
9. Test (final) air flow.
10. Percent of design air flow.

END OF SECTION
PART 1  GENERAL

1.01 SECTION INCLUDES

A. Duct insulation.

B. Duct liner.

C. Insulation jackets.

1.02 REFERENCE STANDARDS


H. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005 (Revised 2009).


1.03 SUBMITTALS

A. Refer to Division 1 for submittal procedures.

B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.
1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section with not less than three years of documented experience.

B. Applicator Qualifications: Company specializing in performing the type of work specified in this section, with minimum 2 years of experience and approved by manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Accept materials on site in original factory packaging, labelled with manufacturer's identification, including product density and thickness.

B. Protect insulation from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original wrapping.

1.06 FIELD CONDITIONS

A. Maintain ambient temperatures and conditions required by manufacturers of adhesives, mastics, and insulation cements.

B. Maintain temperature during and after installation for minimum period of 24 hours.

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84 or UL 723.

2.02 GLASS FIBER, FLEXIBLE

A. Insulation: ASTM C553; flexible, noncombustible blanket.

   1. 'K' value: 0.36 at 75 degrees F, when tested in accordance with ASTM C518.

   2. Maximum Service Temperature: 250 degrees F.

   3. Maximum Water Vapor Absorption: 5.0 percent by weight.

B. Vapor Barrier Jacket:

   1. Kraft paper with glass fiber yarn and bonded to aluminized film.

   2. Moisture Vapor Permeability: 0.02 perm inch, when tested in accordance with ASTM E96/E96M.
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3. Secure with pressure sensitive tape.

C. Vapor Barrier Tape:

1. Kraft paper reinforced with glass fiber yarn and bonded to aluminized film, with pressure sensitive rubber based adhesive.

D. Tie Wire: Annealed steel, 16 gage, 0.0508 inch diameter.

2.03 DUCT LINER

A. Elastomeric Foam Insulation: Preformed flexible elastomeric cellular rubber insulation complying with ASTM C534/C534M Grade 1, in sheet form.

1. Minimum Service Temperature: Minus 40 degrees F.

2. Maximum Service Temperature: 180 degrees F.

3. Erosion Resistance: Does not show evidence of breaking away, flaking off, or delamination at velocities of 10,000 fpm per ASTM C1071.


C. Liner Fasteners: Galvanized steel, self-adhesive pad with integral head.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that ducts have been tested before applying insulation materials.

B. Verify that surfaces are clean, foreign material removed, and dry.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. External Duct Insulation Application:

1. Secure insulation with vapor barrier with wires and seal jacket joints with vapor barrier adhesive or tape to match jacket.

2. Secure insulation without vapor barrier with staples, tape, or wires.
3. Install without sag on underside of duct. Use adhesive or mechanical fasteners where necessary to prevent sagging. Lift duct off trapeze hangers and insert spacers.

4. Seal vapor barrier penetrations by mechanical fasteners with vapor barrier adhesive.

5. Stop and point insulation around access doors and damper operators to allow operation without disturbing wrapping.

C. Duct Liner Application:

1. Adhere insulation with adhesive for 90 percent coverage.

2. Secure insulation with mechanical liner fasteners. Refer to SMACNA (DCS) for spacing.


4. Seal liner surface penetrations with adhesive.

5. Duct dimensions indicated are net inside dimensions required for air flow. Increase duct size to allow for insulation thickness.

END OF SECTION
PART 1 GENERAL

1.01 SECTION INCLUDES

A. General Ductwork Requirements.
B. Galvanized steel ductwork.
C. Ductwork accessories.

1.02 REFERENCE STANDARDS

A. ASTM International (ASTM):
B. International Code Council (ICC)
   1. IMC – International Mechanical Code
C. National Fire Protection Association (NFPA):
   2. NFPA 90B - Standard for the Installation of Warm Air Heating and Air Conditioning Systems.
D. Sheet Metal and Air Conditioning Contractors National Association (SMACNA):
   1. SMACNA - Fibrous Glass Duct Construction Standards.
   3. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.
   5. SMACNA - HVAC Systems Duct Design
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6. SMACNA - Fire Damper Guide

E. Underwriters Laboratories Inc. (UL):

1.03 PERFORMANCE REQUIREMENTS

A. Variation of duct configuration or sizes other than those of equivalent or lower loss coefficient is not permitted except by written permission. Size round ducts installed in place of rectangular ducts in accordance with SMACNA table of equivalent rectangular and round ducts (HVAC Systems Duct Design).

1.04 SUBMITTALS

A. See Division 1 for submittal procedures.

B. Shop Drawings.

1. Duct fabrication drawings, shall be drawn to scale not smaller than 1/8" - 1'-0", on drawing sheets same size as Contract Documents, indicating:

   a. Fabrication, assembly, and installation details, including plans, elevations, sections, details of components, and attachments to other work.

   b. Duct layout, indicating pressure classifications and sizes in plan view. For exhaust duct systems, indicate classification of materials handled as defined in this section.

   c. Fittings.

   d. Reinforcing details and spacing.

   e. Seam and joint construction details.

   f. Penetrations through fire rated and other walls.

   g. Terminal unit, coil, and humidifier installations.

   h. Hangers and supports, including methods for building attachment, vibration isolation, and duct attachment.

C. Product Data: Submit data for specialty duct connectors other than found in the SMACNA duct construction manual, and duct access panels.

D. Product and fabrication data for specialty ductwork such as double-wall or round acoustically lined duct.
1.05 QUALITY ASSURANCE

A. Perform Work in accordance with SMACNA - HVAC Duct Construction Standards - Metal and flexible.

B. Construct ductwork to NFPA 90A standards, SMACNA duct construction standards and the codes in force in the Authority Having Jurisdiction.

1.06 DELIVERY, STORAGE AND HANDLING

A. Refer to Division 1 for product storage and handling requirements.

1.07 CLOSEOUT REQUIREMENTS

A. Refer to Division 1 for execution and closeout requirements.

B. Refer to Division 1 for closeout submittal procedures.

C. Refer to Division 1 for demonstration and training requirements.

1.08 ENVIRONMENTAL REQUIREMENTS

A. See Division 1 for product Requirements.

B. Do not install duct sealant when temperatures are less than those recommended by sealant manufacturers.

C. Maintain temperatures during and after installation of duct sealant.

1.09 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

PART 2 PRODUCTS

2.01 GENERAL

A. Rectangular Ductwork

1. Construction Standards - SMACNA References:

a. Fire Damper Guide for HVAC Systems

b. HVAC Duct Construction Standards, Metal and Flexible.

2. Fabricate in accordance with SMACNA references, NFPA 90A, and the International Mechanical Code.
B. Round Ductwork

1. Spiral duct may be provided where metallic ductwork is exposed.

2.02 GALVANIZED STEEL DUCTWORK

A. Rectangular Ductwork

1. Duct Material:
   a. Galvanized Steel for Ducts: Hot-dipped galvanized steel sheet, 1 FS Type B, with G60/Z180 coating.
   b. Angles, bars and rods for support and reinforcement, structural quality carbon steel, ASTM A36.

B. Round Ductwork

1. Materials shall be per SMACNA Duct Construction Standards, Metal and Flexible, Galvanized Sheet Metal.

2.03 DUCTWORK ACCESSORIES

A. Turning Vanes: Provide single vane type for vane lengths under 36”, double vane type on vanes 36” in length and longer.

B. Duct Lining:

1. Refer to Section 23 07 13 - Duct Insulation.

2. Enlarge the sheetmetal portion to account for the lining. The duct dimension provided on the drawings is the interior dimension unless specifically noted otherwise on the drawings.

C. Caulking and Sealing Compounds:

1. Joint sealers and sealants shall be non-hardening, water resistant, mildew and mold resistant.

2. Type: Heavy mastic or liquid used alone or with tape, suitable for joint configuration and compatible with substrates, and recommended by manufacturer for pressure class of ducts.

3. VOC Content: Not more than 250 g/L, excluding water.
4. Surface Burning Characteristics: Flame spread index of zero and smoke developed index of zero, when tested in accordance with 1.

5. For Use With Flexible Ducts: UL labeled.

6. Manufacturers:

D. Support Materials:
   1. Prefabricated clamps, supports and accessories: ITT, Grinnel or equal.
   2. Structural Steel: ASTM A36 or 316 stainless steel.

E. Duct Access Doors, Panels, and Sections
   1. Provide access doors, sized and located for maintenance work, upstream of the associated component where possible. Doors shall have a full piano type hinge, reinforced edges and a rubber gasket seal around the edges.

   2. Access doors shall be provided in ductwork where indicated and at all airflow measuring primaries, automatic dampers, fire dampers, coils, thermostats, and other apparatus requiring service and inspection in the duct system, and unless otherwise shown, shall conform to SMACNA Standards. Access doors shall be provided upstream and downstream of airflow measuring primaries and heating and cooling coils. Doors shall be minimum 15” x 18”, unless otherwise shown. Where duct size will not accommodate this size door, the doors shall be made as large as practicable. Doors 24” x 24” or larger shall be provided with fasteners operable from both sides. Doors in insulated ducts shall be the insulated type.

   3. Openings shall be as large as feasible in small ducts, 12” x 12” minimum where possible. Access sections in insulated ducts shall be double wall, insulated. Transparent shatter proof covers are preferred for uninsulated ducts.

2.04 MISCELLANEOUS COMPONENTS

A. Refer to Section 23 33 00 - Air Duct Accessories, for common components such as volume control dampers, duct test holes, and the like.

PART 3 EXECUTION

3.01 APPLICATIONS

A. General use HVAC: Galvanized steel ductwork
3.02 METALLIC DUCTWORK

A. Fabrication (Rectangular Ductwork):

1. Construction shall be in accordance with the applicable SMACNA Construction Standards.

2. The internal end of all slip joints shall be installed in the direction of airflow.

3. Where the perimeter of duct does not exceed the width of the sheet, ducts shall be constructed with one longitudinal seam only.

4. "Pittsburgh" type flat double lock longitudinal seams shall be used on all ducts in which the longest transverse dimension does not exceed 36".

5. "Standing" seams of lock type, 1" high shall be used on all ducts with longest transverse dimension exceeding 36". All standing seams shall be punched.

6. “Ductmate” style manufactured seam systems are acceptable.

7. Elbows:
   a. Wherever possible, elbows shall have a centerline radius equal to 1½ times the duct dimension in the plane of the turn.
   b. Where space does not permit the above radius, or where square elbows are indicated on the Drawings, they must be equipped with special manufactured, factory built turning vanes.
   c. Local shop fabricated turning vanes will not be acceptable

8. Where transition pieces in the ducts occur, the slopes in the sides must be approximately one to five. Abrupt changes or offsets of any kind will not be permitted.

9. No attempt is made to show on the drawings all offsets, which may be required. All offsets in ducts necessary for the installation, whether shown or not, shall be provided.

10. Provide turning vanes for all mitered duct elbows unless specifically noted otherwise on the Drawings.

B. Hangers and Supports:

1. All ducts must be provided with hangers in sufficient number and at close enough centers to prevent any bending or sagging. Hanger spacing shall not exceed 8’.
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2. Ducts shall be supported either by rods or by applicable methods as shown in the SMACNA Duct Manual.


C. Dampers: Provide dampers of the types, and at the locations shown on the Drawings, or where necessary to provide proper balancing. Dampers shall have a positioning quadrant, lever and locking assembly.

D. Control Damper Installation:

1. Install control dampers provided by the Controls Contractor.

2. Provide necessary blank-off plates required to install dampers that are smaller than duct size. Provide necessary transition required to install dampers larger than duct size.

3. Assemble multiple section dampers with required interconnecting linkage and extend required number of shafts through duct for external mounting of damper motors.

4. Provide necessary sheet metal baffle plates to eliminate stratification and provide air volumes specified. Locate baffles by experimentation, and affix and seal permanently in place, only after stratification problem has been eliminated.

E. Protection And Cleaning: Adequately protect equipment and materials against physical damage. Place equipment in first class operating condition, or return to source of supply for repair or replacement, as determined by the Architect. Protect equipment and ducts during construction against entry of foreign matter to the inside and clean both inside and outside before operation and painting. When new ducts are connected to existing ductwork, clean both new and existing ductwork by mopping and vacuum cleaning inside and outside before operation.

F. Round ductwork fabrication: Fabricate and install per SMACNA Duct Construction Standards, Metal & Flexible, NFPA 90A, and the International Mechanical Code. Also comply with general criteria specified above for rectangular duct (installation of control dampers, protection and cleaning, etc.).

3.03 ACCESSORIES

A. Install volume or splitter dampers as required at all branches in the ductwork.

B. Provide remote operators for inaccessible dampers.
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C. Install access panels and doors air tight. Select and set hardware, latches, locks and gasket seals to suit operating pressure.

D. Install flexible connections at fan or equipment outlets. Align duct and equipment flange to maintain a 1" minimum clear gap between the adjoining metal parts.

E. Provide sheet metal sleeve around penetrations through walls or floors. Pack opening around duct with fiberglass and caulk with resilient caulking.

F. Provide access doors for all fire dampers, dampers, heaters, coils and any other component, which will require maintenance.

END OF SECTION
PART 1 GENERAL

1.01 SECTION INCLUDES

A. Back-draft dampers.
   1. Metallic, horizontal airflow
   2. Non-metallic, horizontal airflow
   3. Metallic, vertical airflow up.
B. Volume control dampers.
   1. Volume control dampers.
   2. Splitter dampers.
C. Flexible duct connections.
D. Motorized dampers.

1.02 REFERENCE STANDARDS

A. Sheet Metal and Air Conditioning Contractors National Association (SMACNA):
   1. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.

1.03 SUBMITTALS

A. See Division 1 for submittal procedures.
B. Product Data: Manufacturer's catalog specification, dimensional and performance data for all items specified herein. Include where applicable electrical characteristics and connection requirements.

1.04 QUALITY ASSURANCE

A. Damper pressure drop ratings based on tests and procedures performed in accordance with AMCA 500.

1.05 DELIVERY, STORAGE, AND HANDLING

A. See Division 1 for product storage and handling requirements.
B. Protect dampers from damage to operating linkages and blades.
C. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly indicating manufacturer and material.

D. Storage: Store materials in a dry area indoor, protected from damage.

E. Handling: Handle and lift dampers in accordance with manufacturer's instructions. Protect materials and finishes during handling and installation to prevent damage.

1.06 CLOSEOUT REQUIREMENTS

A. Refer to Division 1 for execution and closeout requirements.

B. Refer to Division 1 for closeout submittal procedures.

C. Refer to Division 1 for demonstration and training requirements.

PART 2 PRODUCTS

2.01 DAMPERS AND SPLITTERS

A. Airflow control devices shall be furnished with accessible operating mechanisms. Where operators occur in finished portions of the building, operators shall be chromium plated and all exposed edges rounded. Manual volume control dampers; shall be operated by locking type quadrant operators. Dampers shall be two gauges heavier than the duct in which installed. Unless otherwise indicated, multi-leaf dampers shall be opposed blade type with maximum blade width of 12”. Access doors or panels shall be provided for all concealed damper operators and locking setscrews. Unless otherwise indicated, the locking type quadrant operators for dampers, when installed on ducts to be thermally insulated, shall be provided with stand-off mounting brackets, bases, or adapters to provide clearance between the duct surface and the operator not less than the thickness of the insulation. Stand-off mounting items shall be integral with the operator or standard accessory of the damper manufacturer. Airflow control devices shall be provided where indicated. Provide access for operators concealed above gypsum wallboard ceilings.

B. In addition to the general requirements above, splitters shall be operated by quadrant operators or 3/16” rod brought through the side of the duct with locking setscrew and bushing. Two rods are required on splitters over 8”. Splitters shall be two gauges heavier than the duct in which installed.

2.02 FLEXIBLE CONNECTIONS

A. 30 ounce per square yard neoprene coated glass fabric. Flexible connections shall be impervious to moisture, mildew, and chemical reaction.

B. Provide Ventglas or approved equal.
DIVISION 23—HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)
Section 23 33 00—Air Duct Accessories

2.03 MOTORIZED DAMPERS

A. All motorized dampers shall be installed under this Specification unless specified as a standard integral component of a particular piece of equipment, e.g., packaged kitchen heat recovery unit.

B. Dampers shall be full size of duct, be sealed between damper frame and duct, and shall operate without binding on duct walls. Provide access panels for motorized dampers.

2.04 BACKDRAFT DAMPERS (BDD)

A. Provide the backdraft dampers of the sizes shown on Plans and of the types hereinafter specified.

B. Metallic Dampers Horizontal Airflow: Ruskin Model BD2/A1, with extruded aluminum frame and extruded aluminum blades with vinyl edge seals. Operational pressures are .03" W.G. to blades start to open and .10" W.G. blades fully open.

C. Non-Metallic Dampers Horizontal Airflow: Ruskin Model NMS2 or Wonder Metals Model FBD with neoprene-coated glass fabric blades in a steel frame with either galvanized expanded metal or wire mesh backing.

PART 3  EXECUTION

3.01 GENERAL

A. Install in accordance with SMACNA Duct Construction Standards, Metal and Flexible, and the codes in place in the Authority Having Jurisdiction.

3.02 VOLUME DAMPERS

A. Provide volume dampers in the supply branch duct serving each air terminal.

B. Install dampers as defined in Latest Edition SMACNA HVAC Duct Construction Standards. Dampers to be constructed and installed consistent with pressure class. Stiffen all blades with the longest dimension exceeding 18". Duct penetrations for damper installation will require sealing as necessary to eliminate noise for each pressure class.

C. Dampers shall be installed with blades in the full open position, secured in place with locking quadrant type handle. Dampers shall be installed as far from air terminal as possible to eliminate air turbulence and noise.

3.03 MOTORIZED DAMPERS

A. Interlock motorized dampers with fans/equipment serving the same duct system.
3.04 FLEXIBLE CONNECTIONS

A. Provide flex connections wherever ducts make connection with any air-handling device such as supply fans, exhaust fans, etc.

END OF SECTION
PART 1  GENERAL

1.01 SECTION INCLUDES

A. Registers/grilles.
B. Louvers.

1.02 REFERENCE STANDARDS


1.03 SUBMITTALS

A. Refer to Division 1 for submittal procedures.
B. Product Data: Provide data for equipment required for this project. Review outlets and inlets as to size, finish, and type of mounting prior to submission. Submit schedule of outlets and inlets showing type, size, location, application, and noise level.
C. Project Record Documents: Record actual locations of air outlets and inlets.

1.04 QUALITY ASSURANCE

A. Test and rate air outlet and inlet performance in accordance with ASHRAE Std 70.
B. Test and rate louver performance in accordance with AMCA 500-L.
C. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

PART 2  PRODUCTS

2.01 WALL EXHAUST AND RETURN REGISTERS/GRILLES

A. Type: Streamlined blades, 3/4 inch minimum depth, 3/4 inch maximum spacing, with spring or other device to set blades, horizontal face.
B. Frame: 1-1/4 inch margin with countersunk screw mounting.
C. Fabrication: Aluminum extrusions, with factory baked enamel finish.
D. Color: silver.
2.02 LOUVERS

A. Type: 4 inch deep with blades on 45 degree slope with center baffle and return bend, heavy channel frame, 1/2 inch square mesh screen over exhaust and 1/2 inch square mesh screen over intake.

B. Fabrication: 12 gage, 0.1046 inch thick extruded aluminum, welded assembly, with factory prime coat finish.

C. Color: To be selected by Architect from manufacturer's standard range.

D. Mounting: Furnish with masonry strap anchors for installation.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Check location of outlets and inlets and make necessary adjustments in position to comply with architectural features, symmetry, and lighting arrangement.

C. Provide balancing dampers on duct take-off to diffusers, and grilles and registers, despite whether dampers are specified as part of the diffuser, or grille and register assembly.

D. Paint ductwork visible behind air outlets and inlets matte black.

END OF SECTION
PART 1 GENERAL

1.01 SECTION INCLUDES

A. Energy recovery units.

1.02 SUBMITTALS

A. Refer to Division 1 for submittal procedures.

B. Product Data: Manufacturer's installation instruction, product data, and engineering calculations.

C. Closeout Submittals: Submit manufacturer's operation and maintenance instructions.

D. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. Spare Parts: One of each kind of filter.

1.03 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. Firm regularly engaged in manufacturing energy recovery units.

2. Products in satisfactory use in similar service for not less than five years.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Store in manufacturer's unopened packaging.

B. Store products to be installed indoors in dry, heated area.

1.05 WARRANTY

A. Refer to Division 1 for additional warranty requirements.

B. The ERV units shall have a manufacturer’s parts and defects warranty for a period one (1) year from date of installation. If, during this period, any part should fail to function properly due to defects in workmanship or material, it shall be replaced or repaired at the discretion of the manufacturer. This warranty does not include labor.

C. The ERV Energy Transfer Core shall have an additional nine (9) year warranty against defects in material or workmanship. The total warranty period shall be ten (10) years from date of installation.
PART 2 PRODUCTS

2.01 SMALL PACKAGED ENERGY RECOVERY VENTILATOR (ERV) UNITS

A. General
   1. The ERV unit shall be factory assembled, wired and run tested. Contained within the unit shall be all factory wiring, control circuit board and blowers with motors, filters, and insulated foam air guides. Each unit will have an automatic by-pass damper system for economic operation under certain conditions. The unit shall have factory installed control board with functions for local, remote, and optional control modes.

B. Cabinet
   1. The cabinet shall be fabricated of galvanized steel, and covered with polyurethane foam insulation as necessary with steel mounting points securely attached.

C.
   1. The unit shall be furnished with two direct drive centrifugal blowers running simultaneously supplying and extracting air at the same rate for balanced ventilation air flow.

   2. The blower motors shall be a directly connected to the blower wheels and have permanently lubricated bearings.

   3. The blowers and motors shall be mounted for quiet operation.

D. Heat Exchanger
   1. The heat exchanger element shall be constructed of specially treated cellulous fiber membrane separated by corrugated layers to allow total heat (sensible and latent) energy recovery from the exhaust air to the supply air or from the supply air to the exhaust air as determined by design conditions.

   2. The heat exchanger element shall have protective filters installed at both the supply and exhaust sides with an access cover to allow easy maintenance.

E. Bypass Damper
   1. The ERV shall have an automatic supply side by-pass damper to allow inbound ventilation air to by-pass the heat recovery core when outside weather conditions warrant.
2. The mechanism for opening and closing the bypass damper shall be a 208V-230V synchronous electric motor through an actuator. The motor will drive a steel cable connected to a mechanical damper flap to allow fresh air to bypass the heat recovery core.

3. Supply and return air thermistor shall control the damper.

F. Filters

1. The ERV shall be equipped with factory installed air filters located at each intake face (both supply and exhaust sides) of the heat recovery core to clean the air and prevent clogging.

G. Controls

1. Independent control by contact closure from other sensor driven controllers, switch, or timers.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that structure is ready for installation of unit, that openings in deck for ductwork, if required, are correctly sized and located, and that mechanical and electrical utilities supplying unit are of correct capacities and are accessible.

3.02 INSTALLATION

A. Provide openings for suitable ductwork connection.

B. Ductwork:

1. The installer shall supply, install, test and commission all interconnecting ductwork for the ERV units.

2. Ductwork sizing, layout, fittings, etc shall be in strict accordance with the design requirements.

3. The two outdoor ducts must be covered with heat insulating material in order to prevent condensation from forming.

4. The two outdoor ducts must be tilted at a gradient (1/30 or more) down toward the outdoor area from ERV unit.
3.03 SYSTEM STARTUP

A. Provide services of manufacturer's authorized representative to provide start up of unit.

3.04 CLEANING

A. Clean filters, air plenums, interior and exposed-to-view surfaces prior to Substantial Completion.

END OF SECTION
PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Cove heaters.

B. Wall-mounted fan heaters.

1.02 REFERENCE STANDARDS

A. General: References used throughout Division 23 are generally accepted industry standards. The edition of the criteria cited shall be that in force at the time of bid. The Contractor shall provide all work in accordance with codes and standards in force in the Authority Having Jurisdiction for the project, to include all local amendments.

B. National Fire Protection Agency (NFPA)
   1. NFPA 70 - National Electrical Code (NEC)

C. Underwriters Laboratories (UL)
   1. Fire Resistance Directory
   2. Building Materials Directory

1.03 SUBMITTALS

A. See Division 1 for submittal procedures.

B. Product Data, to include capacity and utility requirements.

C. Installation instructions.

1.04 DELIVERY, STORAGE AND HANDLING

A. Refer to Division 1 for product storage and handling requirements

1.05 CLOSEOUT REQUIREMENTS

A. Refer to Division 1 for execution and closeout requirements.

B. Refer to Division 1 for closeout submittal procedures.

C. Refer to Division 1 for demonstration and training requirements.
PART 2- PRODUCTS

2.01 GENERAL

A. All heaters shall be fabricated in accordance with the National Electrical Code, and shall bear an Underwriter’s Laboratories (UL) label.

2.02 COVE HEATERS

A. Front Panel: The front panel shall be the radiating surface, and shall be fabricated of extruded aluminum. The panel shall be coated with vitreous enamel to achieve a high radiating efficiency. The backside of the front panel shall have a formed section to hold the heating element.

B. Back Shield: The back shield shall be formed of heavy gauge galvanized steel and have openings to permit the convention flow of air.

C. Element: The heating element wire shall consist of high resistance nickel chrome alloy wire, embedded in high purity magnesium oxide and encased in an aluminum sheath to assure long and trouble free life. No AC hum shall be audible.

2.03 WALL MOUNTED UNIT HEATER

A. General: Electric heat, fan driven, thermostatic control, UL listed.

B. Enclosure:
   1. Wall Box: Not less than 1.3mm (l8-gauge) steel, recessed type.
   2. Ribbed 1.6mm (l6-gauge) steel front cover.
   3. Closely spaced downflow discharge louvers.
   4. Concealed screws for locking trim frame to front cover.
   5. Finished in neutral gray baked enamel with satin finish anodized aluminum trim frame.

C. Heating Elements: Steel sheath enclosed finned tube type.

D. Integral Controls:
   1. Two-pole terminal block.
   2. Built-in fan delay switch.
   3. Automatic reset line voltage internal thermal overheats protection.
4. Built-in thermostat comfort control with adjustment range between -1 to 32 degree C (30 to 90 degrees F), and manually set "No Heat" position; tamper resistant adjustment by inserting screwdriver through front cover louvers.

PART 3 - EXECUTION

3.01 GENERAL

A. Units will be installed per manufacturer's published installation instructions.

B. Electrical installation work shall be in accordance with the National Electrical Code and Division 26 of the Specification.

END OF SECTION
DIVISION 26

ELECTRICAL
PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specifications, apply to all work specified in Division 26.

B. This Section applies to work specified in all Sections of Division 26 of the Specifications.

1.2 SUMMARY

A. Provide the following for and incidental to, the work indicated on the Drawings and specified herein:

1. Supervision
2. Materials
3. Tools and equipment
4. Labor
5. Transportation
6. Waste disposal
7. Cleaning

1.3 WORKMANSHIP

A. The work shall:

1. Complete in all details.
2. Be performed by properly qualified technicians.
3. Comply with the National Electrical Installation Standards (NEIS), published by the National Electrical Contractors Association (NECA).
4. Be performed in accordance with manufacturer’s instructions and recommendations.
5. Comply with the Owner’s arc flash protection procedures and lock-out, tag-out procedures.

1.4 DEFINITIONS

A. As used on the electrical Drawings and in Division 26 of the Specifications, the following definitions shall apply.

B. Definitions regarding scope of work:

1. “Furnish” shall mean “to supply and deliver equipment to the Project site.”
2. “Install” shall mean “to place in the designated location, anchor in place, make physical and electrical connections, perform specified testing and demonstration, and leave in operating condition.”

3. “Provide” shall mean “furnish” and “install,” as defined above.

4. “Verify” shall mean “accurately assess the conditions affecting the work and adjust the work to accommodate the conditions.”

C. Definitions regarding document presentation:

1. “Indicated” shall mean “called out by means of graphical representation, notes, schedules or text on the Drawings or in the Specifications.”

2. “Noted” shall mean “indicated,” as defined above.

3. “Shown” shall mean “indicated,” as defined above.

4. “Specified” shall mean “indicated,” as defined above.

D. Definitions regarding visibility of work:

1. “Concealed” shall mean “hidden from sight as in trenches below grade, in chases, in walls, in furred spaces or above ceilings.”

2. “Exposed” shall mean “not concealed,” as defined above.

E. Definitions regarding location:

1. “Interior” shall mean “bounded on all sides by a building envelope, including roofs, floors, walls, doors, windows and/or louvers in such a manner as to form a protected space, impervious to rain.”

2. “Exterior” shall mean “not interior,” as defined above.

F. Definitions regarding responsible entities:

1. “Contractor” shall mean “the entity that has entered into the Contract with the Owner to perform the Work on the Project in accordance with the Contract Documents.”

2. “Electrical Installer” shall mean “the firm, licensed by the applicable jurisdiction to perform electrical installation that is immediately responsible for installation and supervision of electrical work on the Project in accordance with the Contract Documents.”

3. “Owner’s Representative” shall mean “the person or entity designated by the Owner to represent the Owner’s interests with respect to the Project, and acting within the limits of the delegated authority.”

4. “System Installer” shall mean “the entity, qualified by special skill and experience and employing specially trained technicians, that is engaged by the Contractor to install a particular electrical, communications or electronic safety system on the Project in accordance with the Contract Documents.”

5. “System Vendor” shall mean “a factory branch office or authorized dealer/distributor for equipment provided as part of a particular electrical,
communications or electronic safety system that maintains a local shop, equipped with spare parts and trained technicians skilled in installation, maintenance, trouble-shooting and repair of system components.”

G. Other definitions:

1. “Vibrating Equipment” shall mean “electric motors, engine-generators, dry-type transformers, and equipment incorporating one or more such items.”

1.5 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

A. Diagrammatic Drawings

1. The size and location of equipment are drawn to scale wherever possible
2. Some symbols are distorted dimensionally to attain clarity in representation.
3. Locations shall be verified to avoid interference, preserve head room, maintain access for operation and maintenance and keep openings and passageways clear.

   a. Changes in location required to accomplish these purposes shall be made without additional compensation.

4. Diagrams are schematic only and do not necessarily show the physical arrangement of the equipment.
5. Diagrams shall not be used to obtain quantities or lineal runs of raceway or conductors
6. Drawings do not necessarily show the intended routing or total number of raceways, cables, or components required.
7. Provide quantity of raceways, cables, and components necessary for a complete installation of the wiring required for the equipment included in the Project.

B. Electrical Working Drawings

1. The electrical Drawings shall serve as the working Drawings for the electrical work
2. Review the Architectural Drawings and adjust the electrical work to conform to conditions indicated thereon.
3. Review the Drawings for the work of other trades and adjust the electrical work to conform to conditions indicated thereon.
4. Working measurements shall be taken from the building, and checked with those shown on the Drawings.

C. Symmetry
1. Equipment and outlets shall be located symmetrically with respect to Architectural elements.
2. Coordinate locations for equipment furnished by the Owner and equipment provided by other trades.

D. Complimentary Documents
1. The Drawings and Specifications are complimentary
2. What is required by either document shall be as binding as if required by both.
3. In the case of inconsistency between or within the Drawings and Specifications, provide the better quality or greater quantity of work, in accordance with the Architect’s interpretation, without additional compensation.

1.6 CODES
A. All work shall comply with the current requirements of:
1. The National Electrical Code (NEC)
2. The International Building Code (IBC)
3. Applicable local, state and national codes.
B. The Electrical Installer shall be fully informed of all such requirements.
C. If any conflict occurs between applicable codes as versus the Drawings and Specifications, the codes and ordinances shall govern. Comply with any requirements of the Drawings and Specifications that are in excess of the codes and ordinances.

1.7 PERMITS
A. Obtain all permits required to install the work.

1.8 FEES
A. Pay to each utility company the fees necessary to enable the activation and operation of all systems and equipment specified in Division 26.
B. Plan review fees will be paid by the Owner.

1.9 SUBSTITUTIONS AND PRODUCT OPTIONS
A. As a basis of quality, equipment and materials are specified by one or more manufacturers’ names, brands or catalog numbers.
B. Equivalent equipment and materials may be considered.
C. Pre-Bid Substitutions:

1. Refer to specification section 01 25 00 for Pre-Bid substitution requirements
2. Requests to use alternate luminaires shall include electronic .ies files.

D. Post-Bid Substitutions

1. Requests for substitution after award of the contract will be received and considered if:
   a. Extensive revisions to the contract documents are not required.
   b. If the proposed changes are in keeping with the general intent of the contract documents.
   c. If the requests are timely, fully documented and properly submitted.
   d. If one or more of the following conditions is satisfied, all as judged by the Architect/Engineer. Otherwise the requests will be returned without action except to record non-compliance with these requirements.

   1) The specified product or method cannot be provided within the Contract time.
   2) The specified product or method cannot receive necessary approval by the Authority Having Jurisdiction (AHJ) and the proposed substitution is approved by the AHJ.
   3) The proposed substitution offers substantial advantage to the Owner, in terms of cost, time, energy conservation, or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. These additional responsibilities may include such considerations as additional compensation to the Architect/Architect’s Consultant for redesign and evaluation services, the increased cost of other work by the Owner or separate contractors, and similar considerations.
   4) The specified product or method cannot be provided in a manner which is compatible with other materials provided for the project and where the substitution will overcome the incompatibility.
   5) The specified product or method cannot be properly coordinated with other materials provided for the project and where the proposed substitution can be properly coordinated.
   6) The specified product or method cannot receive a warranty as required by the contract documents and where the proposed substitution can provide the required warranty.
2. Requests will not be considered if the product or method cannot be provided as a result of the Contractor’s failure to pursue the work promptly or to coordinate the various activities properly.

3. Requests to use alternate luminaires shall include electronic files.

E. Reimburse the cost of any redesign caused by a product substitution, whether accepted or not.

1.10 SHOP DRAWINGS AND PRODUCT DATA

A. General

1. Submit sufficient information to prove compliance with the Contract Documents and, for substitute equipment and materials, to prove equivalence to the specified products.

2. Before ordering materials or equipment, submit shop drawings and/or product data, as indicated in the Specifications, for proposed material and equipment. Maintain copy of reviewed submittals at the Project site.

   a. Submittals shall be available for use by the Architect and the Architect’s Consultant throughout the duration of the Project.

3. All submittal data shall identify the equipment as Underwriter’s Laboratory labeled or listed.

   a. Submittals which do not include this information will be considered incomplete, and will be returned “REJECTED.”

4. Electronic files shall be submitted individually in a sequence that does not adversely impact the project schedule.

B. Format

1. All submittals shall be submitted in unlocked, electronic portable document fire (.pdf) format created from original documents.

2. The specific products intended for the Project shall be clearly identified.

3. Information submitted in improper format shall be subject to return without review.

4. A separate electronic file shall be submitted for each section of the Specifications.

5. The first page of each submittal shall contain:

   a. Specification Section name and number
   b. Equipment list
   c. Model and/or catalog numbers
   d. Space for review stamp and comments
C. Contractor Review and Documentation

1. Prior to submitting documents for the Architect’s/Architect’s Consultant’s review, shop drawings and product data shall be reviewed, approved and stamped by:
   a. The Contractor.
   b. The Electrical Installer.

2. Shop drawings and product data without the Contractor’s and Installer’s note of approval will be subject to return without review by the Architect or the Architect’s Consultant.

3. On the Electrical Installer’s letterhead, record deviations from requirements of the Contract Documents, including minor variations and limitations.
   a. Include copy of recorded deviations in the submittal electronic file.
   b. Absence of recorded deviations constitutes representation that the submitted items, having been reviewed and approved by the Contractor and the Electrical Installer, fully comply with all requirements of the Contract Documents.

D. Product Data:

1. Submit catalog sheets for standard catalog items.
2. Product data shall show:
   a. Manufacturer
   b. Catalog number
   c. Ratings
   d. Finish
   e. Dimensions
   f. Type of materials used.
   g. Evidence of compliance with required listing and labeling.

E. Shop Drawings:

1. Outline drawings and component information shall be submitted for assemblies, systems and other non-standard or non-cataloged items.
2. Shop drawings shall show:
   a. Manufacturer
   b. Ratings
   c. Finish
   d. Dimensions
   e. Arrangement of components
   f. Type of materials used.
   g. Evidence of compliance with required listing and labeling
h. The following when applicable:

1) Raceway entry locations
2) Access requirements
3) Calculations
4) Adjustment settings
5) Floor plans
6) Details
7) Riser diagrams
8) Wiring diagrams
9) Operational matrices

F. Samples:

1. Submitted for direct examination:
   
a. Of certain items when requested by the Architect/Architect’s Consultant.
b. Specific items when so required by other Sections of Division 26 of the Specifications.

G. Architect’s Review and Documentation

1. The submittal review by the Architect and/or the Architect’s Consultant shall not relieve the Contractor’s responsibility to furnish materials and perform work as required by the Contract Documents.
2. If the submittal includes any deviations from the Contract Documents, such deviations shall be presumed as not having been reviewed, except where specific emphatic attention is called to the deviation.
3. Allow a minimum of 14-calendar days for review of each electronic file.

H. After reviewing and marking the original file, the Architect and/or the Architect’s Consultant will return an electronic copy of the annotated .pdf file.

1.11 COORDINATION AND COOPERATION

A. Coordination

1. Coordinate the electrical work with all other trades performing work on the Project.
2. Electrical workman shall be present during placing of concrete and masonry.
3. Refer to the entire set of Contract Drawings, Specifications and Addenda for details necessary to properly coordinate the electrical work with work of other trades.

B. Cooperation
1. Cooperate with:
   a. The work of other trades on the Project to avoid delays and disputes.
   b. The Architect and the Architect’s Consultants to enable review of the work.
   c. The Authority Having Jurisdiction to allow inspection of the work.

2. Remedial work made necessary by failure to coordinate work with other trades shall be performed with no additional compensation.

1.12 WORK SCHEDULE
   A. Accommodate the Project schedule and the requirements of the Owner.
   B. Perform overtime work necessary to meet the Project schedule and the Owner’s requirements.

1.13 REVIEW OF WORK
   A. Work shall be subject to review by the Architect and the Architect’s Consultant at any and all times.
   B. Work shall be subject to inspection by code enforcing authorities at any and all times.
   C. Give the Architect, the Architect’s Consultant and code enforcing authorities all assistance necessary to review the work.

1.14 SUBMITTALS
   A. Schedule of Values: Itemization of the value of the Division 26 work.
   B. Training Sign-In: Attendee sign-in sheet for the training sessions.

PART 2 - PRODUCTS

2.1 MATERIALS
   A. Materials and equipment:
      1. New and in an unused condition when delivered to the site.
      2. Current model with continuing support of the manufacturer.
   B. Labeling:
      1. Materials and equipment shall bear the Underwriter’s Laboratory (UL) label or the label of another product testing laboratory approved by the AHJ.
      2. The label shall indicate items are suitable for:
DIVISION 26—ELECTRICAL REQUIREMENTS
Section 26 01 00 – Electrical Requirements

a. The intended use
b. The conditions in which they are installed
c. Ambient temperatures.

PART 3 - EXECUTION

3.1 SITE CONDITIONS

A. Ascertain conditions affecting the work by examining the site of the work prior to submitting a bid.

B. No allowances will be made due to lack of knowledge of such conditions.

C. Regarding conditions affecting the work, no statement by the Architect, the Architect’s Consultant, the Owner or their representatives will be binding.

3.2 INSPECTIONS

A. During Construction

1. Arrange for all inspections required by each AHJ.
2. Provide access to equipment as required by each AHJ.
3. Do not conceal work without the approval of the appropriate AHJ.

B. Prior to Project Closeout

1. Arrange for final inspections required by each AHJ.
2. Make corrections to the work as required by each AHJ.

3.3 PROTECTION AND CLEANING

A. Protection

1. Fully protect materials and equipment against damage due to weather, construction activities and other causes.
2. Fully protect finished surfaces.
4. Protect electrical equipment and materials from accidental painting.
5. Damaged materials, equipment and finishes shall be replaced or repaired to new condition.

B. Cleaning

1. During the Project:

   a. Maintain clean project site.
b. Remove all scrap, unused material, packing cartons and other debris created as a result of the work.

2. At conclusion of the Project:
   a. Clean all new and existing luminaires, devices and equipment within the Project area

3.4 MANAGEMENT OF CONSTRUCTION WASTE
A. Comply with waste management and disposal procedures Contained in Division 1 of the Specifications.
B. Recyclable material:
   1. Separate recyclable materials from construction waste.
   2. Segregate recyclable materials by type.

3.5 TESTING, ADJUSTMENT AND DEMONSTRATION
A. General
   1. Supply tools, instruments, gauges, testing equipment, protective devices and safety equipment for adjustment, testing and demonstration.
B. Testing
   1. Notify the Architect’s Consultant, the Commissioning Authority, and the Owner’s Representative at least two (2) weeks in advance of the date of each test, to allow witnessing of the tests.
   2. Perform tests necessary to:
      a. Ensure against concealment of defective materials and workmanship
      b. Determine all wiring is free from short circuits
      c. Determine all conductors have correct continuity
      d. Allow the Authority Having Jurisdiction to approve the work
   3. Correct all deficiencies discovered as a result of testing.
   4. Retest corrected work.
   5. Record test results and corrective actions taken.
C. Adjustment
   1. Set adjustable control devices in accordance with:
      a. The manufacturer's recommendations
b. As directed by the Owner’s Representative and/or the Architect's Consultants.

c. Other Sections of the Specifications

2. Record all settings.

3. Records shall be included in the Operating and Maintenance Manuals

D. Demonstration

E. Demonstration

1. After satisfactory conclusion of testing and adjustment demonstrate:

   a. Operation of each control switch
   b. Operation of each control panel
   c. Operation of each specific system as specified on other Sections of Division 26.

2. Demonstrations shall be performed in the presence of the Owner’s Representative.

3.6 ON-SITE TRAINING

A. Preparation:

1. Place all systems installed under Division 26 in initial operation.

2. Retain representatives of the equipment manufacturers for certain electrical systems to conduct specific training in the maintenance and operation of each system as specified in the corresponding Sections of the Specifications.

3. Notify the Architect’s Consultant, the Commissioning Authority, and the Owner’s Representative at least two (2) weeks in advance of the date of each on-site training session to allow attendance by the Owner’s Personnel.

4. On-site training shall follow written training plans, prepared in advance. The training plans shall outline the topics to be covered, the publications to be used, and the training schedule.

5. The training shall be conducted after the Operating and Maintenance Manuals for the project are completed and available for use during the training session.

6. Maintain training sign-in sheets, upon which participants in each training session, including the instructors, shall record their names. The training sign-in sheets shall be dated.

B. General Training:
1. The Electrical Installer shall conduct a minimum of two (2) hours of general 
training for the Owner’s Personnel.
2. Training shall include:
   a. Operating instructions.
   b. Maintenance instructions.
   c. Troubleshooting approaches.

C. Specific Training:

1. Conduct specialized training for specific portions of the work as specified 
in other Sections of Division 26 of the specifications.
2. The training shall be conducted by personnel who are thoroughly familiar 
with the equipment, and with the Project. The training shall include 
instruction and field demonstration. As a minimum, the training shall cover, 
but not be limited to, the following topics:
   a. General overview of the electrical systems, including expansion 
capability.
   b. Location, adjustment procedures and settings for adjustable devices.
   c. Location and operation of control devices.
   d. Location of batteries, moving parts and other items that require 
periodic maintenance.
   e. Recommended maintenance procedures and intervals.

D. In addition to specific training for certain systems that is conducted by 
representatives of the equipment manufacturers

E. At the conclusion of each training session:

1. Obtain written sign-off from the Commissioning Authority and the Owner’s 
Representative.
2. Insert a copy of each sign-off form and each training sign-in sheet into the 
Operating and Maintenance Manuals.
3. Submit a copy of each training sign-in sheet to the Architect.

3.7 RECORD DOCUMENTS

A. Requirements contained in this Section are in addition to requirements contained in 
Division 1 of the Specifications.

B. General

1. Maintain one (1) complete set of the Drawings and Specifications 
throughout the Project as a Record Document set.
2. Do not use Record Document set for any purpose other than recording 
changes.
3. Enter notations on the set in a neat and legible manner.
4. Update Record Documents daily to record every change from the original Documents made by:
   a. Addendum
   b. Document Clarification
   c. Change Order
   d. Construction Change Directive
   e. Field Authorization
   f. Architect’s direction
   g. Owner’s direction.
5. Record Document set shall be available at the Project site for review at any time.
6. Status of Record Documents will be considered when evaluating partial payments to the Contractor.
7. Submit Record Document set to the Architect’s Consultant for review.
8. Deliver the completed Record Documents to the Owner in the manner prescribed in the general provisions of the Contract.

C. Plans and Details
1. As a minimum, record the following information:

   a. Where boxes, monuments, stub-outs and other provisions are made for future connections, the actual location and elevation, with dimensions referenced to building lines or approved bench marks, shall be indicated.
   b. Actual routing of underground electrical work on site. Actual location and type of grounding electrodes.
   c. Actual routing of feeders and major systems raceways.
   d. Origin of branch circuit “home runs”.
   e. Actual overcurrent device selection.
   f. Actual location and physical size of electrical equipment.
   g. Actual location of electrical control devices and outlets installed at locations differing from the locations indicated on the original Documents.
   h. Actual circuit numbers, where differing from the circuit numbers indicated on the original Documents. Where deviations are indicated, identify both what was added and what was deleted.
   i. Actual types, ratings, sizes, quantities and other pertinent data related to the electrical work, where such data differs from that indicated on the original Documents.
   j. Revisions to details shown on the Drawings.

D. Schedules
DIVISION 26—ELECTRICAL REQUIREMENTS
Section 26 01 00 – Electrical Requirements

1. As a minimum, record the following:
   a. Changes to panelboard schedules
   b. Changes to equipment schedules
   c. Changes to luminaire schedules

E. Specifications

3.8 OPERATING & MAINTENANCE MANUALS

A. General

1. Provide three (3) manuals describing electrical equipment specified in Division 26.

B. Data to be included:

1. Copies of data submitted under “Shop Drawings and Product Data”
2. Final manufacturer’s drawings
3. Protective device study
4. Test reports
5. Operation instructions
6. Maintenance instructions
7. Certificates
8. Inspection reports
9. Warranties, where the manufacturer’s warranty exceeds one year

C. Format:

1. Clean, high-quality pages 216 mm by 280 mm (8½ in by 11 in) size.
2. Loose-leaf
3. Heavy-duty three-ring binders
   a. Maximum 3-inch thick
   b. Maximum 75% full
   c. Multiple volumes as necessary
   d. Edge label:
      1) Project Name
      2) Volume number
   e. Front label:
      1) Project Name
      2) Volume number
      3) Completion date
      4) Architect’s name
5) Electrical Installer’s name

4. Sections
   a. Section title pages plastic tab indicating related Specification Section number and Specification Section title.
   b. Arranged in numerical order to match Specifications.
   c. Respective information pages located directly behind the section pages.

5. Provide one (1) complete manual in Adobe portable document file (.pdf) format on permanent media.

6. Provide electronic files and associated electronic libraries of the protective device study on permanent media

D. Review:
   1. Submit preliminary copy to Architect’s Consultant for review Make corrections requested by Architect’s Consultant.
   2. Submit final copies for review two (2) weeks prior on-site training.

E. Delivery:
   1. Deliver completed Manuals to the Owner one (1) week prior to first on-site training session.

3.9 PROJECT CLOSEOUT

A. Inspections
   1. For each permit, deliver written final approval of the AHJ to the Owner.

B. Notification
   1. Notify the Architect in writing when the electrical work is complete.

C. Review
   1. Accompany the Architect’s Consultant during the review of the work.
   2. Remove the following as directed by the Architect’s Consultant:
      a. Box cover plates
      b. Switchboard covers
      c. Panelboard covers
      d. Cabinet covers
      e. Access panels
D. Corrective Action

1. The Architect’s Consultant will prepare itemized list of incorrect and incomplete items of work.
2. Correct items included in the list.
3. Notify the Architect in writing when corrections are complete.
4. Submit annotated copy of the correction list denoting disposition of each item.

E. Additional Review

1. Accompany the Architect’s Consultant during the additional review of the work.
2. Demonstrate that all corrections are correctly completed.
3. Additional trips to the Project site necessary due to failure to complete all corrective work will be charged to the Contractor at normal published rate of the Architect’s Consultant plus travel expenses.

F. Spare Materials

1. Prepare pare list of spare materials and required quantities specified in Division 26.
2. Deliver list and spare materials to the Owner’s Representative.
3. Obtain signed receipt for delivered materials

3.10 GUARANTEE

A. Guarantee the satisfactory operation of all material, equipment and labor provided under Division 26 of the Specifications.

B. Repair or replace, to the satisfaction of the Owner and Architect, material, and equipment found to be defective within one (1) year of the date of substantial completion.

1. Excluded from guarantee:
   a. Incandescent lamps

C. The guarantee period shall extend beyond one (1) year for specific equipment as indicated in other sections of the Specifications.

D. Remedial Work

1. Work to correct defective material and labor shall be made to the satisfaction of the Architect.
2. Relocation, cutting, patching, refinishing and other work made necessary to repair defective materials, to remedy defective workmanship or because of
failure to properly anticipate the requirements of the electrical work, shall be performed with no additional compensation.

3. Cutting and patching shall conform to the requirements in Division 1.
4. If necessary to accommodate the Owner’s use of the project, remedial work may need to be accomplished on weekends and/or nights.

3.11 SCHEDULE OF VALUES

A. Prior to first payment request, submit an itemization of the value of the Division 26 work.

B. Schedule of Values shall be itemized as follows:

1. 26 01 00: Mobilization
2. 26 01 00: De-mobilization
3. 26 01 00: Miscellaneous Overhead Expenses
4. 26 01 00: Record Documents
5. 26 01 00: Permits
6. 26 01 00: Punchlist and Project Close-out, 1.5% minimum
7. 26 05 10: Building Material
8. 26 05 10: Miscellaneous Building Labor
9. 26 05 12: Primary Service Materials
10. 26 05 12: Primary Service Labor
11. 26 05 12: Secondary Service Materials
12. 26 05 12: Secondary Service Labor
13. 26 05 19: Feeder Material
14. 26 05 19: Feeder Labor
15. 26 05 19: Branch Circuit Material
16. 26 05 19: Branch Circuit Labor
17. 26 05 26: Ground Bonding Materials
18. 26 05 26: Ground Bonding Labor
19. 26 05 29: Hangers and Supports Materials
20. 26 05 29: Hangers and Supports Labor
21. 26 05 31: Outlet Boxes Material
22. 26 05 31: Outlet Boxes Material
23. 26 05 31: Outlet Boxes Labor
24. 26 05 32: Pull & Junction boxes Material
25. 26 05 32: Pull & Junction boxes Labor
26. 26 05 33: Raceway Material
27. 26 05 33: Raceway Labor
28. 26 05 51: Device Plates Material
29. 26 05 51: Device Plates Labor
30. 26 05 53: Identification of Electrical Systems Material
31. 26 05 53: Identification of Electrical Systems Labor
32. 26 08 00: Commissioning
33. 26 09 23: Automatic Lighting Control Devices Material
34. 26 09 23: Automatic Lighting Control Devices Labor
35. 26 24 16: Panelboard Material
36. 26 24 16: Panelboard Labor
37. 26 27 26: Wiring Devices/Multi-Outlet Assembly Materials
38. 26 27 26: Wiring Device/Multi-Outlet Assembly Labor
39. 26 27 39: Equipment Connection Material
40. 26 27 39: Equipment Connection Labor
41. 26 28 13: Low Voltage Fuses Materials
42. 26 28 13: Low Voltage Fuses Labor
43. 26 28 16: Enclosed Disconnect Switches Materials
44. 26 28 16: Enclosed Disconnect Switches Labor
45. 26 29 13: Across The Line Motor Controllers Materials
46. 26 29 13: Across The Line Motor Controllers Labor
47. 26 29 33: Miscellaneous Control Material
48. 26 29 33: Miscellaneous Control Labor
49. 26 51 00: Interior Lighting Material
50. 26 51 00: Interior Lighting Labor
51. 26 56 23: Site Lighting Material
52. 26 56 23: Site Lighting Labor

END OF SECTION
PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specifications, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Perform excavation, including trenching, and backfill as required to install the underground electrical work for the Project.

B. Provide miscellaneous general construction materials for application in direct conjunction with the electrical Work on the Project. Such materials shall include sleeves, roof flashing, waterproofing, grout, concrete, reinforcing, firestopping, sealants, access doors, plywood terminal boards and incidental field painting.

1.3 SUBMITTALS

A. Product Data: For each type of roof flashing and waterproofing provided on the Project for electrical work.

1.4 INSTALLATION DETAILS: FOR EACH TYPE OF FIRESTOPPING ASSEMBLY PROVIDED ON THE PROJECT TO PROTECT FIRE-RATED THROUGH-PENETRATIONS FOR ELECTRICAL WORK.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Patching Materials: Match the materials in the adjacent construction. Asphaltic paving used to repair existing paving shall match the design mix and paving thickness of the adjacent material. The base course of new asphalt shall match the material and thickness of the existing.

B. Warning Tape: 125 μm (5 mil) plastic tape, at least 100 mm (4 in) wide, with block lettering of a contrasting color at least 51 mm (2 in) high indicating the type of service at intervals not to exceed 1.5 m (60 in) along its length. The tape shall include a 25 μm (1 mil) minimum metallic foil core or backing to facilitate locating.
C. Sleeves: Galvanized steel. Where sleeves are provided for electrical through-penetrations through fire-rated partitions, the sleeves shall be of a type suitable for use with the wiring method employed and shall be identified as such on the manufacturer’s UL-approved installation detail for the firestopping material used. Sleeves through fire-rated partitions for communications cable and other low-voltage cables that are not installed in raceways shall include a built-in fire sealing system that automatically adjusts to the amount of cables installed, equivalent to “EZ-Path” fire-rated pathways, as manufactured by Specified Technologies Inc.

D. Roof Flashing Assemblies (Metal Roofs): Per Section 07 41 13 of the Specifications. If Section 07 41 13 does not exist, use “Master Flash” universal EDPM rubber flashing assembly with heavy-duty aluminum alloy base, as manufactured by Oatey Co. Flashing assemblies shall be specifically adapted for the roof pitch at the penetration location; advise roof pitch when ordering.

E. Epoxy Grout: High-bond, moisture-insensitive epoxy grout mixture, consisting of factory pre-packaged activator catalyst, epoxy resin, and graded aggregates in correct proportion, as manufactured by L&M Construction Chemicals or W. R. Meadows. Compressive strength shall be 65,000 kPa (9,700 psi) per ASTM D695, tensile strength shall be 24,000 kPa (3,500 psi) per ASTM D638, flexural strength shall be 27,500 kPa (4,000 psi) per ASTM D790, and bond strength shall be 27,500 kPa (4,000 psi) per ASTM C882.

F. Cast-in-Place Concrete: Structural concrete shall comply with Section 03 30 00. If Section 03 30 00 does not exist, provide concrete for ductbanks shall conform to Section 26 05 43. Incidental concrete shall be ready-mix, 300 kg/m³ (5½ sack to cubic yard) ratio of Portland cement to concrete, having a 28 day compressive strength of 28,000 kPa (4,000 psi) minimum. Aggregate and admixtures shall be in accordance with Section 03 30 00 of the Specifications, with aggregate no larger than 9.5 mm (3/8 in).

G. Reinforcing Steel: Per Section 03 30 00 of the Specifications. If Section 03 30 00 does not exist, provide reinforcing bars shall conform to ASTM A615, Grade 60, deformed. Steel tie wire shall conform to ASTM A82, plain cold-drawn steel. Where welded-wire reinforcement is indicated, conform to ASTM A497, deformed steel welded-wire, flat sheet. Reinforcement supports shall be wire bar type bolsters, chairs, spacers, and other devices for supporting and fastening reinforcing bars and welded wire fabric in place.

H. Firestopping Materials: Provide UL tested and approved in accordance with ASTM E814 (UL 1479), rated to provide equivalent fire-resistance rating as the construction to be penetrated. Firestopping materials shall emit no toxic or combustible fumes, and shall allow for normal movement of the building structure and the penetrating elements without adversely affecting the adhesion or integrity of the firestopping system.
I. Joint Sealants: Per Section 07 92 00 of the Specifications. If Section 07 92 00 does not exist, provide exterior joint sealants shall be Type M, Class 25, Grade NS per ASTM C920, with a “Shore A” hardness of 20-40.

J. Access Doors: Provide access doors shall consist of a steel mounting frame and a hinged steel door, equipped with a quarter-turn positive latching mechanism. The hinge shall have a removable hinge pin to allow removal of door and a concealed spring. The door shall open a minimum of 175°. Access doors for installation in ceramic tile shall be stainless steel. Access doors shall be manufactured by Acudor, Elmdor or approved equivalent.

K. Plywood Backboards: Backboards shall be exterior grade Douglas fir plywood, treated with fire-retardant material, 19 mm (¾ in) thick and finished on one side. Backboards shall be painted to match the wall on which they are installed.

2.2 ACCEPTABLE MANUFACTURERS

A. Acceptable manufacturers shall be as listed above.

B. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

PART 3 - EXECUTION

3.1 EXCAVATION AND BACKFILLING

A. Prior to beginning excavation, existing underground utilities within 3 m (120 in) of the excavation shall be located and marked on the existing grade. Arrange for Utility Companies to locate and mark their respective underground utilities. Locate and mark all privately owned underground utilities. After backfilling is complete, all markings shall be removed.

B. Provide complete excavation and backfill required to install the electrical work.

C. Excavation shall conform to the requirements of Section 31 23 16.

D. Exercise extreme care while excavating in the area of existing utilities. Check carefully for location of all possible utilities, whether shown on the Drawings or not, and establish the location of all cutoff valves and switches for ready shutoff in case of an emergency. Repair any utility damaged during excavation.

E. Exercise care not to damage existing vegetation indicated to remain in place. Refer to Section 31 10 00 for requirements concerning protection of existing vegetation.

F. Dig trenches to the uniform width required for the particular item to be installed and sufficiently wide to provide ample working room. Excavate 150 mm (6 in)
below the required elevation, and backfill with 152 mm (6 in) layer of sand prior to installing raceway.

G. Grade bottoms of trenches to provide solid bearing for the entire body of the raceway.

H. Prevent surface water and subsurface ground water from flowing into excavations. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey surface water to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches or allow water to accumulate in excavations. Provide and maintain a dewatering system as necessary to convey water away from excavations.

I. In locations where raceways pass under column or wall footings, backfill trenches with lean concrete wherever the trench excavation passes within 457 mm (18 in) of such footings, including the portion of the trench that carries the raceway below the bottom of such footings. Place concrete up to the level of the bottom of the adjacent footings.

J. Do not backfill trenches until underground raceways have been reviewed by the Electrical Inspector and backfilling has been authorized by the Architect/Architect’s Consultant. Use care in backfilling to avoid damage to or displacement of the raceway systems.

K. Backfill and compaction shall comply with Section 31 20 00.

L. Backfill material shall not contain rocks in excess of 100 mm (4 in) diameter. No cinders shall be used as backfill material. Do not place backfill material on surfaces that are muddy or frozen, including surfaces that contain frost or ice.

M. Remove excess earth from the site and dispose of it at no additional expense to the Owner. Prevent spillage during hauling operations.

N. Protect adjoining properties and improvements that remain. Repair or replace streets, walks, paved areas, lawns, curbs, fences, and other improvements removed or damaged as a result of excavation to the satisfaction of the Architect. Compact new asphalt base courses to 95%. Provide asphaltic primer between the edges of existing paving and new paving.

O. Where subsidence occurs at excavations for electrical work during the Project warranty period, remove surface treatment (e.g., pavement, lawn or other finish), add backfill material, compact to specified conditions, and restore surface treatment to match the appearance, quality and condition of the adjacent surfaces.
3.2 INSTALLATION OF DETECTIBLE WARNING TAPE

A. Provide Detectable warning tape extending the entire length of each underground service raceway, where such services are located outside the building perimeter. During backfill, place the warning tape centered above the buried lines, at the depth indicated on the Drawings, or, where not indicated, place the warning tape approximately 300 mm (12 in) below finished grade.

3.3 EQUIPMENT CONNECTIONS

A. Prior to installing outlet boxes and raceway for equipment requiring electrical connections, obtain shop drawings for each piece of equipment.

B. Provide outlet boxes and raceway connections for electrically-operated and electrically-controlled equipment in accordance with the equipment manufacturer’s recommendations and the equipment shop drawings.

3.4 CUTTING, DRILLING AND PATCHING

A. Perform cutting, drilling and patching required to perform the work specified in Division 26. Cutting, drilling and patching shall conform to the requirements of Section 01 73 29 and the conditions specified herein.

B. Construction of a structural nature shall not be disturbed without the approval of the Architect. In general, cutting or drilling through floors, walls and partitions shall be avoided. Only where absolutely necessary will such cutting or drilling be permitted.

C. When cutting or drilling is necessary, perform the cutting or drilling in a careful manner with due consideration to maintaining the integrity of the building’s structural elements. Remove material in small sections, using methods that will not crack or structurally disturb the adjacent construction. Avoid the use of power-driven impact tools. Cut concrete and masonry using a masonry saw, following junctures in the construction where possible. Holes through concrete or masonry shall be made with a core drill. Holes through wood shall be made with wood drills. Holes in wall studs and structural members shall not be made through edges of members.

D. Penetrations in structural members and floor slabs shall be reinforced in accordance with the Structural Drawings and the applicable provisions of the Specifications.

E. Disturbed construction and finishes shall be restored to the original condition. Skilled workers of the appropriate building trade shall use materials of matching kind and quality to restore disturbed construction and finishes.
F. Obtain approval from the Architect for the proposed extent of cutting, drilling and patching. Where cutting or drilling involves major structural elements, obtain permission from Architect in advance for each individual opening.

G. Openings in the structure shall comply with the requirements indicated on the Structural drawings. Provide reinforcing around openings as indicated on the Structural drawings.

3.5 INSTALLATION OF SLEEVES & SEALING

A. Where cables or corrugated plastic ducts pass through walls, ceilings or floors, provide sleeves of sufficient size to facilitate installation of the same. Sleeves shall also be provided for future use as indicated on the Drawings. Where existing cables or corrugated plastic ducts pass through gypsum-board walls, provide split sheet metal sleeves. At floor penetrations, sleeves shall extend 50 mm (2 in) above the floor.

B. Protect penetrations through, and openings in, fire-rated wall, ceiling and floor assemblies, where such openings contain electrical work within the Project area, regardless of whether such work was installed on this Project, and where the openings were made outside the Project area to admit electrical work installed under the Project. Openings accommodating such items as raceway, cable tray, outlet boxes, and equipment backboxes, shall be protected. Openings left by removal of electrical work under this Project shall also be protected.

C. Penetrations and openings shall be protected to retain the integrity of the time-rated construction by maintaining an effective barrier against the spread of flame, smoke and gases. Where the penetrating elements are cables corrugated plastic ducts or other combustible items, firestopping materials shall be intumescent type. Firestopping shall consist of UL listed fire-rated assemblies and shall be installed in accordance with UL approved installation details.

D. Acoustically seal penetrations through, and openings in, wall, ceiling and floor assemblies, where such openings contain electrical work within the Project area. Openings accommodating such items as raceway, outlet boxes, and equipment backboxes, shall be sealed. Penetrations shall be sealed on both sides of the wall, ceiling or floor.

E. Seal penetrations through, and openings in, wall, ceiling and floor assemblies that constitute the perimeter of return-air plenums. Openings accommodating such items as raceway, outlet boxes, and equipment backboxes, shall be sealed. Penetrations shall be sealed on both sides of the wall, ceiling or floor.

3.6 FLASHING ROOF PENETRATIONS

A. Electrical raceways penetrating the roof shall be flashed using flashing assemblies compatible with the roof system. Install flashing assemblies in accordance with
the manufacturer’s instructions. Coordinate installation with the roofing work, and perform work in sequence to prevent water infiltration.

B. The neck of the flashing assembly shall be sealed around the raceway with sealing compound as recommended by the manufacturer of the flashing assembly. A protective counter-flashing shall be provided, which shall be secured to the raceway above the flashing assembly using set screws. The upper annular space between the raceway and the counter-flashing shall also be sealed with the appropriate sealing compound.

C. Flashing of roof penetrations shall conform to the requirements of Section 07 62 00.

3.7 SEALING EXTERIOR WALL PENETRATIONS

A. Electrical raceways penetrating the exterior walls shall be sealed to prevent water infiltration.

B. Where raceways penetrate exterior walls above grade, the opening shall be flashed and counter-flashed as directed by the Architect. Apply the appropriate sealing compound at all joints.

C. Where raceways penetrate existing exterior walls below grade, a separate opening shall be core drilled for each raceway. The diameter of each opening shall be 76 mm (3 in) to 102 mm (4 in) larger than the outside diameter of the raceway to be installed. Allow proper annular space around the raceway for installation of grout, in accordance with the recommendations of the grout manufacturer. Determine the required diameter of each wall opening before core drilling walls.

D. Where raceways penetrate new exterior walls below grade, sleeves shall be provided in the exterior wall, sized to accommodate the raceways. Allow proper annular space around raceways for installation of grout, in accordance with the recommendations of the grout manufacturer. Determine the required size of each wall opening in time to place sleeves prior to placement of wall materials.

E. Openings around raceways penetrating below-grade exterior walls shall be sealed with epoxy grout as required to assure a water-tight seal. After sealing the openings, the raceways shall be encased in a minimum of 76 mm (3 in) of concrete. Prior to backfilling, the entire assembly, including the exterior side of the wall and the concrete encased raceways shall be waterproofed for at least 0.92 m (36 in) in every direction around the raceway penetration.

3.8 WATERPROOFING

A. Provide waterproofing at electrical raceway penetrations through exterior walls below grade and on the exterior side of electrical manhole walls.
B. Waterproofing shall be applied in accordance with the manufacturer’s installation instructions and standard guideline details, except as otherwise indicated.

C. Prior to application of waterproofing membrane, apply a surface conditioner evenly as fine spray over the entire surface to be waterproofed.

D. Waterproofing membrane material shall be melted until the material can be drawn free-flowing and lump-free. Begin by applying waterproofing membrane material to a thickness of 3 mm (⅛ in) thick over joints and cracks. Immediately after application of the waterproofing membrane, apply a 152 mm (6 in) wide strip of reinforcing sheet over each joint or crack, and imbed it into the warm membrane material, avoiding the creation of air pockets. Then apply another 3mm (⅛ in) thick coat of waterproofing membrane over the reinforcing sheet to totally encapsulate it within the membrane.

E. After installation of reinforcing at joints and cracks, apply waterproofing membrane evenly to an average thickness of 4.5mm (3/16 in), but not less than 3mm (⅛ in) thick, over the entire surface, including joints and cracks.

F. As soon as possible after application of the waterproofing membrane, cover the waterproofed surfaces with protection board.

3.9 INSTALLATION OF ACCESS DOORS

A. Provide access doors wherever outlet boxes, junction boxes, pull boxes, duct smoke detectors and similar devices are installed in an otherwise inaccessible location.

B. Access doors shall be compatible with the surface in which they are installed. Access doors shall carry a fire rating equal to the construction in which they are installed. Minimum size shall be 610 mm (24 in) square, unless otherwise indicated. If the structure or suspension system will not accommodate an opening of the required size, the access door shall be sized as directed by the Architect.

C. Access doors shall be installed flush with the surface in which they are installed, unless otherwise indicated. Where access doors are installed in walls or vertical partitions, align sides vertically. Where installed in ceilings, the sides of access doors shall be aligned parallel to the ceiling suspension system or the side walls.

D. Secure frames to the adjacent construction, by means of anchors attached to the access door frame or by use of bolts or screws through the frame members. Anchorage shall resist displacement during normal use of the access door, and shall meet the requirements of the applicable fire rating.
3.10 INCIDENTAL CONCRETE PLACEMENT

A. Provide miscellaneous concrete for encasement of raceways, for electrical equipment pads and for bases of site lighting fixtures. Concrete shall be reinforced as indicated.

B. Placement of reinforcing shall comply with the Concrete Reinforcing Steel Institute’s recommended practice.

C. Placement of concrete shall comply with ACI 304 Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete.

3.11 INSTALLATION OF PLYWOOD BACKBOARDS:

A. Walls in communications equipment rooms and closets shall be lined with plywood, with finished side facing out. Plywood shall be 2.44 m (96 in) high, and shall be placed so that the bottom of the plywood is 102 mm (4 in) above the floor of the room. Plywood shall be mounted vertically with countersunk fasteners.

3.12 INCIDENTAL FIELD PAINTING

A. Where the following electrical items occur upon finished surfaces, they shall be painted to match finish of surface unless otherwise directed by the Architect or the Architect’s Consultant:

1. Exposed raceways, except pre-finished surface metal raceway systems
2. Exposed boxes, except pre-finished boxes associated with surface metal raceway systems
3. Wall-mounted multi-outlet assemblies
4. Panelboard trims and covers, except panelboards in mechanical, electrical, telecommunications and machine rooms
5. Cabinet and enclosure trims and covers, except cabinets and enclosures in mechanical, electrical, telecommunications and machine rooms

B. Where electrical items are indicated to be painted, the electrical work shall be installed in a timely manner to permit all items to be painted at one time. Where additional electrical work must be installed after the painting is complete, the items so installed shall be painted to match the other items in the same space.

C. Prime paint all surfaces and edges of plywood backboards and finish paint the front with light gray enamel.

D. Where finish on electrical equipment enclosures is marred, touch up the finish to match the surrounding finish.

E. Painting shall be done at no additional expense by a qualified licensed Painter.
DIVISION 26—ELECTRICAL COMMON WORK
Section 26 05 10 – Electrical Common Work

END OF SECTION
PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 26 specification sections, apply to work specified in this section.

B. Related Sections.

1. Section 26 01 00 – Electrical Requirements: Product substitution procedures
2. Section 26 05 10 – Electrical Common Work: Excavation and backfill requirements
3. Section 26 05 19 – Low-Voltage Conductors & Cables: Conductor requirements
4. Section 26 05 33 – Raceways: Raceway requirements

1.2 SUMMARY

A. Provide underground electrical power service as indicated.

B. Service voltage shall be 120/240 single-phase, three-wire.

1.3 SUBMITTALS

A. Product Data: For each type of meter provided on the Project, and for associated current transformers and enclosure.

B. Meeting Minutes: For meeting with the Utility Company.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Raceway: As specified in Section 26 05 33.

B. Conductors: As specified in Section 26 05 19.

1. Compression Connectors: As specified in Section 26 05 19 and as required by the Utility Company.

C. Lugs for Secondary Service Conductors: As required by the Utility Company.

D. Current Transformer Enclosure: As required by the Utility Company.
E. Meter Base: As required by the Utility Company.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prior to beginning work on the electrical service, arrange for and attend a meeting with the Utility Company’s representative to discuss all aspects of the electrical service. Prepare minutes of the meeting, noting all discussion items. Deliver a copy of the minutes to the Architect before beginning work on the electrical service.

3.2 INSTALLATION

A. All electrical service work shall conform to the requirements of the Utility Company.

B. Install equipment in accordance with manufacturer’s recommendations.

C. Provide:

1. Trench and backfill for primary service
2. Trench and backfill for secondary service
3. Secondary service raceways
4. Secondary service conductors
5. Transformer pad
6. Meter base and meter raceway

D. The Utility Company will provide:

1. Pad-mounted power transformer
2. Primary conductor terminations at power transformer
3. Current transformers
4. Meter and meter wiring
5. Power transformer grounding
6. Padlocks

E. Excavation and backfill shall conform to the requirements in Section 26 05 10.

F. Raceway installation shall conform to the requirements in Section 26 05 33

G. Locate raceway entries to permit installation of conductors while maintaining the minimum bend radius prescribed for the conductors.

H. Neatly arrange and support conductors, using nylon ties or wraps, in accordance with the equipment manufacturer’s recommendations. Conform to bracing requirements for the indicated ampere short circuit fault duty.
DIVISION 26—ELECTRICAL POWER SERVICES
Section 26 05 12 – Electrical Power Services

I. Utilize hydraulic actuated dies to compress the cable connecting lugs. Dies shall compress the full circumference of the cable.

J. Tighten wire connections and mechanical fasteners. Check tightness using a calibrated torque wrench per manufacturer’s recommendations.

END OF SECTION 26 05 12
PART 1 - GENERAL

1.1 RELATED REQUIREMENTS
   A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specifications, apply to work specified in this section.
   B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY
   A. Provide a complete system of wires and cables for all power, communications, alarm, and signaling systems.
   B. Aluminum conductors may only be used where specifically indicated. Grounding and bonding conductors installed with aluminum phase and neutral conductors shall be copper.

1.3 SUBMITTALS
   A. Product Data: For each type of wire and cable provided on the Project for systems operating between 100 VAC and 600 VAC.

1.4 INFORMATION FOR OPERATING & MAINTENANCE MANUALS
   A. Submittals: Information submitted for review, updated to record any changes.

PART 2 - PRODUCTS

2.1 CONDUCTORS & CABLES
   A. Temperature Rating:
      1. 75⁰-C unless indicated otherwise on the Drawings
   B. Insulated Copper Wire:
      1. Soft-drawn copper
      2. 100% conductivity
      3. Insulation:
         a. 600-VAC
         b. XHHW-2:
            1) Installed fully or partially below grade
2) Installed below concrete slabs on grade in damp/wet locations:

3) Installed in damp and wet locations

c. THHN, THWN-2 or XHHW-2:

1) Installed entirely above grade

2) Installed in dry locations

4. #6 AWG and smaller color coded

5. Marked with wire gauge and insulation type on 610-mm (24-inch) intervals

6. Conductor sizes:

1) #12 AWG minimum size for power circuits

2) #10 AWG and smaller shall be solid

3) #8 AWG and larger shall be stranded

4) #6 AWG and smaller shall have color-coded insulation.

5) #10 AWG and smaller shall be solid

6) #8 AWG and larger shall be stranded

7) #6 AWG and smaller shall have color-coded insulation.

C. Metal Clad (MC) Cable:

1. Jacket:

   a. Interlocking, circular, flexible

   b. Aluminum or steel

2. Conductors:

   a. Soft-drawn copper

   b. 100% conductivity

   c. Insulation:

      1) 600-VAC

      2) THHN or XHHW in dry locations

      3) XHHW in damp, wet and below grade locations

      4) XHHW-2 in exposed, exterior locations

      5) Color coded

      6) Covered with common Mylar tape marked with wire gauge and insulation type on 610-mm (24-inch) intervals

   d. Conductor sizes

      1) #12 AWG minimum

      2) #10 AWG and smaller shall be solid
3) #8 AWG and larger shall be stranded
4) #6 AWG and smaller shall have color-coded insulation.

e. Neutral conductor for each phase conductor of line-to-neutral circuits

D. Armor Clad (AC) Cable:

1. Jacket:
   a. Interlocking, circular, flexible
   b. Aluminum or steel
   c. Integral grounding path

2. Conductors:
   a. Soft-drawn copper
   b. 100% conductivity
   c. Insulation:
      1) 600-VAC
      2) THHN or XHHW in dry locations
      3) XHHW in damp, wet and below grade locations
      4) XHHW-2 in exposed, exterior locations
      5) Color coded
      6) Covered with common Mylar tape marked with wire gauge and insulation type on 610-mm (24-inch) intervals

d. Conductor sizes
   1) #12 AWG minimum
   2) #10 AWG and smaller shall be solid
   3) #8 AWG and larger shall be stranded
   4) #6 AWG and smaller shall have color-coded insulation.

e. Neutral conductor for each phase conductor of line-to-neutral circuits

f. Redundant equipment grounding conductor

E. Variable Frequency Drive (VFD) Motor Cable

1. Flexible cable with PVC jacket
2. Oil-resistant
3. Stranded, copper phase and grounding conductors
4. 1000-VAC, XLPE insulation on each conductor
5. 100% copper foil shield over ground conductor
6. Tinned copper drain conductor
7. 85% braided, tinned copper shield over all conductors
8. Jacket marked with wire gauge, cable type and conductor quantity on 610-mm (24-inch) intervals

F. Color Coding:

1. 208Y/120-VAC Systems:
   a. Phase A: Black
   b. Phase B: Red
   c. Phase C: Blue
   d. Neutral: White
   e. Ground: Green

2. Neutral conductors shall have colored stripe when two (2) or more circuits installed in a common raceway

3. Colored insulation for #6 AWG and smaller

4. Colored insulating tape for #4 AWG and larger
   a. Helically wound
   b. 76-mm (3-inch) long
   c. At each terminal
   d. In each junction and pull box

2.2 CONNECTING DEVICES

A. Mechanical Connectors:
   1. Metal thread-on core
   2. Designed for splicing #10 AWG and smaller solid copper conductors

B. Bolted Connectors:
   1. Copper
   2. Designed for splicing stranded conductors

C. Compression Connectors:
   1. For Copper Conductors:
      a. Wrought copper
      b. Seamless
   2. VFD Cable Connectors:
      a. Machined metal
b. Threaded lock nuts

2.3 ACCESSORIES

A. Vertical Cable Supports:
   1. Screw body
   2. Wedging-type plug segments
   3. Designed to support cables and relieve strain without damaging

B. Wire Pulling Lubricants:
   1. Non-toxic
   2. Polymer based
   3. Compatible with conductor insulation.
   4. Shall maintain the dielectric strength of the conductor insulation

2.4 ACCEPTABLE MANUFACTURERS

A. Insulated Copper Wire:
   1. Rome
   2. Southwire
   3. General Cable
   4. American Insulated Wire
   5. Superior/Essex
   6. Cerrowire

B. MC Cable:
   a. AFC Cable Systems
   b. Alflex

C. AC Cable:
   a. AFC Cable Systems
   b. Alflex

D. NM Cable: Southwire, General Cable, American Insulated Wire, Superior/Essex or Cerrowire

E. VFD Motor Supply Cable:
   1. Belden
   2. Service Drive

F. Molded Connectors:
1. 3M  
2. Buchanan  
3. Ideal  

G. Bolted Connectors:  
1. Burndy  
2. O.Z./Gedney  
3. Thomas & Betts  

H. Compression Connectors:  
1. Burndy  
2. O.Z./Gedney  
3. Thomas & Betts  

I. Wire Pulling Lubricant:  
1. Thomas & Betts  
2. Ideal  

J. Tape: 3M  

K. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

PART 3 - EXECUTION  

3.1 DELIVERY  

A. In original containers bearing the UL label  

B. Stored in dry location  

3.2 OVERCURRENT PROTECTION  

A. The minimum conductor sizes shall match overcurrent protection as follows:  

B. Conductors connected to overcurrent devices shall not be less than the following:  

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<tr>
<th>Ampere</th>
<th>AWG</th>
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<tr>
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<tr>
<td>70</td>
<td>#4-AWG</td>
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</table>
8. 80-amperes: #4-AWG
9. 90-amperes: #3-AWG
10. 100-amperes: #3-AWG

3.3 CONDUCTOR INSTALLATION

A. Individual conductors:
   1. Installed in raceways
   2. All conductors installed simultaneously
   3. Phase, neutral and ground conductors for each circuit installed in common raceway
   4. Avoid kinking conductors
   5. Avoid abrasions in insulation
   6. Use only UL listed lubricants
   7. Neatly train and lace conductors within equipment cabinets and boxes

B. Service Conductors:
   1. No splices
   2. Equal lengths for parallel conductors

C. Feeder Conductors:
   1. No splices
   2. Equal lengths for parallel conductors
   3. Provide equipment grounding conductors

D. Branch Circuits Conductors:
   1. Provide equipment grounding conductors
   2. Separate neutral for each branch circuit

E. Signal and Communications Cables and Conductors:
   1. No splices

F. Multiple Circuits in Common Raceway:
   1. Neutral conductors shall be considered “current-carrying”
   2. Increase conductor size when more than three (3) current-carrying conductors are installed in a common raceway

G. Vertical Conductors:
   1. Support conductors per NEC 300.19
   2. Provide cable support at:
a. Top of raceway  
b. Additional intervals as required by the NEC

3. Remove lubricant before installing support wedges

H. Bolted Connectors shall be wrapped with electrical tape of a thickness to match conductor insulation

3.4 CONDUCTOR TERMINATION

A. Clean contact surfaces before termination

B. Copper:

1. Use mechanical connectors
2. Torque connector screws per manufacturer’s recommendations

3.5 CONDUCTOR SPLICING

A. Permitted for branch circuits only

B. Copper Conductors:

1. Use molded connectors or bolted connectors

3.6 CONDUCTOR PERFORMANCE

A. 300-m (1000-ft) and shorter:

1. Minimum resistance between conductors: 100-megaohms
2. Minimum resistance between each conductor and ground: 100-megaohms

B. Replace conductors with resistance lower than specified.

3.7 CABLE INSTALLATION

A. MC Cable:

1. Uses Allowed:

   a. Interior, dry locations only:

      1) Connections to luminaires; 1.8-m (6-feet) maximum length  
      2) Normal lighting branch circuits  
      3) Normal power branch circuits

   b. Circuits requiring #8 AWG conductors or smaller
2. Uses Not Allowed:
   a. Service entrance
   b. Feeders

3. Support:
   a. Within 300-mm (12-inches) of termination
   b. At intervals not exceeding 1.4-m (54-inches)

4. Routing:
   a. Parallel to building lines
   b. Not exposed to physical damage
   c. Minimum bending radius per manufacturer’s recommendations
   d. Through floors using RNC sleeves and firestopping

B. AC Cable:

1. Uses Allowed:
   a. Interior, dry locations only:
      1) Connections to luminaires; 1.8-m (6-feet) maximum length
      2) Normal lighting branch circuits
      3) Normal power branch circuits
   b. Circuits requiring #8 AWG conductors or smaller

2. Uses Not Allowed:
   a. Service entrance
   b. Feeders

3. Support:
   a. Within 300-mm (12-inches) of termination
   b. At intervals not exceeding 1.4-m (54-inches)

4. Routing:
   a. Parallel to building lines
   b. Not exposed to physical damage
   c. Minimum bending radius per manufacturer’s recommendations
   d. Not through walls or floors requiring firestopping

C. VFD Motor Cable:
1. Between each VFD and respective motor
2. Wire gauge shall match branch circuit wire gauge
3. Install cable in raceway with stranded equipment grounding conductor
4. On both cable ends connect the cable shield and the equipment grounding conductor to the grounding terminals at the motor and at the controller

D. All splices shall be made in properly sized junction boxes or pull boxes.

E. Voltage drop shall be limited to 2% for feeders starting at the utility service point and 3% for branch circuits or 5% total for feeder and branch circuit from the furthest utilization point to the utility service point. The bid documents have been designed with voltage drop considerations. Actual routing can dramatically change the installed conductor lengths. Where necessary, the Contractor shall upsize the conductors to compensate for voltage drop to maintain maximum % drops listed above. The following tables are to be used as a reference guide for the maximum installed length to maintain a given voltage drop tolerance.
Voltage Drop Table

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<th>PF</th>
<th>Temp</th>
<th>Max VD</th>
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## DIVISION 26—LOW VOLTAGE CONDUCTORS & CABLES
Section 26 05 19 – Low Voltage Conductors & Cables

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**Totem Lake Park – Phase 1**

**Bid Set Specifications**

Page 15 of 19
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Section 26 05 19 – Low Voltage Conductors & Cables

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PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide a grounding electrode system for the electrical service and all separately derived electrical systems as required by the NEC and as specified herein.

B. Provide grounding for electrical equipment as required by the NEC and as specified herein.

C. Provide bonding for electrical equipment as required by the NEC and as specified herein.

D. Provide grounding and bonding for the communications structured cabling system as required by the NEC, as called for in ANSI/TIA/EIA 569 and 607, and as specified herein.

E. Provide grounding and bonding for other communications systems as required by the NEC, and as specified herein.

F. Provide grounding and bonding for electronic safety systems as required by the NEC, and as specified herein.

G. Grounding electrode system connectors shall comply with IEEE 837-2002.

1.3 SUBMITTALS

A. Product Data: For ground rods, ground bars and each grounding connection device provided on the Project.

1.4 INFORMATION FOR OPERATING & MAINTENANCE MANUALS

A. Submittals: Information submitted for review, updated to record any changes.

B. Test Reports: Record of measured resistance values of the made grounding electrodes. Submit to the Architect.
PART 2 - PRODUCTS

2.1 MATERIALS

A. Insulated Grounding Conductors: Grounding and bonding conductors shall be copper, as specified in Section 260519, regardless of whether the phase conductors are copper or aluminum.

B. Bare Grounding Conductors: Bare, uncoated soft-drawn copper conductor, 100% conductivity. Minimum size shall be #6 AWG unless indicated otherwise. #6 AWG shall be solid; larger sizes shall be stranded.

C. Ground Rods: Equivalent to Copperweld 19 mm (⅜ in) diameter by 3.0 m (120 in) long copper-plated steel rods.

D. Ground Clamps: Equivalent to Burndy Type GAR-BU.

E. Compression Connectors: Irreversible compression-type, suitable for direct burial. Burndy Hyground or Thomas & Betts Color-Keyed.

F. Exothermic Welds: Erico Cadweld, heavy-duty grounding connections.

G. MDF Ground Bars: 6 mm (¼ in) thick by 100 mm (4 in) high by 508 mm (20 in) long solid copper bar with 102 mm (4 in) insulated stand-off supports. Bar shall be factory pre-drilled to accept standard 2-hole lugs. Chatsworth #40153-020.

2.2 ACCEPTABLE MANUFACTURERS

A. Manufacturers shall be as listed above, and as follows:

1. Bare Grounding Conductors: Phelps-Dodge, Southwire, Harger
2. Ground Rods: Erico, Harger, Thomas & Betts
3. Grounding and Bonding Connectors: Burndy, Harger, Thomas & Betts
4. Exothermic Welds: Erico, Harger, Thomas & Betts
5. Ground Bars: Chatsworth, Harger, Thomas & Betts
6. Ground Mats: Erico, Harger

B. Substitutions may be considered only when submitted in conformance with Section 260100.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Identify each metallic water service to the building that has at least 3 m (10 ft) of metal pipe in contact with the earth. For each such metallic water service, a section of metal pipe inside the building on the street side of the main shutoff
D. A grounding electrode connection shall be made by means of grounding electrode conductors from the ground bus in the main electrical service equipment to all required grounding electrodes as defined above and to any other available grounding electrodes as required by NEC 250.52 and 250.53.

E. The following equipment shall be grounded:
1. Secondary neutral of pad-mounted transformers at the transformers
2. Neutral conductor of interior wiring system at the service entrance equipment
3. Secondary neutral of dry-type transformers at the transformers
4. Neutral of other separately-derived electrical systems

F. Grounding connections within the building shall be made by means of a grounding electrode conductor connected to the required grounding electrode that is nearest the equipment to be grounded. Where there is a required grounding electrode nearer than any of those used for grounding the main electrical service, provide an additional grounding electrode connection to the nearer grounding electrode.

G. All grounding electrodes used for grounding of equipment within the building shall be bonded together by means of bonding jumpers to form a grounding electrode system.

H. For below-grade grounding connections, except where exothermic fusion welds have been specifically accepted, and for all above-grade grounding connections in the grounding electrode system, use compression connectors. Compression connectors shall be installed using a hydraulically-actuated crimping tool and dies as recommended by the equipment manufacturer. Installed connectors shall have correct die designation embossed at a visible location on each connector.

I. Exothermic fusion welds shall be avoided, except where specifically accepted by the Architect’s Consultant. Where used, exothermic welds shall comply with the following requirements:
   1. Prepare contact surfaces that will be welded by cleaning the surface with a file and/or carbide burr.
   2. Use only molds of the proper size and type (e.g., wire-to-wire, wire-to-rebar, wire-to-rod, etc.) for each weld. Molds used shall be in good condition and shall not have been used for more than 50 previous welds. Molds with chips, voids, or other defects are unacceptable and shall not be used.
   3. Heat mold before making first weld to remove moisture.
   4. Exothermic welds shall be clean and free from slag.
   5. Welds shall not reduce the diameter of any ground rod or conductor.
   6. Completed welds shall be subject to inspection and hammer blows to determine mechanical integrity. Welds that cannot withstand blows from a 1 to 2 kg (2 to 4 pound) hammer shall be redone, with no additional compensation.
   7. If galvanizing or paint was removed to prepare contact surfaces, restore finish after completion and inspection of welds. Galvanized surfaces shall be restored by spray application of zinc coating, equal to Osborn #76-245.
Painted surfaces shall be restored by one prime coat followed by two coats of fresh paint.

J. Ground buses in all electrical equipment that is part of the interior wiring system shall be connected together by means of equipment grounding conductors. Provide an equipment grounding conductor in each feeder raceway. Equipment grounding conductors shall be connected to the equipment ground bus in the equipment they serve. Minimum size shall be #12 AWG.

K. In addition to the number of branch circuit conductors shown on the Drawings, provide an equipment grounding conductor in each branch circuit raceway. Equipment grounding conductors shall be connected to the non-current carrying parts of the equipment or device they serve. Minimum size shall be #12 AWG.

L. In addition to the integral bonding tape, provide an equipment grounding conductor inside full length of all flexible metal raceway and liquid-tight flexible metal raceway.

M. The following items shall be bonded to the grounding system:

1. Above-grade metallic piping
2. Exposed structural metal and structural metal in accessible ceiling spaces
3. Structural metal behind panels that allow access
4. Electrical equipment enclosures
5. Above-grade metallic raceways
6. Non-current-carrying conductive parts of fixed electrical equipment
7. Grounding terminals of all receptacles
8. Motor frames

N. Provide bonding of metallic piping systems in accordance with the NEC. Maintain continuity of the ground across isolating (dielectric) fittings in metallic piping systems. At each such fitting, provide a brass, saddle type, two-bolt grounding clamp on the pipe on each side of the isolating fitting. Provide a green insulated #6 AWG TW solid copper conductor connecting the two grounding clamps together.

O. Exposed structural metal and structural metal behind panels that allow access to it shall be bonded to the service equipment enclosure, to the grounding electrode conductor where of sufficient size, or to the one or more grounding electrodes used. Bonding jumpers shall be the same size as the main grounding electrode conductors at the building service and shall be protected where exposed to physical damage. The points of attachment of the bonding jumpers shall be accessible.

P. Provide a bonding jumper between each wiring device strap and its associated outlet box.
Q. Compression connectors shall be used for all above-grade grounding connections for the telecommunications bonding backbone system. Compression connectors shall be installed using a hydraulically-actuated crimping tool and dies as recommended by the equipment manufacturer. Installed connectors shall have correct die designation embossed at a visible location on each connector.

3.2 TESTING

A. Notify the Architect’s Consultant and the Owner’s Representative, at least two (2) weeks in advance of the date of each test, to allow witnessing of the tests.

B. Supply tools, instruments, gauges, testing equipment, protective devices, and safety equipment for testing.

C. During testing, carefully record all test results, including which grounding electrode is under test, the distance to the probes, the measured voltage, the calculated electrode-to-ground resistance, and corrective actions taken. The test report shall include dimensioned diagrams of the testing electrode layouts and graphs of voltage versus probe distance, as well as the manufacturer’s name and model number of the testing instrument, the date of the test, and the soil moisture conditions. The test report shall be submitted to the Architect’s Consultant and included in the Operating and Maintenance Manuals.

D. After the completion of each grounding electrode system installation and prior to connecting the grounding electrode system to the equipment or to any other grounding electrodes, perform a resistance test on each grounding electrode system.

E. Measure and record the resistance to earth of the grounding electrode system. The test shall be performed using the 3-point, fall-of-potential method, employing a ground testing instrument designed to eliminate the effects of stray ground currents. The ground resistance shall be measured in normally dry conditions at least 48 hours after rainfall.

F. If the grounding electrode system is discovered, as a result of the above testing, to have a resistance to earth in excess of the value stipulated herein, it shall be supplemented with additional made grounding electrodes, as described in the “Installation” sub-section herein above, and the ground resistance of the affected grounding electrode system shall be completely retested, with no additional compensation.

END OF SECTION
PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Support boxes, raceways, luminaires and equipment in accordance with NEC requirements and as described herein.

B. Support equipment installed under Divisions 26, 27 and 28 of the Specifications as described herein.

C. Supports and hangers shall comply with:
   1. The ASCE seismic requirements referenced on the Structural Drawings and associated specification
   2. Opening, framing and bracing requirements indicated on the Structural Drawing and associated specifications
   3. The recommendations of the supported equipment manufacturer

D. Support devices shall provide a minimum safety factor of 200% including safety factors calculated by the support device manufacturer.

E. Support communications cable and electronic safety system cable that is not installed in raceway as described herein.

F. Support luminaires in accordance with IBC requirements and as described herein.

G. Provide backing for attaching surface-mounted equipment to walls and ceilings.

H. Do not support electrical equipment from lay-in ceiling support wires.

1.3 SUBMITTALS

A. Product Data: None required.
DIVISION 26—HANGERS & SUPPORTS  
Section 26 05 29 – Hangers & Supports

PART 2 - PRODUCTS

2.1 HANGER AND SUPPORT MATERIALS

A. Raceway Supports
   1. Surface-Mounted Straps
      a. One or two straps equivalent to Kindorf HS-100 series or Kindorf C-144 series
   2. Channel-Mounted Straps
      a. Equivalent to Kindorf C-105 or Kindorf C-106 single-bolt pipe straps
   3. Lay-in Hangers
   4. Equivalent to Kindorf C-149

B. Box Supports
   1. Adjustable
   2. Galvanized steel

C. Equivalent to Erico “Caddy” #TSGB or SP Products Big-Luminaire Supports
   1. Ceiling grid attachment accessories compatible with the ceiling system
   2. Support wires conforming to ASTM C636

D. Cable Supports:
   1. Galvanized steel “D” rings or galvanized steel “J” hooks
   2. Velcro wraps to secure cables to supports
   3. Width of cable supports shall be 19 mm (¾ in) minimum
   4. Provide size appropriate for quantity and type of communications cable supported
      a. 19-mm (3/4-inch) minimum width of support surface
   5. Multi-tier supports to separate different cable systems on a common route

E. Attachment Accessories
   1. Threaded Rods
      a. Galvanized steel, minimum 9.5 mm (⅜ in) diameter, with continuous UNC threads. Load rating shall not be less than 2,200 N (500 pounds).
2. Steel Strut Channels
   a. Equivalent to Kindorf B-909 galvanized steel channels with bolt holes on one side.

3. Trapeze Supports
   a. Steel strut channels
   b. Electrical attachment accessories and fasteners
   c. Minimum of two (2) threaded rods

4. Surface-Mounted Wall Supports
   a. Steel strut channels with electrical attachment accessories and fasteners

5. Bar Hangers
   a. Adjustable, galvanized steel
   b. Equivalent to Raco #920 or #922.

6. Backing
   a. Concealed
   b. Match adjacent material and size
   c. Compatible with, the building components in which they are installed

2.2 FASTENERS

A. Bolts and nuts
   1. Hexagon
   2. Galvanized steel.

B. Washers
   1. Locking
   2. Galvanized steel
   3. Spring-type

C. Lag bolts
   1. Hexagon
   2. Galvanized steel.

D. After-set Anchors
1. Galvanized steel
2. Expansion type
3. Epoxy adhesive

E. Cast-in-place Anchors

F. Galvanized steel
   1. “L” or “J” shaped anchor bolts
   2. With washers and nuts

G. Beam clamps
   1. Galvanized steel
   2. U-bolt
   3. With nuts and washers

2.3 MANUFACTURERS

A. Acceptable manufacturers shall be as listed above, and as follows:
   1. Hanger and support materials
      a. B-Line
      b. Erico
      c. Kindorf
      d. Raco
      e. Thomas & Betts
      f. Unistrut
   2. Fasteners
      a. Hilti
   3. Cable Wraps: Leviton

B. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Raceways
   1. Support from the building structure with devices specified herein.
   2. Support at intervals not exceeding those required by the NEC
3. Support individual, suspended raceways with individual pipe straps or pipe hangers.
4. Support individual, surface-mounted raceways with individual raceway supports.
5. Support multiple rows of suspended raceways with trapeze supports.
7. Provide lateral bracing as required by the IBC

B. Boxes

1. Attach to the building structure with devices specified herein
2. Support recessed boxes in framed walls and ceilings with support devices connected to two adjacent building structural members.
3. Support recessed outlet boxes in suspended ceilings with bar hangers rigidly attached to two adjacent ceiling support channels.

C. Busways:

1. Support from the building structure with devices specified herein.
2. Support in accordance with the manufacturer’s installation recommendations
3. Support at intervals not exceeding those recommended by the manufacturer
4. Maximum support spacing for horizontal busway shall not exceed 1.52 m (60 in) on center.
5. Provide lateral sway bracing for horizontal busway.

D. Luminaires:

1. Support in accordance with the International Building Code (IBC)
2. Attach to outlet boxes designed to support 23-kg (50-pounds)
3. Provide support from building structure and independent of outlet box for suspended luminaires, weighing more than 23-kg (50-pounds)
4. Surface-mounted and wall-mounted:
   a. Attached to building with devices as specified herein
   b. Provide concealed backing for anchoring
5. In lay-in ceilings:
   a. Attach to ceiling grids with UL-listed standard ceiling grid accessories
   b. Provide wire supports in addition to attaching to ceiling grid
6. Suspended:
a. Provide lateral bracing as specified in the structural drawings and specifications

E. Equipment Enclosures:

1. Attach enclosures for equipment such as switchboards, panelboards, communication cabinets and control panels to building structure with devices specified herein
2. Wall-mounted:
   a. In finished spaces, provide concealed backing for attachment
   b. In mechanical and equipment rooms, provide painted plywood backboards, supported by building structure, for attachment

3. Freestanding Equipment:
   a. Attach to floor with a minimum of four (4) anchors
   b. Equipment whose vertical dimension exceeds one of its other two dimensions shall be attached to the floor and shall be attached to the building structure near the top of the vertical dimension.

F. Connections:

1. Threaded rods shall be connected to support devices with double washers and double nuts.
2. Channels shall be bolted together with double washers and double nuts

G. Backing:

1. Concealed backing behind both new and future wall-mounted equipment in finished spaces
2. 3/4-inch plywood backboards in mechanical and electrical rooms
3. 

H. Bracing:

1. Sway Bracing:
   a. Provide sway bracing for suspended supports and equipment
   b. A minimum of two braces in the same horizontal plane, 90° apart.
   c. Braces shall be galvanized steel channels of the appropriate size.

2. Lateral Bracing:
   a. Brace freestanding equipment whose vertical dimension exceeds one of its horizontal dimensions
   b. Provide brace near top of equipment
I. Attachments:

1. To wood using:
   a. Wood screws
   b. Lag bolts

2. To metal using:
   a. Sheet-metal screws
   b. Bolts with lock-washers and nuts
   c. Beam clamps

3. To masonry using:
   a. Expansion anchors
   b. Epoxy anchors

4. To concrete:
   a. Cast-in-place anchor bolts
   b. Epoxy anchors

END OF SECTION
PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specifications, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide outlet boxes for luminaires.

B. Provide outlet boxes for electrical, communications and electronic safety system devices.

C. Provide outlet boxes for small equipment connections and motor connections.

D. Provide empty outlet boxes as indicated.

1.3 SUBMITTALS

A. Product Data: None required.

PART 2 - PRODUCTS

2.1 PROHIBITED MATERIALS

A. Sectional outlet boxes shall not be utilized.

B. Non-metallic outlet boxes shall not be utilized.

2.2 MATERIALS

A. Standard Knockout-Type Steel Boxes: Boxes shall be galvanized pressed or welded steel, not less than 100 mm (4 in) square, with a minimum wall thickness of 1.59 mm (1/16 in), equipped with factory-stamped circular raceway knockouts. Minimum box depth shall be 54 mm (2⅞ in) deep, except recessed outlet boxes where the wall cavity dimensions require shallower boxes. Boxes for fire alarm signal devices shall be 127 mm (5 in) square by 73mm (2⅞ in) deep, except where the wall cavity dimensions will not accommodate boxes of this depth. Depths of shallow boxes shall match the wall cavity in which the boxes are installed. Provide galvanized steel device extension rings, raised device covers or blank covers as indicated. Where square-cornered tile device extension rings are
indicated, they shall be a minimum of 38 mm (1½ in) deep. Device extension rings and raised device covers shall match the devices to be installed.

B. Use Randl #5BSB-16 or Bline #BB8-16 stud bar spacer that will accommodate a 5-square box for locations that have a 16” stud centers to align all boxes that are located adjacent to each other. Use equivalent device for other stud spacing. Located power box in the middle position.

C. Concrete or Masonry Knockout-Type Steel Boxes: Boxes shall be galvanized pressed or welded steel, equipped with factory-stamped circular raceway knockouts and suitable device openings. Boxes shall be suitable for installation in a concrete or masonry wall without device extension rings. Minimum box depth shall be 89 mm (3½ in) deep. Device openings shall match the devices to be installed.

D. Ordinary Cast Metal Boxes: Cast aluminum or malleable iron, with a minimum wall thickness of 2.38 mm (⅜ in), equipped with integral threaded raceway hubs and mounting flanges. Minimum box depth shall be 38 mm (2 ⅛ in) deep. Cast metal boxes shall be intrinsically corrosion-resistant or shall be permanently protected inside and outside against corrosion by galvanizing or other equivalent means. Device openings shall match the devices to be installed.

2.3 MANUFACTURERS

A. Acceptable manufacturers shall be as follows:

1. 127 mm (5 in) Square Knockout Steel Boxes: Randl Industries or Steel City
2. Other Knockout Steel Boxes: Appleton, Bowers, Raco, or Thomas & Betts
3. Smooth Steel Boxes: Thomas & Betts, Walker or surface raceway manufacturer
4. Ordinary Cast Metal Boxes: Appleton, OZ/Gedney or Thomas & Betts
5. Hazardous Location Cast Metal Boxes: Appleton, Crouse Hinds or OZ/Gedney

B. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

PART 3 - EXECUTION

3.1 REQUIRED LOCATIONS

A. Provide a suitable outlet box for each luminaire, and for each switch, control, receptacle, jack, detector, sensor, signal, annunciator, and other miscellaneous device of similar nature, where such devices are wall-mounted, ceiling-mounted or suspended.
B. Provide a suitable outlet box for each small equipment connection and motor connection, where there is not an adjacent safety switch.

C. Provide empty outlet boxes as indicated.

D. Outlet boxes may be used as pull and junction boxes in accordance with the requirements of Section 26 05 32.

3.2 BOX SELECTION

A. General: Boxes shall have the appropriate NEMA rating for the environment and ambient temperature in which they are installed.

B. Hazardous locations: Cast metal boxes specifically rated together with the device installed as suitable for the type of hazardous location in which they are installed. This selection shall take precedence over all following categories.

C. Concealed above accessible ceilings or behind access panels (where used as pull or junction boxes only): Standard knockout-type steel boxes with blank covers.

D. Recessed in suspended ceilings: Standard knockout-type steel boxes with device extension rings.

E. Recessed in framed walls or ceilings: Standard knockout-type steel boxes with device extension rings

F. Recessed in hollow masonry walls: Standard knockout-type steel boxes with square-cornered tile device extension rings, concrete or masonry knockout-type steel boxes.

G. Recessed in solidly-grouted masonry walls: Concrete or masonry knockout-type steel boxes, with all holes and gaps sealed with duct tape applied to the outside of the box.

H. Recessed in concrete walls: Concrete or masonry knockout-type steel boxes, with all holes and gaps sealed with duct tape applied to the outside of the box.

I. Exposed in mechanical, electrical, telecommunications and machine rooms: Standard knockout-type steel boxes with raised device covers.

J. Exposed elsewhere in interior dry locations 2.74 m (108 in) or more above the finished floor:
   a. Standard knockout-type steel boxes with raised device covers.

K. Exposed elsewhere in interior dry locations below 2.74 m (108 in) above the finished floor:
DIVISION 26—OUTLET BOXES
Section 26 05 31 – Outlet Boxes

a. Not permitted.

L. Exposed in interior damp locations: Ordinary cast metal boxes.

M. Exposed in interior wet locations: Ordinary cast metal boxes.

N. Exposed in exterior damp locations: Ordinary cast metal boxes.

O. Exposed in exterior wet locations: Ordinary cast metal boxes.

3.3 INSTALLATION

A. Install boxes as indicated, in compliance with NEC requirements, in accordance with manufacturer’s recommendations and with recognized industry practices to insure that the boxes serve the intended purpose.

B. In finished interior locations, outlet boxes shall be recessed, flush with the wall or ceiling surface, unless otherwise indicated.

1. Exception: Exposed boxes are permitted in utility room.

C. Carefully layout and coordinate box locations with the work of other trades to assure that boxes are not blocked, hidden, or rendered inaccessible due to the work of other trades passing over, under, across, or in close proximity.

D. Review the Architectural drawings for conditions affecting the exact height and location of outlets, and adjust outlet locations as necessary.

E. Adjust the location of outlet boxes for receptacles and switches within 2 m (78 in) of the location shown on the Drawings without extra compensation if so directed by the Architect or the Architect’s Consultant prior to installation.

F. Outlet boxes for switches shall be located on the strike side of door unless indicated otherwise.

G. Where two or more outlet boxes occur on the same wall, they shall be mounted at exactly the same height unless otherwise indicated.

H. Where outlet boxes are shown side by side but at different heights, they shall be centered one above the other unless otherwise indicated.

I. Where two or more of the same type devices occur adjacent to each other, provide a gang type box with a gang type cover. If the voltage between adjacent devices exceeds 300 VAC, barrier partitions shall be permanently installed in the outlet box between the adjacent device positions and separate raceway entries shall be provided. Provide barrier partitions wherever adjacent devices are to be connected to circuits at different voltages or to 277 VAC circuits on different phases.
J. Where devices of different types occur adjacent to each other, install outlet boxes approximately 152 mm (6 in) on center so that single-gang plates are spaced approximately 25 mm (1 in) apart and two-gang plates are not touching other plates. Use B-line BB8-16 bar spacer or equivalent. Verify configuration with Architect’s Consultant.

K. Outlets which are shown immediately opposite one another on two sides of a wall shall have outlet boxes located to prevent contact between the two. Nipples between outlet boxes are prohibited. Provide sound isolation putty pads equivalent to TotalSeal brand 3/16” pads with a maximum STC rating of 61. Encase entire backbox for an air-tight seal.

L. Where outlet boxes are installed in a fire wall, provide 3M or equivalent fire-rated putty pads to maintain fire rating of assembly.

M. Outlet boxes shown opposite one another on two sides of a fire-rated wall shall have 610 mm (24 in) minimum horizontal separation.

N. No outlet box or group of outlet boxes in a single stud space of a fire-rated wall shall have a total opening area larger than 103.23 cm² (16 in²).

O. Where outlet boxes having a total opening area exceeding 103.23 cm² (16 in²) are installed in fire rated walls or ceilings, the boxes and openings shall be protected to maintain the fire rating of the wall or ceiling in accordance with the IBC and in a manner acceptable to the Authority Having Jurisdiction (AHJ).

P. Boxes shall be sized in accordance with the NEC to accommodate the devices installed and the quantity and size of conductors entering and leaving each box. The required size shall be provided by a single box, including device extension rings where applicable. Boxes shall not be ganged or stacked. In certain locations, depth may be limited by building conditions.

Q. Recessed boxes and device rings shall be installed such that outlet opening is plumb and the front edge of the outlet opening is flush with the finished surface or set back slightly. Set back shall not exceed 3 mm (⅛ in).

R. Flush ceiling and wall outlet boxes shall have a ⅜ in-18 NPS threaded fixture stud where the luminaire or other device depends on such for support.

S. All unused openings in boxes shall be left closed. Provide knockout closures to cap all unused knockout holes where blanks have been removed. Provide threaded caps for unused hubs on cast boxes.

T. Above-grade boxes shall be rigidly attached to the building element on which they are mounted in accordance with Section 26 05 29 or shall be solidly embedded in concrete or masonry. Boxes shall be supported independently of the raceway system. No outlet box shall be attached to the ceiling support wires,
ductwork or piping. Outlet boxes shall be attached to channels or bar hangers at locations as necessary to provide the indicated spacing.

U. Grout or seal around recessed outlet boxes which occur in exterior building surfaces or in concrete block walls to seal the space between the box and the wall or ceiling materials.

V. Provide identification as specified in Section 26 05 53.

W. Provide device plates in accordance with the requirements of Section 26 05 51, except where the device installed covers the entire outlet box opening.

X. Provide a neutral conductor in each outlet box used for a switch or other control device. Neutral conductors shall originate in the same panel as the circuit installed in the box. Unused neutral conductors shall be capped.

3.4 MOUNTING HEIGHTS

A. Outlet boxes shall be mounted at the heights indicated on the Drawings.

END OF SECTION
PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specifications, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide pull boxes and junction boxes as indicated and as required for proper installation of the raceway and wiring systems.

1.3 SUBMITTALS

A. Product Data: For concrete boxes and for boxes installed in exterior and wet locations.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Small Boxes: Boxes smaller than 820 cm³ (50 in³) shall be outlet boxes as specified in Section 26 05 31.

B. NEMA Type 1 Formed Boxes: Formed galvanized or phosphatized sheet steel with welded seams. Boxes shall have galvanized or phosphatized sheet steel covers. Covers shall be held in place with screws unless hinged doors are indicated on the Drawings. Screw covers shall be held in place with a minimum of four (4) corrosion-resistant screws. Hinged doors shall have heavy duty hinges and latching and locking devices. Boxes and covers shall be finished inside and outside with a polyester powder finish. Knockouts shall be factory stamped or formed in the field with a cutting tool to provide clean symmetrically-cut holes. Covers on flush boxes shall overlap the adjacent surface by 19 mm (¾ in) on all sides.

C. NEMA Type 3R Formed Boxes: Formed galvanized sheet steel with welded seams. Boxes shall have galvanized sheet steel hinged door covers, equipped with heavy-duty hinges. Boxes shall be equipped with drip-shield top and seam-free sides, front and back, to exclude entry of falling rain, sleet or snow and dripping water. Doors shall be equipped with hasps for padlocking and shall be secured by a minimum of two (2) corrosion-resistant screws or clasps. Boxes shall be equipped with embossed mounting holes on the back side or external mounting
feet. Boxes and covers shall be finished inside and outside with a polyester powder finish. Knockouts shall be factory stamped in the bottom of the enclosure or formed in the field with a cutting tool to provide clean symmetrically-cut holes.

D. NEMA Type 4X Formed Boxes: Formed sheet stainless steel with continuously welded seams, ground smooth. Boxes shall have sheet stainless steel hinged door covers, equipped with heavy-duty hinges with continuous stainless steel hinge pins. Boxes shall be equipped with door gaskets and rolled lips around the door and the enclosure opening, to exclude entry of liquids and contaminants, including hose-directed water. Doors shall be equipped with hasps for padlocking and shall be secured by stainless steel door clamps on three sides. Boxes shall be equipped with external mounting feet. Knockouts shall be formed in the field with a cutting tool to provide clean symmetrically-cut holes.

E. NEMA Type 1 Wireways: Formed galvanized or phosphatized sheet steel with welded seams. Wireways shall have galvanized or phosphatized sheet steel covers. Covers shall be held in place with screws unless hinged doors are indicated on the Drawings. Screw covers shall be held in place with corrosion-resistant screws. Hinged doors shall have heavy duty hinges and captive corrosion-resistant screws. Wireways and covers shall be finished inside and outside with a polyester powder finish. Knockouts shall be factory stamped or formed in the field with a cutting tool to provide clean symmetrically-cut holes. Provide all required connectors, elbows and end fittings.

F. NEMA Type 3R Wireways: Formed galvanized sheet steel with welded seams. Wireways shall have galvanized sheet steel hinged door covers, equipped with heavy-duty hinges. Wireways shall be equipped with drip-shield top and seam-free sides, front and back, to exclude entry of falling rain, sleet or snow and dripping water. Doors shall be secured by captive corrosion-resistant screws. Wireways shall be equipped with embossed mounting holes on the back side or external mounting feet. Wireways and covers shall be finished inside and outside with a polyester powder finish. Knockouts shall be formed in the field with a cutting tool to provide clean symmetrically-cut holes. Provide all required connectors, elbows and end fittings.

G. Ordinary Cast Metal Boxes: Cast aluminum or malleable iron, with a minimum wall thickness of 3.17 mm (⅛ in), equipped with integral threaded raceway hubs and mounting flanges. Cast metal boxes shall be intrinsically corrosion-resistant or shall be permanently protected inside and outside against corrosion by galvanizing or other equivalent means. Cast metal pull and junction boxes shall have gasketed covers held in place with a minimum of four (4) corrosion-resistant screws. Covers shall be constructed of the same material as the boxes.

H. Concrete Boxes: Boxes shall be pre-cast, reinforced concrete with cast-in knockouts for raceways. Covers shall be hinged, galvanized steel with
tamperproof latches and retractable handles. Boxes and covers shall suitable for vehicular traffic equivalent to AASHTO H-20 loading.

2.2 MANUFACTURERS

A. Acceptable manufacturers shall be as follows:

1. Formed Steel Boxes: Circle AW, Hoffman, Keystone or panelboard manufacturer per Section 262416
2. Wireways: Circle AW, Hoffman, Keystone or panelboard manufacturer per Section 262416
3. Cast Metal Boxes: Appleton, Crouse Hinds, OZ/Gedney
4. Non-metallic PVC Boxes: Cantex, Carlon, PW Pipe
5. Composite Boxes: Quazite, Newbasis
6. Concrete Boxes: Utility Vault Company, Wilbert Vault Company

B. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

PART 3 - EXECUTION

3.1 REQUIRED LOCATIONS

A. Provide pull and junction boxes where indicated on the Drawings and wherever necessary for proper installation of the various electrical, communications, and electronic safety systems.

B. Provide pull boxes in raceways to limit the cumulative bends between pulling points as specified in Section 26 05 33.

3.2 SELECTION

A. General: Boxes shall have the appropriate NEMA rating for the environment and ambient temperature in which they are installed.

B. Concealed above Accessible Ceilings or behind Access Panels: NEMA Type 1 formed boxes, NEMA Type 1 wireways, ordinary cast metal boxes.

C. Recessed in Suspended Ceilings: Not permitted.

D. Recessed in Framed Walls or Ceilings: NEMA Type 1 formed boxes with flush covers.

E. Recessed in Hollow Masonry Walls: NEMA Type 1 formed boxes with flush covers.

F. Recessed in Solidly-grouted Masonry Walls: Not permitted.
G. Recessed in Concrete Walls: Not permitted.

H. Recessed in Concrete Slabs Not in Contact with Grade: Not permitted.

I. Recessed in Interior Concrete Slabs in Contact with Grade: Vehicle-rated cast metal boxes.

J. Recessed below Grade in Exterior Concrete or Asphalt Paving: Concrete boxes.

K. Recessed below Grade in Exterior Locations Intended for Vehicular Traffic: Concrete boxes.

L. Recessed below Grade in Exterior Locations without Paving or Vehicular Traffic: Composite boxes, or non-metallic PVC boxes.

M. Exposed in Utility Room: NEMA Type 1 formed boxes, NEMA Type 1 wireways, or ordinary cast metal boxes.

N. Exposed Elsewhere in Interior Dry Locations 2.75 m (108 in) or more above the Finished Floor: NEMA Type 1 formed boxes, NEMA Type 1 wireways, or ordinary cast metal boxes.

O. Exposed Elsewhere in Interior Dry Locations Less than 2.75 m (108 in) above the Finished Floor: NEMA Type 1 formed boxes, NEMA Type 1 wireways, or ordinary cast metal boxes.

P. Exposed in Interior Damp Locations: NEMA Type 4X formed boxes, or ordinary cast metal boxes.

Q. Exposed in Exterior Damp Locations: NEMA Type 3R formed boxes, NEMA Type 3R wireways, or ordinary cast metal boxes.

R. Exposed in Exterior Wet Locations: NEMA Type 3R formed boxes, NEMA Type 3R wireways, or ordinary cast metal boxes.

3.3 INSTALLATION

A. Install pull and junction boxes as indicated, in compliance with NEC requirements, in accordance with manufacturer’s recommendations and with recognized industry practices to insure that the boxes serve the intended purpose.

B. In finished interior locations, pull boxes and junction boxes shall be concealed in accessible locations above suspended ceilings wherever possible. Where boxes cannot be concealed, install recessed boxes flush with the wall or ceiling surface, in locations approved by the Architect.

1. Exception: Exposed boxes are permitted in utility room
C. Carefully layout and coordinate box locations with the work of other trades to assure that boxes are not blocked, hidden, or rendered inaccessible due to the work of other trades passing over, under, across, or in close proximity.

D. Boxes shall be sized in accordance with the NEC to accommodate the quantity and size of raceways and conductors entering and leaving each box. The required size shall be provided by a single box. For boxes smaller than 820 cm³ (50 in³) where the box is not recessed, the required size may be obtained by adding a single box extension, provided that no raceways connect to the box extension. Otherwise, boxes shall not be ganged or stacked. In certain locations, depth may be limited by building conditions.

E. Recessed boxes shall be installed such that box opening is plumb and the front edge of the box opening is flush with the finished surface or set back slightly. Set back shall not exceed 3.17 mm (⅛ in).

F. All unused openings boxes shall be left closed. Provide knockout closures to cap all unused knockout holes where blanks have been removed. Provide threaded caps for unused hubs on cast boxes. Unused raceway openings in composite and concrete box shall be left closed.

G. Above-grade boxes shall be rigidly attached to the building element on which they are mounted in accordance with Section 26 05 29 or shall be solidly embedded in concrete or masonry. Boxes shall be supported independently of the raceway system. No pull or junction box shall be attached to the ceiling system, ceiling support wires, ductwork or piping.

H. Below-grade boxes shall be set plumb and level and shall have covers flush with the finished grade or surface in which they are installed.

I. Composite pull and junction boxes shall have a cast-in-place concrete ring around the box. Conform to the manufacturer’s recommendations.

J. Provide identification as specified in Section 26 05 53.

END OF SECTION
DIVISION 26—ELECTRICAL
Section 26 05 33—Raceway and Boxes

SECTION 26 05 33
RACEWAY AND BOXES

PART 1    GENERAL

1.01    SUMMARY

A. This section describes work associated with installation of exterior underground communications conduit.

1.02    REFERENCES

A. The following is a list of standards which may be referenced in this section:

2. ASTM International (ASTM):
4. National Electrical Manufacturers Association (NEMA):
   a. C80.1, Electrical Rigid Steel Conduit (ERSC).
   b. C80.3, Steel Electrical Metallic Tubing (EMT).
   c. C80.5, Electrical Rigid Aluminum Conduit (ERAC).
   d. TC 2, Electrical Polyvinyl Chloride (PVC) Conduit.
   e. TC 3, Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing.
   f. TC 6, Polyvinyl Chloride (PVC) Plastic Utilities Duct for Underground Installation.
7. UL:
   a. 6, Standard for Safety for Electrical Rigid Metal Conduit – Steel.
   b. 6A, Standard for Safety for Electrical Rigid Metal Conduit – Aluminum, Red Brass and Stainless.
   c. 514B, Standard for Safety for Conduit, Tubing, and Cable Fittings.
   d. 651, Standard for Safety for Schedule 40 and 80 Rigid PVC Conduit and Fittings.
   e. 651A, Standard for Safety for Type EB and A Rigid PVC Conduit and HDPE Conduit.
   f. 797, Standard for Safety for Electrical Metallic Tubing – Steel.
   g. 870, Standard for Safety for Wireways, Auxiliary Gutters, and Associated Fittings.

1.03 SUBMITTALS

A. Action Submittals:

1. Manufacturer’s Literature:
   a. Rigid galvanized steel conduit.
   b. Electric metallic tubing.
   c. Rigid aluminum conduit.
   d. PVC Schedule 40 conduit.
   e. PVC Schedule 80 conduit.
   f. Conduit fittings.
   g. Junction and pull boxes used at or below grade.
   h. Large junction and pull boxes.
   i. Terminal junction boxes.

2. Precast Vaults and Handholes:
   a. Dimensional drawings and descriptive literature.
   b. Accessory information.

1.04 QUALITY ASSURANCE

A. Authority Having Jurisdiction (AHJ):

1. Provide the Work in accordance with NFPA 70, National Electrical Code (NEC). Where required by the AHJ, material and equipment shall be labeled or listed by a nationally recognized testing laboratory or other organization acceptable to the AHJ in order to provide a basis for approval under NEC.

2. Materials and equipment manufactured within scope of standards published by UL shall conform to those standards and shall have an applied UL listing mark.
PART 2 PRODUCTS

2.01 CONDUIT AND TUBING

A. Rigid Galvanized Steel Conduit (RGS):
   1. Meet requirements of NEMA C80.1 and UL 6.

B. Electric Metallic Tubing (EMT):
   1. Meet requirements of NEMA C80.3 and UL 797.

C. Rigid Aluminum Conduit:
   1. Meet requirements of NEMA C80.5 and UL 6A.
   2. Material: Type 6063, copper-free aluminum alloy.

D. PVC Schedule 40 Conduit:
   1. Meet requirements of NEMA TC 2 and UL 651.
   2. UL listed for concrete encasement, underground direct burial, concealed or direct sunlight exposure, and 90 degrees C insulated conductors.

E. PVC Schedule 80 Conduit:
   1. Meet requirements of NEMA TC 2 and UL 651.
   2. UL listed for concrete encasement, underground direct burial, concealed or direct sunlight exposure, and 90 degrees C insulated conductors.

F. High Density Polyethylene Conduit (HDPE):
   1. Meet requirements of NEMA TC-7 and UL 651B.
   2. Smooth wall.
   3. UV stabilized.

2.02 FITTINGS

A. Rigid Galvanized Steel Conduit:
   1. General:
      a. Meet requirements of UL 514B.
      b. Type: Threaded, galvanized. Set screw and threadless compression fittings not permitted.
2. Bushing:
   a. Material: Malleable iron with integral insulated throat, rated for 150 degrees C.
   b. Manufacturers and Products:
      1) Appleton; Series BU-I.
      2) O-Z/Gedney; Type HB.

3. Grounding Bushing:
   a. Material: Malleable iron with integral insulated throat rated for 150 degrees C, with solderless lugs.
   b. Manufacturers and Products:
      1) Appleton; Series GIB.
      2) O-Z/Gedney; Type HBLG.

4. Conduit Hub:
   a. Material: Malleable iron with insulated throat with bonding screw.
   b. UL listed for use in wet locations.
   c. Manufacturers and Products:
      1) Appleton; Series HUB-B.
      2) O-Z/Gedney; Series CH.
      3) Meyers; ST Series.

5. Conduit Bodies:
   a. Sized as required by NFPA 70.
   b. Manufacturers and Products (For Normal Conditions):
      1) Appleton; Form 35 threaded unilets.
      2) Crouse-Hinds; Form 7 or Form 8 threaded condulets.
      3) Killark; Series O electrolets.
      4) Thomas & Betts; Form 7 or Form 8.

6. Couplings: As supplied by conduit manufacturer.

7. Unions:
   a. Concrete tight, hot-dip galvanized malleable iron.
   b. Manufacturers and Products:
      1) Appleton; Series SCC bolt-on coupling or Series EC three-piece union.
      2) O-Z/Gedney; Type SSP split coupling or Type 4 Series, three-piece coupling.

8. Drain/Breather Fitting:
   a. Manufacturers and Products:
      1) Appleton; Type ECDB.
      2) Crouse-Hinds; ECD.

9. Expansion Fitting:
   a. Manufacturers and Products:
      1) Deflection/Expansion Movement:
         a) Appleton; Type DF.
         b) Crouse-Hinds; Type XD.
2) Expansion Movement Only:
   a) Appleton; Type XJ.
   b) Crouse-Hinds; Type XJ.
   c) Thomas & Betts; XJG-TP.

10. Cable Sealing Fitting:
   a. To form watertight nonslip cord or cable connection to conduit.
   b. For Conductors with OD of 1/2 inch or Less: Neoprene bushing at connector entry.
   c. Manufacturers and Products:
      1) Appleton; CG-S.
      2) Crouse-Hinds; CGBS.

B. Electric Metallic Tubing:
   1. Meet requirements of UL 514B.
   2. Type: Steel body and locknuts with steel or malleable iron compression nuts. Set screw and drive-on fittings not permitted.
   3. Electro zinc-plated inside and out.
   4. Raintight.
   5. Coupling Manufacturers and Products:
      a) Appleton; Type 95T.
      b) Crouse-Hinds.
      c) Thomas & Betts.
   6. Connector Manufacturers and Products:
      a) Appleton; Type ETP.
      b) Crouse-Hinds.
      c) Thomas & Betts.

C. Rigid Aluminum Conduit:
   1. General:
      a. Meet requirements of UL 514B.
      b. Type: Threaded, copper-free. Set screw fittings not permitted.
   2. Insulated Bushing:
      a. Material: Cast aluminum, with integral insulated throat, rated for 150 degrees C.
      b. Manufacturer and Product: O-Z/Gedney; Type AB.
   3. Grounding Bushing:
      a. Material: Cast aluminum with integral insulated throat, rated for 150 degrees, with solderless lugs.
      b. Manufacturer and Product: O-Z/Gedney; Type ABLG.
   4. Conduit Hub:
      a. Material: Cast aluminum, with insulated throat.
      b. UL listed for use in wet locations.
c. Manufacturers and Products:
   1) O-Z/Gedney; Type CHA.
   2) Thomas & Betts; Series 370AL.
   3) Meyers; Series SA.

5. Conduit Bodies:
   a. Manufacturers and Products (For Normal Conditions):
      1) Appleton; Form 85 threaded unilets.
      2) Crouse-Hinds; Mark 9 or Form 7-SA threaded condulets.
      3) Killark; Series O electrolets.

6. Couplings: As supplied by conduit manufacturer.

7. Drain/Breather Fitting:
   a. Manufacturers and Products:
      1) Appleton; Type ECDB.
      2) Crouse-Hinds; ECD.

8. Expansion Fitting:
   a. Manufacturers and Products:
      1) Deflection/Expansion Movement: Steel City; Type DF-A.
      2) Expansion Movement Only: Steel City; Type AF-A.

9. Cable Sealing Fittings:
   a. To form watertight nonslip cord or cable connection to conduit.
   b. Bushing: Neoprene at connector entry.
   c. Manufacturer and Product: Appleton; CG-S.

D. PVC Conduit:
   1. Meet requirements of NEMA TC 3.
   2. Type: PVC, slip-on.

E. Watertight Entrance Seal Device:
   1. New Construction:
      a. Material: Oversized sleeve, malleable iron body with sealing ring, pressure ring, grommet seal, and pressure clamp.
      b. Manufacturer and Product: O-Z/Gedney; Type FSK or Type WSK, as required.
   2. Cored-Hole Application:
      b. Manufacturer and Product: O-Z/Gedney; Series CSM.

2.03 PRECAST VAULTS AND HANDHOLES

A. Products are specified on Drawings. When listed, refer to this Specification for particular attributes.
B. Drainage:

1. Slope conduits and floors toward drain points, leaving no pockets or other nondraining areas.
2. Provide drainage outlet or sump at low point of floor constructed with a heavy, cast iron, slotted or perforated hinged cover, and a minimum 4-inch outlet and outlet pipe. Bond metal parts to ground rod.

C. Hardware: Steel, hot-dip galvanized.

D. Furnish knockout for ground rod in each handhole and vault.

E. Manufacturers: Per WSDOT QPL.

2.04 ACCESSORIES

A. Duct Bank Spacers:

1. Modular Type:
   a. Nonmetallic, interlocking, for multiple conduit sizes.
   b. Suitable for all types of conduit.
   c. Manufacturers:
      1) Underground Device, Inc.
      2) Carlon.

B. Identification Devices:

1. Warning Tape:
   a. Material: Polyethylene, 4-mil gauge with detectable strip.
   b. Color: Orange.
   c. Width: Minimum 6 inches.
   d. Designation: Warning on tape that fiber optic circuit is located below tape.
   e. Identifying Letters: Minimum 1-inch high permanent black lettering imprinted continuously over entire length.
   f. Manufacturers and Products:
      1) Panduit; Type HTDU.
      2) Reef Industries; Terra Tape.

C. Corrosion Protection Tape:

1. Material: PVC with high-tack adhesive.
2. Width: 2 inches minimum.
3. Thickness: 20 mil.
4. Manufacturer and Product: 3M; Scotch 50.
PART 3  EXECUTION

3.01  GENERAL

A. Comply with NECA Installation Standards.
B. Crushed or deformed conduit or raceways not permitted.
C. Maintain conduit and raceway entirely free of obstructions and moisture.
D. Immediately after installation, plug or cap conduit and raceway ends with watertight and dust-tight seals until time for pulling in conductors.
E. Aluminum Conduit: Do not install in direct contact with concrete. Install in PVC sleeve or cored hole through concrete walls and slabs.
F. Install watertight fittings.
G. Metal conduit shall be reamed, burrs removed, and cleaned.
H. Do not install conduit or raceways in or below structural cast-in-place concrete, equipment pads, foundations, or beams without Engineer approval.
I. Horizontal conduit or raceways installed under floor slabs shall lie completely under slab, with no part embedded within slab.
J. Install concealed and buried conduit and raceways so that they emerge at right angles to surface and have no curved portion exposed.
K. Install conduits for fiber optic cables in strict conformance with the requirements of TIA 569B.

3.02  PENETRATIONS

A. Make at right angles, unless otherwise shown.
B. Notching or penetration of structural members, including footings and beams, not permitted.
C. Apply a single layer with 25 percent overlap of corrosion protection tape to metallic conduit protruding through concrete floor slabs to a point 4 inches above and 4 inches below concrete surface.
D. Concrete Walls, Floors, or Ceilings (Aboveground): If not shown on Drawings, provide nonshrink grout dry-pack, or use watertight seal device.
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E. Entering Structures:
   1. Vaults and Handholes:
      c. Install such that raceways enter as near as possible to one end of wall, unless otherwise shown.

3.03 BENDS

A. PVC Conduit:
   2. Use manufacturer’s recommended method for forming smaller bends.

B. HDPE Conduit: Minimum bend radius shall meet manufacturer’s or NEC requirement, whichever is larger.

3.04 PVC CONDUIT

A. Solvent Welding:
   1. Apply manufacturer recommended solvent and primer to joints.
   2. Install so that joint is watertight.

B. Adapters:
   1. PVC to Metallic Fittings: PVC terminal type.
   2. PVC to Rigid Metal Conduit or IMC: PVC female adapter.

C. Belled-End Conduit: Bevel unbelled end of joint prior to joining.

3.05 UNDERGROUND CONDUIT AND RACEWAYS

A. Grade: Maintain minimum grade of 4 inches in 100 feet, either from one manhole, handhole, or pull box to the next, or from a high point between them, depending on surface contour.

B. Cover: Maintain minimum 2-foot cover above conduit unless otherwise shown.

C. Make routing changes as necessary to avoid obstructions or conflicts.

D. Support conduit so as to prevent bending or displacement during backfilling or concrete placement.
E. Installation with Other Piping Systems:
   1. Crossings: Maintain minimum 12-inch vertical separation.
   2. Parallel Runs: Maintain minimum 12-inch separation.
   3. Installation over valves or couplings not permitted.

F. Backfill: As specified in Section 31 23 23.15, Trench Backfill.

3.06 VAULTS AND HANDHOLES

A. Excavate, shore, brace, backfill, and final grade in accordance with Section 31 23 16, Excavation, and Section 31 23 23.15, Trench Backfill.

B. Do not install until conduit crossings are identified and coordinated and final conduit grading has been determined.

C. Install such that conduit enters at nearly right angle and as near as possible to end of wall, unless otherwise shown.

D. Grounding: As specified in Section 26 05 26, Grounding and Bonding for Electrical Systems.

E. Identification: Field stamp covers with handhole number as shown. Stamped numbers to be 1-inch minimum height.

3.07 EMPTY CONDUIT AND RACEWAYS

A. Provide permanent, removable cap over each end.

B. Provide PVC plug with pull tab for underground raceways with end bells.

C. Provide nylon pull cord with footage markings.

D. Identify “CITY FIBER OPTIC” with waterproof tags attached to pull cord at each end, and at intermediate pull point.

3.08 PROTECTION OF INSTALLED WORK

A. Protect products from effects of moisture, corrosion, and physical damage during construction.

B. Provide and maintain manufactured watertight and dust-tight seals over conduit openings during construction.

END OF SECTION
PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specifications, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide a device plate for each wiring device outlet box and each empty outlet box.

1.3 SUBMITTALS

A. Product Data: For each type of duct provided on the Project.

PART 2 - PRODUCTS

2.1 PROHIBITED MATERIALS

A. Sectional plates shall not be used.

2.2 MATERIALS

A. Standard Stainless Steel Faceplates: Type 302 stainless steel with satin finish, equivalent to P&S Sierra “SS” series.

B. Weatherproof Bubble Switch Gaskets: Clear bubble gasket, designed to mount on a vertical single gang outlet, to meet or exceed UL requirements for wet locations. Gasket shall cover the switch toggle, and shall be equivalent to Hubbell #HBL-1795.

C. Weatherproof Flip-lid Switch Covers: Cast zinc with gasket, designed to mount on a vertical single gang outlet, to meet or exceed UL requirements for wet locations. Plate shall have a spring-loaded hinged cover, with hinges at the top, and shall be equivalent to P&S #CA1-G.

D. Weatherproof Flip-lid Receptacle Covers: Cast aluminum with gasket, designed to mount on a horizontal single gang outlet, to meet or exceed UL requirements for interior wet locations. Plate shall have a spring-loaded hinged cover, with hinges at the top, and shall be equivalent to P&S #4511.
E. Weatherproof While-in-use Receptacle Covers: Heavy Duty die cast aluminum with gasket and cord outlets, designed to mount on a horizontal single gang outlet, to meet or exceed UL requirements for wet locations while in use. Plate shall include a lockable hasp that will accept an 8 mm (0.315 in) diameter padlock shank, and shall be equivalent to Intermatic #WP1010HMC for single duplex horizontal applications and #WP1010MC for single duplex vertical applications and WP1030MC for quadplex vertical applications.

2.3 MANUFACTURERS

A. Manufacturers shall be as listed above, and as follows:
   1. Device Plates: P&S, Arrow Hart, Hubbell, Leviton

B. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

PART 3 - EXECUTION

3.1 REQUIRED LOCATIONS

A. Provide a suitable device plate for each switch, control, receptacle, and other miscellaneous device of similar nature, where such devices do not include an integral device plate or canopy to cover the outlet box opening.

B. Provide a blank faceplate for each empty outlet box, including boxes intended for future use.

C. Provide a blank faceplate for each outlet box used as a pull or junction box.

3.2 PLATE SELECTION

A. General:
   1. Device plates shall be suitable for the environment in which they are installed.
   2. Exposed Outlet Boxes in Mechanical, Electrical, Telecommunications and Machine Rooms: Pressed galvanized steel raised device plates of the same manufacture as the box, unless otherwise indicated.

B. Other Interior Dry Locations: standard stainless steel faceplates.

C. Switches in Interior Damp or Wet Locations: Standard stainless steel faceplates with weatherproof bubble switch gaskets.

D. Receptacles in Interior Damp or Wet Locations: weatherproof flip-lid receptacle covers.
E. Switches in Exterior Damp or Wet Locations: weatherproof flip-lid switch covers.

F. Receptacles in Exterior Damp or Wet Locations: weatherproof while-in-use receptacle covers.

3.3 INSTALLATION:

A. Install device plates plumb, such that they fit tight to building surfaces with no gaps.

B. Where plate edges align with masonry grout lines, provide sealant behind plate to make a flush appearance with no sharp edges being exposed.

C. Provide new device plates on existing outlets indicated as being existing to remain.

D. Plates shall fully cover openings.

E. Provide identification as specified in Section 26 05 53.

END OF SECTION
PART 1 - GENERAL

1.1 RELATED REQUIREMENTS
   A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work specified in this section.
   B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY
   A. Provide identification for electrical equipment and devices specified in Division 26.
   B. Provide arc flash hazard safety warning signs on all new Switchboards, and Distribution Panelboards and Motor Control Centers, Dry-type Transformers, and other equipment that could contain live parts requiring maintenance while energized.
   C. Provide available fault current nameplates on all service entrance equipment.

1.3 SUBMITTALS
   A. Product Data: None required.

PART 2 - PRODUCTS

2.1 PROHIBITED MATERIALS
   A. Dymo or equivalent labels shall not be utilized.

2.2 MATERIALS
   A. Nameplates: Nameplates as used in this document shall refer to:
      1. Laser Etched Device Plate
   B. Switchboards, Distribution Panelboards, Panelboards, Transformers, Control Panels shall use a:
      1. Engraved Plastic Label
   C. Device Plates shall have a:
1. Engraved Device Plate

D. Pullbox and other similar boxes shall have a:

1. Printed Label

E. Nameplates shall have contrasting colors to provide 6.4 mm (¼ in) high text. Title line for panelboard, switchboard, transformer, MCC name and similar shall be 13 mm (½ in) high text.

1. Nameplates shall have the following colors:
   a. Black with White Text

F. Engraved Labels: Engraved labels shall consist of text directly engraved or laser-etched into the plates or substrait.

1. Text engraved into device plates shall be 4.8 mm (⅛ in) high.

G. Printed Labels: Printed labels shall be matte white polypropylene with adhesive back designed for exterior applications. Label text shall be 4.8 mm (⅛ in) high, black and shall be applied to the label by a thermal transfer printer.

H. Directory Cards: Directory cards shall consist of heavy cardstock, metallic mounting frames and plastic covers. Mounting frames shall be attached to the back side of panelboard doors. Directories shall contain typewritten text indicating the circuit breaker number, type of load served and room number in which each load is located. Each circuit breaker identification shall be unique. Unused circuit breakers shall be designated with “SPARE” written in pencil. Spaces for future circuit breakers shall be left blank. Circuit designations on directory cards shall match the installed conditions with respect to loads and physical arrangement within panelboards.

I. Available Fault Current Nameplates: Nameplates shall contain the available three-phase symmetrical fault current value and the available three-phase, instantaneous, asymmetrical fault current value at the equipment on which they are installed and the date the values were calculated.

J. Arc Flash Hazard Safety Signs: Product safety signs in accordance with ANSI Standard Z535.4 requirements. At the left of each sign shall be an electrical hazard (lightning) graphic surrounded by a yellow triangle. At the top of the right side of the sign, in an orange signal word block, the signal word “Warning” shall appear together with an exclamation mark surrounded by a triangle. Underneath the signal word block, the message “Arc Flash Hazard” shall be printed on the first line, followed by “Appropriate PPE Required” on the second line. The sign shall also indicate the flash protection boundary in inches and the incident energy at 457 mm (18 in) in cal/cm², in accordance with the requirements of NFPA 70E.
Safety signs shall be 51 mm by 102 mm (2 in by 4 in), and shall be laminated between a polyester base with an adhesive backing and a clear polyester overlay.

PART 3 - EXECUTION

3.1 PREPARATION

A. All identification shall use the room numbers assigned by the Owner. Obtain a list of room numbers from the Owner’s Representative prior to preparing identification.

B. All identification shall use equipment designations that match those on the equipment. Verify equipment designations with the Owner’s Representative prior to preparing identification.

C. Verify text for nameplates, engraved labels, printed labels, and directory cards with the Architect’s Consultant.

D. All programmable systems shall use alpha-numeric identifiers assigned by the Owner.

3.2 INSTALLATION

A. General:

1. Provide identification for electrical equipment and devices as specified herein.

2. Provide a fault current nameplate on each piece of service entrance equipment.

B. Panelboards:

1. Provide a nameplate for each panelboard. Install nameplates on the outside of the equipment enclosures above the incoming line sections. Nameplate text shall include the equipment name as designated on the Drawings, the voltage, the phase, the wire configuration, the short-circuit current rating of the equipment, the calculated available fault current, the date the calculations were done, and the power source. Calculated value and date of calculation to come from protective device study. Example is as follows:

```
1AHN1
480Y/277V 3-PH, 4-W 60HZ
22,000 AIC RMS SYM RATED
AVAILABLE FAULT CURRENT 17,600A
CALCULATED 08/01/14
```
2. On panelboard located in Utility room, install nameplates on the outside of panelboard enclosures above doors. On all other panelboards, install nameplates on the dead fronts, above the circuit breakers so that nameplates are not visible when the panelboard doors are closed.

3. Provide a directory card in each panelboard. Place directory card in holder behind plastic cover.

4. Revise directory cards in existing panelboards to reflect revised circuit configuration. If more than 20% of the existing circuits in an existing panelboard are revised, provide a new directory card indicating existing and revised circuits.

5. Provide an arc flash hazard safety sign attached to the exterior of each panelboard. Signs shall be located so as to be clearly visible to qualified persons before examination, adjustment, servicing or maintenance of the equipment. On panelboards located in mechanical and electrical rooms, attach the signs on the outside of panelboard enclosures. On all other panelboards, attach the signs on the dead fronts or the back side of the panel doors, so that signs are not visible when panelboard doors are closed.

C. Motor Starters:

1. Provide a nameplate on the outside, front of each starter enclosure. Nameplate text shall include the name of load served as designated on the Drawings.

D. Disconnect Switches:

1. Provide a nameplate on the outside front of each disconnect switch enclosure. Nameplate text shall include the name of the load controlled as designated on the Drawings, and also the designation of the equipment that serves as the power source for the circuit that supplies the disconnect.

E. Contactors:

1. Provide a nameplate on the outside front of each contactor enclosure. Nameplate text shall include the contactor name as designated on the Drawings and the name of the load controlled.

F. Wiring Devices:

1. Provide an engraved label for each switch that controls luminaires not within sight of the switch or that controls receptacles. Engraved label text shall include the type and location of the load controlled.
2. Provide a nameplate for each receptacle that is GFCI-protected by a device on its line side. Nameplate text shall identify the type and location of the line-side device providing the protection.

3. Provide a nameplate for each receptacle, other than 15- and 20-ampere, 120 VAC general-purpose receptacles. Nameplate text shall include the panelboard name and the circuit number.

4. Provide a nameplate for each 120 VAC receptacle. Nameplate label text shall include the panelboard name and the circuit number.

5. Provide a nameplate for each receptacle connected to the emergency power system. Nameplate text shall include the panelboard name and the circuit number.

6. Provide a nameplate on all device plates. Nameplate text shall include the panelboard name and the circuit number.

END OF SECTION
PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Assist in commissioning activities for electrical systems, following the commissioning procedures described herein. The procedures required by this section are in addition to factory testing and field testing required in other sections of the specifications. Supply labor, test equipment and miscellaneous materials as necessary for completion of commissioning activities.

B. Electrical system commissioning procedures shall be used to demonstrate that installed equipment performs all individual and system functions required. Perform operational tests, troubleshooting and corrective measures prior to commissioning.

C. Certain aspects of required electrical system commissioning activities, as described herein, are developed in greater detail in applicable sections of the specifications. Refer to each of the specifications sections listed above for additional specifics. Where the requirements in this section are more stringent or less stringent, the requirements found in both places shall be considered complimentary, and shall be followed.

1.3 SCOPE

A. The following electrical systems are subject to commissioning on this project. Perform commissioning activities for each system and its individual components:

1. Receptacles, including GFCI devices
2. Grounding system, including resistance of made grounding electrodes
3. Equipment and motor connections
4. Panelboards and enclosed circuit breakers, including GFCI and AFCI devices
5. Lighting, including support devices and manual controls
6. Motor controls
7. Automatic lighting control, including occupancy sensors
B. The commissioning work requires the assistance of system vendors and installers. Coordination with other trades is also required.

C. Test and certify in writing that the entire electrical installation complies with contract documents, code, and proper system operation. Perform acceptance tests in accordance with manufacturer’s recommendations.

D. Supply skilled technicians to start-up and test components and systems. Factory trained representatives of equipment suppliers shall conduct the start-up of their equipment. Proof of qualifications is required. Ensure that skilled technicians are available and present during the agreed upon schedules and for sufficient duration to complete the necessary tests, adjustments and problem-solving.

E. Have a knowledgeable technician present at all testing and commissioning activities.

F. Prepare Operating and Maintenance Manuals in accordance with the requirements in the applicable sections of the specification, including Section 260100. Clarify and update the original sequences of operation to reflect as-built conditions.

G. Prepare Record Drawings in accordance with the requirements in Section 260100. Include field-generated coordination drawings.

H. Coordinate with equipment manufacturers to determine specific requirements to maintain the validity of the warranty. Insure that the Owner’s Representative is informed of all responsibilities required of the Owner to keep the warranty in force.

I. Include costs for commissioning in the electrical schedule of values. Include time for commissioning in the project schedule.

1.4 QUALITY ASSURANCE

A. Use qualified and skilled technicians in the performance of the work. Factory-trained representatives are required to start-up their equipment.

B. Prepare job-specific Operating and Maintenance Manuals. Cross out any information that does not apply. Use high quality copies. Fax reproductions are not acceptable. Organize the manuals properly in accordance with the requirements of Section 260100.

1.5 SUBMITTALS

A. For each electrical system that is to be commissioned, submit the following information:
1. Installation and Start-up Instructions: Manufacturer’s installation and start-up instructions.

PART 2 - PRODUCTS

2.1 TEST EQUIPMENT

A. Supply test equipment required to perform functional performance testing. Test equipment shall have been calibrated within the 12 month period prior to its use on the Project. Upon request, submit written certification of calibration for any test equipment used as part of the requirements of this section.

2.2 MATERIALS

A. Provide miscellaneous materials, equipment, and tools required to perform the commissioning procedures. Such materials shall comply with the appropriate specifications section, as applicable.

B. Materials not specifically mentioned, but required for commissioning procedures, shall be of the same quality used for the intended purpose in general commercial practice. Materials shall be free from defects which would adversely affect the performance or maintainability of individual components or the overall assembly. All components shall be of a type that has been successfully used in like systems.

PART 3 - EXECUTION

3.1 PREPARATION

A. Complete the respective start-up and checkout procedures for each system, and insure the complete readiness of equipment and systems, prior to the start of the functional performance testing.

B. Schedule the actual date and times for the functional performance testing. Include time for commissioning in the master construction schedule.

3.2 ACTIVITIES

A. Perform the commissioning activities described herein and in the sections of the specifications related to the systems designated for commissioning.

B. Assist in clarifying the operation and control of commissioned equipment in areas where the specifications, control drawings, or equipment documentation is insufficient for writing detailed testing procedures.

C. Where written documentation for commissioning activities is requested to be prepared on a specific form, use the requested form when preparing the documentation.
D. Develop a full start-up and initial checkout plan using manufacturer’s start-up procedures and the pre-functional checklists.

E. During the start-up and initial checkout process, execute and document the electrical-related portions of the pre-functional checklists for all commissioned equipment.

F. Perform and clearly document all completed start-up and system operational checkout procedures.

G. Address current punchlist items applicable to each system before functional performance testing begins on that system.

H. Execute seasonal or deferred functional performance testing in accordance with specified requirements for such testing.

I. Correct any deficiencies discovered as a result of the above testing, and completely retest the work affected by such corrections, with no additional compensation.

J. Make necessary adjustments to Operating and Maintenance Manuals and Record Documents for applicable issues identified during testing.

3.3 START-UP

A. Follow the start-up and initial checkout procedures listed in this section. Complete and start systems and sub-systems so they are fully functional and meet the design objectives of the Contract Documents. The commissioning procedures and functional testing do not relieve or lessen the responsibility for complying with design objectives or shift any responsibility to the Owner.

B. Functional testing is intended to begin upon completion of a system. Functional testing may proceed prior to the completion of systems, or sub-systems at the discretion of the Commissioning Agent. Beginning system testing before full completion does not relieve the Contractor from fully completing the system, including all prefunctional checklists as soon as possible.

3.4 ON-SITE TRAINING

A. Assume responsibility for the following training duties:

1. Submit a training plan two (2) weeks before the planned training
2. Maintain a training sign-in sheet for each training session.
3. Conduct comprehensive training for designated Owner personnel in the operation and maintenance of each major piece of commissioned electrical equipment or system.
4. Conduct training on each piece of equipment and each system as required by the specification section applicable to the particular system and associated equipment.

5. During any demonstration, should the system fail to perform in accordance with the requirements of the Operating and Maintenance Manuals or the proper sequence of operation, the system shall be repaired or adjusted as necessary and the demonstration repeated.

B. Training shall start with classroom sessions, if necessary, followed by hands-on training on each piece of equipment, which shall illustrate the various modes of operation, including start-up, shut-down, alarm, and power failure.

C. The appropriate manufacturer’s representative or factory-trained technician shall give instruction on each major piece of equipment. The person conducting the training shall have practical building operating expertise as well as in-depth knowledge of all modes of operation of the specific piece of equipment are required. More than one party may be required to execute the training.

D. The training sessions shall follow the outline in the Table of Contents of the Operating and Maintenance Manuals, and whenever possible shall illustrate the use of the Operating and Maintenance Manuals for reference.

3.5 POST-CONSTRUCTION REVIEW

A. Approximately 8 to 10 months after substantial completion of the final construction phase of the Project, participate in a post-construction review of the commissioned systems. Verify that the systems are still functioning properly in accordance with the operational needs of the facility.

B. Should any system be found to be functioning improperly, the system shall be repaired or re-adjusted as necessary in accordance with warranty.

END OF SECTION
PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide complete automatic lighting controls for exterior and interior lighting as indicated.

B. Color of devices and device plates shall match device plate color specified in Section 26 05 51.

C. Adjust and test the lighting controls, and demonstrate operation to the Owner’s Representative.

D. Instruct the Owner’s staff in operating the controls and recommended maintenance procedures.

1.3 GENERAL DESCRIPTION

A. Exterior lighting controls shall consist of photocells, time switches and hand-off-automatic switches.

B. Interior lighting occupancy-based controls shall consist of dual-technology occupancy sensors, power pack relays and slave relays.

C. Include low-voltage cabling and all other miscellaneous equipment and devices required for a complete operable lighting controls system.

1.4 SYSTEM OPERATION

A. Automatic controls for exterior lighting shall provide automatic on/off control as indicated.

B. Control exterior lighting by zone, with each zone switched by a separate contactor.

1. Each zone shall be equipped with means to manually override the automatic lighting controls for testing purposes.
2. Exterior lighting shall switch on automatically no earlier than dusk and switch off no later than dawn. Additional controls shall be provided as indicated to further limit the hours of operation.

C. Time-based controls for interior lighting shall provide automatic on/off control as indicated.

1. Control interior lighting by zone, with each zone incorporating a separate override switch.
2. Time-based control zones shall include spaces in the building where no occupancy-based controls are provided, other than areas where lighting must remain in operation 24-hours per day, areas in which medical or dental tasks are performed, laboratories, mechanical equipment rooms and other industrial process facilities. Each time-based control zone shall encompass a floor area no greater than 465 m² (5000 ft²).
3. Each time-based control zone shall be equipped with means to manually override the automatic lighting controls, which shall enable the lighting in that zone to remain in operation for an adjustable time period set for no longer than 2 hours. The manual override switch shall be located within sight of the controlled lighting.
4. Interior lighting in each time-based control zone shall be enabled during normal business hours by automatic controls which switch on and off automatically at pre-programmed times each day. The controls shall incorporate separate schedules for each day of the week, with automatic pre-programmed schedule changes for holidays and special events.

D. Occupancy-based controls for interior lighting shall provide automatic shut-off control as indicated.

1. Control interior lighting by room, with automatic controls functioning to turn off the general room lighting after a time delay when no occupant is present in the room.
2. Occupancy sensors shall provide complete and proper volumetric coverage of each room within the coverage limits of the devices provided, in accordance with the manufacturer’s published coverage limits. Unless otherwise indicated, the coverage pattern shall provide detection of desk activity (hand motion) for over 90% of the room area minimum, as required to accommodate all occupancy habits of single or multiple occupants at any location within each room.
3. Occupancy-based controls, except wall switch occupancy sensors, shall include means for The occupancy sensors shall be aimed and adjusted such that the presence of one occupant anywhere in a room is sufficient to keep the controls from automatically shutting off the lighting, without requiring excessive activity or special movement on the part of the occupant. Normal air movement while the room is unoccupied shall not in itself cause the occupancy sensors to remain activated.
4. Wall switch occupancy sensors, shall include means for manual adjustment. Sensors shall have adjustable sensitivity and time-delay settings, which shall be adjusted in each room to suit the actual room conditions. The occupancy sensors shall be adjusted such that the presence of one occupant within sight of the sensor is sufficient to keep the controls from automatically shutting off the lighting, with sufficient time-delay to allow an occupant to conduct any normal functions that may be out of sight from the sensor. Normal air movement while the room is unoccupied shall not in itself cause the occupancy sensors to remain activated.

E. Automatic lighting controls which are programmed or which are time-based shall incorporate back-up capabilities which shall prevent loss of programming and time settings for at least 10 hours upon interruption of power.

1.5 SUBMITTALS

A. Product Data: For each type of automatic lighting control device and equipment provided on the Project.

B. Test Reports: Record of all field test data

C. Training Documentation: Sign-off form and attendee sign-in sheet for the training session.

1.6 INFORMATION FOR OPERATING & MAINTENANCE MANUALS

A. Submittals: Information submitted for review, up-dated to record any changes.

B. Operating Instructions: Supply a detailed narrative description of the operation of the lighting controls. Indicate application conditions, limitations of use, coverage patterns and adjustments. Include manufacturer’s installation instructions.

C. Maintenance Instructions: List replacement parts, including source. Indicate recommended maintenance and testing procedures and intervals. List all individual system components that require periodic maintenance. Include a service directory with names and telephone numbers to obtain service.

D. Warrantee: Manufacturer’s warranty certificate.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Astronomic Time Switches: Time switch shall be solid-state, double-pole, single-throw, with astronomic feature and reserve power. Normally-open contacts shall be rated 20 amperes at 120-VAC, On/Off functions shall be individually programmable for each day of the week. Time switch shall include an over-ride
switch to manually close contacts for a pre-set duration. Settings shall be maintained in non-volatile memory, with a field-replaceable battery to retain programming during extended electrical power outages. Housing shall be a lockable NEMA Type 1 steel enclosure. Time switch shall be equivalent to Intermatic #ET70215C.

B. 7-day Time Switches: Time switch shall be solid-state, four-pole, single-throw, with astronomic feature and reserve power. Normally-open contacts shall be rated 20 amperes at 120 VAC, On/off functions shall be individually programmable for each day of the week on independent daily schedules for a full year. The time switch shall provide automatic leap year and daylight saving time adjustment. The time switch shall also provide holiday or special day control requirements by providing up to 99 holiday schedules. Each of the holiday schedules shall be programmable for a single day or any duration as required. Each holiday schedule shall provide automatic no load activity and shall be independently programmable for a unique load schedule if required. Time switch shall include an over-ride switch to manually close contacts for a pre-set duration. The time switch shall provide local or remote selection of load override. Remote override shall be initiated by a momentary switch closure connected to the time switch override connections at distances up to 305 m (1000 ft). Four (4) override terminals shall be provided to allow independent override selection in addition to independent to-the-minute override durations. Settings shall be maintained in non-volatile memory, with a field-replaceable battery to retain programming during extended electrical power outages. Housing shall be a lockable NEMA Type 1 steel enclosure. Time switch shall be equivalent to Intermatic #ET70415C.

C. Exterior Photocells: Photocell shall be rated for a load of 15 Amps tungsten or 8.3 Amps ballast at 120 VAC. Unit shall include a stainless steel wall mounting plate and a light shield. Photocell shall be equivalent to Intermatic #K4321.

D. Wall Switch Occupancy Sensors: Decora style wiring device shall include “off” and “auto” controls, a passive infrared occupancy sensor and an indicator light that illuminates when the sensor detects occupancy. The sensor shall have a high-density 180° coverage pattern that detects walking motion within 7.3 m (24 ft) in front of the device and 3.1 m (10 ft) to either side when mounted 1.2 m (4 ft) above the floor. The device shall be arranged for manual control to switch lights on, and automatic control to switch lights off. Sensors shall have adjustable sensitivity (minimum to maximum) and time delay (30 seconds to 30 minutes) settings. Sensors shall initially be set at maximum sensitivity and 15 minutes delay. The device shall be rated for control of up to 800 Watts of ballast load at 120 VAC or 1200 Watts of ballast load at 277 VAC, and shall be compatible with compact fluorescent ballasts and electronic linear fluorescent ballasts. The device shall allow no leakage to load when in the “off” mode, and shall have no minimum load requirement. Wall switch occupancy sensors shall be equivalent to WattStopper #WA-200, Mytech #IWSZPM, or Sensor-Switch #WSD-SA.
E. Ceiling-Mounted Dual-Technology Occupancy Sensors: Combination ultrasonic and passive infrared type, with a 360° coverage pattern that detects walking motion within a 4.9 m (16 ft) radius and desktop activity (hand motion) within a 3.7 m (12 ft) radius when mounted 2.4 m (8 ft) above the floor. Sensors shall utilize dual-sensing verification and advanced signal processing. A microprocessor database shall store data concerning room usage during the previous week that shall be used for automatic digital self-adjustment of sensitivity (from minimum to maximum) and time-delay settings (from 4 to 30 minutes) to discriminate between human and non-human movement and eliminate false triggers without need for manual readjustment. Sensors shall also have adjustable sensitivity and time-delay settings, set to adapt automatically from initial settings of at least 75% of maximum sensitivity and no more than 4 minutes delay. Sensors with infrared and ultrasonic pick-up shall be equipped with selectable technology logic, initially set to require actuation of both technologies to activate the sensor and either technology to keep it activated. Sensors with infrared and microphonic pick-up shall be equipped with filtering to discriminate sharp sounds characteristic of occupant activity from repetitive or constant background noise, and shall require actuation of the infrared technology to activate the sensor and either technology to keep it activated, with the microphone input being shut-off 10 seconds after the sensor deactivates. Sensors shall be arranged for ceiling mounting. Sensors shall include factory-assembled plenum-rated control cable. Sensors shall be equipped with isolated auxiliary dry contacts for use by the building energy management system. Ceiling-mounted dual-technology occupancy sensors shall be equivalent to WattStopper #DT-300, Mytech #OMNI-DT2000 or Sensor-Switch #CM-PDT-10.

F. Power Pack Relays: Power supply and relay package, suitable for application at either 120 VAC or 277 VAC, which shall consist of a 24 VDC power supply and a relay with contacts rated 20 Amperes at either 120 VAC or 277 VAC. Each power pack relay shall be equipped with the ability to power and accept input from up to three (3) associated occupancy sensors. Power pack relays shall be suitable for plenum use. Provide one (1) power pack relay for each lighting zone that has occupancy sensor control, except where other controllers with additional capabilities are required that can serve as both power supply and control means for the occupancy sensors. Power pack relays shall be equivalent to WattStopper #B120E-P or #B277E-P, Mytech #MP-120 or #MP-277, or Sensor-Switch #PP-20.

G. Slave Relays: Slave relay with contacts rated 20 Amperes at either 120 VAC or 277 VAC. Provide one (1) slave relay for each additional lighting circuit and/or each separately switched part of a circuit within the lighting zone controlled by an occupancy sensor, where the primary controller cannot handle the indicated number of circuits. Connect slave relays to operate in unison with the primary controller. Slave relays shall be equivalent to WattStopper #S120/277E-P, Mytech #MP-SA or Sensor-Switch #SP-20.
H. Power Pack Integrated Controllers: Power supply, relay and dimming control package consisting of a control transformer with dual-voltage input, two (2) relays with contacts rated 20 Amperes at either 120 VAC or 277 VAC, and 0-10 VDC dimming controls, compatible with standard 0-10 VDC dimming ballasts. Each power pack integrated controller shall have two (2) control channels, each equipped with a 3-wire input for low-voltage momentary-contact switches and a 3-wire input for low-voltage 0-10-VDC dimmer switches. Each power pack integrated controller shall be equipped with the ability to power and accept input from associated occupancy sensors and photocells. Each power pack integrated controller shall also be equipped with hold-on and hold-off input capability. Provide one (1) power pack integrated controller for each room that has both occupancy sensor control and momentary-contact switch or dimmer switch manual control. Power pack integrated controllers shall be equivalent to WattStopper #LC-100.

I. Cabinets: Cabinet shall be NEMA Type 1 with hinged door and key lock. Dimensions shall accommodate the enclosed equipment.

J. Wire Guards: Where sensors are located in Restrooms, provide wire guards that fit over the devices to be protected.

2.2 WIRE AND CABLE

A. General: Wire size shall be minimum #12 AWG, except low-voltage control cable. Power and grounding conductors shall be minimum #12 AWG. Cable shall be rated CL2 or CL2P. Cable installed in environmental air spaces shall be plenum rated.

B. Control-Voltage Control Cable: #18 AWG, multi-conductor cable with over-all jacket, except as otherwise indicated. Quantity of conductors as required for connected devices.

2.3 MANUFACTURERS

A. Acceptable manufacturers shall be as listed above, and as follows.


2. Cable: Belden, Canare, West Penn.

B. Substitutions may be considered only when submitted in conformance with Section 26 01 00.
PART 3 - EXECUTION

3.1 PREPARATION

A. Prior to beginning rough-in for the automatic lighting controls, review the automatic lighting control shop drawings, the manufacturer’s installation instructions, applicable regulations and any site conditions pertinent to installation of the automatic lighting controls. Verify placement of sensors and installation criteria.

3.2 INSTALLATION

A. Install equipment in accordance with the manufacturer’s instructions in the locations indicated on the Drawings. Equipment shall be installed inside wall mounted cabinets.

B. Coordinate the control requirements of contactors, controllers, relays and sensors to insure proper operation. Provide all necessary accessories.

C. Provide a neutral conductor to each line-voltage lighting control device.

D. Locate exterior photocells where they are protected from direct sunlight and where they can be aimed northward at the sky.

E. Locate and aim occupancy sensors as required for complete and proper volumetric coverage within the range of coverage of controlled areas per the manufacturer’s recommendations. Rooms shall have 90% minimum coverage to completely cover the controlled area. Coverage shall accommodate all occupancy habits of single or multiple occupants at any location within the room. The locations and quantities of sensors shown on the Drawings are diagrammatic and indicate only the minimum quantity and placement of sensors that are to be provided. Provide additional sensors if required to properly and completely cover the respective room. Locations shall be carefully selected to insure that coverage patterns are unobstructed.

F. Proper judgment must be exercised in executing the installation so as to ensure the best possible installation in the available space and to overcome local difficulties due to space limitations or interference of structural components.

G. Mount exterior photocells on flush-mounted outlet boxes.

H. Mount occupancy sensors in finished spaces on flush-mounted outlet boxes. In unfinished spaces or where ceiling-type sensors are installed where there is exposed structure, mount the sensors in surface mounted outlet boxes.

I. Wiring shall be arranged as shown on the shop drawings. Wiring and cable shall be installed in raceways or cable trays, except low-voltage cables run above...
accessible ceilings consisting of removable tiles. Raceways shall be grounded to the power system ground.

J. Cables shall extend from the occupancy sensor devices to the relay locations and between devices in uninterrupted continuous runs, without intermediate splices. Cables shall be free from shorts or grounds.

K. Cables shall be routed so as to maintain a separation of at least 610 mm (24 in) from all heat sources and from ballasts, transformers, dimmers and other sources of electromagnetic interference. Avoid exposed cables in occupied areas or in areas where they might be damaged as a result of normal use of the area. Where two (2) or more cables run in parallel, they shall be bundled with cable ties.

L. Cables run exposed in ceiling cavities shall be supported by means of suitable cable support devices from the building structure. They shall not lie upon the ceiling, nor shall they be supported from the ceiling frame, ceiling suspension wires, conduits, pipes, ductwork or lights. Supports shall be spaced no further apart than 5 ft on center.

M. Care shall be exercised during cable installation not to damage cable insulation. Damaged cables shall be removed and replaced. Type and spacing of supports shall ensure that cable will not kink or sag.

N. In each cable that terminates at an outlet or device, provide 305 mm (12 in) of slack cable, neatly coiled, to facilitate future modifications. Terminations shall be made in a neat and workmanlike manner.

O. Provide identification for cabinets, switches, and relays per Section 26 05 53.

3.3 ADJUSTMENT, TESTING & DEMONSTRATION

A. Notify the Owner’s Representative at least two (2) weeks in advance of the date of each test, to allow witnessing of the tests.

B. Supply tools, instruments, gauges, testing equipment, protective devices and safety equipment for adjustment, testing and demonstration.

C. During adjustment and testing, carefully record all settings and all test results, including expected test results, actual test results, and corrective actions taken. Records shall be submitted to the Architect’s Consultant and included in the Operating & Maintenance Manuals.

D. Initial Set-up: Verify that wiring is correctly connected to each device. Adjust controls to function as specified under the description of system operation. Make initial settings of user-selectable options to set up lighting control configurations. Settings shall comply with direction received from the Architect’s Consultant.
Verify sensor placement, aiming, calibration and settings to ensure trouble-free operation.

E. Prior to system testing, prepare a list of the devices to be tested, together with the associated location of each device. Include space to indicate test response for each device.

F. Field Testing: Test all system features for proper function. Tests to be performed shall include, but not be limited to, the following:

1. Verify the sequence of operation for each device.
2. Verify the setting and accuracy of each timing function in each device.
3. Verify that each manual override control functions properly.
4. Verify that occupancy sensors do not remain actuated due to normal conditions (e.g., air movement).
5. Verify that occupancy sensors are actuated by hand motion within the entire area of coverage.
6. Verify that occupancy sensors actuate when a person enters the area of coverage.
7. Measure the illumination level in daylight zones equipped with daylight harvesting controls.

G. Correct any deficiencies discovered as a result of the above testing, and completely retest the work affected by such corrections, with no additional compensation.

H. After the system has been completed, tested and is operating properly, demonstrate by actual usage, the proper operation of each system device and function in the presence of the Owner’s Representative. Demonstration shall include repetition of selected field tests, as well as additional adjustment or testing required to demonstrate that the system performs in accordance with the operational description as specified herein and the Owner’s operational requirements.

3.4 ON-SITE TRAINING

A. On-site training shall follow a written training plan, prepared in advance. The training plan shall outline the topics to be covered, the publications to be used, and the training schedule.

B. Conduct one (1) hour minimum of training for the Owner’s maintenance personnel in the operation and maintenance of the lighting controls. Training time shall be extended as necessary to satisfy the Owner’s Representative that all pertinent topics have been adequately covered.

C. The training shall be conducted after the Operating and Maintenance Manuals for the project are completed and available for use during the training session.
D.  Maintain a training sign-in sheet, upon which participants in the training session, including the instructors, shall record their names. The training sign-in sheet shall be dated.

E.  The training shall be conducted by technicians who are thoroughly familiar with the equipment and its features, and also with the Project. The training shall include instruction, field demonstration, and over-the-shoulder hands-on exercises. As a minimum, the training shall cover, but not be limited to, the following topics:

1.  General overview of lighting controls, including purpose and principle of operation.
2.  Location of lighting control components.
3.  Interpretation of equipment output devices, such as indicators and status contacts.
4.  Control adjustments and settings.
5.  Operation of system controls, including over-ride switches.
6.  Recommended maintenance procedures and intervals.

F.  At the conclusion of the training session, obtain written sign-off from the Owner’s Representative. Insert a copy of the sign-off form and the training sign-in sheet into the Operating and Maintenance Manuals. Submit another copy of the training sign-in sheet to the Architect.

END OF SECTION
PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide lighting and power branch-circuit panelboards as indicated on the Drawings.

B. Overcurrent devices shall be a molded-case circuit breakers.

1.3 SUBMITTALS

A. Product Data:

1. For each type of panelboard provided on the Project
2. For each type of overcurrent device provided on the Project.
3. Compression lugs

B. Shop Drawings:

1. For each panelboard provided on the Project
2. Include:

   a. Arrangement of overcurrent devices
   b. Overcurrent device ratings
   c. Interrupting capacity
   d. Bus ratings
   e. Enclosure dimensions
   f. Auxiliary section and skirt details
   g. Raceway entries
   h. Access requirements

PART 2 - PRODUCTS

2.1 MATERIALS

A. General Requirements:

1. Capacity and arrangements as indicated on the panelboard schedules
DIVISION 26—BRANCH CIRCUIT PANELBOARDS
Section 26 24 16– Branch Circuit Panelboards

2. Metal-enclosed, wall-mounted structures
3. Busing and overcurrent devices
4. Manufacturer’s nameplate
5. UL Label
6. Service entrance label when used of service entrance equipment

B. Short-circuit Ratings:

1. Minimum symmetrical, integrated interrupting ratings as indicated end of section
   a. Panelboards and overcurrent devices shall be fully rated for the indicated fault current without series rating
   b. Panelboards and overcurrent devices shall be UL tested and listed as necessary to obtain the interrupting rating indicated on the Drawings.

C. Cabinets:

1. Flush or surface mounted as indicated
2. Removable covers for access to wiring terminations
3. Nominal dimensions:
   a. 510-mm (20-inch) wide
   b. 146-mm (5.75-im) deep
4. Doors:
   a. Integral to covers
   b. Removable, hinged, for access to overcurrent device handles
   c. All doors keyed alike
   d. Door-in-door construction
5. Wiring gutters:
   a. Sufficient size to accommodate conductor connector and bending radius
      1) 102 mm (4 in) minimum on both sides
   b. Sized per Code for feeder conductors at top and bottom
6. Adjacent panelboards not installed in electrical, communications or mechanical spaces:
   a. Same height doors
   b. Same height cabinets
c. Surface-mounted panelboards:
d. With open wiring below busing and overcurrent devices:
   1) One-piece cabinets shall extend from the floor to the top of
      the panelboard
   2) Separate, screw-attached covers for access to cabinet below
      busing and overcurrent devices

e. Without open wiring below busing and overcurrent devices:
   1) Three-sided, removable skirts shall extend from the bottom
      of panelboard to the floor
   2) Barrier between panelboard cabinet and skirt

7. Painting:
   a. Factory applied
   b. Gray lacquer or powder coat over rust preventative primer.
   c. Sides, bottom, and top of surface-mounted to match fronts of
      panelboards not installed in electrical, communications or
      mechanical equipment rooms

8. Auxiliary Sections:
   a. Separate hinged, locking door below the circuit breaker section
   b. Integral with the panelboard enclosure
   c. Barrier between section containing overcurrent devices and
      auxiliary equipment

D. Busing:
   1. Voltage, amperage and phase arrangement as shown on the Drawings and
      schedules
   2. Tin plated aluminum, sized on the basis of not more than 116 A/mm² (750
      amperes/ in²) current density
   3. Mounted on high impact, non-tracking, insulating supports
   4. Line and load connections accessible from front
   5. Bolted connections made with Belleville washers
   6. Neutral bus
   7. Equipment ground bus in each section

E. Lugs:
   1. Match conductor sizes indicated on Drawings.
   2. Rated for 75°C (167°F) operation.
   3. Compression lugs with insulating covers.
DIVISION 26—BRANCH CIRCUIT PANELBOARDS
Section 26 24 16– Branch Circuit Panelboards

F. Overcurrent Devices:

1. Circuit breakers:
   a. Ambient-compensated
   b. Thermal-magnetic
   c. Bolt-on
   d. Molded-case
   e. Inverse time delay protection:
      1) Overload
      2) Instantaneous short circuit.
   f. One, two or three poles as indicated on the panelboard schedules
   g. Multi-pole circuit breakers:
      1) Integral trip mechanisms
      2) Handle ties are not acceptable
      3) Terminals rated for 75°C (167°F) operation
   h. Short-circuit current rating as indicated for panelboard
   i. Provide the following special application circuit breakers as indicated on the Drawings:
      1) Arc fault
      2) Ground fault
         a) 5-mA for receptacles
         b) 30-mA for heating cables

2. Labels:
   a. HACR for air-conditioning and refrigeration equipment

3. Protection:
   a. Mechanical handle locking devices for circuits serving:
      1) Time switches
      2) Control devices
      3) Fire/smoke dampers.

G. Grounding:

1. Ground lug for feeder ground conductor.
2. Equipment ground bus.
2.2 MANUFACTURERS

A. Basis of design is Square D NQ & NF panelboards

1. Acceptable Manufacturers:
   a. Siemens
   b. Eaton
   c. General Electric

   It shall be the initiator’s responsibility to ensure that the proposed substitution is equal in every respect to the originally specified product, including but not limited to finish, size, weight, clearances, durability, maintenance, ease of operation and performance criteria.

B. Compression lugs:

1. Basis for equivalency:
   a. Burndy Hyplugs or Thomas & Betts Bi-Metal Pin Connectors

2. Acceptable manufacturers:
   a. Burndy
   b. Thomas & Betts
   c. Hager

PART 3 - EXECUTION

3.1 PREPARATION

A. Prior to submitting shop drawings:

1. Review the space available for installation
2. Determine whether the equipment will be top-fed or bottom-fed

B. Prior to manufacturing equipment:

1. Review applicable recommendations of the protective device coordination study
2. Make adjustments to equipment to comply with the approved recommendations of the protective device study
3.2 INSTALLATION

A. Install panelboards in accordance with the manufacturer’s instructions and, recommendations and precautions

B. Mounting:
   1. At the locations indicated on the Drawings
   2. Top 1930-mm (76-inches) above finished floor
   3. Surface or flush as indicated on the Drawings
   4. Rigidly attached to building surface
   5. Provide code-required clearances
   6. Repair damage to cabinet paint to match factory-applied paint coating
   7. Provide panelboard identification in accordance with Section 26 05 53

C. Wiring:
   1. Neatly arrange and support conductors in cabinets using nylon tie wraps
   2. Tighten conductor lugs to manufacturer’s recommended force using a calibrated torque wrench
   3. Provide bonding connections within cabinets
   4. Provide five (5) 21-mm (3/4-inch trade size) raceways from each flush-mounted panel up to an accessible point above the ceiling
   5. Provide branch circuit identification in accordance with Section 26 05 53
   6. Utilize hydraulically actuated dies, compressing full diameter of cable, to attached compression connectors

D. Compression lug installation:
   1. Utilize hydraulic dies are recommended by the manufacturer
   2. Compress entire circumference of conductors

E. Provide identification as specified in Section 26 05 53

END OF SECTION
PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide wiring devices at all device outlet locations indicated on the Drawings.

B. Occupancy sensors with auxiliary contacts.

C. Color finish of devices and wall plates shall match devices and plates specified in Section 26 05 51.

1.3 SUBMITTALS

A. Product Data: For each type of wiring device provided on the Project.

B. Meeting Minutes: For pre-installation meeting.

C. Installation and Start-up Instructions: Manufacturer’s installation and start-up instructions. Submit to the Architect.

D. Test Reports: Record of all field test data. Submit to the Architect.

E. Training Documentation: Sign-off form and attendee sign-in sheet for the training session. Submit to the Architect.

1.4 INFORMATION FOR OPERATING & MAINTENANCE MANUALS

A. Submittals: Information submitted for review, updated to record any changes.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Wiring Device Switches: Toggle-operated switches shall have high-strength thermoplastic or polycarbonate toggles. Except as otherwise indicated, switches shall be rated 20 Amperes, 120/277 VAC. 20 Ampere 120/277 VAC switches shall be specification grade, complying with Federal Specification WS-896, and shall be mounted on a single-gang strap.
1. Standard toggle-operated switches shall be as follows:
   a. Single-pole Switch  P&S #CSB20AC1
   b. Double-pole Switch  P&S #CSB20AC2
   c. Three-way Switch  P&S #CSB20AC3
   d. Four-way Switch  P&S #CSB20AC4
   e. Momentary Contact Switch  P&S #1251

2. Pilot-light toggle-operated switches shall have red pilot light, lit when switch is in “on” position, and shall be as follows:
   a. Single-pole Switch (120 VAC)  P&S #PS20AC1RPL
   b. Single-pole Switch (277 VAC)  P&S # PS20AC1RPL7

3. Stab-type key-operated switches shall be locking type, actuated by inserting the corresponding flat blade key (Hubbell #HBL1209) and toggling to the opposite position, and shall be as follows:
   a. Single-pole Switch  Hubbell #HBL1221L
   b. Double-pole Switch  Hubbell #HBL1222L
   c. Three-way Switch  Hubbell #HBL1223L
   d. Four-way Switch  Hubbell #HBL1224L
   e. Momentary Contact Switch  Hubbell #HBL1557L

4. Barrel-type key-operated switches shall be locking type, actuated by inserting the corresponding barrel-type key (Hubbell #HBL1209RKL) and rotating to the opposite position, and shall be as follows:
   a. Single-pole Switch  Hubbell #HBL1221RKL
   b. Double-pole Switch  Hubbell #HBL1222RKL
   c. Three-way Switch  Hubbell #HBL1223RKL
   d. Four-way Switch  Hubbell #HBL1224RKL

5. Panel-type key-operated switches shall be locking type, actuated by inserting the corresponding panel-type key (P&S #4609) and rotating to the opposite position, and shall be as follows:
   a. Single-pole Switch  P&S #PS20AC1KL
   b. Double-pole Switch  P&S #PS20AC2KL
   c. Three-way Switch  P&S #PS20AC3KL
   d. Four-way Switch  P&S #PS20AC4KL

6. High-capacity toggle-operated switches shall be suitable for controlling motors rated up to 1.50 kW (2 horsepower), and shall be as follows:
   a. Double-pole 30 Amp Switch  P&S #7802
   b. Three-pole 30 Amp Switch  P&S #7803
c. Double-pole 40 Amp Switch  P&S #7842

d. Three-pole 40 Amp Switch  P&S #7843

B. Fan Speed Control Switches: 2-speed switches for fan control shall be the same as three-way switches specified above, except the top position shall be labeled “HIGH SPEED” and the bottom position shall be labeled “LOW SPEED”. Use in conjunction with spring-wound timer switches, which shall provide on-off control.

C. Occupancy sensor characteristics:

1. Passive Infrared (PIR)

2. Dual Technology (Ultrasonic and PIR)

3. Auxiliary contacts

D. Provide appropriate occupancy sensor detection technology for each space based on:

1. Space or room configuration, size, and intended use

2. Manufacturer’s recommendations

3. Occupancy sensor operation:

   a. Occupancy mode:

      1) Automatic on, automatic off

      2) Required in spaces without local manual controls

   b. Occupancy sensor(s) to maintain luminaires “on” until unoccupied timeout

      1) Timeout to be set for 15 minutes.

E. Wiring Device Receptacles: Receptacles shall have grounding slots and shall have high-impact, thermoplastic faces. Except as otherwise indicated, receptacles shall be rated 20 Amperes at 125 VAC. 20 Ampere 125 VAC receptacles shall be specification grade construction series, complying with Federal Specification WC-596, and shall be mounted on a single-gang strap. GFCI-type receptacles shall include protective circuits complying with the 2003 edition of UL-943, which shall disconnect power to the receptacle face if the ground-fault interrupter is disabled due to component failure, and prevent reset if line and load terminals have been reverse wired.

1. Standard 125 VAC NEMA 5-20R duplex receptacles shall be as follows:

   a. Duplex  P&S #CRB5362

   b. Isolated-Ground Duplex  P&S #IG5362

   c. Tamper-Resistant Duplex  P&S #TR5362
d. GFCI Duplex (5 mA) P&S #2095

e. Tamper-Resistant GFCI Duplex P&S #2095TR

f. Weather-Resistant GFCI Duplex P&S #2095TRWR

F. Receptacles with weatherproof flip-lid or weatherproof while-in-use covers shall be weather-resistant ground fault interrupter (GFCI) type.

G. Additional Wiring Devices: As indicated on the Drawings.

H. Color of Wiring Devices:

1. Unless indicated otherwise, wiring device finish color shall be:

   a. Gray.

2.2 ACCEPTABLE MANUFACTURERS

A. Acceptable manufacturers shall be as listed above, and as follows:


   2. Receptacles: Cooper, Hubbell, Leviton, Pass & Seymour.


B. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prior to beginning rough-in or ordering equipment for the wiring devices, arrange a pre-installation meeting on the site between all parties involved in the wiring devices installation, including the Wiring Devices Installer, the Electrical Systems Installer and the Owner’s Representative. All parties shall review the wiring devices shop drawings, the manufacturer’s installation instructions, system interface requirements, applicable regulations and any site conditions pertinent to installation of the wiring devices.

B. Prepare minutes of the pre-installation meeting and distribute them to all parties in attendance at the meeting, and to the Owner’s Representative and the Architect.

3.2 REQUIRED LOCATIONS

A. Provide wiring devices of the type indicated in the locations indicated on the Drawings.
3.3 DEVICE SELECTION

A. General: Wiring devices shall be suitable for the environment in which they are installed. Wiring devices shall carry the same ampere rating as the overcurrent protective devices for the branch circuits to which they are connected.

B. GFCI Receptacles: Receptacle test switches shall be readily accessible. Where receptacles are located behind equipment, provide an accessible, remote test station with integral GFCI protection and standard receptacle behind equipment.

C. Bathrooms: Provide 20-amp 125 VAC receptacles.

D. Locations within 1.8m (72 in) of a Lavatory or Sink: Provide 20-amp 125 VAC receptacles. Receptacles shall be GFCI type. Other devices shall be as indicated.

E. Other Interior Dry Locations: As indicated.

F. Exterior Damp or Wet Locations: Provide 20-amp 125 VAC receptacles. Receptacles shall be weather-resistant GFCI type. Other devices shall be as indicated.

3.4 INSTALLATION

A. Mount wiring devices securely to outlet boxes, seating the devices so that the device faces are flush with or protrude slightly beyond the device faceplates. Receptacles shall be solidly mounted so that the action of inserting plugs into the receptacles does not cause them to recede. Provide washers and/or device ring extensions as required to properly seat the devices.

B. Wiring devices shall be bonded to the grounding system as specified in Section 26 05 26.

C. Orient switches vertically so that when all toggles are in the down position, the controlled lighting or equipment is shut off, except as otherwise indicated.

D. Orient receptacles vertically so that ground pin is at bottom except as otherwise indicated.

E. Orient receptacles in interior damp or wet locations horizontally, to accommodate the weatherproof flip-lid covers specified in Section 26 05 51.

F. Orient exterior receptacles horizontally, to accommodate the weatherproof while-in-use covers specified in Section 26 05 51. Mount such devices approximately 610 mm (24 in) above finished grade, with the exact mounting height coordinated with the exterior building finish to provide a neat uniform appearance.
G. Provide a neutral conductor to each outlet box containing a switch or an occupancy/vacancy switch.

H. Provide device plates as specified in Section 26 05 51.

I. Receptacles connected on the load side of remote ground-fault circuit interrupters shall be labeled with a sticker that reads “GFCI Protected” and identified to indicate the location of the interrupter device. Identification shall comply with Section 26 05 53.

3.5 ADJUSTMENT, TESTING & DEMONSTRATION

A. Notify the Owner’s Representative at least two (2) weeks in advance of the date of each test, to allow witnessing of the tests.

3.6 ON-SITE TESTING

A. Supply tools, instruments, gauges, testing equipment, protective devices and safety equipment for testing.

B. During testing, carefully record all test results, including which device is under test, the polarity test determination, the GFCI test result if applicable, and corrective actions taken. The test report shall include the manufacturer’s name and model number of the testing instrument, and the date of the test. The test report shall be submitted to the Architect’s Consultant and included in the Operating and Maintenance Manuals.

C. Test receptacles connections for proper polarity and connections. Test for proper operation of GFCI devices in receptacles or protecting receptacles.

D. Correct any deficiencies discovered as a result of the above testing, and completely retest the work affected by such corrections, with no additional compensation.

END OF SECTION Error! No text of specified style in document.
PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide power circuits and overcurrent protection for equipment and motors furnished by the Owner and for equipment and motors specified in Division 1 through Division 26 of the Specifications.

B. Provide power connections to equipment and motors furnished by the Owner and to equipment and motors specified in Division 1 through Division 26 of the Specifications.

C. Install starters and electrical control devices furnished with, but not integral to, equipment and motors furnished by the Owner. Install starters, speed control switches, disconnect switches, and electrical control devices furnished with equipment and motors specified in Division 1 through Division 11, and Divisions 22 and 23 of the Specifications.

D. Provide power and control connections to starters and electrical control devices furnished by the Owner.

E. Provide power and control connections to starters and electrical control devices furnished with equipment and motors specified in Division 1 through Division 11, and Divisions 22 and 23 of the Specifications.

1.3 WORK SPECIFIED ELSEWHERE:

A. Interconnecting wiring between elements of a single equipment item when such wiring is included in other portions of the Specification as part of the equipment installation.

1.4 SUBMITTALS

A. Product Data: None required.
B. Commissioning Notification: Written notification of the proposed date for performing commissioning activities. Submit to the Commissioning Authority, with a copy to the Architect.

C. Test Reports: Record of equipment and motor connection test results. Submit to the Commissioning Authority, with a copy to the Architect.

1.5 INFORMATION FOR OPERATING & MAINTENANCE MANUALS

A. Submittals: None required.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Materials shall be as specified in applicable sections of the Specifications.

PART 3 - EXECUTION

3.1 PREPARATION

A. Review shop drawings and submittals of all equipment prior to installing raceway and boxes for equipment connections. Coordinate outlet and disconnect locations with shop drawings, submittals and manufacturer’s recommendations. Where no shop drawings are available for Owner-furnished equipment, other than equipment that requires only a 20 Amp 120 VAC receptacle connection, bring the lack of information to the attention of the Owner’s Representative for resolution.

B. Insure that overcurrent devices and ratings match the maximum overcurrent protection (MOCP) listed for the equipment. Insure that branch circuit conductor ratings match the minimum circuit ampacity (MCA) listed for the equipment.

3.2 GENERAL

A. Equipment and motor connections shall be made in accordance with the equipment manufacturer’s recommendations.

B. Provide disconnect switches in accordance with Section 26 28 16 for each motor and for each piece of electrically-operated equipment which does not contain an integral disconnect switch. Disconnect switches are not required for equipment with factory-installed cords and plugs.

C. Flexible metal conduit shall be used for connections to equipment and motors installed in dry locations. Liquidtight flexible metal conduit shall be utilized for connections to equipment and motors installed outdoors and to equipment installed in damp or wet locations.
D. Flexible conduit connections shall contain one 90° bend and shall not exceed 900 mm (36 in) in length.

E. Galvanized steel rigid metallic conduit (RMC) with explosion-proof seals shall be used for connections to equipment and motors installed in Class 1 and Class 2 hazardous locations as defined by the NEC.

F. Grounding and bonding shall comply to Section 26 05 26.

G. Terminate raceways at factory-installed junction boxes or terminal cabinets.

H. Terminate conductors on factory-installed wiring terminals.

I. Provide all required relays, wiring, and miscellaneous equipment for fire alarm fan shutdown and other indicated control and monitoring functions.

3.3 CORD-AND-PLUG CONNECTED EQUIPMENT

A. Provide grounding-type receptacles to match the plugs of equipment furnished with factory-installed cord and plugs.

B. Provide a new cord and a new plug on cord and plug-connected equipment which does not have a code-compliant equipment grounding conductor or grounding-type plug.

C. Coordinate the configuration and location of receptacles with the equipment and cord lengths provided prior to installing outlet boxes. Insure that code-required clearances are maintained.

3.4 MOTOR CONNECTIONS

A. Make line voltage connections to each motor. Make line voltage connections to “line” and “load” sides of motor starters.

B. Check motors for proper lubrication and overload protection before energizing.

C. Check motor starters for properly sized overload protections before energizing.

D. Check the rotational direction of motors and make phase corrections required for proper rotation.

E. Coils of interconnecting relays shall match control circuit voltage. Contacts of interconnecting relays shall match the amperage and voltage of the controlled devices.
3.5 TESTING

A. Notify the Commissioning Authority the Owner’s Representative at least two (2) weeks in advance of the date of each test, to allow witnessing of the tests.

B. Supply tools, instruments, gauges, testing equipment, protective devices and safety equipment for testing.

C. During testing, carefully record all test results, including which device is under test, the rotational direction, the control sequence determination, and corrective actions taken. The test report shall include the date of the test. The test report shall be submitted to the Architect’s Consultant and included in the Operating and Maintenance Manuals.

D. Test the rotational direction of motors after final connections have been made. Verify that control sequences produce the proper operations.

E. Correct any deficiencies discovered as a result of the above testing, and completely retest the work affected by such corrections, with no additional compensation.

END OF SECTION 26 27 39
PART 1 - GENERAL

1.1 RELATED REQUIREMENTS
   A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work specified in this section.
   B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY:
   A. Provide fuses for all fusible equipment rated 600 VAC or less, and provide spare fuses as indicated.

1.3 SUBMITTALS
   A. Product Data: For each type of fuse rated 600 VAC or less provided on the Project.

1.4 INFORMATION FOR OPERATING & MAINTENANCE MANUALS
   A. Submittals: Information submitted for review, up-dated to record any changes.
   B. Maintenance Instructions: Fuse replacement recommendations. Explain fuse selection criteria. List replacement parts, including source.

PART 2 - PRODUCTS

2.1 MATERIALS
   A. General: Fuses shall be rated for the voltage where they are applied. In order to maintain coordination and selectivity between upstream and downstream fuses within the electrical distribution system, fuses shall be of the same manufacture.
   B. Class L Fuses: 601 to 6000 Ampere time-delay fuses with interrupting capacity rating of 200,000 Amperes (RMS symmetrical) minimum. Class L fuses shall allow selective coordination when applied in a ratio of 2:1 between upstream and downstream fuse ratings, including Class J, Class RK1 and other Class L fuses. Class L fuses shall be equivalent to Bussman KRP-C-SP series or Littelfuse KLPC series.
   C. Class J Fuses: 1 to 600 Ampere dual-element time-delay fuses with interrupting capacity rating of 200,000 Amperes (RMS symmetrical) minimum. Class J fuses shall allow selective coordination when applied in a ratio of 2:1 between upstream and downstream fuse ratings, including Class L, Class RK1 and other Class J
fuses. Include indicating feature which clearly indicates when the fuse has opened (blown). Class J fuses shall be equivalent to Bussman LPJ-SPI series or Littelfuse JTD-ID series.

D. Class RK1 Fuses: 0.1 to 600 Ampere dual-element time-delay rejection-type fuses with interrupting capacity rating of 200,000 Amperes (RMS symmetrical) minimum. Class RK1 fuses shall allow selective coordination when applied in a ratio of 2:1 between upstream and downstream fuse ratings, including Class L, Class J and other Class RK1 fuses. Include indicating feature which clearly indicates when the fuse has opened (blown), where available. 250 VAC Class RK1 fuses shall be equivalent to Bussman LPN-RK-SPI series or Littelfuse LLNRK series. 600 VAC Class RK1 fuses shall be equivalent to Bussman LPS-RK-SPI series or Littelfuse LLSRK-ID series.

E. Class RK5 Fuses: 0.1 to 600 Ampere dual-element time-delay rejection-type fuses with interrupting capacity rating of 200,000 Amperes (RMS symmetrical) minimum. Fuses shall have 10 seconds time delay at 500% rated current. Include indicating feature which clearly indicates when the fuse has opened (blown), where available. 250 VAC Class RK5 fuses shall be equivalent to Bussman FRN-R-SPI series or Littelfuse FLNR/FLNR-ID series. 600 VAC Class RK5 fuses shall be equivalent to Bussman FRS-R-SPI series or Littelfuse FLSR-ID series.

F. Class CC Fuses: 0.5 to 30 Ampere time-delay rejection-type cartridge fuses with interrupting capacity rating of 200,000 Amperes (RMS symmetrical) minimum. Class CC fuses shall have 10 seconds time delay at 200% rated current, and shall allow selective coordination when applied in a ratio of 2:1 with upstream Class J and Class RK1 fuses. Class CC fuses shall be equivalent to Bussman LP-CC series or Littelfuse CCMR series.

G. Finger-safe Cube Fuses: 1 to 60 Ampere time-delay fuses with interrupting capacity rating of 200,000 Amperes (RMS symmetrical) minimum. Finger-safe cube fuses shall comply with Class J electrical performance requirements, and shall allow selective coordination when applied in a ratio of 2:1 with upstream Class J and Class RK1 fuses. Finger-safe cube fuses shall have 2-prong plug-in design that meets requirements of IEC 60529 for IP-20 finger-safe rating. Include indicating feature which clearly indicates when the fuse has opened (blown). Finger-safe cube fuses shall be equivalent to Bussman TCF series.

H. Supplementary Midget Fuses: 0.1 to 30 Ampere fast-acting cartridge fuses with interrupting capacity rating of 100,000 Amperes (RMS symmetrical) minimum. Supplementary midget fuses shall comply with electrical performance requirements of UL Guide JDYX. Supplementary midget fuses shall be equivalent to Bussman KTK series or Littelfuse KLK series.

I. Supplementary Glass-tube Fuses: 3/16 to 15 Ampere fast-acting in-line glass-tube fuses with interrupting capacity rating of 10,000 Amperes (RMS symmetrical) minimum. Include indicating feature which clearly indicates when the fuse has opened (blown).
symmetrical) minimum. Supplementary glass-tube fuses shall comply with electrical performance requirements of UL Guide JDYX. Supplementary glass-tube fuses shall be equivalent to Bussman GLR series or Littelfuse LGR series.

J. Screw-in Plug Fuses: 1/4 to 30 Ampere time-delay socket-type screw-in plug fuses with interrupting capacity rating of 10,000 Amperes (RMS symmetrical) minimum. Screw-in plug fuses shall comply with electrical performance requirements of UL Guide JFHR (1/4 Ampere to 6¼ Ampere) or UL Guide JEFV (7 to 30 Ampere). Screw-in plug fuses shall be equivalent to Bussman S series or Littelfuse SOO series.

K. Other Fuses: Fuses for internal circuits within specific pieces of equipment shall comply with recommendations of the equipment manufacturer.

2.2 SPARE PARTS

A. Furnish 10%, but not less than (3) spare fuses of each different type and size used on the Project.

2.3 ACCEPTABLE MANUFACTURERS

A. Acceptable manufacturers shall be: Bussmann, Littlefuse, or Mersen-Ferraz/Shawmut.

B. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

PART 3 - EXECUTION

3.1 REQUIRED LOCATIONS

A. Provide fuses in all fusible equipment.

3.2 FUSE SELECTION

A. General: Each fuse shall be of a suitable size and type to protect for the connected load. Ampere ratings shall be as indicated on the drawings, or selected in accordance with the maximum over-current protection rating of the load. Where selective coordination is indicated, maintain a ratio between the ratings of line-side and load-side fuses that is sufficient to achieve time-current selectivity. Where the withstand rating of protected equipment depends on the type of line-side fuse, provide fuses that satisfy the requirements for obtaining the indicated withstand rating.

B. Switchboard and distribution panelboard mains, feeders and general-purpose branch circuits: Select Class L fuses for circuits rated over 600 Amperes and Class J fuses for circuits rated 600 Amperes or less.
C. Switchboard and distribution panelboard transformer primary feeders: Select Class L fuses for circuits rated over 600 Amperes and Class J fuses for circuits rated 600 Amperes or less, except where transformer primary fuses are indicated to have a rating less than 150% of the full-load current of the transformer primary, in which case select Class RK5 fuses for circuits rated 600 Amperes or less.

D. Switchboard and distribution panelboard motor branch circuits: Select Class L fuses for circuits rated over 600 Amperes and Class J fuses for circuits rated 600 Amperes or less.

E. Coordination panelboard branch circuits: Select finger-safe cube fuses or Class CC fuses.

F. Motor type loads: Select dual element time delay Class RK5 fuses. Fuses shall be sized between 125-150% of nameplate full load amps (FLA) and as recommended by the fuse manufacturer for the load profile associated with the motor (i.e. heavy starting or light duty). Contractor to verify actual nameplate data and size fuses accordingly. Fuses listed on drawing schedules are approximate sizes.

G. Fusible toggle-type disconnect switches: Select screw-in plug fuses.

H. Control power transformers: Select Class CC fuses for transformer primary and supplementary midget fuses for transformer secondary.

I. Exterior luminaires: Select supplementary midget fuses.

J. Interior lighting ballasts: Select supplementary glass-tube fuses.

K. Other locations: Select fuses in accordance with recommendations of equipment manufacturer.

3.3 INSTALLATION

A. Keep fuses in manufacturer's original packaging, stored in a clean, dry, protected environment until ready for installation.

B. Provide fuse clips and adaptors as required to match fuse type to fuseholder.

C. Do not install fuses in equipment prior to the equipment being installed at its final location. Fuses shall not be installed in equipment prior to shipment.

D. Install fuses in fuseholders with fuse rating visible.

END OF SECTION
PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide equipment circuit disconnect switches at:

1. Locations indicated on the Drawings
2. At locations required by the NEC
3. As specified herein

B. Disconnect switches are not required for cord and plug-connected equipment.

C. Where both disconnect switches and across-the-line motor controllers are required, provide combination controllers and disconnect switches as specified in Section 26 29 13.

1.3 SUBMITTALS

A. Product Data: For each type and size of disconnect switch provided on the Project.

PART 2 - PRODUCTS

MATERIALS

A. Safety Switches:

1. NEMA Heavy-duty rated
2. Fusible unless specifically noted otherwise on the Drawings
   a. Class R rejection fuse holders
   b. Fuses as specified in Section 26 28 13
3. 30-ampere minimum current rating
4. Voltage rating equal to or greater than nominal circuit voltage
5. Quantity of poles to match circuit
6. Neutral bus for circuits containing neutral conductors
7. Equipment ground bus
8. One (1) set of form-C auxiliary contacts for switches serving loads controlled by variable frequency drives
9. Externally operable
10. Quick-make, quick-break electrical contacts
11. Handles which shall clearly indicate the “on” and “off” positions
13. Mounted in code gauge steel enclosures
14. Enclosures:
   a. NEMA 1 for indoors
   b. NEMA 3R for wet and damp location
15. Interlocks to prevent:
   a. Opening cover with switch in the “on” position
   b. Placing switch in the “on” position with cover open

B. Manual Starters:
1. Manual, toggle-type
2. 120-VAC
3. 1/2-horsepower
   Built-in overload protection

2.2 MANUFACTURERS
A. Manufacturers:
1. Eaton
2. General Electric
3. Siemens
4. Square D
5. Bussmann

B. Manual motor starters equivalent to General Electric CR101

C. Substitutions may be considered only when submitted in conformance with Section 26 01 00.
DIVISION 26—ENCLOSED DISCONNECT SWITCHES
Section 26 28 16 – Enclosed Disconnect Switches

PART 3 - EXECUTION

3.1 PREPARATION

A. Prior to releasing equipment for manufacturing take into account pertinent recommendations of the protective device coordination study, in accordance with Section 26 05 73.

B. Pre-installation Meeting

1. Prior to beginning installation of enclosed disconnect switches, arrange a pre-installation meeting on the site between:
   a. The Mechanical Systems Installer
   b. The Architectural Equipment Installer
   c. The Electrical Systems Installer.

2. Confirm which equipment requires external disconnect switches.

3. Prepare minutes of the meeting and distribute to:
   a. All parties in attendance
   b. Owner’s Representative
   c. Architect

3.2 SWITCH SELECTION

A. Safety Switches:

1. Provide safety switch for each two-pole and three-pole motor circuit
2. Provide safety switch for each two-pole and three-pole equipment circuit

B. Manual Starters:

1. Provide manual starter for each 120-VAC motor circuit
2. Provide manual starter for each 120-VAC equipment circuit

C. Elevator Disconnect Switches:

1. Provide elevator disconnect switch for each elevator machine feeder

3.3 FUSE SELECTION

A. If recommended overcurrent values are indicated on equipment nameplate, provide fuse rating to match nameplate

B. If no recommended overcurrent values are indicated on equipment nameplate, provide fuse rating as indicated on Drawings.
DIVISION 26—ENCLOSED DISCONNECT SWITCHES
Section 26 28 16 – Enclosed Disconnect Switches

3.4 INSTALLATION

A. Conform to the manufacturer’s instructions, recommendations and precautions.

B. Install safety switches at the motor controller locations

1. Switches shall disconnect both motor and controller

C. If a motor is not adjacent to its controller, provide a second, non-fusible safety switch at the motor location.

D. Provide adequate working space is available around equipment, in conformance to code requirements and the manufacturer’s recommendations

E. Rigidly attach safety switches and manual starters to the building element on which they are mounted in accordance with Section 26 05 29.

F. Provide identification as specified in Section 26 05 53.

3.5 INTERLOCKING

A. Provide interlock circuit between equipment safety switch and associated variable frequency drives.

END OF SECTION
PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide across-the-line motor controllers for motors connected to circuits originating at 2-pole and 3-pole overcurrent protective devices.

   1. Controllers are not required for motors connected to controllers in motor control centers.

B. Controllers shall be combination type unless otherwise individual controllers are indicated on the Drawings.

C. Provide motor overload protection to match motor current.

D. Install motor controllers furnished with equipment specified in other Sections of the Specifications and the associated Drawings.

E. Make line and load power connections to across-the-line starters

F. Make control circuit connections to across-the-line starters where indicated on the Drawings

1.3 SUBMITTALS

A. Product Data Required:

   1. Each controller type
   2. Each controller size

B. Shop Drawings Required:

   1. Wiring diagrams for each controller type

C. Meeting Minutes

   1. Pre-installation meeting.
1.4 SPECIFIC INFORMATION FOR OPERATING AND MAINTENANCE MANUALS

A. Wiring diagrams to match installed conditions

PART 2 - PRODUCTS

2.1 ACROSS-THE-LINE MOTOR CONTROLLERS

A. Enclosures

1. Steel with factory finish
2. Hinged door
3. NEMA 1 for indoors
4. NEMA 3R for wet and damp location
5. Control switches and indicating lights on the enclosure cover visible with door closed
6. Interlocks to prevent:
   a. Opening cover with switch in the “on” position
   b. Placing switch in the “on” position with cover open

B. Controllers

1. Magnetic contactors
2. Horsepower rated to accommodate nominal motor rating
3. Replaceable, solid-state, adjustable overload protection
4. NEMA 0 minimum size
5. NEMA 2 and smaller
   a. Full-voltage, non-reversing
   b. Across-the-line

6. NEMA 3 size and larger:
   a. Reduced voltage
   b. Auto-transformer
   c. Closed transition with adjustable time delay

7. Short-circuit rating greater than available short-circuit at point of connection
8. 10-second or 20-second selectable trip delay
9. Ground fault protection

2.2 DISCONNECTS

A. Fusible switches
1. As specified in Section 26 28 16
2. Class R fuses

Motor circuit protectors

3. Molded case
4. Trip-free, trip-indicating
5. Magnetic-only instantaneous trip

2.3 ACCESSORIES

A. Hand-Off-Automatic switch on outside of enclosure door

B. Red and green indicating lights

C. Solid-state overload relay with manual reset

D. Control circuit transformer with fused secondary
   1. Transformer secondary voltage to match control circuit
   2. Fuses as specified in Section 26 28 13

E. Auxiliary Contacts:
   1. Two (2) sets of normally-open spare contacts
   2. Two (2) sets of normally-closed spare contacts
   3. Addition contacts required for interlocking as indicated on the Drawings

F. Phase failure relays:
   1. Shut down motors on the reduction in voltage of one or more phases
   2. Adjustable from 70% to 95% drop-out

2.4 CONFIGURATION

A. Individual controllers
   1. Without disconnect switches only where specifically indicated on the Drawings

B. Combination controllers
   1. With fusible disconnect switches unless individual controllers are specifically indicated
   2. Common enclosure for controller and disconnect
DIVISION 26—ACROSS THE LINE MOTOR CONTROLLERS
Section 26 29 13 – Across The Line Motor Controllers

2.5 SPARE PARTS

A. Furnish to the Owner:
   1. One (1) spare starter coil for each starter size
   2. Two (2) spare indicator lamps

2.6 MANUFACTURERS

A. Controllers equivalent to Square D
   1. Class 8536 for individual controllers
   2. Class 8538 for combination controllers with fusible disconnect switches

B. Overload projection equivalent to Square D Class 9065

C. Acceptable Manufacturers:
   1. Eaton
   2. General Electric
   3. Siemens

D. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

PART 3 - EXECUTION

3.1 PREPARATION

A. Pre-installation Meeting
   1. Prior to beginning installation of across-the-line motor controllers, arrange a pre-installation meeting on the site between:
      a. The Mechanical Systems Installer
      b. The Architectural Equipment Installer
      c. The Electrical Systems Installer.

   2. Confirm which equipment requires external controllers
   3. Confirm which equipment will be furnished with controllers that must be separately installed
   4. Prepare minutes of the meeting and distribute to:
      a. All parties in attendance
      b. Owner’s Representative
      c. Architect
DIVISION 26—ACROSS THE LINE MOTOR CONTROLLERS
Section 26 29 13 – Across The Line Motor Controllers

3.2 INSTALLATION

A. Installation shall conform to the manufacturer’s instructions, recommendations and precautions.

B. If paint is damaged during shipping or installation, the damaged portion shall be sanded smooth and entire motor controller enclosure shall be repainted in accordance with Section 26 05 10.

C. Provide a nameplate as described in Section 26 05 53 for each motor controller

D. Location

1. Install controllers at locations indicated on the Drawings
2. If location is not indicated on the Drawings, mount adjacent to the equipment to be controlled
3. Maintain code-required clearances
4. Where possible, mount controllers no more than 1372 mm (54 in) above the floor
5. Rigidly attached to the building element on which they are mounted in accordance with Section 26 05 29.

E. Grounding

1. Provide bonding connections in accordance with Section 260526
2. Ground the unfused leg of each control power transformer

3.3 MOTOR CONTROL

A. Each motor controller shall be remotely controlled as indicated in the Specifications and on the Drawings.

B. Control wiring indicated on the Electrical Drawings

1. Provide control circuits capable of starting and stopping motors
2. Where indicated, provide interlocking control circuits between multiple controllers to enable simultaneous operation
3. Provide interposing relays where necessary to interface control device with motor controller
4. Where indicated, provide control circuits between fire alarm devices and motor controllers to enable the fire alarm system to automatically shut down motors
5. Conductors as specified in Section 26 05 19
6. Raceways as specified in Section 26 05 33

C. Control wiring not indicated on the Electrical Drawings
1. Refer to the appropriate Specification section for control circuit requirements
2. Provide interface terminals for remote control circuits

3.4 FUSES
A. If recommended overcurrent values are indicated on equipment nameplate, provide fuse rating to match nameplate
B. If no recommended overcurrent values are indicated on equipment nameplate, provide fuse rating as indicated on Drawings
C. Install such that fuse sizes are visible

3.5 ADJUSTMENT, TESTING & DEMONSTRATION
A. Supply tools, instruments, gauges, testing equipment, protective devices and safety equipment for adjustment, testing and demonstration.
B. Initial Set-up:
   1. Verify wiring is correctly connected
   2. Make initial settings of user-selectable options to conform to power system study and motor control sequences
   3. Verify that fuses and overload heating elements have been properly selected for protection of the motors controlled
C. Field Testing:
   1. Test each motor controller for proper operation of all control devices
   2. Measure phase rotation for each motor controlled by an individual starter and correct rotation if necessary
   3. Assist Equipment Suppliers with the start-up and testing of the equipment
   4. Correct all deficiencies discovered as a result of field testing
D. Adjustment:
   1. For initial operation set overload protection to match motor nameplate
   2. After balancing is complete, measure motor current and readjust motor overload protection to match running current
E. Demonstration:
   1. After each starter has been installed, tested and is operating properly, demonstrate by actual usage, the proper operation of each controller.

END OF SECTION Error! No text of specified style in document.
PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of this Contract, including General and Supplementary Conditions and Division 1 specifications, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide luminaires, including emergency lighting and exit signs, at all interior locations indicated on the Drawings.

B. Adjust and aim luminaires and verify proper operation.

1.3 DESCRIPTION

A. Luminaires shall be complete with trim, mounting hardware, ballasts and lamps, and shall be suitable for the location in which they are installed.

B. Provide all materials required to entirely complete each luminaire ready for use, in accordance with the conditions and requirements of the building construction.

1.4 WARRANTY

A. In addition to the warranty specified in the General Conditions, each manufacturer of electronic lighting ballasts, or exit signs with battery-backup, shall warranty the electronic ballasts and rechargeable battery components to be free from defects in materials and workmanship. This additional warranty shall extend for a period of at least five (5) years from the date of manufacture or purchase. For items covered by such warranty, the effective date shall in no case be more than two (2) years prior to the final date of Substantial Completion for the Project. The warranty shall cover the full cost of all repairing the components or furnishing replacements in kind. The warranty shall not be pro-rated and there shall be no deductible amount. Include warranty certificate in the Operating and Maintenance Manuals.

1.5 SUBMITTALS

A. Product Data: For each type of luminaire, ballast and lamp provided for interior lighting on the Project. Include physical description, materials and finishes,
dimensions, weights, accessories, photometry data and efficiency data, as applicable.

B. Shop Drawings: Wiring diagrams for “master/slave” tandem wired luminaires. Outline drawings and fabrication details for each custom-fabricated luminaire type provided on the Project, indicating dimensions, weights, methods of field assembly, components, features, and accessories.

C. Meeting Minutes: For pre-installation meeting.

D. Installation and Start-up Instructions: Manufacturer’s installation and start-up instructions. Submit to the Architect.

E. Test Reports: Record of all field test data. Submit to the Architect.

F. Training Documentation: Sign-off form and attendee sign-in sheet for the training session. Submit to the Architect.

G. Calculations: Point-by-point calculations for site lighting including all exterior luminaires where product does not match specified item.

1.6 INFORMATION FOR OPERATING & MAINTENANCE MANUALS

A. Submittals: Information submitted for review, up-dated to record any changes.

B. Maintenance Instructions: List replacement parts, including source. Indicate recommended and required maintenance and testing procedures and intervals. List all individual lighting components that require periodic maintenance. Identify features, accessory attachments, safety precautions, and procedures for cleaning, lamp replacement and adjustment. Include manufacturer’s installation instructions. Detail trouble-shooting procedures, including step-by-step instructions for typical trouble symptoms. Detail waste disposal procedures, including recycling options, for compliance with government regulations covering the disposal of batteries, and lamps containing mercury.

C. Warranty: Electronic ballast and rechargeable battery component manufacturers’ warranty certificates.

PART 2 - PRODUCTS

2.1 LUMINAIRES

A. See schedule on Drawings for listing of required luminaires. Luminaires shall be complete with trim and mounting hardware.

B. All luminaires shall bear the UL label associated with the type, location, ambient temperature and usage of the individual luminaire.
C. Ballasts shall be completely enclosed in wiring channels arranged to permit easy access. Ballast replacement shall not require removing the luminaire from its mounting.

D. Lamps shall be replaceable without disassembling the luminaire or removing other lamps. Lamp replacement shall not require the use of special tools.

E. Luminaires shall have finishes applied after fabrication; luminaires manufactured with pre-painted metal are not acceptable.

F. Luminaires equipped with doors shall be free of light leakage around the doors under normal operating conditions. Doors shall be designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in the normal operating position. Doors shall utilize spring-loaded latches on troffers and on other luminaires that are available with such an option.

G. Plastic lenses shall be UV-stabilized virgin acrylic unless otherwise indicated. Flat plastic lenses shall be KSH-12 or equal and a minimum of 3.18 mm (0.125 in) thick. Prisms shall be square cut at 45°; round cut is not acceptable.

H. Alzak finished louvers and reflectors shall be low iridescent type when triphosphor lamps are provided.

I. Open luminaires, louvered luminaires, and other luminaires with exposed reflective surfaces that are part of the luminaries’ means of light control, shall be shipped with dust covers. Covers shall be removed after final construction zone vacuuming has been completed.

J. Luminaires installed recessed in the building thermal envelope shall be sealed to limit air leakage between conditioned and unconditioned spaces. Recessed luminaires shall be IC-rated and sealed with a gasket or caulk between the housing and the building finish.

K. Exit signs shall be internally-illuminated. Illumination of lettering on each sign shall be diffuse, with a minimum luminance of 8.6 candela/m² (2.5 foot-lambert).

L. Wire Guards: Where luminaires are indicated to be protected by wire guards, provide removable wire guards that are standard products of the luminaire manufacturer and that fit the luminaires to be protected. Wire guards for exit signs and other wall-mounted luminaires shall secure to the wall, and shall not be attached to the luminaire itself. Provide wire guards for all luminaires in gymnasium and auxiliary gymnasiums and similar spaces regardless if denoted on plans or not.
DIVISION 26—INTERIOR LIGHTING
Section 26 51 00 – Interior Lighting

2.2 BALLASTS

A. Light-Emitting Diode (LED) Drivers:
   1. Matched to lamp assembly and luminaire, with provisions to dissipate heat. Include surge suppression device.
   2. Minimum power factor of 90%.

2.3 LAMPS

A. All luminaires shall be complete with lamps. Where applicable, lamps shall be of one of the types specified herein. All other lamps shall be as required by equipment in which they are installed or as indicated on the Drawings.

B. Light-Emitting Diode (LED):

   White LED Lamp Assemblies: LED lamp assemblies used in general lighting applications shall utilize phosphor technology LED lamps. Color temperature shall be as noted on plans. LED lamp assembly shall be rated 50,000 hour life minimum, as determined per IESNA Certification Standard LM-80. LED lamp assembly shall be driven at nominal 300 mA, and performance shall be tested together with LED driver as a complete system, including the luminaire in which it is to be installed, per IESNA Certification Standard LM-79.
   1. Colored LED Lamp Assemblies: LED lamp assemblies used in exits signs and night lights shall be the indicated color. LED lamp assembly shall be rated for 100,000 hour life minimum.

2.4 ACCEPTABLE MANUFACTURERS

A. Manufacturers of luminaires and poles shall be as indicated on the luminaire schedule.

B. Manufacturers of ballasts and lamps shall be as follows:
   1. LED drivers – Same manufacturer as LED lamp assembly or luminaire.
   2. White LED lamps – Cree, Nichia, Philips or Samsung.

C. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

2.5 SPARE MATERIALS

A. Furnish spare materials in the following quantities:
   1. Lenses: 10% of each different type.
B. Percent quantities shall be calculated by rounding up to the next whole number.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prior to beginning rough-in or ordering equipment for the interior lighting, arrange a pre-installation meeting on the site between all parties involved in the interior lighting installation, including the Interior Lighting Installer, the Electrical Systems Installer, the Commissioning Agent and the Owner’s Representative. All parties shall review the interior lighting shop drawings, the manufacturer’s installation instructions, system interface requirements, applicable regulations and any site conditions pertinent to installation of the interior lighting.

B. Prepare minutes of the pre-installation meeting and distribute them to all parties in attendance at the meeting, and to the Owner’s Representative and the Architect.

3.2 CALCULATIONS

A. Lighting calculations shall be prepared using a computer program employing IESNA recognized algorithms. Exterior calculations shall be based on a 1.5 m by 1524 mm (60 in by 60) in grid. Interior calculations shall be based on a 610 mm by 610 mm (24 in by 24 in) grid. Interior calculations shall be prepared using reflectance values and maintenance factors provided by the Architect’s Consultant. Calculations shall be based on the exact geometry of the lighted space. Calculated points shall be superimposed on scaled plans. Discrete values and contours shall be indicated.

3.3 INSTALLATION

A. Install luminaires in accordance with the manufacturer’s recommendations and installation details.

B. Provide backboxes matched to luminaires. Where luminaires are suspended from ceiling grids, provide special interface outlet boxes designed to mount on grid members and facilitate power cable interface at the suspension point canopy, such that the power cable neither lies exposed above the ceiling nor runs in raceway. In other locations, where luminaire manufacturer’s installation instructions indicate use of standard outlet boxes, boxes shall be in accordance with Section 26 05 31. Back boxes shall be plumb and perfectly aligned.

C. Mount interior luminaires at locations indicated on the drawings. Support luminaires in accordance with Section 26 05 29, in the following manner:

1. Mount suspended stem supported luminaires on swivel hangers which are a standard catalog item of the same manufacture as the luminaire. Support from fixture stud, or as otherwise recommended by the manufacturer. For
linear luminaires, provide one more hanger than the number of luminaires in the row. Coordinate degree of swivel with the ceiling slope. Other suspension methods may be considered in mechanical type rooms where approved by Architect’s Consultant.

2. Mount suspended aircraft cable supported luminaires on canopies which are a standard catalog item of the same manufacture as the luminaire. Support from ceiling grid where applicable, or as otherwise recommended by the manufacturer. For linear luminaires, provide one more hanger than the number of luminaires in the row.

3. Mount suspended chain supported luminaires on hangers which are a catalog item of the same manufacture as the luminaire. Support from building structure as recommended by the manufacturer. For linear luminaires, provide one more hanger than the number of luminaires in the row.

4. Mount surface and wall luminaires square with the room. Support from fixture stud or as otherwise recommended by the manufacturer. Attach surface luminaires at two (2) support points, minimum. Provide 38mm (1½ in) metal spacers for luminaires which occur on combustible ceilings. Submit spacer for approval.

5. Install recessed luminaries in suspended acoustical ceiling systems in accordance with the provisions of ASTM C636. Verify all ceiling types and ceiling thicknesses to ensure that recessed luminaires can be properly installed. Provide plaster frame mounting kits where recessed luminaires are to be installed in hard ceilings.

D. Mount new luminaires which are located in the immediate vicinity of existing luminaires by the same methods as the existing luminaires. Match mounting heights.

E. Verify all measurements. Luminaires must fit in place in a regular, trim and workmanlike manner, to the satisfaction of the Architect’s Consultant. Verify the type of ceiling system in every room or space to ensure that the luminaires are compatible before releasing orders for luminaires. Incorrectly ordered luminaires shall be replaced, with no additional compensation.

F. Verify luminaire locations with the Architectural reflected ceiling plans and interior wall elevations, when such plans and elevations are included in the Contract Documents.

G. All recessed luminaires installed in accessible ceilings shall be connected by means of a flexible raceway or fixture whip which is attached to a 100 mm (4 in) square junction box. Box may serve more than one luminaire.

H. Provide bonding connections in accordance with Section 26 05 26 and manufacturer’s installation instructions.
I. After installation, all visible labels shall be removed from luminaires.

J. Immediately prior to occupancy, clean reflectors, aperture plates, lenses, louvers, luminaire housings and decorative elements. To prevent static buildup on lenses and reflectors, clean with a manufacturer's recommended water-diluted solution of glass cleaner and allow to air-dry after installation.

K. Broken or defective parts shall be replaced, with no additional compensation.

3.4 ADJUSTMENT & TESTING

A. Notify the Architect’s Consultant and the Owner’s Representative at least two (2) weeks in advance of the date of each test, to allow witnessing of the tests.

B. Supply tools, instruments, gauges, testing equipment, protective devices and safety equipment for adjustment and testing, and demonstration.

C. During adjustment and testing, carefully record all settings and all test results, including expected test results, actual test results, and corrective actions taken. Records shall be submitted to the Architect’s Consultant and included in the Operating & Maintenance Manuals.

D. Upon completion of the installation, aim all adjustable luminaires as directed by the Architect’s Consultant. After adjustments are complete, measure the illumination levels at selected points to demonstrate proper distribution and coverage. Verify with the Architect’s Consultant the points where illumination levels are to be measured.

E. Correct any deficiencies discovered as a result of the above testing, and completely retest the work affected by such corrections, with no additional compensation.

3.5 ON-SITE TRAINING

A. On-site training shall be coordinated with the Commissioning Authority in accordance with Section 26 08 00. At least two (2) months prior to the anticipated training session, submit a draft of the training plan and the proposed participants to the Commissioning Authority for review and comment. Two (2) weeks prior to the scheduled training, submit to the Commissioning Authority a revised written training plan incorporating the Commissioning Authority’s comments.

B. On-site training shall follow a written training plan, prepared in advance. The training plan shall outline the topics to be covered, the publications to be used, and the training schedule.

C. Conduct one (1) hour minimum of training for the Owner’s maintenance personnel in the operation and maintenance of the lighting equipment. Training
time shall be extended as necessary to satisfy the Owner’s Representative that all pertinent topics have been adequately covered.

D. The training shall be conducted after the Operating and Maintenance Manuals for the project are completed and available for use during the training session.

E. Maintain a training sign-in sheet, upon which participants in the training session, including the instructors, shall record their names. The training sign-in sheet shall be dated.

F. The training shall be conducted by technicians who are thoroughly familiar with the equipment and its features, and also with the Project. The training shall include instruction and field demonstration, and over-the-shoulder hands-on exercises. As a minimum, the training shall cover, but not be limited to, the following topics:

1. General overview of lighting equipment, including lamp and ballast types.
2. Luminaire cleaning procedures.
3. Relamping and ballast replacement procedures and intervals.
4. Lamp disposal regulations.

G. At the conclusion of the training session, obtain written sign-off from the Commissioning Authority and the Owner’s Representative. Insert a copy of the sign-off form and the training sign-in sheet into the Operating and Maintenance Manuals. Submit another copy of the sign-off form and training sign-in sheet to the Architect.

3.6 COMMISSIONING

A. The equipment and systems referenced in this section are to be commissioned per Section 26 08 00 – Commissioning of Electrical Systems. The contractor has specific responsibilities for scheduling, coordination, startup, test development, testing and documentation. Coordinate all commissioning activities with the Commissioning Authority.

END OF SECTION 26 51 00
PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of this Contract, including General and Supplementary Conditions and Division 1 specifications, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide luminaries at all exterior locations indicated on the Drawings. Provide lighting poles where indicated.

B. Adjust and aim luminaires and verify proper operation.

1.3 DESCRIPTION

A. Luminaires shall be complete with trim, mounting hardware, ballasts and lamps, and shall be suitable for the location in which they are installed.

B. Provide all materials required to entirely complete each luminaire ready for use, in accordance with the conditions and requirements of the building construction.

1.4 SUBMITTALS

A. Product Data: For each type of luminaire, light pole, ballast and lamp provided for exterior lighting on the Project. Include physical description, materials and finishes, dimensions, weights, accessories, photometry data and efficiency data, as applicable.

B. Shop Drawings: Outline drawings and fabrication details for each custom-fabricated luminaire type provided on the Project, indicating dimensions, weights, methods of field assembly, components, features, and accessories.

C. Installation and Start-up Instructions: Manufacturer’s installation and start-up instructions. Submit to the Commissioning Authority with a copy to the Architect.

D. Commissioning Notification: Written notification of the proposed date for performing commissioning activities. Submit to the Commissioning Authority with a copy to the Architect.

E. Test Reports: Record of all field test data. Submit to the Commissioning Authority with a copy to the Architect.
F. Meeting Minutes: For pre-installation meeting.

G. Training Documentation: Sign-off form and attendee sign-in sheet for the training session. Submit to the Commissioning Authority with a copy to the Architect.

H. Calculations: Point-by-point calculations for site lighting including all exterior luminaires.

1.5 INFORMATION FOR OPERATING & MAINTENANCE MANUALS

A. Submittals: Information submitted for review, up-dated to record any changes.

B. Maintenance Instructions: List replacement parts, including source. Indicate recommended and required maintenance and testing procedures and intervals. List all individual lighting components that require periodic maintenance. Identify features, accessory attachments, safety precautions, and procedures for cleaning, lamp replacement and adjustment. Include manufacturer’s installation instructions. Detail trouble-shooting procedures, including step-by-step instructions for typical trouble symptoms. Detail waste disposal procedures, including recycling options, for compliance with government regulations covering the disposal of lamps containing mercury. Cross out information that does not apply to the Project.

PART 2 - PRODUCTS

2.1 LUMINAIRES

A. See schedule on Drawings for listing of required luminaires. Luminaires shall be complete with trim and mounting hardware.

B. All exterior luminaires shall bear the UL label associated with the type, location, ambient temperature and usage of the individual luminaire. Exterior luminaires shall be enclosed and gasketed vapor-tight to provide a seal against ingress of moisture and foreign material.

C. Ballasts shall be completely enclosed in wiring channels arranged to permit easy access. Ballast replacement shall not require removing the luminaire from its mounting.

D. Lamps shall be replaceable without disassembling the luminaire or removing other lamps. Lamp replacement shall not require the use of special tools.

E. Luminaires shall have finishes applied after fabrication; luminaires manufactured with pre-painted metal are not acceptable. Custom colors shall be applied to luminaires and poles as indicated on the luminaire schedule. Custom colors shall match color samples supplied by the Architect.
F. Luminaires equipped with doors shall be free of light leakage around the doors under normal operating conditions. Doors shall be designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in the normal operating position.

G. All plastic lenses shall be UV-stabilized virgin acrylic unless otherwise indicated.

2.2 BALLASTS

A. Light-Emitting Diode (LED) Drivers:

1. Matched to lamp assembly and luminaire, with provisions to dissipate heat. Include surge suppression device.
2. Minimum power factor of 90%.

2.3 LAMPS

A. All luminaires shall be complete with lamps. Where applicable, lamps shall be of one of the types specified herein. All other lamps shall be as required by equipment in which they are installed or as indicated on the Drawings.

B. Light-Emitting Diode (LED):

1. White LED Lamp Assemblies: LED lamp assemblies used in general lighting applications shall utilize phosphor technology LED lamps. Color temperature shall be 4000° K. LED lamp assembly shall be rated 50,000 hour life minimum, as determined per IESNA Certification Standard LM-80. LED lamp assembly shall be driven at nominal 300 mA, and performance shall be tested together with LED driver as a complete system, including the luminaire in which it is to be installed, per IESNA Certification Standard LM-79.
2. Colored LED Lamp Assemblies: LED lamp assemblies used in exits signs shall be the indicated color. LED lamp assembly shall be rated for 100,000 hour life minimum.

2.4 LIGHT POLES

A. Poles shall be equipped with internal cable supports and a handhole with cover located near the base. Poles shall also include anchor bolts, base covers and all luminaire mounting hardware.

B. Pole finish shall be factory applied.

C. Poles shall be designed to withstand continuous wind velocities up to 161 km/hr (100 miles/hr) and gusts up 130% of rated velocity while supporting the quantity and types of luminaires indicated on the luminaire schedule.
2.5 ACCEPTABLE MANUFACTURERS
A. Manufacturers of luminaires and poles shall be as indicated on the luminaire schedule.
B. Manufacturers of ballasts and lamps shall be as follows:
   1. LED drivers – Same manufacturer as LED lamp assembly or luminaire.
   2. White LED lamps – Cree, Nichia, Philips or Samsung.
C. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

2.6 SPARE MATERIALS
A. Furnish spare materials in the following quantities:
   1. Lenses: 10% of each different type.
B. Percent quantities shall be calculated by rounding up to the next whole number.

PART 3 - EXECUTION

3.1 PREPARATION
A. Prior to beginning rough-in or ordering equipment for the exterior lighting, arrange a pre-installation meeting on the site between all parties involved in the exterior lighting, including the Exterior Lighting Installer, the Electrical Systems Installer, the Commissioning Agent and the Owner’s Representative. All parties shall review the exterior lighting shop drawings, the manufacturer’s installation instructions, system interface requirements, applicable regulations, and any site conditions pertinent to installation of the exterior lighting.
B. Prepare minutes of the pre-installation meeting and distribute them to all parties in attendance at the meeting and to the Owner’s Representative and the Architect.

3.2 CALCULATIONS
A. Lighting calculations shall be prepared using a computer program employing IESNA recognized algorithms. Exterior calculations shall be based on a 1524 mm by 1270 mm (60 in by 50 in) grid. Interior calculations shall be based on a 610 mm by 610 mm (24 in by 24 in) grid. Interior calculations shall be prepared using reflectance values and maintenance factors provided by the Architect’s Consultant. Calculations shall be based on the exact geometry of the lighted space. Calculated points shall be superimposed on scaled plans. Discrete values and contours shall be indicated.
3.3 INSTALLATION

A. Install luminaires in accordance with the manufacturer’s recommendations and installation details.

B. Provide backboxes matched to luminaires. Where luminaire manufacturer’s installation instructions indicate use of standard outlet boxes, boxes shall be in accordance with Section 26 05 31. Back boxes shall be plumb and perfectly aligned.

C. Mount exterior luminaires at locations indicated on the drawings. Support luminaires in accordance with Section 26 05 29, in the following manner:

1. Mount pole-top luminaires on light poles matched to the luminaire. Mounting provisions shall provide structural integrity to withstand the specified wind loading, while maintaining an integrated appearance, coordinated with both the luminaire and the pole.

2. Mount surface and wall luminaires square with the building lines. Support from fixture stud or as otherwise recommended by the manufacturer. Attach surface luminaires at two (2) support points, minimum.

3. Install recessed luminaries in exterior soffits in accordance such that luminaire weight is supported by structural members. Verify soffit material and thickness to ensure that recessed luminaires can be properly installed.

D. Mount new luminaires which are located in the immediate vicinity of existing luminaires by the same methods as the existing luminaires. Match mounting heights.

E. Verify luminaire locations with the Architectural site plan and exterior wall elevations, when such plans and elevations are included in the Contract Documents.

F. Mount lighting poles on reinforced concrete bases as indicated on the Drawings. Position anchor bolts so that luminaires will be aligned with the appropriate surface features, as indicated. Level each anchor bolt plate so that the associated lighting pole will be vertical and plumb. Provide grout between the concrete base and anchor bolt plate.

G. Provide bonding connections between the pole and the reinforcing steel in the concrete base in accordance with Section 26 05 26 and manufacturer’s installation instructions.

H. Provide ground rod at each exterior lighting pole. Top of ground rod shall be a minimum of 305 mm(12 in) below grade. Bond pole to ground rod with a minimum #6 AWG conductor. Do not bond lighting circuit conductors to ground rod.
I. Broken or defective parts shall be replaced, with no additional compensation.

3.4 ADJUSTMENT, TESTING & DEMONSTRATION

A. Notify the Architect’s Consultant, the Commissioning Authority, and the Owner’s Representative at least two (2) weeks in advance of the date of each test, to allow witnessing of the tests.

B. Supply tools, instruments, gauges, testing equipment, ladders, lifts, protective devices and safety equipment for adjustment, testing, and demonstration.

C. During adjustment and testing, carefully record all settings and all test results, including expected test results, actual test results, and corrective actions taken. Records shall be submitted to the Architect's Consultant and included in the Operating & Maintenance Manuals.

D. Upon completion of the installation, perform the following adjustments:

1. Aim all adjustable luminaires as directed by the Architect’s Consultant.
2. Clean reflectors, aperture plates, lenses, luminaire housings and decorative elements. To avoid static buildup on lenses and reflectors, clean with a manufacturer's recommended water-diluted solution of glass cleaner and allow to air-dry.

E. After adjustments are complete, measure the illumination levels at selected points to demonstrate proper distribution and coverage. Verify with the Architect’s Consultant the points where illumination levels are to be measured. Measurements shall be taken at night.

F. Correct any deficiencies discovered as a result of the above testing, and completely retest the work affected by such corrections, with no additional compensation.

3.5 ON-SITE TRAINING

A. On-site training shall be coordinated with the Commissioning Authority in accordance with Section 26 08 00. At least two (2) months prior to the anticipated training session, submit a draft of the training plan and the proposed participants to the Commissioning Authority for review and comment. Two (2) weeks prior to the scheduled training, submit to the Commissioning Authority a revised written training plan incorporating the Commissioning Authority’s comments.

B. On-site training shall follow a written training plan, prepared in advance. The training plan shall outline the topics to be covered, the publications to be used, and the training schedule.
C. Conduct one (1) hour minimum of training for the Owner’s maintenance personnel in the operation and maintenance of the lighting equipment. Training time shall be extended as necessary to satisfy the Owner’s Representative that all pertinent topics have been adequately covered.

D. The training shall be conducted after the Operating and Maintenance Manuals for the project are completed and available for use during the training session.

E. Maintain a training sign-in sheet, upon which participants in the training session, including the instructors, shall record their names. The training sign-in sheet shall be dated.

F. The training shall be conducted by technicians who are thoroughly familiar with the equipment and its features, and also with the Project. The training shall include instruction and field demonstration. As a minimum, the training shall cover, but not be limited to, the following topics:

1. General overview of lighting equipment, including lamp and ballast types.
2. Luminaire cleaning procedures.
3. Relamping and ballast replacement procedures and intervals.
4. Lamp disposal regulations.

G. At the conclusion of the training session, obtain written sign-off from the Commissioning Authority and the Owner’s Representative. Insert a copy of the sign-off form and the training sign-in sheet into the Operating and Maintenance Manuals. Submit another copy of the sign-off form and the training sign-in sheet to the Architect.

END OF SECTION
DIVISION 31

EARTHWORK
PART 1  GENERAL

1.01  DEFINITIONS

A. Interfering or Objectionable Material: Trash, rubbish, and junk; vegetation and other organic matter, whether alive, dead, or decaying; topsoil.

B. Clearing: Removal of all designated trees, removal of brush, stumps, logs, and other vegetative materials, and interfering or objectionable material lying on or protruding above ground surface.

C. Grubbing: Removal of vegetation and other organic matter including stumps, buried logs, and roots to a depth of 12 inches below subgrade.

D. Scalping: Removal of sod without removing more than upper 3 inches of topsoil.

E. Stripping: Removal of topsoil remaining after applicable scalping is completed.

F. Project Limits: Areas, as shown or specified, within which Work is to be performed.

1.02  SUBMITTALS

A. Action Submittals: Drawings clearly showing clearing, grubbing, and stripping limits. Show access and identify falling requirements of any individual trees that may be flagged by the Owner for removal that lie beyond the clearing, grubbing, and stripping limits. Contractor’s work and approach for tree removal shall be subject to the review and approval by the Engineer.

B. Contractor’s tree removal and logging subcontractor including the superintendent and tree faller, shall be experienced in this type of work. Tree faller and individual responsible for the work shall both have not less than 5 years each, of acceptable work experience performing this type of work prior to beginning this Project, as approved by the Engineer.

1.03  QUALITY ASSURANCE

A. Obtain Engineer’s approval of staked clearing, grubbing, and stripping limits, prior to commencing clearing, grubbing, and stripping.

1.04  SCHEDULING AND SEQUENCING

A. Clear Site only after perimeter erosion and sediment controls are in place.
B. Install erosion control measures immediately after site clearing and grubbing. Exposed soils shall not remain uncovered for more than 2 days unless it is actively being worked.

C. Complete applicable Work specified in Section 02 41 00, Demolition; Section 31 23 16, Excavation, prior to placing fill or backfill.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 GENERAL

A. Clear, grub, and strip areas actually needed for waste disposal, borrow, or Site improvements within limits shown or specified.

B. Do not injure or deface vegetation or damage roots of vegetation that is not designated for removal.

C. Remove rubbish, trash, and junk from entire area within Project limits.

D. Obtain any permits needed and follow all applicable laws, ordinances, and other requirements by governing agencies while performing the Work.

3.02 CLEARING

A. Clear areas within clearing limits shown or specified.

B. Additionally as part of the clearing work, removal of any tree that is within 2 feet of the clearing limit shown, as measured from the clearing limit to the closest edge of the trunk of the tree at a point located 3 feet average height above the ground surface.

C. Additional trees (in addition to the trees within the clearing limits and the trees within 2 feet of the clearing limits as described above) as designated by the Engineer shall also be removed at the Contractor’s expense. This additional tree removal activity shall include removal of up to six trees that will be designated by the Engineer for removal. Up to six additional trees shall be in addition to the trees that fall within 2 feet of the clearing limits as described above and may include the following:

   1. Large trees that are located sufficiently close to the grading limits and whose root system may be damaged by the required grading work to occur within the clearing and/or grading limits.

   2. Trees that are designated for removal for any reason, as identified by the Engineer, and are located outside of the clearing limits shown.
D. Fell trees so that they fall away from all existing facilities and so that vegetation not designated for removal is not damaged. All trees shall be felled on the Owner’s property that has been designated for clearing. Do not allow trees to fall on adjacent structures, utilities, or in other areas that could result in damage. If trees are in danger of falling in occupied areas including roads and other public areas, flaggers and spotters shall be employed to assure that work areas have been cleared and remain clear of occupation until after trees are safely felled.

E. Cut off shrubs, brush, weeds, and grasses to within 2 inches of ground surface.

3.03 GRUBBING, SCALPING, AND STRIPPING

A. Contractor shall perform grubbing, scalping, and stripping to the extent necessary for proper excavation and disposal of materials to be excavated and removed from the Site.

B. Topsoils when stripped from the building and playground area should be immediately protected with erosion control measures.

3.04 MERCHANTABLE TIMBER

A. Contractor shall cut and remove all trees and vegetation from the Site within the areas specified. If present on Site, trees classified as merchantable timber as well as all other vegetation and debris removed from the Site shall become the property of the Contractor. Contractor shall be responsible for all expenses associated with removal from the work area, and shall retain the profits associated with the removal, sale, and disposal of any and all materials.

3.05 TREE REMOVAL INSIDE AND OUTSIDE CLEARING LIMITS

A. Remove all large trees and dead, dying, leaning, or otherwise unsound trees that may strike and damage Project facilities in falling as designated by the Engineer. Remove any trees that have been flagged for removal as designated.

B. Cut stumps off flush with ground, remove debris, and if disturbed, restore surrounding area to its original condition.

3.06 DISPOSAL

A. Clearing, Grubbing, Scalpings, and Strippings Debris:

1. Dispose of debris offsite.
2. Burning of debris onsite will not be allowed.
3. Woody debris may be chipped. Chips may be sold to Contractor’s benefit or incorporated into landscaping so long as the product meets the requirements of the specifications for that work.
4. Limit offsite disposal of clearing and grubbing debris to locations that are approved by federal, state, and local authorities, and that will not be visible from Project.

END OF SECTION
PART 1 GENERAL

1.01 DEFINITIONS
A. Common Excavation: Removal of material not classified as rock excavation.

1.02 SUBMITTALS
A. Informational Submittals:
   1. Excavation Plan, Detailing:
      a. Methods and sequencing of excavation.
      b. Proposed offsite spoil disposal sites.
      c. Numbers, types, and sizes of equipment proposed to perform excavations.
      d. Anticipated difficulties and proposed resolutions.
   2. Pipe Support Plan. Where new pipes will be installed under existing pipes, submit a plan for supporting the existing pipes during excavation, installation of the new pipe, and backfilling. The plan shall be prepared and stamped by an independent structural engineer (not directly employed by the Contractor) licensed in the State of Washington. The Engineer who prepared the plan shall be on Site to oversee the work while the pipe support system is being installed and utilized.

1.03 QUALITY ASSURANCE
A. Provide adequate survey control to avoid unauthorized overexcavation.

1.04 WEATHER LIMITATIONS
A. Material excavated when frozen or when air temperature is less than 32 degrees F shall not be used as fill or backfill until material completely thaws.
B. Material excavated during inclement weather shall not be used as fill or backfill until after material drains and dries sufficiently for proper compaction.

1.05 SEQUENCING AND SCHEDULING
A. Demolition: Complete applicable Work specified in Section 02 41 00, Demolition, prior to excavating.
B. Clearing, Grubbing, and Stripping: Complete applicable Work specified in Section 31 10 00, Site Clearing, prior to excavating.
C. Groundwater Control: Dewatering, as required prior to excavation and beginning backfilling.

D. Excavation Support: Install and maintain as necessary to support sides of excavations and prevent detrimental settlement and lateral movement of existing facilities, adjacent property, and completed Work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 GENERAL

A. Excavate to lines, grades, and dimensions shown and as necessary to accomplish Work. Excavate to within tolerance of plus or minus 0.1 foot, except where dimensions or grades are shown or specified as maximum or minimum. Allow for forms, working space, granular base, topsoil, and similar items, wherever applicable. Trim to neat lines where concrete is to be deposited against earth.

B. Do not overexcavate without written authorization of Engineer.

C. Remove or protect obstructions as shown in Section 01 50 00, Temporary Facilities and Controls.

D. Blasting and use of explosives are not allowed.

3.02 UNCLASSIFIED EXCAVATION

A. Excavation is unclassified. Complete all excavation regardless of the type, nature, or condition of the materials encountered.

3.03 EXCAVATION UNDER PILE AND PILE SUPPORTED STRUCTURES

A. Excavation to the lines and grades shown.

B. Do not excavate closer than 36 inches to the final grade until ready to perform the final excavation.

C. Do not allow any construction equipment to operate directly on, or closer to the final excavated surfaces than 36 inches. Perform the final excavation with excavator, working at 36 inches or more above the final grade. Use a bucket having smooth cutter (no teeth). Do not disturb the native soils below the required depth of excavation. Keep all groundwater and surface water pump out of the excavation area while working.

D. Excavate to the limits of the area to be backfilled as shown on Drawings.
E. Obtain approval from the Engineer prior to backfilling on the prepared foundation.

F. Keep excavation areas free of standing water at all times. Provide pumps, sumps, and drains as needed to keep all work areas free of water.

G. Excavate and prepare subgrade only in limited areas as the work proceeds, as needed to be able to reach work areas for placing geotextile on subgrade and then ballast rock on the prepared foundation over geotextile. Work sufficiently small areas as needed so that the foundation areas can be prepared and covered immediately so subgrade is not deteriorated because of groundwater, seepage, or other factors that could soften or cause deterioration of the prepared subgrade. Do not leave prepared subgrade open any longer than needed. Do not leave prepared subgrade areas open overnight without covering with ballast rock. Leave sufficient geotextile exposed at the edges and temporary boundaries at all times as needed to meet the requirements for geotextile overlap. Geotextile overlap shall be per the manufacturer’s recommendations and shall provide for geotextile overlapped with geotextile surfaces in contact between each other without soil or rock materials creating separation between the two geotextile surfaces. Do not attempt to fill the overlap area and then later remove the materials to create the overlap.

H. Keep all foundations free of water while preparing to backfill and during backfilling.

I. Extend the geotextile fabric up the sides and ends of the excavation as needed to encapsulate the sides and ends of the fill areas for ballast rock. Sides and ends of excavation areas shall be formed in dense undisturbed soils. If the soils are loosened in the process of making the excavation, remove the loose soils so the geotextile and ballast will bear directly against dense undisturbed native soils.

J. Place geotextile and backfill as shown on Drawings and as specified in Section 31 23 23, Fill and Backfill.

3.04 TRENCH WIDTH

A. Minimum Width of Trenches:

1. Single Pipes, Conduits, Direct-Buried Cables, and Duct Banks:
   a. Less than 4-inch Outside Diameter or Width: 18 inches.
   b. Greater than 4-inch Outside Diameter or Width: 18 inches greater than outside diameter or width of pipe, conduit, direct-buried cable, or duct bank.
   c. Trench width for large diameter pipes shall be as shown on Drawings.
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2. Multiple Pipes, Conduits, Cables, or Duct Banks in Single Trench: 18 inches greater than aggregate width of pipes, conduits, cables, duct banks, plus space between.
3. Increase trench widths by thicknesses of sheeting.
4. Provide trench widths specifically shown on Drawings for selected pipes where CLSM backfill is shown having specified widths.

B. Maximum Trench Width: Unlimited, unless otherwise shown or specified, or unless excess width will cause damage to existing facilities, adjacent property, or completed Work.

C. At the time of excavation, provide vertical shoring for trenches where CLSM is required for backfilling pipes. Contractor shall establish means and methods of shoring; however, shoring shall be installed and braced directly against dense undisturbed earth, shall extend up to the top of the CLSM trench backfill zone or higher if needed, and shall be capable of being removed as the CLSM backfill is placed around the pipes. The shoring shall be capable of being pulled out while the CLSM is still fresh and flowable, and shall allow the CLSM backfill to flow by gravity directly against the native undisturbed soils as the shoring/sheeting is removed.

3.05 PIPE BEDDING GROOVES FOR NONPERFORATED DRAIN LINES

A. Semicircular, trapezoidal, or 90-degree-V.

B. Excavated or plowed into trench bottom. Forming groove by compaction will not be acceptable.

3.06 EMBANKMENT AND CUT SLOPES

A. Shape, trim, and finish cut slopes to conform with lines, grades, and cross-sections shown, with proper allowance for topsoil or slope protection, where shown.

B. Remove stones and rock that exceed 3-inch diameter and that are loose and may roll down slope. Remove exposed roots from cut slopes.

C. Round tops of cut slopes in soil to not less than a 6-foot radius, provided such rounding does not extend offsite or outside easements and rights-of-way, or adversely impacts existing facilities, adjacent property, or completed Work.

3.07 STOCKPILING EXCAVATED MATERIAL

A. Remove all excavated materials from the Site. No on-site stockpiling shall be allowed.
B. Do not temporarily stockpile excavated material adjacent to trenches and other excavations, unless excavation side slopes and excavation support systems are designed, constructed, and maintained for stockpile loads.

C. Do not temporarily stockpile excavated materials near or over existing facilities, adjacent property, or completed Work, if weight of stockpiled material could induce excessive settlement.

3.08 DISPOSAL OF SPOIL

A. Dispose of all excavated materials offsite.

B. Dispose of debris resulting from removal of underground facilities as specified in Section 02 41 00, Demolition, for demolition debris.

C. Dispose of debris resulting from removal of organic matter, trash, refuse, and junk as specified in Section 31 10 00, Site Clearing, for clearing and grubbing debris.

END OF SECTION
SECTION 31 23 23
FILL AND BACKFILL

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. ASTM International (ASTM):
   d. D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
   e. D1556, Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
   f. D1557, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
   g. D4253, Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.
   i. D6938, Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.02 DEFINITIONS

A. Relative Compaction:

1. Ratio, in percent, of as-compacted field dry density to laboratory maximum dry density as determined in accordance with ASTM D1557.
2. Apply corrections for oversize material to either as-compacted field dry density or maximum dry density, as determined by Engineer.

B. Optimum Moisture Content:

1. Determined in accordance with ASTM Standard specified to determine maximum dry density for relative compaction.
2. Determine field moisture content on basis of fraction passing 3/4-inch sieve.
C. Relative Density: Calculated in accordance with ASTM D4254 based on maximum index density determined in accordance with ASTM D4253 and minimum index density determined in accordance with ASTM D4254.

D. Prepared Ground Surface: Ground surface after completion of required demolition, clearing and grubbing, scalping of sod, stripping of topsoil, excavation to grade, and subgrade preparation.

E. Completed Course: A course or layer that is ready for next layer or next phase of Work.

F. Lift: Loose (uncompacted) layer of material.

G. Geosynthetics: Geotextiles, geogrids, or geomembranes.

H. Well-Graded:
   1. A mixture of particle sizes with no specific concentration or lack thereof of one or more sizes.
   2. Does not define numerical value that must be placed on coefficient of uniformity, coefficient of curvature, or other specific grain size distribution parameters.
   3. Used to define material type that, when compacted, produces a strong and relatively incompressible soil mass free from detrimental voids.

I. Stress Influence Area:
   1. Area within planes sloped downward and outward at 60-degree angle from horizontal measured from:
      a. 1 foot outside outermost edge at base of foundations or slabs.
      b. 1 foot outside outermost edge at surface of roadways or shoulder.
      c. 0.5 foot outside exterior at spring line of pipes or culverts.

J. Borrow Material: Material from required excavations or from designated borrow areas on or near Site.

K. Imported Material: Materials obtained from sources offsite, suitable for specified use.

L. Structural Fill: Imported fill materials as required under structures, pavements, and other facilities.

M. Embankment Material: Fill materials required to raise existing grade in areas other than under structures.
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1.03 SUBMITTALS

A. Informational Submittals:
   1. Manufacturer’s data sheets for compaction equipment.
   2. Certified test results from independent testing agency.

1.04 QUALITY ASSURANCE

A. Notify Engineer when:
   1. Structure is ready for backfilling, and whenever backfilling operations are resumed after a period of inactivity.
   2. Soft or loose subgrade materials are encountered wherever embankment or site fill is to be placed.
   3. Fill material appears to be deviating from Specifications.

1.05 SEQUENCING AND SCHEDULING

A. Complete applicable Work specified in Section 02 41 00, Demolition; Section 31 10 00, Site Clearing; Section 31 23 16, Excavation, prior to placing fill or backfill.

B. Backfill against concrete structures only after concrete has attained compressive strength of 3,000 psi. Obtain Engineer’s acceptance of concrete work and attained strength prior to placing backfill.

C. Do not place granular base, subbase, or surfacing until after subgrade has been prepared.

PART 2 PRODUCTS

2.01 SOURCE QUALITY CONTROL

A. Gradation Tests: One or more tests as necessary to locate acceptable sources of imported material.

B. Samples:
   1. Collected in accordance with ASTM D75:
      a. During production of imported material, provide Samples and testing as needed to assure consistency of the product. Contractor shall
remove and replace material that is found to not meet the specification requirements.

b. Clearly mark to show source of material and intended use.

2.02 GRAVEL BORROW

A. Shall be imported material as specified in the Standard Specifications, Section 9-03.14(1), Gravel Borrow, except that maximum size shall be limited to 2 inches.

B. Gravel Borrow gradation shall be modified if needed during wet weather periods and shall have less than 4 percent passing the No. 200 sieve size during these times if the use Gravel Borrow for backfilling results in the material being too wet for required compaction without resulting in pumping and yielding as determined by the Engineer.

C. Gravel Borrow shall be free from dirt, clay, organic matter, or other deleterious material.

2.03 GRAVEL BACKFILL FOR DRAINS

A. Shall be imported material as specified in the Standard Specifications, Section 9-03.12(4), Gravel Backfill for drains.

2.04 BALLAST

A. Shall be imported material as specified in the Standard Specifications, Section 9-03.9(2), Permeable Ballast.

2.05 CRUSHED SURFACING BASE COURSE (CSBC)

A. Shall be imported material as specified in the Standard Specifications, Section 9-03.9(3), Crushed Surfacing, Base Course.

2.06 QUARRY SPALLS

A. Shall be imported material as specified in the Standard Specifications, Section 9-13.1(5), Quarry Spalls.

B. Quarry spalls shall meet all other requirements of WSDOT Section 9-13, Riprap, Quarry Spalls, Slope Protection, and Rock for Erosion and Scour Protection and Rock Walls.

2.07 SAND

A. Shall be imported material as specified in the Standard Specifications, Section 9-03.1 Aggregates for Portland Cement Concrete, Class 1.
2.08 CONTROLLED LOW-STRENGTH MATERIAL (CLSM)
   A. Also known as Controlled Density Fill (CDF), as specified in Standard Specifications Section 2-09.3(1)E Backfilling.

2.09 WATER FOR MOISTURE CONDITIONING
   A. Free of hazardous or toxic contaminants, or contaminants deleterious to proper compaction.

2.10 BASE COURSE ROCK
   A. Shall be Crushed Surfacing Base Course (CSBC) as specified in Section 32 11 23, Aggregate Base Courses.

2.11 MINERAL AGGREGATE TYPE 26
   A. Shall consist of washed, durable sand and gravel meeting the following gradation requirements:

<table>
<thead>
<tr>
<th>US Sieve Size</th>
<th>Percent Passing by Weight</th>
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</thead>
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<tr>
<td>3/4-inch</td>
<td>100</td>
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<tr>
<td>No. 4</td>
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<tr>
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<td>3 - 12</td>
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<tr>
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</tr>
</tbody>
</table>

   B. L.A. Abrasion shall be 35 percent maximum.

2.12 ROCK PAD
   A. Shall be as specified in Standard Specifications, Section 9-03.11(2) Streambed Cobbles, as specified for 8-inch Cobbles.

2.13 BIORETENTION SOIL
   A. Shall be as specified in Section 33 40 10, Bioretention.

2.14 TOPSOIL
   A. Shall be as specified in Section 32 91 13, Soil Preparation.

2.15 GEOTEXTILE
   A. Shall be as specified in Section 31 32 19.16, Geotextile.
2.16 USE OF CRUSHED RECYCLED PORTLAND CEMENT CONCRETE

A. Recycled portland cement concrete aggregates shall not be allowed for use on this Project.

PART 3 EXECUTION

3.01 GENERAL

A. Unless noted otherwise, all fill shall be imported structural fill.

B. Keep placement surfaces free of water, debris, and foreign material during placement and compaction of fill and backfill materials.

C. Do not place fill material that is too wet or too dry for proper compaction. Obtain material having suitable moisture content and verify prior to hauling for use at the Site. Moisture content of soils placed for compaction shall range from not more than 2 percent wet or dry of optimum as determined by ASTM D1557. Material shall be stable when compacted and shall not yield or pump under loading from construction activities.

D. Place and spread fill and backfill materials in horizontal lifts of uniform thickness, in a manner that avoids segregation, and compact each lift to specified densities prior to placing succeeding lifts. Slope lifts only where necessary to conform to final grades or as necessary to keep placement surfaces drained of water.

E. During filling and backfilling, keep level of fill and backfill around each structure and buried tank even.

F. Do not place fill or backfill, if fill or backfill material is frozen, or if surface upon which fill or backfill is to be placed is frozen.

G. If pipe, conduit, duct bank, or cable is to be laid within fill or backfill:

1. Fill or backfill to an elevation 2 feet above top of item to be laid.
2. Excavate trench for installation of item.
3. Install bedding, if applicable, as specified in Section 31 23 23.15, Trench Backfill.
4. Install item.
5. Backfill envelope zone and remaining trench, as specified in Section 31 23 23.15, Trench Backfill, before resuming filling or backfilling specified in this section.

H. Tolerances:

1. Final Lines and Grades: Within a tolerance of 0.1 foot unless dimensions or grades are shown or specified otherwise.
DIVISION 31—EARTHWORK
Section 31 23 23—Fill and Backfill

2. Grade to establish and maintain slopes and drainage as shown. Reverse slopes are not permitted.

I. Settlement: Correct and repair any subsequent damage to structures, pavements, curbs, slabs, piping, and other facilities, caused by settlement of fill or backfill material.

3.02 BACKFILL UNDER AND AROUND STRUCTURES

A. Under Facilities: Within influence area beneath structures, slabs, pavements, curbs, piping, conduits, duct banks, and other facilities, backfill as shown on Drawings.

B. Under Facilities and where not shown on Drawings: Within influence area beneath structures slabs, pavements, curbs, piping, conduits, duct banks, and other facilities, backfill with CSBC.

C. Place material in lifts not exceeding 8 inches and compact each lift to not less than 95 percent of its maximum density as determined in accordance with ASTM D1557.

D. Subsurface Drainage: Backfill as shown on Drawings. Place gravel backfill for drains to the limits shown and as required to construct.

E. Backfill around facilities as shown on Drawings. If not shown, backfill with Gravel Borrow. Backfill to lines and grades shown, with proper allowance for topsoil thickness where shown. Place in horizontal lifts of not more than 6 inches and compact each lift to not less than 95 percent of its maximum density in accordance with ASTM D1557.

3.03 BACKFILL UNDER PILE AND PILE SUPPORTED STRUCTURES

A. Perform final excavation under these structures as specified in Section 31 23 16, Excavation.

B. Do not allow any construction equipment to operate directly on, or closer to the final excavated surfaces than 36 inches. Perform the final excavation with excavator, working at 36 inches or more above the final grade. Use a bucket having smooth cutter (no teeth). Do not disturb the native soils below the required depth of excavation. Keep all groundwater and surface water pump out of the excavation area while working.

C. Excavate to the limits of the area to be backfilled as shown on Drawings.

D. Prior to replacing structural fill, excavate as far as necessary to reduce soft or unsuitable soils. Obtain approval from Engineer prior to overexcavation.
E. Obtain approval from the Engineer prior to backfilling on the prepared foundation.

F. Keep excavation areas free of standing water at all times. Provide pumps, sumps, and drains as needed to keep all work areas free of water.

G. Building footprint and playground area shall be graded smooth and sloped to drain. The building footprint shall then be blanketed with a minimum of 6 inches of ballast.

H. Place geotextile on dense undisturbed foundation prior to placing any ballast material. Leave sufficient geotextile exposed at the edges and temporary boundaries at all times as needed to meet the requirements for geotextile overlap. Geotextile overlap shall provide for geotextile overlapped with geotextile surfaces in contact between each other without soil or rock materials creating separation between the two geotextile surfaces. Do not attempt to fill the overlap area and then later remove the materials to create the overlap.

I. Place ballast over the geotextile on the prepared foundation to the thickness and extent shown on Drawings. Grade to the required thickness using a small dozer or other tracked equipment that does not disturb the prepared subgrade.

J. Extend the geotextile fabric up the sides and ends of the excavation as needed to encapsulate the sides and ends of the fill areas for ballast rock. Sides and ends of excavation areas shall be formed in dense undisturbed soils. If the soils are loosened in the process of making the excavation, remove the loose soils so the geotextile fabric and ballast will bear directly against dense undisturbed native soils.

K. Place geotextile and backfill as shown on Drawings and as specified in Section 31 23 23, Fill and Backfill.

L. Prepare the foundation and place and spread geotextile and ballast rock as the excavation proceeds. Immediately cover the prepared foundation with ballast as soon as a sufficiently large area can be prepared. Do not leave prepared subgrade open to deteriorate. Keep all water pumped off the prepared subgrade and get it covered with geotextile and ballast as soon as possible. Do not leave prepared subgrade open overnight.

M. Install foundation drain in the ballast rock as shown prior to covering top of ballast with geotextile wrap.

N. After foundation drain is installed and base geotextile layer is completed on bottom and sides of areas to receive ballast, then wrap geotextile over the top of the ballast layer.
O. After placing and spreading geotextile and ballast to the required thickness and limits shown, place CSBC to the thickness shown. Spread and compact as specified, and graded to the required subgrade elevation for the concrete foundation slabs.

P. Do not allow any equipment other than light tracked dozer, small tracked excavator, or other spreading equipment, and compactors to operate on the ballast and/or CSBC surfaces. Keep all wheeled equipment off these areas.

Q. Maintain sumps and drains as needed to keep all groundwater pumped from the work areas. Maintain groundwater and surface water that collects in excavated areas no higher than 12 inches below the top of prepared CSBC subbase under slabs and footings.

3.04 CONSTRUCTION OF SUBGRADE PIPING UNDER STRUCTURES

A. Contractor shall assume that excavation for and construction of subgrade pipelines may occur during the fall and winter months of the year when there is more likely to be a greater possibility of encountered wet weather in the process. To the extent possible, plan the work to occur during non-rain periods. Be prepared to and always pump and otherwise control water that seeps into the ballast layer of the foundation and into pipe excavations.

B. The subgrade soils are very moisture sensitive and will become soft and unworkable if these materials are disturbed in the presence of moisture. Assuming the work is likely to occur during wet weather period of the year, the geotextile layer and ballast layer shall be installed immediately as the subgrade is prepared so as to protect the subgrade from exposure and damage. The Contractor shall keep all large equipment including all wheeled equipment off the ballast and subgrade at all times as specified previously.

C. If the construction of subgrade piping under structures occurs other than during likely wet seasons of the year, the Contractor may propose another approach to the work but will be subject to review and acceptance of conditions by the Engineer at the time of construction.

D. Lay out the work and plan and conduct the excavation and installation of pipelines during non-rainy periods to the extent possible. Make excavations at the location and to the depth necessary to construct pipelines to the lines and grades shown. Cut through the ballast layer and geotextile as necessary to accomplish the Work. Install sumps as needed to control water that drains into the excavation. Avoid disturbance that softens or weakens the native material while performing the work. Install pipes, reinforcing steel, forms, and pour concrete backfill as shown. Pour concrete so it is directly in contact with native undisturbed soil around the perimeter of the trench where cut into the native soil (below the ballast layer).
E. After encasement is completed, remove forms and finish filling around the encasements with ballast as needed to complete the ballast layer as shown. Replace geotextile over the top of ballast if outside of the perimeter of the footings or within 5 feet of the outside edge of footings as shown.

3.05 FILL

A. Outside Influence Areas beneath Structures, Pavements, Curbs, Slabs, Piping, and Other Facilities: Unless otherwise shown, place Gravel Borrow as follows:

1. Allow for topsoil where required.
2. Maximum 8-inch thick horizontal lifts.
3. Place and compact fill across full width of embankment in horizontal lifts.
4. Except in landscaped areas, compact top 2 feet to not less than 95 percent of its maximum density in accordance with ASTM D1557. In landscaped areas, compact each lift to not less than 90 percent of its maximum density in accordance with ASTM D1557.
5. Dress completed embankment with allowance for topsoil, crestsurfacing, and slope protection, where applicable.

3.06 SITE TESTING

A. Gradation:

1. One sample from each 500 tons of finished product or more often as determined by Engineer, if variation in gradation is occurring, or if material appears to depart from Specifications.
2. If test results indicate material does not meet Specification requirements, terminate material placement until corrective measures are taken.
3. Remove material placed in Work that does not meet Specification requirements.

B. In-Place Density Tests:

1. In accordance with ASTM D1556. During placement of materials:
   a. Test at representative locations at least daily as backfilling and compaction occurs.
   b. Test CSBC and Gravel Borrow at representative locations not more than 50 feet horizontally and spaced at 2 feet vertically as the backfilling proceeds.
   c. Perform additional testing if failing tests occur and/or if variable conditions occur.
3.07 SAND BLANKET OVER VAPOR RETARDER
A. Place sand in manner that avoids damage to underlying vapor retarder.
B. Moisten sand and thoroughly compact it with a vibratory plate compactor.

3.08 GRANULAR BASE, SUBBASE, AND SURFACING
A. Place and compact as specified in Section 32 11 23, Aggregate Base Courses.

3.09 REPLACING OVEREXCAVATED MATERIAL
A. Replace excavation carried below grade lines shown or established by Engineer as follows:
   1. Beneath Footings: Concrete of strength equal to that of respective footing as specified in Section 03 30 00, Cast-in-Place Concrete.
   2. Beneath Fill or Backfill: Same material as specified for overlying fill or backfill.
   4. Trenches:
      a. Unauthorized Overexcavation: Either trench stabilization material or Material specified for backfill in pipe zone, as specified in Section 31 23 23.15, Trench Backfill.
      b. Authorized Overexcavation: Trench stabilization material, as specified in Section 31 23 23.15, Trench Backfill.

3.10 ACCESS ROAD SURFACING
A. Place and compact as specified in Section 32 11 23, Aggregate Base Courses.

END OF SECTION
SECTION 31 23 23.15
TRENCH BACKFILL

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

2. ASTM International (ASTM):
   f. C618, Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
   h. D75/D75M, Standard Practice for Sampling Aggregates.
   i. D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
   k. D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
   l. D2487, Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
   m. D4253, Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.
1.02 DEFINITIONS

A. Base Rock: Granular material consisting of CSBC upon which manhole bases and other structures are placed.

B. Bedding Material: Granular material upon which pipes, conduits, cables, or duct banks are placed.

C. Imported Material: Material obtained by Contractor from source(s) offsite.

D. Lift: Loose (uncompacted) layer of material.

E. Pipe Zone: Backfill zone that includes full trench width and extends from prepared trench bottom to an upper limit above top outside surface of pipe, conduit, cable or duct bank.

F. Prepared Trench Bottom: Graded trench bottom after excavation and installation of stabilization material, if required, but before installation of bedding material.

G. Relative Compaction: The ratio, in percent, of the as-compacted field dry density to the laboratory maximum dry density as determined by ASTM D1557. Corrections for oversize material may be applied to either as-compacted field dry density or maximum dry density, as determined by Engineer.

H. Relative Density: As defined by ASTM D4253 and ASTM D4254.

I. Selected Backfill Material: Material available onsite that Engineer determines to be suitable for a specific use.

J. Well-Graded: A mixture of particle sizes that has no specific concentration or lack thereof of one or more sizes producing a material type that, when compacted, produces a strong and relatively incompressible soil mass free from detrimental voids. Satisfying both of the following requirements, as defined in ASTM D2487:

1. Coefficient of Curvature: Greater than or equal to 1 and less than or equal to 3.
2. Coefficient of Uniformity: Greater than or equal to 4 for materials classified as gravel, and greater than or equal to 6 for materials classified as sand.

1.03 SUBMITTALS

A. Action Submittals:

1. Shop Drawings: Manufacturer’s descriptive literature for marking tapes and tracer wire.
2. Samples shall be in accordance with ASTM D75/D75M:
   a. Trench stabilization material.
b. Bedding and pipe zone material.
c. Gravel Borrow.
d. Gravel Backfill for drains.
e. Earthfill.
f. Sand.

B. Informational Submittals:

1. Catalog and manufacturer’s data sheets for compaction equipment.
2. Certified Gradation Analysis: Submit not less than 30 days prior to delivery for imported materials or anticipated use for excavated materials, except for trench stabilization material that will be submitted prior to material delivery to Site.

PART 2 PRODUCTS

2.01 MARKING TAPE

A. Detectable:

1. Solid aluminum foil, visible on unprinted side, encased in protective high visibility, inert polyethylene plastic jacket.
2. Foil Thickness: Minimum 0.35 mils.
3. Laminate Thickness: Minimum 5 mils.
4. Width: 3 inches.
5. Identifying Lettering: Minimum 1-inch high, permanent black lettering imprinted continuously over entire length.
6. Joining Clips: Tin or nickel-coated furnished by tape manufacturer.
7. Manufacturers and Products:
   a. Reef Industries; Terra Tape, Sentry Line Detectable.
   b. Mutual Industries; Detectable Tape.
   c. Presco; Detectable Tape.

B. Color: In accordance with APWA Uniform Color Code.

<table>
<thead>
<tr>
<th>Color*</th>
<th>Facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Electric power lines, cables, conduit, and lightning cables</td>
</tr>
<tr>
<td>Orange</td>
<td>Communicating alarm or signal lines, cables, or conduit</td>
</tr>
<tr>
<td>Yellow</td>
<td>Gas, petroleum</td>
</tr>
<tr>
<td>Green</td>
<td>Sewers and drain lines</td>
</tr>
<tr>
<td>Blue</td>
<td>Potable water</td>
</tr>
<tr>
<td>Purple</td>
<td>Reclaimed water, irrigation, and slurry lines</td>
</tr>
</tbody>
</table>

*As specified in NEMA Z535.1, Safety Color Code.
2.02 TRENCH STABILIZATION
   A. Shall be as specified for Crushed Surfacing Base Course in Section 31 23 23, Fill and Backfill.

2.03 BEDDING MATERIAL AND PIPE ZONE MATERIAL
   A. Unfrozen, friable, and no clay balls, roots, or other organic material.
   B. Bedding and Pipe Zone Material shall be CLSM if shown on Drawings.
   C. Clean or gravelly sand with less than 5 percent passing No. 200 sieve, as determined in accordance with ASTM D1140, or gravel or crushed rock within maximum particle size and other requirements as follows unless otherwise specified.
      1. Duct Banks: 3/4-inch maximum particle size.
      2. PVC Irrigation System Piping and Ductile Iron Pipe with Polyethylene Wrap: 3/8-inch maximum particle size.
      5. Perforated Pipe: Granular drain material.
      6. Conduit and Direct-Buried Cable:
         a. Sand, clean or clean to silty, less than 12 percent passing No. 200 sieve.
         c. Maximum Size Particle: Pass a No. 4 sieve.
         d. If more than 5 percent passes No. 200 sieve, the fraction that passes No. 40 sieve shall be nonplastic as determined in accordance with ASTM D4318.

2.04 BACKFILL ABOVE THE PIPE ZONE
   A. Remove all water or seepage that collects in the trench prior to beginning placement and spreading of fill materials for backfill above the pipe zone.
   B. Place Gravel Borrow or other material as shown above the pipe zone. Place backfill in horizontal lifts not exceeding 8 inches prior to compaction, and compact each layer to not less than 95 percent of its maximum density.

2.05 GEOTEXTILE
   A. Shall be as specified for Geotextile in Section 31 23 23, Fill and Backfill.
2.06 SOURCE QUALITY CONTROL

A. Perform gradation analysis in accordance with ASTM C136 for:
   1. Trench stabilization material.
   2. Bedding and pipe zone material.
   3. Gravel Borrow. Observe wet weather gradation requirements for Gravel Borrow as stated in Section 31 23 23, Fill and Backfill, if placement and compaction becomes a problem.
   4. Gravel backfill for drains.

B. Certify Laboratory Performance of Mix Designs: Concrete.

PART 3 EXECUTION

3.01 TRENCH PREPARATION

A. Water Control:
   1. Promptly remove and dispose of water entering trench as necessary to grade trench bottom and to compact backfill and install manholes, pipe, conduit, direct-buried cable, or duct bank. Do not place concrete, lay pipe, conduit, direct-buried cable, or duct bank in water.
   2. Remove water in a manner that minimizes soil erosion from trench sides and bottom.
   3. Provide continuous water control until trench backfill is complete.

B. Remove foreign material and backfill contaminated with foreign material that falls into trench.

3.02 TRENCH BOTTOM

A. Firm Subgrade: Grade with hand tools, remove loose and disturbed material, and trim off high areas and ridges left by excavating bucket teeth. Allow space for bedding material if shown or specified.

B. Soft Subgrade: If subgrade is encountered that may require removal to prevent pipe settlement, notify Engineer. Engineer will determine depth of overexcavation, if any required.

3.03 TRENCH STABILIZATION MATERIAL INSTALLATION

A. Wherever trench stabilization material is used, it shall be completely wrapped and surrounded with geotextile.

B. Rebuild trench bottom with trench stabilization material if required during construction by the Engineer.
C. Where trench stabilization material is to be placed, first prepare trench bottom and sides as needed, and then place geotextile in the prepared trench bottom observing the required minimum overlap of joints. Extend geotextile fabric up the sides of trench temporarily until trench stabilization materials has been placed. Place material over the full width of the trench in lifts as needed. Bring to the required grade, provide allowance for bedding thickness. Then completely encapsulate the top of the trench stabilization materials by wrapping the geotextile over the top before placing bedding material.

D. Compact each lift so as to provide a firm, unyielding support for the bedding material prior to placing succeeding lifts.

3.04 PIPE BEDDING

A. Furnish imported bedding material where, in the opinion of Engineer, excavated material is unsuitable for bedding or insufficient in quantity.

B. Place over full width of prepared trench bottom in two equal lifts when required depth exceeds 8 inches.

C. Hand grade and compact each lift to provide a firm, unyielding surface.

D. Minimum Thickness as Follows:

1. Pipe 15 Inches and Smaller: 4 inches.
2. Conduit: 3 inches.
3. Direct-Buried Cable: 3 inches.
4. Duct Banks: 3 inches.

E. Check grade and correct irregularities in bedding material. Loosen top 1 inch to 2 inches of compacted bedding material with a rake or by other means to provide a cushion before laying each section of pipe, conduit, direct-buried cable, or duct bank.

F. Install to form continuous and uniform support except at bell holes, if applicable, or minor disturbances resulting from removal of lifting tackle.

G. Bell or Coupling Holes: Excavate in bedding at each joint to permit proper assembly and inspection of joint and to provide uniform bearing along barrel of pipe or conduit.

3.05 BACKFILL PIPE ZONE

A. Upper limit of pipe zone above the outside of the pipe barrel shall not be less than following:

1. Pipe: 12 inches, unless shown otherwise.
2. Conduit: 3 inches, unless shown otherwise.
3. Direct-Buried Cable: 3 inches, unless shown otherwise.
4. Duct Bank: 3 inches, unless shown otherwise.

B. Restrain pipe, conduit, cables, and duct banks as necessary to prevent their movement during backfill operations.

C. Place material simultaneously in lifts on both sides of pipe and, if applicable, between pipes, conduit, cables, and duct banks installed in same trench.
   1. Pipe 10-Inch and Smaller Diameter: First lift less than or equal to 1/2 pipe diameter.
   2. Pipe Over 10-Inch Diameter: Maximum 6-inch lifts.

D. For granular materials, thoroughly tamp each lift, including area under haunches, with handheld tamping bars supplemented by “walking in” and slicing material under haunches with a shovel to ensure voids are completely filled before placing each succeeding lift.

E. Each lift shall be compacted with a minimum of two passes by either a vibratory plate compactor or a power-driven impact compactor. Take care to avoid damaging pipe and pipe coating.

3.06 MARKING TAPE INSTALLATION

A. Continuously install detectable marking tape along centerline of buried piping as shown on Drawings. Coordinate with piping installation drawings.

3.07 BACKFILL ABOVE PIPE ZONE

A. General:
   1. Process all imported material as needed to meet specified gradation requirements.
   2. Adjust moisture content as necessary to obtain specified compaction.
   3. Do not allow backfill to free fall into trench or allow heavy, sharp pieces of material to be placed as backfill until after at least 2 feet of backfill has been provided over top of pipe.
   4. Do not use power driven impact type compactors for compaction until at least 4 feet of backfill is placed over top of pipe.
   5. Backfill to grade with proper allowances for topsoil, crushed rock surfacing, and pavement thicknesses, wherever applicable.
   6. Backfill around structures with same class backfill as specified for adjacent trench, unless otherwise shown or specified.
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Section 31 23 23.15—Trench Backfill

B. Backfill:
   1. Place in lifts not exceeding thickness of 9 inches.
   2. Mechanically compact each lift to a minimum of 95 percent relative compaction prior to placing succeeding lifts.

3.08 REPLACEMENT OF TOPSOIL

A. Where topsoil is required, replace topsoil in top 12 inches of backfilled trench.

B. Maintain finished grade of topsoil even with adjacent area and grade as necessary to restore drainage.

3.09 MAINTENANCE OF TRENCH BACKFILL

A. After each section of trench is backfilled, maintain surface of backfilled trench even with adjacent ground surface until final surface restoration is completed.

B. Gravel Surfacing Rock: Add crushed surfacing base course where applicable and as necessary to keep surface of backfilled trench even with adjacent ground surface, and grade and compact as necessary to keep surface of backfilled trenches smooth, free from ruts and potholes, and suitable for normal traffic flow.

C. Topsoil: Add topsoil where applicable and as necessary to maintain surface of backfilled trench level with adjacent ground surface.

D. Other Areas: Add excavated material where applicable and keep surface of backfilled trench level with adjacent ground surface.

3.10 SETTLEMENT OF BACKFILL

A. Settlement of trench backfill, or of fill, or facilities constructed over trench backfill will be considered a result of defective compaction of trench backfill. Defective work shall be replaced by the Contract at their expense.

END OF SECTION
SECTION 31 32 19.16
GEOTEXTILE

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards that may be referenced in this section:

1. ASTM International (ASTM):
   g. D4716, Test Method for Determining the (In-Plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head.
   n. D6193, Standard Practice for Stitches and Seams.

1.02 DEFINITIONS

A. Fabric: Geotextile, a permeable geosynthetic comprised solely of textiles.

B. Maximum Average Roll Value (MaxARV): Maximum of series of average roll values representative of geotextile furnished.
C. Minimum Average Roll Value (MinARV): Minimum of series of average roll values representative of geotextile furnished.

D. Nondestructive Sample: Sample representative of finished Work, prepared for testing without destruction of Work.

E. Overlap: Distance measured perpendicular from overlapping edge of one sheet to underlying edge of adjacent sheet.

F. Seam Efficiency: Ratio of tensile strength across seam to strength of intact geotextile, when tested according to ASTM D4884.


1.03 SUBMITTALS

A. Action Submittals:

1. Shop Drawings:
   a. Manufacturer material specifications and product literature.
   b. Installation drawings showing geotextile sheet layout, location of seams, direction of overlap, and sewn seams.
   c. Description of proposed method of geotextile deployment, sewing equipment, sewing methods, and provisions for holding geotextile temporarily in place until permanently secured.

2. Samples:
   a. Geotextile: One-piece, minimum 18 inches long, taken across full width of roll of each type and weight of geotextile furnished for Project. Label each with brand name and furnish documentation of lot and roll number from which each Sample was obtained.
   b. If Field Sewn Seams are Proposed: 5-foot length of seam, 12 inches wide with seam along center, for each type and weight of geotextile.
   c. Securing Pin and Washer: One each.

B. Informational Submittals:

1. Certifications from each geotextile manufacturer that furnished products have specified property values. Certified property values shall be either minimum or maximum average roll values, as appropriate, for geotextiles furnished.

2. Field seam efficiency test results.
1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver each roll with sufficient information attached to identify it for inventory and quality control.

B. Handle products in manner that maintains undamaged condition.

C. Do not store products directly on ground. Ship and store geotextile with suitable wrapping for protection against moisture and ultraviolet exposure. Store geotextile in way that protects it from elements. If stored outdoors, elevate and protect geotextile with waterproof cover.

1.05 SCHEDULING AND SEQUENCING

A. Where geotextile is to be laid directly upon ground surface, prepare subgrade as specified in Section 31 23 16, Excavation, first.

B. Notify Engineer whenever geotextiles are to be placed. Do not place geotextile without Engineer’s approval of underlying materials.

PART 2 PRODUCTS

2.01 GENERAL

A. Construction geotextile for permanent erosion control shall be woven geotextile as listed below.

B. Construction geotextile for underground drainage shall be non-woven geotextile as listed below.

2.02 WOVEN GEOTEXTILE

A. Composed of polymeric yarn interlaced to form planar structure with uniform weave pattern.

B. Calendared or finished so yarns will retain their relative position with respect to each other.

C. Polymeric Yarn: Long-chain synthetic polymers (polyester or polypropylene) with stabilizers or inhibitors added to make filaments resistant to deterioration due to heat and ultraviolet light exposure.

D. Sheet Edges: Selvaged or finished to prevent outer material from separating from sheet.

E. Unseamed Sheet Width: Minimum 6 feet.

F. Nominal Weight per Square Yard: 0.4 pounds per ASTM D5261.
G. Physical Properties: Conform to requirements in Table 4 and Table 5 for permanent erosion control, moderate survivability of Section 9-33.2 of the Standard Specifications.

2.03 NONWOVEN GEOTEXTILE

A. Pervious sheet of polyester, polypropylene, or polyethylene fabricated into stable network of fibers that retain their relative position with respect to each other. Nonwoven geotextile shall be composed of continuous or discontinuous (staple) fibers held together through needle-punching, spun-bonding, thermal-bonding, or resin-bonding.

B. Geotextile Edges: Selvaged or otherwise finished to prevent outer material from pulling away from geotextile.

C. Unseamed Sheet Width: Minimum 6 feet.

D. Nominal Weight per Square Yard: 0.4 pounds per ASTM D5261.

E. Physical Properties: Conform to requirements in Table 1 and Table 2 of Section 9-33.2 of the Standard Specifications.

2.04 SEWING THREAD

A. Polypropylene, polyester, or Kevlar thread.

B. Durability: Equal to or greater than durability of geotextile sewn.

2.05 TRIAXIAL GEOGRID

A. Tensar TriAx TX130S or approved equivalent.

PART 3 EXECUTION

3.01 LAYING GEOTEXTILE

A. Lay and maintain geotextile smooth and free of tension, folds, wrinkles, or creases.

3.02 SHEET ORIENTATION ON SLOPES

A. Orient geotextile with long dimension of each sheet parallel to direction of slope.
3.03 JOINTS

A. Unseamed Joints:
   1. Overlapped.
   2. Overlap, unless otherwise shown:
      b. Riprap: Minimum 18 inches.
      c. Drain Trenches: Minimum 18 inches, except overlap shall equal trench width if trench width is less than 18 inches.
      d. Other Applications: Minimum 12 inches.

B. Sewn Seams: Made wherever stress transfer from one geotextile sheet to another is necessary and is not accomplished with an overlapping seam conforming to the manufacturer’s recommendations. Sewn seams, as approved by Engineer, also may be used instead of overlap at joints for applications that do not require stress transfer.

   1. Seam Efficiency:
      a. Minimum 12 inches.
      b. Verified by preparing and testing minimum of one set of nondestructive Samples per acre of each type and weight of geotextile installed.
      c. Tested according to ASTM D4884.

   2. Types:
      a. Preferred: “J” type seams.
      b. Acceptable: Flat or butterfly seams.

   3. Stitch Count: Minimum three to maximum seven stitches per inch.
   4. Stitch Type: Double-thread chainstitch according to ASTM D6193.
   5. Sewing Machines: Capable of penetrating four layers of geotextile.
   6. Stitch Location: 2 inches from geotextile sheet edges, or more, if necessary to develop required seam strength.

3.04 SECURING GEOTEXTILE

A. Secure geotextile during installation as necessary with sandbags or other means approved by Engineer.

3.05 PLACING PRODUCTS OVER GEOTEXTILE

A. Before placing material over geotextile, notify Engineer. Do not cover installed geotextile until after Engineer provides authorization to proceed.

B. If tears, punctures, or other geotextile damage occurs during placement of overlying products, remove overlying products as necessary to expose damaged geotextile. Repair damage as specified in Article Repairing Geotextile.
3.06 QUARRY SPALLS OR RIPRAP APPLICATIONS

A. Sew joints where wave run-up may occur.

B. Limit height of riprap fall onto geotextile to prevent damage.
   1. Drop Height: 3 feet for less than 200-pound rock.

3.07 GEOTEXTILE-REINFORCED EARTH WALL APPLICATIONS

A. Sew exposed joints; extend sewn seams minimum 3 feet behind face of wall.

B. Protect exposed geotextile from damage, ultraviolet light exposure, and
deterioration until permanent facing is applied.

3.08 SILT FENCE APPLICATIONS

A. Install geotextile in one piece, or continuously sewn to make one piece, for full
   length and height of fence, including portion of geotextile buried in toe trench.

B. Install bottom edge of sheet in toe trench and backfill in a way that securely
   anchors geotextile in trench.

C. Securely fasten geotextile to wire mesh backing and each support post in a way
   that will not result in tearing of geotextile when fence is subjected to service
   loads.

D. Promptly repair or replace silt fence that becomes damaged.

3.09 REPAIRING GEOTEXTILE

A. Repair or replace torn, punctured, flawed, deteriorated, or otherwise damaged
   geotextile.

B. Repair Procedure:
   1. Place patch of undamaged geotextile over damaged area and at least
      18 inches in all directions beyond damaged area.
   2. Remove interfering material as necessary to expose damaged geotextile for
      repair.
   3. Sew patches or secure them with heat fusion tacking or with pins and
      washers, as specified above in Article Securing Geotextile, or by other
      means approved by Engineer.
3.10 REPLACING CONTAMINATED GEOFABRIC

A. Protect geotextile from contamination that would interfere, in Engineer’s opinion, with its intended function. Remove and replace contaminated geotextile with clean geotextile.

END OF SECTION
SECTION 31 37 00
RIPRAP

PART 1  GENERAL

1.01  REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. ASTM International (ASTM):

1.02  DEFINITIONS

A. Refer to applicable definitions in Section 31 23 23, Fill and Backfill.


1.03  SUBMITTALS

A. Action Submittals:

1. Shop Drawings: Description and location of proposed sources of riprap.

B. Informational Submittals:

1. Certified Test Results:
   a. Riprap:
      1) Gradation.
      2) Abrasion resistance.
      3) Bulk density.
   2. Trip tickets showing source, type, and weight of each load of material delivered to Site and scaleman’s daily report.

1.04  QUALITY ASSURANCE

A. Riprap Source: Quarry that has produced riprap and has Washington State Department of Transportation qualify quarry list.
1.05 SCHEDULING AND SEQUENCING

A. Complete subgrade preparation as specified in Section 31 23 16, Excavation, and geotextile installation as specified in Section 31 32 19.16, Geotextile, prior to placing riprap.

PART 2 PRODUCTS

2.01 RIPRAP

A. Hard and durable quarry stone free from fractures, bedding planes, pronounced weathering, and earth or other adherent coatings.

B. Riprap shall meet the following graduation requirements for grading:

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>8”</td>
<td>100</td>
</tr>
<tr>
<td>3”</td>
<td>40 max</td>
</tr>
<tr>
<td>3/4”</td>
<td>10 max</td>
</tr>
</tbody>
</table>

PART 3 EXECUTION

3.01 PLACING RIPRAP ON RIPRAP BEDDING

A. Place riprap over prepared subgrade to uniform thickness, minimum 12 inch.

B. Intermix different sizes of pieces to eliminate segregation and to fill voids between larger pieces with smaller pieces and work surface free from irregularities.

C. Use placement and intermixing methods that avoid disturbing prepared subgrade and underlying geotextile or damaging existing facilities, completed Work, or adjacent property.

END OF SECTION
DIVISION 32

EXTERIOR IMPROVEMENTS
SECTION 32 11 23
AGGREGATE BASE COURSES

PART 1  GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. ASTM International (ASTM):
   a. C29, Standard Test Method for Bulk Density (Unit Weight) and Voids in Aggregate.
   b. C88, Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
   e. C183, Standard Method of Test for Sieve Analysis of Fine and Coarse Aggregates.
   f. D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lb/ft³ (600 kN-m/m³)).
   g. D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lb/ft³ (2700 kN-m/m³)).
   h. D1883, Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils.
   m. D4791, Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.
   n. D5195, Standard Test Methods for Density of Soil and Rock In-Place Below Surface by Nuclear Methods.
   o. D6938, Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
1.02 DEFINITIONS

A. Completed Course: Compacted, unyielding, free from irregularities, with smooth, tight, even surface, true to grade, line, and cross-section.

B. Completed Lift: Compacted with uniform cross-section thickness.

C. Base Course: Crushed aggregate or similar as specified placed and compacted on prepared subgrade or subbase course.

D. Gravel Surfacing: Aggregate used for construction of low-volume access and staging area that can be easily graded and compacted.

E. Leveling Course: Crushed aggregate placed and compacted on base course to be used for finish grading.


G. Subbase Course: Sandy, gravelly material placed and compacted on prepared subgrade.

1.03 SUBMITTALS

A. Informational Submittals:

1. Certified Test Results on Source Materials: Submit copies from commercial testing laboratory as specified in Section 01 33 00, Submittal Procedures.

PART 2 PRODUCTS

2.01 BASE COURSE

A. As specified for parking lot and roadway crushed surfacing base course in Section 9-03.9(3) of the Standard Specifications.

B. Physical Qualities:

1. Abrasion, ASTM C131: 35 percent maximum wear.
2. Fractured Face: One fractured face of combined aggregate retained on the No. 4 sieve
3. Degradation factor of base course is 15 minimum.

2.02 GRAVEL SURFACING TOP COURSE

A. As specified for parking lot and roadway crushed surfacing top course in Section 9-03.9(3) of the Standard Specifications.
B. Physical Qualities:

1. Abrasion, ASTM C131: 35 percent maximum wear.
2. Fractured Face: One fractured face of combined aggregate retained on the No. 4 sieve.
3. Degradation factor of top course is 15 minimum.

2.03 SOURCE QUALITY CONTROL

A. Perform tests necessary to locate acceptable source of materials meeting specified requirements.

B. Final approval of aggregate material will be based on test results of installed materials.

C. Should separation of coarse from fine materials occur during processing or stockpiling, immediately change methods of handling materials to correct uniformity in grading.

PART 3 EXECUTION

3.01 SUBGRADE PREPARATION

A. As specified in Section 31 23 23, Fill and Backfill.

B. Obtain Engineer’s acceptance of subgrade before placing base course or surfacing material.

C. Do not place base course or surfacing materials on soft, muddy, or frozen subgrade.

3.02 EQUIPMENT

A. Compaction Equipment: Adequate in design and number to provide compaction and to obtain specified density for each layer.

3.03 HAULING AND SPREADING

A. In accordance with Section 2.04 of the Standard Specifications.

B. Hauling Materials:

1. Do not haul over surfacing in process of construction.
2. Loads: Of uniform capacity.
3. Maintain consistent gradation of material delivered; loads of widely varying gradations will be cause for rejection.
C. Spreading Materials:
   1. Distribute material to provide required density, depth, grade, and dimensions with allowance for subsequent lifts.
   2. Produce even distribution of material upon roadway or prepared surface without segregation.
   3. Should segregation of coarse from fine materials occur during placing, immediately change methods of handling materials to correct uniformity in grading.

3.04 CONSTRUCTION OF COURSES

A. Construction of Courses: In accordance with Section 4.02.3 of the Standard Specifications.

B. Base Course:
   1. Maximum Completed Lift Thickness: 6 inches.
   2. Completed Course Total Thickness: As shown.
   3. Spread lift on preceding course to required cross-section.

C. Top Course:
   1. Maximum Completed Lift Thickness: 4 inches.
   2. Completed Course Total Thickness: As shown.
   3. Spread on roadway or preceding course to depth, grade, and cross-section shown.

3.05 ROLLING AND COMPACTION

A. In accordance with Section 2-03.3(14)D of the Standard Specifications

B. Commence compaction of each layer of base and top course after spreading operations and continue until density of 95 percent of maximum density has been achieved as determined by ASTM D1557.

C. Apply water as needed to obtain specified densities.

D. Place and compact each lift to the required density before succeeding lift is placed.

E. Surface Defects: Remedy by loosening and rerolling. Reroll entire area, including surrounding surface, until thoroughly compacted.

F. Finished surface shall be true to grade and crown before proceeding with surfacing.
3.06 SURFACE TOLERANCES

A. Blade or otherwise work surfacing as necessary to maintain grade and cross-section at all times, and to keep surface smooth and thoroughly compacted.

B. Finished Surface of Untreated Aggregate Base course within plus or minus 0.04 foot of grade shown at any individual point.

C. Gravel top course: Within 0.04 foot from lower edge of 10-foot straightedge placed on finished surface, parallel to centerline.

3.07 FIELD QUALITY CONTROL

A. In-Place Density Tests:

1. Provide Engineer at least 2 days advance notification prior to testing.
2. Show proof that areas meet specified requirements before identifying density test locations.
3. Refer to Table 2 for minimum sampling and testing requirements for aggregate base course and surfacing.

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Method</th>
<th>Frequency</th>
<th>Sampling Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gradation</td>
<td>ASTM C117 and ASTM C183</td>
<td>One sample every 1,000 tons</td>
<td>Roadbed after processing out of stockpile</td>
</tr>
<tr>
<td>Moisture Density (Max Density)</td>
<td>ASTM D1557</td>
<td>One test for every aggregate grading produced</td>
<td>Production output or stockpile</td>
</tr>
<tr>
<td>In-Place Density and Moisture Content</td>
<td>ASTM D5195, ASTM D6938, and ASTM D2216 for moisture content</td>
<td>One for each 1,000 tons</td>
<td>In-place completed, compacted area</td>
</tr>
</tbody>
</table>

3.08 CLEANING

A. Remove excess material from the Work area. Clean stockpile and staging areas of all excess aggregate.

END OF SECTION
PART 1  GENERAL

1.01  REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. American Association of State Highway and Transportation Officials (AASHTO):
   b. M81, Standard Specification for Cut-Back Asphalt (Rapid Curing Type).
   c. M82, Standard Specification for Cut-Back Asphalt (Medium Curing Type).
   h. T166, Standard Method of Test for Bulk Specific Gravity (Gmb) of Compacted Hot Mix Asphalt (HMA) Mixtures Using Saturated Surface-Dry Specimens.
   i. T176, Standard Method of Test for Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test.
   j. T209, Standard Method of Test for Theoretical Maximum Specific Gravity (Gmm) and Density of Hot Mix Asphalt (HMA).
   l. T246, Standard Method of Test for Resistance to Deformation and Cohesion of Hot Mix Asphalt (HMA) by Means of Hveem Apparatus.
   m. T247, Standard Method of Test for Preparation of Test Specimens of Hot Mix Asphalt (HMA) by Means of California Kneading Compactor.
   n. T283, Standard Method of Test for Resistance of Compacted Hot Mix Asphalt (HMA) to Moisture-Induced Damage.
   o. T304, Standard Method of Test for Uncompacted Void Content of Fine Aggregate.
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Section 32 12 16—Asphalt Paving

2.  Asphalt Institute (AI):
    a.  Manual Series No. 2 (MS-2), Mix Design Methods for Asphalt Concrete.
    b.  Superpave Series No. 2 (SP-2), Superpave Mix Design.

3.  ASTM International (ASTM):
    c.  D979, Standard Method of Test for Sampling Bituminous Paving Mixtures.
    e.  D2489, Standard Method of Test for Determining Degree of Particle Coating of Asphalt Mixtures.
    g.  D4791, Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.

1.02  DEFINITIONS

A.  Asphalt Treated Base (ATB): A compacted course of base material which has been weatherproofed and stabilized by treatment with an asphalt binder.

B.  Combined Aggregate: All mineral constituents of asphalt concrete mix, including mineral filler and separately sized aggregates.

C.  Maximum Aggregate Size: One sieve size larger than the nominal aggregate size.

D.  Nominal Aggregate Size: One sieve size larger than the first sieve that retains more than 10 percent aggregate.

E.  Prime Coat: Low viscosity cutback or emulsified asphalt applied to granular base in preparation of paving to coat and bond loose materials, harden the surface, plug voids, prevent moisture migration, and provide adhesion.

F.  Reclaimed Asphalt Pavement (RAP): Removed and/or processed pavement materials containing binder and aggregate.
G. Seal Coat: Term used for various applications of emulsified asphalt, with or without sand or aggregate, to protect the asphalt surface from aging due to wear, degradation from the sun, wind, and water. Also used to improve skid resistance and aesthetics. The term seal coat can be used to define fog seal, slurry seal, chip seal or sand seal, depending on application.

H. General Special Provision: When referenced in this section, shall mean Washington State Department of Transportation Standard Specifications for Road, Bridge, and Municipal Construction, as maintained by the American Public Works Association of Washington (APWA-WA) as a Local Agency General Special Provision (GSP). GSPs 4-SA1 and 9-03.6 are used together to define the current ATB specification.


J. Tack Coat: Thin layer of emulsified asphalt applied to hard surfaces, including new pavement lifts, to promote adhesion and bonding.

1.03 MIX DESIGN

A. The mix design requirements for asphalt treated base shall be as described in Standard Specifications Section 9-03.6(3). \( N_{\text{design}} \) will be 100 gyrations for all ATB design applications. The asphalt binder shall be PG 64-22 unless specifically altered in the Project Specifications. The proposed mix design will be submitted for review on WSDOT Form 350-042 with included notes applicable to the ATB design evaluation.

1.04 SUBMITTALS

A. Informational Submittals:

1. Asphalt Concrete Mix Formula:
   a. Submit minimum of 15 days prior to start of production.
   b. Submittal to include the following information:
      1) Gradation and portion for each aggregate constituent used in mixture to produce a single gradation of aggregate within specified limits.
      2) Bulk specific gravity for each aggregate constituent.
      3) Measured maximum specific gravity of mix at optimum asphalt content determined in accordance with ASTM D2041.
      4) Properties as stated in Section 5-04 of the Standard Specifications, for at least four different asphalt contents other than optimum, two below optimum, and two above optimum.
      5) Percent of asphalt lost due to absorption by aggregate.
6) Index of Retained Strength (TSR) at optimum asphalt content as determined by AASHTO T283.

7) Percentage of asphalt cement, to nearest 0.1 percent, to be added to mixture.

8) Optimum mixing temperature.

9) Optimum compaction temperature.

10) Temperature-viscosity curve of asphalt cement to be used.

11) Brand name of any additive to be used and percentage added to mixture.

2. Test Report for Asphalt Cement:
   a. Submit minimum 10 days prior to start of production.
   b. Show appropriate test method(s) for each material and the test results.

3. Manufacturer’s Certificate of Compliance for the following materials:
   a. Aggregate: Gradation, source test results.
   b. Asphalt for Binder: Type, grade, and viscosity-temperature curve.
   c. Prime Coat: Type and grade of asphalt.
   d. Tack Coat: Type and grade of asphalt.
   e. Additives.
   f. Mix: Conforms to job-mix formula.

4. Statement of qualification for independent testing laboratory.

5. Test Results:
   a. Mix design.
   b. Asphalt concrete core.
   c. Gradation and asphalt content of uncompacted mix.
   d. Field density.
   e. Quality control.

1.05 QUALITY ASSURANCE

A. Qualifications:

1. Independent Testing Laboratory: In accordance with ASTM E329 REV A.

2. Asphalt concrete mix formula shall be prepared by approved certified independent laboratory under the supervision of a certified asphalt technician.

B. Asphalt Mixing Plant

1. Asphalt mixing plants for asphalt treated base shall meet the following requirements:
   a. Heating: The plant shall be capable of heating the aggregates to the required temperature.
b. Proportioning: The mixing plant shall be capable of proportioning the aggregates to meet the Specifications, and the asphalt binder will be introduced at the rate specified in the approved mix design. If the aggregates are supplied in two or more sizes, means shall be provided for proportioning or blending the different sizes of aggregates to produce material meeting the Specification requirements.

c. Recycled asphalt pavement (RAP) may be used in the production of ATB. If utilized, the amount of RAP shall not exceed 30 percent of the total weight of the ATB. The final gradation and asphalt binder content will conform to the approved Job Mix Formula (JMF). ATB will be evaluated under Commercial Evaluation as shown in Section 9-03.8(7) of the Standard Specifications. Va limits under Section 9-03.8(7) are excluded from ATB evaluation criteria.

d. Mixing: The mixer shall be capable of producing a uniform mixture of uniformly coated aggregates meeting the requirements of the General Special Provision.

C. Compaction Control Strip:

1. General:
   a. Construct to approximately 400 square yards in area and at location that will become a portion of completed paved area.
   b. Thickness: Typical of thickness to be paved on Project.

2. Rollers Used for Compaction:
   a. Steel Wheel Rollers: Minimum static weight 10 tons (9 mg).
   b. Pneumatic Rollers: Capable of exerting pressure of 80 psi (550 kPa) on bituminous surface.
   c. Vibratory Rollers: Static weight minimum 6 tons (5.5 mg), capable of applying a 10-ton (9-mg) impact force equipped with amplitude and frequency control specifically designed for compaction of bituminous mixtures.

3. Compaction:
   a. Compact bituminous mat, using a standard rolling pattern that covers entire control strip. Request that Engineer performs final density test.
   b. Continue rolling until no further compaction can be obtained as determined by field density testing.
   c. Temperature and condition of bituminous mat shall be considered workable when further compaction can no longer be obtained.

4. Target Density Determination:
   a. Select test point near center of normal roller pass, but no closer than 2 feet (600 millimeters) from edge of mat and 50 feet (15 meters) from either end of control strip. Mat thickness at this point shall be at least depth of finished pavement.
   b. Point at which no further densification can be obtained.

5. Establish new target density if change is made in mix design, nominal depth of mat being placed, aggregate source, or material properties.
1.06 ENVIRONMENTAL REQUIREMENTS

A. Temperature: Do not apply asphalt materials or place asphalt mixes when ground temperature is lower than 50 degrees F (10 degrees C) or air temperature is lower than 40 degrees F (4 degrees C). Measure ground and air temperature in shaded areas away from heat sources or wet surfaces.

B. Moisture: Do not apply asphalt materials or place asphalt mixes when application surface is wet.

PART 2 PRODUCTS

2.01 MATERIALS

A. Tack Coat:

   1. Emulsified Asphalt for Tack Coat or Seal Coat: Grade SS-1, SS-1h conforming to AASHTO M140.

B. Sand for Blotter Material or Sand Seal: Clean, dry, with 100 percent passing No. 4 (4.75-millimeter) sieve, and a maximum of 10 percent passing No. 200 (75 m) sieve.

2.02 ASPHALT CONCRETE MIXES

A. General:

   1. Mix formula shall not be modified except with written approval of Engineer.

   2. Source Changes:

      a. Should material source(s) change, establish new asphalt concrete mix formula before new material(s) is used.

      b. Perform check tests of properties of plant-mix bituminous materials on first day of production and as requested by Engineer to confirm that properties are in compliance with design criteria.

      c. Make adjustments in gradation or asphalt content as necessary to meet design criteria.

B. Hot Mix Asphalt (HMA): Grade 64-22, Class 1/2 inch as specified in Section 9-02.1(4) of the Standard Specifications.

C. Composition: Hot-plant mix of aggregate, mineral filler if required, and paving grade asphalt cement. The several aggregate fractions shall be sized, uniformly graded, and combined in such proportions that resulting mixture meets grading requirements of mix formula.
D. Aggregate for Hot Mix Asphalt: As specified in Section 9-03.8 of the General Special Provisions.

E. Asphalt Treated Base as specified in Section 9-02.1 and Section 9-02.4 of the Standard Specifications, and the following:

1. Aggregates for Asphalt Treated Base (ATB):
   a. General Requirements:
      1) Aggregates for asphalt treated base shall be manufactured from ledge rock, talus, or gravel, in accordance with the provisions of Section 3-01 that meet the following test requirements:
         a) Los Angeles Wear, 500 Rev.: 30 percent maximum.
         b) Degradation Factor: 15 minimum.
   b. Grading:
      1) Aggregates for asphalt treated base shall meet the following requirements for grading (all percentages are by weight):

         | Sieve Size | Percent Passing |
         |------------|----------------|
         | 2”         | 100            |
         | 1/2”       | 56 - 100       |
         | No. 4      | 32 - 72        |
         | No. 10     | 22 - 57        |
         | No. 40     | 8 - 32         |
         | No. 200    | 2 - 9          |

   c. Test Requirements:
      1) When the aggregates are combined within the limits set forth in Section 9-03.6(2) of the General Special Provisions and mixed in the laboratory with the designated grade of asphalt, the mixture shall be capable of meeting the following test values:
         a) Percent of Theoretical Maximum Specific Gravity (GMM) (approximate): 93 at 100 gyrations.
         b) AASHTO T324, WSDOT TM T718, or ASTM D3625: Pass (Acceptable anti-strip evaluation tests).
         c) The sand equivalent value of the mineral aggregate for asphalt treated base (ATB) shall not be less than 35.

PART 3 EXECUTION

3.01 GENERAL

   A. Traffic Control:
      1. In accordance with Section 01 50 00, Temporary Facilities and Controls.
2. Minimize inconvenience to traffic, but keep vehicles off freshly treated or paved surfaces to avoid pickup and tracking of asphalt.

B. Driveways: Repave driveways from which pavement was removed. Leave driveways in as good or better condition than before start of construction.

3.02 LINE AND GRADE

A. Provide and maintain intermediate control of line and grade, independent of underlying base, to meet finish surface grades and minimum thickness.

B. Shoulders: Construct to line, grade, and cross-section shown.

3.03 PREPARATION

A. Prepare subgrade as specified in Section 31 23 16, Excavation.

B. Aggregates for asphalt treated base shall be stockpiled before use in accordance with the requirements of Section 3-02 of the WSDOT General Special Provisions. The aggregates shall be heated as required by the Engineer.

C. Existing Roadway:

1. Modify profile by grinding, milling, or overlay methods as approved, to provide meet lines and surfaces and to produce smooth riding connection to existing facility.

2. Remove existing material to a minimum depth of 1 inch (25 millimeters).

3. Paint edges of meet line with tack coat prior to placing new pavement.

D. Thoroughly coat edges of contact surfaces (curbs, manhole frames) with emulsified asphalt or asphalt cement prior to laying new pavement. Prevent staining of adjacent surfaces.

3.04 PAVEMENT APPLICATION

A. General: Place asphalt concrete mixture on approved, prepared base in conformance with Standard Specifications.

B. Tack Coat:

1. Apply uniformly to clean, dry surfaces avoiding overlapping of applications.

2. Do not apply more tack coat than necessary for the day’s paving operation.

3. Touch up missed or lightly coated surfaces and remove excess material.

4. Application Rate: 0.05 gallon per square yard to 0.15 gallon per square yard (0.25 liter per square meter to 0.70 liter per square meter) of asphalt (residual if diluted emulsified asphalt).
C. Pavement Mix:

1. Prior to Paving:
   a. Sweep primed surface free of dirt, dust, or other foreign matter.
   b. Patch holes in primed surface with asphalt concrete pavement mix.
   c. Blot excess prime material with sand.

2. Place asphalt concrete pavement mix in two equal lifts.

3. Compacted Lift Thickness:
   a. Minimum: Twice maximum aggregate size, but in no case less than 1 inch (25 millimeters).
   b. Maximum: 4 inches (100 millimeters).

4. Total Compacted Thickness: As shown.

5. Sequence placement so that meet lines are straight and edges are vertical.

6. Collect and dispose of segregated aggregate from raking process. Do not scatter material over finished surface.

7. Joints:
   a. Offset edge of each layer a minimum of 6 inches (150 millimeters) so joints are not directly over those in underlying layer.
   b. Offset longitudinal joints in roadway pavements so longitudinal joints in wearing layer coincide with pavement centerlines and lane divider lines.
   c. Form transverse joints by cutting back on previous day’s run to expose full vertical depth of layer.

8. Succeeding Lifts: Apply tack coat to pavement surface between each lift.

9. After placement of pavement, seal meet line by painting a minimum of 6 inches (150 millimeters) on each side of joint with cutback or emulsified asphalt. Cover immediately with sand.

D. Subgrade Protection Course:

1. Unless otherwise specified by the Engineer, the Contractor shall place the asphalt treated base as a protection for the prepared subgrade on all sections of individual roadways which are to receive asphalt treated base as soon as 10,000 square yards of subgrade is completed. This requirement shall not be limited to contiguous areas on the Project.

2. The surface of the subgrade protection layer when constructed on a grading project shall conform to grade and smoothness requirements that apply to the subgrade upon which it is placed.

E. Finish Course:

1. The final surface course of the asphalt treated base, excluding shoulders, shall not deviate at any point more than 3/8 inch from the bottom of a 10-foot straightedge laid in any direction on the surface on either side of the roadway crown. Failure to meet this requirement shall necessitate sufficient
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surface correction to achieve the required tolerance, as approved by the Engineer, at no expense to the Contracting Agency.

2. When portland cement concrete pavement is placed on an asphalt base, the surface tolerance of the asphalt base shall be such that no elevation lies more than 0.05 feet below nor 0.00 feet above the plan grade minus the specified plan depth of portland cement concrete pavement. Prior to placing the portland cement concrete pavement, any such irregularities shall be brought to the required tolerance by grinding or other means approved by the Engineer, at no expense to the Contracting Agency.

F. Compaction:

1. Uniformly compact each course until no further evidence of consolidation is visible and roller marks are eliminated. When placement rate exceeds 100 tons (90 mg) per hour, operate minimum of two rollers for compaction.

2. Roll until roller marks are eliminated and minimum density of 95 percent of mix design unit weight at optimum asphalt content is obtained.

3. Asphalt treated base shall be spread with a spreading machine equipped with a stationary, vibratory, or oscillating screed or cut-off device, subject to the approval of the Engineer. Approval of the equipment shall be based on a job demonstration that the finished product will meet all requirements of the Specifications. Automatic controls will not be required. Unless otherwise directed by the Engineer, the nominal compacted depth of any ATB layer shall not exceed 0.40 feet. On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the paving may be done with other equipment or by hand.

4. The internal temperature of the ATB mixture at the time compaction is achieved shall be a minimum of 185 degrees F. Rollers shall only be operated in the static mode when the internal temperature of the mix is less than 175 degrees F.

G. Anti-Stripping Additive: An anti-stripping additive shall be added to the asphalt binder material in accordance with Section 9-02.4 in the amount designated in a WSDOT mix design/anti-strip evaluation report for a dense graded hot mix asphalt design from the same gravel source within the last 24 months or as evaluated separately by an accredited lab using current WSDOT test methods (AASHTO T324 – Hamburg or WSDOT TM T718 – Modified Lottman). Alternately, the ATB may be evaluated for anti-strip additive using ASTM D3625 (Standard Practice for Effect of Water on Bituminous-Coated Aggregate Using Boiling Water) by an accredited lab. The anti-stripping additive required will be the minimum amount necessary to achieve a passing evaluation.
H. Tolerances:

1. General: Conduct measurements for conformity with crown and grade immediately after initial compression. Correct variations immediately by removal or addition of materials and by continuous rolling.
2. Completed Surface or Wearing Layer Smoothness:
   a. Uniform texture, smooth, and uniform to crown and grade.
   b. Maximum Deviation: 1/8 inch (3 millimeter) from lower edge of a 12-foot (3.6-meter) straightedge, measured continuously parallel and at right angle to centerline.
   c. If surface of completed pavement deviates by more than twice specified tolerances, remove and replace wearing surface.
3. Transverse Slope Maximum Deviation: 1/4 inch (6 millimeters) in 12 feet (3.6 meters) from rate of slope shown.
4. Finished Grade:
   a. Perform field differential level survey on maximum 50-foot (15-meter) grid and along grade breaks.
   b. Maximum Deviation: 0.02 foot (6 millimeters) from grade shown.

I. Seal Coat:

1. General: Apply seal coat of paving grade or emulsified asphalt to finished surface at longitudinal and transverse joints, joints at abutting pavements, areas where asphalt concrete was placed by hand, patched surfaces, and other areas as directed by Engineer.
2. Preparation:
   a. Surfaces that are to be sealed shall be maintained free of holes, dry, and clean of dust and loose material.
   b. Seal in dry weather and when temperature is above 35 degrees F (2 degrees C).
3. Application:
   a. Fill cracks over 1/16 inch (1.5 millimeters) in width with asphalt-sand slurry or approved crack sealer prior to sealing.
   b. When sealing patched surfaces and joints with existing pavements, extend minimum 6 inches (150 millimeters) beyond edges of patches.

3.05 PAVEMENT OVERLAY

A. Preparation:

1. Remove fatty asphalt, grease drippings, dust, and other deleterious matter.
2. Surface Depressions: Fill with asphalt concrete mix, and thoroughly compact.
3. Damaged Areas: Remove broken or deteriorated asphalt concrete and patch as specified in Article Patching.
4. Portland Cement Concrete Joints: Remove joint filler to minimum 1/2 inch (12 millimeters) below surface.

B. Application:

1. Tack Coat: As specified in this section.
2. Place and compact asphalt concrete as specified in Article Pavement Application.
3. Place first layer to include widening of pavement and leveling of irregularities in surface of existing pavement.
4. When leveling irregular surfaces and raising low areas, the actual compacted thickness of any one lift shall not exceed 2 inches (50 millimeters).
5. Actual compacted thickness of intermittent areas of 120 square yards (100 square meters) or less may exceed 2 inches (50 millimeters), but not 4 inches (100 millimeters).
6. Final wearing layer shall be of uniform thickness, and meet grade and cross-section as shown.

3.06 PATCHING

A. Preparation:

1. Remove damaged, broken, or unsound asphalt concrete adjacent to patches. Trim to straight lines exposing smooth, sound, vertical edges.
2. Prepare patch subgrade as specified in Section 31 23 16, Excavation.

B. Application:

1. Patch Thickness: 3 inches (75 millimeters) or thickness of adjacent asphalt concrete, whichever is greater.
2. Place asphalt concrete mix across full width of patch in layers of equal thickness.
3. Spread and grade asphalt concrete with hand tools or mechanical spreader, depending on size of area to be patched.

C. Compaction:

1. Roll patches with power rollers capable of providing compression of 200 pounds per linear inch to 300 pounds per linear inch (350 Newtons per linear centimeter to 525 Newtons per linear centimeter). Use hand tampers where rolling is impractical.
2. Begin rolling top course at edges of patches, lapping adjacent asphalt surface at least one-half the roller width. Progress toward center of patch overlapping each preceding track by at least one-half width of roller.
3. Make sufficient passes over entire area to remove roller marks and to produce desired finished surface.
D. Tolerances:
   1. Finished surface shall be flush with and match grade, slope, and crown of adjacent surface.
   2. Surface smoothness shall not deviate more than plus 1/4 inch (6 millimeters) or minus 0 inch when a 4-foot straightedge is laid across patched area between edges of new pavement and surface of old surfacing.

E. Field Density Tests:
   1. Perform tests from cores or sawed samples in accordance with AASHTO T166.
   2. Measure with properly operating and calibrated nuclear density gauge in accordance with ASTM D2950.
   3. Maximum Density: In accordance with ASTM D2041, using sample of mix taken prior to compaction from same location as density test sample.

F. Testing Frequency:
   1. Quality Control Tests:
      a. Asphalt Content, Aggregate Gradation: Once per every 500 tons (400 mg) of mix or once every 4 hours, whichever is greater.
      b. Mix Design Properties, Measured Maximum (Rice’s) Specific Gravity: Once every 1,000 tons (900 mg) or once every 8 hours, whichever is greater.
   2. Density Tests: Once every 500 tons (450 mg) of mix or once every 4 hours, whichever is greater.

END OF SECTION
SECTION 32 16 00
CURBS AND GUTTERS

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. American Association of State Highway and Transportation Officials (AASHTO): T 99, Standard Specification for the Moisture-Density Relations of Soils Using a 2.5 kg (5.5 pound) Rammer and a 305 mm (12 in.) Drop.
3. ASTM International (ASTM):
   c. D994, Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type).

1.02 SUBMITTALS

A. Action Submittals:

1. Form Material: Information on metal forms, including type, condition, surface finish, and intended function.
2. Complete data on concrete mix, including aggregate gradations and admixtures in accordance with requirements of ASTM C94.

B. Informational Submittals:

2. Ready-mix delivery ticket for each truck in accordance with ASTM C94.

1.03 QUALITY ASSURANCE

PART 2 PRODUCTS

2.01 MATERIALS
   A. Conform to the requirements of the referenced Standard Specification.

2.02 EXPANSION JOINT FILLER
   A. Preformed asphalt-impregnated, expansion joint material meeting ASTM D994, 1/2-inch thick.

2.03 CONCRETE
   A. Ready-mixed concrete meeting ASTM C94, Option A, with compressive strength of 4,000 psi at 28 days (Class 4000). Cast-in-place concrete as specified in Section 03 30 00, Cast-in-Place Concrete.
   B. Maximum Aggregate Size: 1-1/2 inch.
   C. Slump: 2 inches to 4 inches.

2.04 CURING COMPOUND
   A. Liquid membrane forming, clear or translucent, suitable for spray application and meeting ASTM C309, Type 1.

PART 3 EXECUTION

3.01 INSTALLATION
   A. Perform Work in accordance with the referenced Standard Specification.

3.02 FORMWORK
   A. Wood forms are only allowed for forming a curve.
   B. Lumber Materials:
      1. 2-inch dressed dimension lumber, or metal of equal strength, straight, free from defects that would impair appearance or structural quality of completed curb and sidewalk.
      2. 1-inch dressed lumber or plywood may be used where short-radius forms are required.
   C. Metals: Steel in new undamaged condition.
D. Setting Forms:
   1. Construct forms to shape, lines, grades, and dimensions.
   2. Stake securely in place.

E. Bracing:
   1. Brace forms to prevent change of shape or movement resulting from placement.
   2. Construct short-radius curved forms to exact radius.

F. Tolerances:
   1. Do not vary tops of forms from gradeline more than 1/8 inch when checked with 10-foot straightedge.
   2. Do not vary alignment of straight sections more than 1/8 inch in 10 feet.

3.03 PLACING CONCRETE
A. Prior to placing concrete, remove water from excavation and debris and foreign material from forms.
B. Place concrete as soon as possible, and within 1-1/2 hours after adding cement to mix without segregation or loss of ingredients, and without splashing.
C. Place, process, finish, and cure concrete in accordance with applicable requirements of ACI 304, and this section. Wherever requirements differ, the more stringent shall govern.
D. To ensure concrete is uniformly consolidated, vibrate until concrete becomes uniformly plastic.

3.04 CURB CONSTRUCTION
A. Construct ramps at pedestrian crossings.
B. Expansion Joints: Place at maximum 45-foot intervals, at the beginning and end of curved portions of curb, and at connections to existing curbs. Install expansion joint filler at each joint.
C. Curb Facing: Do not allow horizontal joints within 7 inches from top of curb.
D. Contraction Joints:
   1. Maximum 15-foot intervals in curb.
   2. Provide open joint type by inserting thin, oiled steel sheet vertically in fresh concrete to force coarse aggregate away from joint.
   3. Insert steel sheet to full depth of curb.
4. Remove steel sheet with sawing motion after initial set has occurred in concrete and prior to removing front curb form.
5. Finish top of curb with steel trowel and finish edges with steel edging tool.

E. Front Face:
1. Remove front form and finish exposed surfaces when concrete has set sufficiently to support its own weight.
2. Finish formed face by rubbing with burlap sack or similar device to produce uniformly textured surface, free of form marks, honeycomb, and other defects.
3. Remove and replace defective concrete.
4. Apply curing compound to exposed surfaces of curb upon completion of finishing.
5. Continue curing for minimum of 5 days.

F. Backfill curb with earth upon completion of curing period, but not before 7 days has elapsed since placing concrete.
1. Backfill shall be free from rocks 2 inches and larger and other foreign material.
2. Compact backfill firmly.

3.05 SIDEWALK CONSTRUCTION

A. Thickness:
1. 4 inches in walk areas.
2. 6 inches in driveway areas.

B. Connection to Existing Sidewalk:
1. Remove old concrete back to an existing contraction joint.
2. Clean the surface.

C. Expansion Joints: Place in adjacent curb, where sidewalk ends at curb, and around posts, poles, or other objects penetrating sidewalk. Install expansion joint filler at each joint. Expansion joints shall be full depth.

D. Contraction Joints:
1. Provide transversely to walks at locations opposite contraction joints in curb.
3. Construct straight and at right angles to surface of walk.
E. Finish:

1. Broom surface with fine-hair broom at right angles to length of walk and tool at edges, joints, and markings.
2. Mark walks transversely at 5-foot intervals with jointing tool; finish edges with rounded steel edging tool.
3. Apply curing compound to exposed surfaces upon completion of finishing.
4. Protect sidewalk from damage and allow to cure for at least 7 days.

END OF SECTION
PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. American Association of State Highway and Transportation Officials (AASHTO):


3. Federal Specifications (FS):
   b. TT-B-1325C, Beads (Glass Spheres); Retroreflective.


1.02 DEFINITIONS

A. Standard Specifications: The 2017 Edition of the City of Seattle’s Standard Specifications and Standard Plans for Road, Bridge and Municipal Construction, except that measurement and payment described therein do not apply.

1.03 SUBMITTALS

A. Action Submittals:

1. Shop Drawings:
   a. Product Data:
      1) Paint.
      2) Thermoplastic material.
      3) Epoxies, resins, and primers to be used.
      4) Parking lot signage, including poles and mounting hardware
B. Informational Submittals:

1. Description of proposed methods for removal of drips, overspray, improper markings, paint and thermoplastic material tracked by traffic, and existing markings.
2. Manufacturer’s Certificate of Compliance for products specified in this section.
3. Equipment List: Proposed equipment to be used, including descriptive data.
4. Manufacturer’s Instructions:
   a. Application of preformed tape.
   b. Application of portland cement concrete primer.
   c. Application of glass beads.
   d. Application of epoxy resin.
   e. Installation of reflective markers.

PART 2 PRODUCTs

2.01 GENERAL

A. All products shall be in accordance with Section 9-29 of the Standard Specifications.

2.02 PAINT

A. Paint and striping products shall be free of prohibited materials.
B. Color: White or yellow, and blue
C. Traffic paint in accordance with: Section 8-22 of the Standard Specifications.
D. Homogeneous, easily stirred to smooth consistency, with no hard settlement or other objectionable characteristics during storage period of 6 months.

2.03 THERMOPLASTIC MARKING

A. Color: White, except as shown otherwise on Drawings.
B. AASHTO M249.

2.04 GLASS BEADS

A. In accordance with Section 8-22.3(3)G of the Standard Specifications.
PART 3 EXECUTION

3.01 GENERAL

A. New pavement surfaces shall be at least 30 days old before applying paint or markings.

3.02 SURFACE PREPARATION

A. Cleaning:

1. Thoroughly clean surfaces to be marked before application of pavement marking material.
2. Remove dust, dirt, and other granular surface deposits by sweeping, blowing with compressed air, rinsing with water or a combination of these methods.
3. Completely remove rubber deposits, surface laitance, existing paint markings, and other coatings adhering to pavement with scrapers, wire brushes, sandblasting, approved chemicals, or mechanical abrasion.
4. Scrub areas of old pavement affected with oil or grease with several applications of trisodium phosphate solution or other approved detergent or degreaser, and rinse thoroughly after each application.
5. Surfaces shall be completely free of dirt and ice, and dry of water at the time of application of materials specified herein.
6. Oil-Soaked Areas: After cleaning, seal with cut shellac to prevent bleeding through the new paint.
7. Reclean surfaces when the Work has been stopped due to rain.
8. Existing Pavement Markings:
   a. Remove existing pavement markings that may interfere or conflict with newly applied marking patterns, or that may result in a misleading or confusing traffic pattern.
   b. Do not apply thermoplastic markings over existing preformed or thermoplastic markings.
   c. Perform grinding, scraping, sandblasting or other operations so finished pavement surface is not damaged.

B. New Asphalt Pavement: Allow a minimum pavement cure time of 30 days before applying paint.

3.03 PAINT APPLICATION

A. General:

1. Thoroughly mix pigment and vehicle together prior to application, and keep thoroughly agitated during application.
2. Do not add thinner.
3. Unless specifically allowed per the manufacturer’s recommendations, apply only when air and pavement temperatures are above 40 degrees F and less than 95 degrees F. Maintain paint temperature within these same limits.
4. Apply only when surface is dry.
5. Do not apply when conditions are windy to the point of causing overspray or fuzzy line edges.
6. Provide guidelines and templates to control paint application.
7. Take special precautions in marking numbers, letters, and symbols.
8. Sharply outline edges of markings and apply without running or spattering.

B. Rate of Application:

1. Reflective Markings: Apply evenly, 105 plus or minus 5 square feet per gallon.
2. Glass Bead Application:
   a. Apply immediately following application of paint.
   b. Use evenly distributed drop-on application method.
   c. Rate: 6 pounds per gallon of paint.
3. Nonreflective Markings: Apply paint evenly to pavement surface at a rate of 105 plus or minus 5 square feet per gallon.
4. On new pavement or new asphalt surface treatments, apply two coats of paint at a uniform rate of 210 square feet per gallon.

C. Drying:

1. Provide maximum drying time to prevent undue softening of bitumen and pickup, displacement, or discoloration by traffic.
2. If drying is abnormally slow, discontinue painting operations until cause is determined and corrected.

D. Protection:

1. Protect markings from traffic until paint is thoroughly dry.
2. Protect surfaces from disfiguration by paint spatters, splashes, spills, or drips.

E. Cleanup: Remove paint spatters, splashes, spills, or drips from the Work and staging areas including areas outside the immediate Work area where spills occur.

3.04 THERMOPLASTIC MARKING APPLICATION

A. Following specified surface preparation, prime and apply marking and glass beads to provide a reflectorized strip as shown on Drawings.
B. Application Temperatures:

1. Pavement Surface: Minimum 40 degrees F and rising.
2. Thermoplastic: Minimum 375 degrees F, maximum 425 degrees F.

C. Primer:

1. On portland cement concrete and existing asphalt pavements, apply epoxy resin primer/sealer according to thermoplastic manufacturer’s recommendations.
2. All primer/sealer to dry prior to applying thermoplastic.

D. Thermoplastic Marking:

1. Extrude or spray in a molten state, free of dirt or tint at a minimum thickness of 0.125 inch; maximum thickness of 0.190 inch.
2. Apply centerline, skipline, edgeline, and other longitudinal type markings with a mobile applicator.
3. Apply special markings, crosswalks, stop bars, legends, arrows, and similar patterns with a portable, extrusion-type applicator.

E. Glass Bead Application:

1. Immediately after marker application, mechanically apply such that the beads are held by and imbedded in the surface of the molten material.
2. Application Rate: 1 pound per 20 square feet of compound.

F. Cool completed marking to ambient temperature prior to allowing vehicular traffic.

END OF SECTION
PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. The Contractor shall provide all labor, materials, equipment and tools necessary for the complete installation of a synthetic grass playground surface with a stable draining base. The complete synthetic grass field system shall consist of, but not necessarily be limited to, the following:

1. Playground construction with the extent of artificial turf work as shown on the drawings.

2. Subgrade, base, and drainage construction as outlined herein.

3. Quality synthetic grass product manufactured in the USA. Product shall meet or exceed all guidelines as established herein, or for characteristics not specifically stated, shall meet or exceed all guidelines published by the Synthetic Turf Council.

4. The synthetic grass surface shall be specifically designed, manufactured and installed for the intended use as a playground safety surface.

5. A 2.125 closed cell playground pad (which provides consistent 1292-04 Hic and GMAX ratings), which will be used to provide an ASTM rated 8 foot fall height safety surface.

1.02 Related Sections

A. Section 03 30 00 – Concrete

B. Section 11 68 33 – Play Area Equipment

C. Section 31 23 23.00 – Fill and Backfill

D. Section 32 11 23 – Aggregate Base Course

E. Section 32 33 00 – Site Furnishings

F. Section 33 41 01 – Storm Drain and Sanitary Sewer Piping

1.03 SYSTEM PERFORMANCE

A. Contractor shall ensure that products for playground system meet the following performance requirements:

1. All components and their installation method shall be designed and manufactured for use on playgrounds. The materials as hereinafter
specified shall withstand full climatic exposure in the location of the
playground, be resistant to insect infestation, rot, fungus, mold and
mildew; it shall also withstand ultra-violet rays and extreme heat; the free
flow of water vertically through the playing surface and into the drainage
system below the surface.

2. The seams of all system components shall provide a permanent, tight,
secure, and hazard free playing surface.

3. The installed synthetic playground grass and drainage system shall allow
for drainage and water flow through the system at a rate of not less than 30
inches per hour.

4. At the time of substantial completion, the system’s ASTM 1292 rated
surface shall have a fall height rating based on playground design up to 8’.
Testing shall be based on ASTM 1292-04. At no time throughout the life
of the warranty shall the fall height rating be less than the original design.

5. Based on independent laboratory tests, the synthetic grass product must be
shown to meet or exceed ASTM testing standards as specified by
Architect/Engineer or owner.

1.04 SERVICE AND QUALITY ASSURANCE

A. ForeverLawn of Puget Sound located in Olympia, Washington at 360-455-9500;
hereinafter referred to as “synthetic grass vendor” shall provide ongoing service
quality assurance and warranty consisting of, but not necessarily be limited to, the
following:

B. The synthetic grass vendor must provide competent workmen skilled in this type
of field installation. The synthetic grass vendor shall provide a qualified
installation foreman to coordinate and review the component parts of the synthetic
grass system. Foreman shall be introduced to Owner or Owner’s representative
prior to start of construction.

C. The synthetic grass vendor and installer must be IPEMA Certified with no less
than six completed playground installations. Installer must be competent in the
installation of this material, including attachment of seams prior to the start of turf
installation.

D. Accessibility of Surface Systems: ASTM 1951 ADA Compliant. Playground
glass ensures wheelchair access under and around all playground equipment as
required by the American Disabilities Act.

E. Flammability: ForeverLawn Playground Grass passes all required ASTM D2859
with a flash point of greater than 600 degrees F. It is resistant to damage and
spreading of ignition in typical exposures such as lighted cigarette dropped on this surface.

F. Playground Grass and safety pad system have a drain rate of 30 inches or more per hour.

G. The synthetic grass vendor shall submit its manufacturer’s warranty, which warrants the usability and playability of the synthetic grass playground system for its intended uses with the following minimum characteristics:

1. Provide full coverage of materials for a minimum of ten (10) years for the date of substantial completion.

2. Warrant that the materials installed meet or exceed the product specifications.

3. Be from a single source covering workmanship and all materials.

4. Assure the availability of exact or substantially the same replacement materials for the synthetic grass system for the full warranty period.

5. Include general wear and damage caused by UV degradation. The warranty may specifically exclude vandalism and Acts of God beyond the control of the manufacturer or installer.

H. Synthetic Grass Vendor contact information:

1. ForeverLawn c/o Northwest Playground Equipment
   P. O. Box 2410, Issaquah, WA 98027
   Office: 425-313-9161
   chris@nwplayground.com

1.05 SUBMITTALS

A. Synthetic Grass Vendor must submit the following to Owner or Owner’s Representative prior to ordering material:

1. One (1) 12”x12” loose sample of proposed synthetic grass product and resilient base course representative of finished synthetic grass playground system.

2. One (1) copy of independent test report from a certified independent laboratory certifying the proposed playground surface system is fully compliant with ASTM 1292-04 up to 8’ fall height.
3. One (1) copy of independent test report from a certified independent laboratory certifying the proposed playground surface system is fully compliant with ASTM 1951 Standardized test for ADA Compliance.

4. One (1) of the product warranty for proposed synthetic grass product.

5. One (1) copy of their maintenance instructions. These instructions will include all necessary instructions for the proper care and maintenance of the newly installed synthetic turf system.

6. One (1) copy of edge details of proposed installation and terminations of synthetic grass playground system.

7. One (1) copy of a signed letter from synthetic grass vendor certifying that the proposed synthetic grass product is manufactured in the USA.

8. One (1) copy (if requested) of independent laboratory test reports on system or components.

PART 2 - PRODUCTS

2.01 SYNTHETIC GRASS SYSTEM

A. Synthetic grass – FLI PlaygroundGrass ACADEMY

1. Pile Weight: 48 oz/sy

2. Face Yarn Type: Polyethylene XP slit film. Secondary: Heat set textured nylon monofilament

3. Yarn Count: Primary 8040/1; Secondary 5040/2

4. Pile Height (tufted): 1 7/8 inch (finish height may be slightly lower)

5. Color: 6 color layout, see plan for design 18-3649D.

6. Construction: Broadloom tufted, Dual yarn, same row

7. Tufting Gauge: 3/8”

8. Primary Backing: 6.0 oz Link 18 pic 1 part (3 components) polypropylene, polyester and fiber backing

9. Secondary Backing: 50 oz/sy urethane

10. Tertiary Backing: 3.5 oz/sy geotextile fleece

11. Total Product Weight: 113 oz s/y (+/- 2 oz)
12. Finished Roll Width: 15 feet (4.6 m)

13. Finished Roll Length: Up to 240 feet (73 m)

B. The synthetic grass shall be delivered in 15’ foot wide rolls. The rolls will be laid out and installed as specified in the site layout and equipment placement drawings. All seams shall be installed and secured with micromechanical bonding. Seams secured with adhesive or stitching alone shall not be acceptable.

C. Safety Surface

1. Rated according to ASTM F1292-04 for a minimum height of 8 feet: All performance statements must be accompanied by independent test data from a nationally certified testing agency outlining all materials of system construction.

2. Rated according to ASTM F 1951 Standardized Test For ADA Compliance

PART 3 - EXECUTION

3.01 BASE AND DRAINAGE CONSTRUCTION

A. The synthetic grass base contractor shall strictly adhere to the installation procedures outlined under this section and by the Architect/Engineer’s drawings. Any variance from these requirements must be accepted in writing, by the synthetic grass vendor, and submitted to the Owner or Owner’s Representative, verifying that the changes do not adversely affect the performance or warranty.

B. Excavation: Existing ground cover shall be excavated to the depth established on the excavation plan. The sub grade shall also be compacted to a minimum of a 90% compaction rate. A 5/8 minus to ¼ minus with fines gravel is required for adequate drainage.

C. Synthetic or plastic wood nailer board: The synthetic turf perimeter fastening structure shall be installed before the drainage aggregate.

1. Install a bend a board by Epic Plastic, not less than ¾” x 2”. Nailer board will be fastened to the adjacent concrete surfacing with ¼” x 1-1/2” Tapcon masonry screws. Nailer board shall be flush to grade or as specified in site detail drawings. This shall be the responsibility of the synthetic turf base contractor. See synthetic turf edge attachment detail.

D. Base Drainage Aggregate: Installation of the free draining base Aggregate of 5/8 minus (with fines) or smaller, shall follow procedures that protect the base grade soils. It must be installed to a minimum depth of 2 inches. The drainage network
and its existing elevations shall not be disrupted through ground pressures from trucks, dozers or by any other means.

E. The stone shall be left firm, but not over-compacted as to protect the porosity and drainage capabilities of the aggregate profile.

F. The free draining base course should be designed to meet local soil and weather conditions. It must be installed to a minimum depth of 2 inches with an overall compaction rate of 90%.

G. RESILIENT BASE INSTALLATION: A free draining aggregate base of a minimum of 2” is installed then a 2.125 closed cell playground pad (ASTM 1292-04) is installed and leveled on the gravel base for an 8 foot fall system.

3.02 SYNTHETIC GRASS SYSTEM INSTALLATION

A. After a final inspection of the stone base by the synthetic grass contractor and the Owner’s Representative, the synthetic turf installation shall begin. The synthetic grass product shall be delivered in 15’ foot wide rolls.

B. Synthetic grass rolls shall be joined via micro-mechanical bond seaming and reinforced with specialty turf adhesive where necessary.
   1. Seams shall be flat, tight and permanent with no separation or fraying.
   2. Seams shall be rolled with weighted roller to ensure adhesion.
   3. Synthetic turf yarn fabric that is trapped or glued between seams shall be freed from the seams by hand or other approved method to an upright position prior to the commencement of brushing and top dressing synthetic grass rolls by the manufacturer wherever possible.

C. Synthetic Turf Perimeter Attachment:
   1. After final layout and seaming of the synthetic grass product, the synthetic turf material shall be wrapped over the edge of the curb nailer board and secured the full depth of the nailer board.
   2. The turf shall be attached to the synthetic wood or plastic nailer board by stainless steel staples, screws, and/or nails, with minimum 7/16” x 1-1/2” stainless steel staples at 1” minimum on center.
   3. Soil or surfacing material outside of the defined playground area shall be backfilled against turf wrapped perimeter edge and have zero transition edge to synthetic turf unless otherwise specified.

3.03 CLOSEOUT
A. The synthetic grass vendor must verify that a qualified representative has inspected the installation and that the finished playground surface conforms to the manufacturer's requirements.

B. Extra materials: Owner shall be given option to retain and store excess materials such as excess turf ordered for project, but not installed.

3.04 CLEAN UP

A. Contractor shall provide the labor, supplies and equipment as necessary for final cleaning of surfaces and installed items.

B. During the contract and at intervals as directed by the Owner or Owner’s Representative and as synthetic grass system installation is completed, clear the site of all extraneous materials, rubbish, or debris and leave the site in a clean, safe, well draining, neat condition.

C. Surfaces, recesses, enclosures, etc. shall be cleaned as necessary to leave the work area in a clean, immaculate condition ready for immediate occupancy and use by the Owner.

END OF SECTION
PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:
   1. Wetland buffer fencing, play area fencing.

B. Drawings, General Provisions of the Contract and Division 1 Specifications, apply to this section.

1.02 SUBMITTALS

A. Furnish Owner with a verification of order and schedule for product delivery.

B. Furnish a shop drawing showing dimensional layout, gates, and post spacing. Include any revisions proposed in order to clear existing tree trunks and branches. Indicate top of fence resolution (running horizontal slope or stepped arrangement).

C. Furnish manufacturer’s data, warranty, unit weights of framework and catalog cuts on post, rail, and fencing products.

1.03 FENCE TYPES

A. Wetland buffer fence and play area fence shall be wood, 3 rail, and 4 feet in height.

B. Fence shall contain 3 horizontal rails, evenly spaced vertically. Posts shall have evenly spaced, round mortises to accept rail tenons.

PART 2 - MATERIALS

2.01 GENERAL

A. All material used in construction of wood fences and gates shall be #1 and better Lodge Pole Pine. Treat all wood in accordance with AWPA specifications for the pressure treatment of Western Woods, latest edition. Where possible, pre-cut material before treatment. All field cuts and drilled holes shall be field treated in accordance with AWPA M-4.

   1. All lumber shall be pressure-treated as follows:
DIVISION 32—EXTERIOR IMPROVEMENTS
Section 32 31 00—Rail Fence

<table>
<thead>
<tr>
<th>Species/Type</th>
<th>Treatment</th>
<th>Retention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lodge Pole Pine</td>
<td>ACQ</td>
<td>0.20</td>
</tr>
<tr>
<td>AWPA Standard C2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. All treatment shall be in accordance with AWPA C2

3. CCA treated lumber shall not be stained brown with factory-applied stain.

B. Posts shall be 6-inch diameter, with 6-foot length for 4 feet exposed and 2 feet buried. Embed posts in concrete as identified on plans.

C. Rails shall be 3-inch diameter, maximum length of 8 feet

PART 3 - INSTALLATION

3.01 GENERAL

A. Verify with General Contractor the surveyed fence locations prior to construction.

B. Protect and maintain survey monuments.

C. Verify and coordinate with the General Contractor, the location of existing utilities.

D. Field stake fence lines at intervals not exceeding 500 feet or line of sight. Field stake terminal and corner posts.

3.02 TERMINAL AND LINE POSTS

A. Line posts shall be spaced at intervals not exceeding 8 feet, plumbed, in line and placed in a vertical position. All posts to be embedded in concrete.

3.03 POST SETTING

<table>
<thead>
<tr>
<th>Diameter of Hole</th>
<th>Minimum Depth of Hole</th>
<th>Post Embedment</th>
<th>Height of Fence</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 inches</td>
<td>24 inches</td>
<td>24 inches</td>
<td>4 feet</td>
<td>Line</td>
</tr>
<tr>
<td>9 inches</td>
<td>24 inches</td>
<td>24 inches</td>
<td>4 feet</td>
<td>Terminal</td>
</tr>
</tbody>
</table>

3.04 SITE APPLIED WOOD TREATMENT

A. Apply preservative treatment in accordance with manufacturer’s instructions.

B. Treat site-sawn cuts.
C. Allow preservative to dry prior to erecting members.

END OF SECTION
PART 1 - GENERAL

1.01 SUMMARY:

A. Section includes:
   1. Dry stack rockery construction from imported materials. Includes subgrade adjustment, base course, backfill and rock placement as shown on drawings.

B. Related sections:
   1. Section 31 23 16 – Excavation
   2. Section 31 23 23.00 – Fill and Backfill
   3. Section 31 23 23.15 – Trench Backfill
   4. Section 31 37 00 – Riprap
   5. Section 33 40 10 – Bioretention
   6. Section 33 41 01 – Storm Drain Sanitary Sewer and Drainage Piping

C. Drawings, general provisions of the Contract, and Division-1 Specification Sections apply to this section.

1.02 REFERENCES:

A. Association of Rockery Contractors (ARC Standards 1993).

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Basalt – locally sourced fractured stone; One to Five man rock as indicated on plans according to wall height.
   1. Lynch Creek Basalt available from Lynch Creek Quarry (360) 832-4269
   2. Basalt Rockery Rock available from Washington Rock Quarry (253) 262-1661
   3. Or approved equal.

PART 3 - EXECUTION

3.01 QUALIFICATIONS
DIVISION 32—EXTERIOR IMPROVEMENTS
Section 32 32 00—Drystack Rockery

A. Stone placement shall be executed by a qualified and experienced firm. Defined as experience not under eight (8) years of stone placement and in ownership of appropriate machinery to load, set and shift stone as described above.

B. Installer shall be familiar with techniques to inventory and document the existing wall layout in order to re-build the wall to its pre-existing conditions.

3.02 SLOPES:

A. Minimum and maximum slope of soil above rockery shall match existing conditions.

3.03 FILL COMPACTION:

A. Per Site Grading and Earthwork Sections.

B. Verify subgrade is satisfactory for placement of rockery walls prior to installing keyway rock.

3.04 ROCK PLACEMENT:

A. Verify rock wall does not conflict with any existing or proposed utilities prior to beginning construction. Notify Engineer of any conflicts.

B. Install the first course of rock (keyway) on firm unyielding soil. Provide full contact between the rock and soil. The bottom of the first course of rock shall be a minimum of 12" below the lowest adjacent site grade. Ensure first course is installed and backfilled within 24 hours of excavation.

C. Place rocks so that there are no continuous joint planes in either the vertical or lateral direction. Each rock shall bear on at least two (2) rocks below it. Rocks shall be placed so that there is some bearing between flat rock faces rather than on joints. Joints between courses shall slope downwards towards the material being protected (away from the face of the rockery).

3.05 FACE INCLINATION:

A. The face of the rockery should be inclined at a gradient to match adjoining rockery to remain in place.

B. Provide a consistent batter, flat vertical faces, and top course.

3.06 STONE FINISH:

A. Clean the surface of the stone only if directed by the Engineer in the field.

END OF SECTION
PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Trash Receptacles
2. Chairs
3. Side Tables
4. Wood Benches
5. Bike Racks

B. Related Sections:

1. Section 01 45 00 Quality Control
2. Section 03 30 00 Cast In Place Concrete
3. Section 05 50 00 Metal Fabrications
4. Section 32 12 16 Asphalt Paving

C. Drawings, the provisions of the Agreement, including bonds and certificates, the General Conditions, and Division 1 specification sections apply to all work of this section.

D. Substitutions: Substitute products will be considered only under the terms and conditions of Section 01 25 00.

1.02 SUBMITTALS

A. Submit in accordance with requirements of Section 01 33 00.

B. Product Data: Submit complete product data for each item listed herein.

1.03 DELIVERY, STORAGE AND HANDLING

A. Handle products in accordance with manufacturer’s instructions.

B. Store products in manufacturer’s original packaging until ready for installation in a secured enclosure. Protect materials from theft, damage and inclement weather.

C. Protect products from impacts and abrasion during storage.
PART 2 - PRODUCTS

2.01 FURNISHINGS

A. Trash Receptacles:

1. MyTcoat Litter Receptacle
   a. Model: RRd32-A-00-000
   b. Plastic Dome Lid: RDT32-P-00-000.
   c. Color: Black for receptacle and dome.
   d. Mounting: Surface mount.

2. Contact: MyTcoat 1-855-637-9616

3. Or approved equal.

B. Chairs:

1. Forms + Surfaces Vaya Chair, FSC® 100% Cumaru hardwood slats.
   a. Model: SCVYA-W
   b. Metal finish: Standard texture color: Cream.
   c. Chair frames and armrests: extruded and cast aluminum.
   d. Seats and seat backs: FSC 100% Cumaru hardwood slats.
   e. Wood finish: Penofin® hardwood formula "Transparent Natural"

2. Contact: Forms + Surfaces; Matt Laurer; cell: 971.409.0340; email: sales@forms-surfaces.com website: www.forms-surfaces.com

3. Or approved equal.

C. Side Table:

1. Forms + Surfaces Vaya 25” x 26” side table, FSC® 100% Cumaru hardwood slat table top.
   a. Model: STVYA-2526W
b. Metal finish: Standard texture color: Cream.

c. Frame: extruded aluminum with cast aluminum legs.

d. Table top: FSC 100% Cumaru hardwood slats.

e. Wood finish: Penofin® hardwood formula "Transparent Natural"

f. Mounting: Surface mount with stainless steel hardware.

2. Contact: Forms + Surfaces; Matt Laurer; cell: 971.409.0340; email: sales@forms-surfaces.com website: www.forms-surfaces.com

3. Or approved equal.

D. Wood Benches

1. Forms + Surfaces Vaya Bench, 4 foot, backed, FSC® 100% Cumaru hardwood slats.

   a. Model: SBVYA-2526W

   b. Metal finish: Standard texture color: Cream.

   c. Bench frame and armrests: extruded and cast aluminum.

   d. Seats and seatbacks: FSC 100% Cumaru hardwood slats.

   e. Wood finish: Penofin® hardwood formula "Transparent Natural"

   f. Mounting: Provide threaded anchors and stainless steel mounting screws.

2. Contact: Forms + Surfaces; Matt Laurer; cell: 971.409.0340; email: sales@forms-surfaces.com website: www.forms-surfaces.com

3. Or approved equal.

E. Bike Racks

1. Landscape Forms FLO bike rack.

   a. 3 bike capacity.

   b. Electro polished stainless steel.

   c. Surface mount option. Provide stainless steel hardware.
2. Contact: Landscape Forms; Tim Gish, 800.521.2546, www.landscapeforms.com

3. Or approved equal.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Prior to starting work, carefully inspect installed work of other trades and verify that such work is complete to the point where work of this section may properly commence. Notify the Engineer in writing of conditions detrimental to the proper and timely completion of the work.

B. Do not begin installation until all unsatisfactory conditions are resolved. Beginning work constitutes acceptance of site conditions and responsibility for defective installation caused by prior observable conditions.

3.02 INSTALLATION

A. General:

1. Install in conformance to applicable ADA guidelines.

B. Trash receptacles

1. Install size and quantity according to the plans and manufacturer’s installation instructions.

C. Chairs, Side tables and Wood Benches

1. Install size and quantity according to the plans and manufacturer’s installation instructions.

D. Bike Racks

1. Install size and quantity according to the plans and manufacturer’s installation instructions.

END OF SECTION
PART 1 - GENERAL

1.01 SCOPE

A. Work includes furnishing and installing GreenLoxx MSE wall/slope stabilization to the lines and grades designated on the construction drawings and as specified herein.

1.02 DESCRIPTION

A. GreenLoxx MSE is comprised of 5 primary components: Filtrexx GroSoxx® fascia, Filtrexx® Growing Media™, geogrid, irrigation and vegetation. These components work together to establish a mechanically stabilized system of reinforced vegetation.

B. GreenLoxx MSE shall be designed as a plantable fascia providing the function of a structural wall. GreenLoxx MSE is designed to be installed in accordance with these specifications and the manufacturer’s installation manual, to follow the lines and grades designated on the drawings/plans. Work shall include excavation, GroSoxx, reinforcement (geogrid), irrigation components, specified vegetation and related system accessories per engineering and landscape specifications.

1.03 REFERENCES

A. GroSoxx Mesh: Multifilament polypropylene: ASTM-G-155

B. Geosynthetic reinforcement: ASTM D 6637, ASTM D 5262, ASTM D 5261, and GRI GG-4 (b)

C. Filtrexx Certified Growing Media: PH – 5.0-8.0 in accordance with TMECC 04.11-A, moisture content of less than 60% in accordance with standardized test methods for moisture determination, 100% passing a 2 in (50mm) sieve, 99% passing a 1 in (25mm) sieve, minimum of 60% passing a ½ in (12.5mm) sieve in accordance with TMECC 02.02-B, “Sample Sieving for Aggregate Size Classification”.

1.04 DEFINITIONS:

A. GroSoxx: Multifilament Polypropylene mesh encapsulating Filtrexx Growing Media used for a soft vegetative fascia.

B. Geosynthetic Reinforcement: Geogrid fabric used to provide stability and protection to the GroSoxx
DIVISION 32—EXTERIOR IMPROVEMENTS
Section 32 40 00—Living Wall System

C. Filtrexx Certified Growing Media: Blended growth media, appropriate to the site and the plant list, placed in GroSoxx Fascia Unit that meets the strict requirements of the Filtrexx program.

D. Irrigation Components: Drip tape, and all connection accessories, used internally in the GreenLoxx MSE Wall

PART 2 - PRODUCTS

2.01 SYSTEM PRODUCTS

A. GroSoxx/ Fascia Units: (as locally produced by a licensed manufacturer): GroSoxx is comprised of tubular mesh netting material specifically designed to retain Filtrexx® Growing Media™, seed and other materials. This finished product, stacked during construction, promotes healthy vegetation and long term growth. Moisture flows freely to both reduce hydrostatic pressure and increase drainage of subsurface moisture to the vegetated fascia. The openings in GroSoxx are such that they allow for root growth while retaining Growing Media for healthy vegetation from either seed, plugs or live stakes.

B. Geosynthetic Reinforcement: Geogrid is a commonly used component for soil stabilization. GreenLoxx MSE may be installed using a FLW geogrid to meet the requirements of the project engineer. Filtrexx Geogrid is typically bi-axial in strength for constructability and with open apertures of 2” by 2” to facilitate insertion of live plant material without cutting the grid. The Geogrid is wrapped around the GroSoxx Fascia units and returned back into the excavated fill area allowing for a positive connection between with layers of compacted fill. Therefore, as geogrid spacing varies from application to application, GroSoxx fascia size (8 in dia. or 200mm to 24 in dia. or 600mm) is adjusted to meet the grid-spacing requirements as determined by the site engineer.

C. Filtrexx Certified Growing Media: Compost growing media specified to match the planting list for the region of use, in order to facilitate successful grow-out / long-term coverage of the completed wall or slope system. Documentation of composition can be provided on request.

D. Or approved equal.

2.02 SUBMITTALS

A. Shop Drawings: Retaining wall design calculations, including global stability analysis and drawings are to be stamped by a registered Professional Engineer licensed in the state of the project. Filtrexx International can provide design services, pertaining to Filtrexx LivingWalls
B. Product Data: Material description for all components listed in section 1.02 of this section to include, composition, MSDS sheets, manufacturer certifications and installation information for each product specified as part of the system.

C. Planting Plan: Plant list with elevation views, approved suppliers, seasonal requirements for planting, fertilization, plant coverage targets, methods of measurement, erosion control plans addressing site runoff during and after construction, maintenance agreements.

2.03 DELIVERY, STORAGE & HANDLING

A. Contractor shall check the materials upon delivery to assure the proper materials have been received.

B. GroSoxx are to match specified length and diameter per engineered drawings, while also being free of any rips or tears in mesh material.

C. Contractor shall protect the materials from damage, as damaged materials shall not be used in the project.

PART 3 - EXECUTION

3.01 SITE PREPARATION

A. Prior to construction of GreenLoxx MSE, preparation of the project area will be necessary. The project area must be excavated to fulfill engineered drawings of the wall. Typically GreenLoxx MSE walls are built at a 70 degree angle of inclination and this set back must be accounted for during excavating. Care should be taken during installation not to disturb excessive areas that will then need to be re-vegetated. Site fill should be properly stored or discarded as site preparation is taking place per specifications or site engineer.

3.02 BASE COURSE

A. Upon completion of initial site preparation, construction of the base course may begin. Start by rolling out the geogrid from the back of the excavated site (to the specified depth from the face) to the face, where the first course of the GroSoxx is to be installed. Place sections of geogrid from one end of the wall to the other end overlapping one foot of grid between sections. Place the first two courses of GroSoxx on the grid, one layer of GrowSoxx on top of the other, at the face of the wall and along the length of the wall. After the first two courses of GrowSoxx have been laid out the preapproved back fill can be placed over the geogrid behind the GrowSoxx and compacted. Once compaction is reached, wrap the geogrid over the face of the GroSoxx and pull the grid onto the newly compacted filled area keeping the geogrid taught. The installation of the drain tile and outlet spouts are then laid out and installed as shown on the plans.
DIVISION 32—EXTERIOR IMPROVEMENTS
Section 32 40 00—Living Wall System

3.03 INSTALLATION OF SUCCESSIVE COURSES

A. Successive courses of GrowSoxx, geogrid and compacted backfill will be set upon previous courses with a batter specified by the site engineer and shown on the plans. Follow the same step of rolling out and overlapping the geogrid to the prescribed depth on top of the previous compacted fill along the entire length of the wall. Place two rows of GroSoxx on the geogrid along the length of the face (at specified batter). Backfill the area behind the GroSoxx and compact. Install the irrigation (refer to section 3.05). Wrap back the remaining geogrid and keep it taught on the face. Continue placing geogrid, GroSoxx, and approved compacted backfill; the weight of successive layers will slightly compact the GroSoxx. Walking along the courses of GroSoxx or tamping them will ensure consistent settlement as well. Continue placing successive courses to the proscribed height as designated on the plans or by the site engineer.

3.04 PLANTING

A. GroSoxx were designed from their inception to be planted and grown over. The system is intended to be a reliable means for creating strong, economical structures that quickly disappear into the natural landscape. The desired seed mix/cover crop is typically premixed with the Growing Media inside the GroSoxx. The system design shall facilitate the structural facing becoming completely covered with selected plantings once established to yield an end-product that blends into the surrounding landscape. If planting live plants instead of from seed, planting must start from the top course and continue down the face of the wall. Always consult with the owner and/or their representatives early in the project to determine all responsible parties with regard to plants, quantity, design, maintenance and feeding. Obtain Engineers review prior to site cutting or making adjustments which are not part of the scheduled work.

3.05 MAINTENANCE

A. Maintain and care of the vegetated portions of the wall system until 30 days after final acceptance. After that time, the Owner will become responsible for maintenance. Maintenance is required to ensure the vegetation is established and is in healthy, vigorous growing condition. The initial maintenance required will depend on the plantable unit infill, type of vegetation, local weather conditions and exposure. Ensure proper water is applied to ensure grow-in during the maintenance period.

3.06 WARRANTY

A. Filtrexx International warrants to its customers that each finished GroSoxx sold is manufactured in accordance with Filtrexx Specifications, and warranties 3 years after it is properly installed. (This does not apply to GroSoxx not produced by Filtrexx international or a Filtrexx Manufacturer.) If a particular GroSoxx does
not meet this warranty standard, the customer shall notify Filtrexx International in writing and, pursuant to Filtrexx International’s directions, such customer shall return the applicable GroSoxx to the manufacturer or destroy them. Filtrexx International shall ship to its customer, as applicable, at Filtrexx’s expense, replacement GroSoxx which shall be Filtrexx’s sole remedy for breach of this warranty. Filtrexx shall have no obligation to install such replacement GroSoxx.

B. This Warranty shall not apply to any GroSoxx which is damaged or defective or fails to meet the warranty standard due to the manner in which it was installed, any chemicals coming in contact with the GroSoxx, the design of the structure in which a GroSoxx is used, excessive or unforeseen site conditions, soil conditions, manufacturing defects, or other conditions beyond Filtrexx’s control.

C. The above sets forth the sole warranty from Filtrexx international regarding the product and is made in lieu of all other warranties, express or implied, and Filtrexx international specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.


END OF SECTION
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings, general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. Section Includes: Performance and material requirements for the installation of an efficient and fully automatic irrigation system.

1.3 REFERENCES

A. WSDOT, Road and Bridge Standards
B. ASTM B43 - Standard Specification for Brass and Copper Pipe and fittings
C. ASTM D1785 - Standard Specification for Schedule 40 PVC Pipe
D. ASTM D2241 - Standard Specification for PVC Plastic pipe
F. ASTM D2466-78 - Schedule 80 PVC fittings
G. ASTM D2564 - Standard Specification for PVC Solvent Cements
H. ASTM D2855 - Standard Recommended Practice for making Solvent Cemented Joints with PVC Pipe and Fittings
I. ASTM D3139 - Swing joint pipe and fittings
J. ASTM F-656 - Standard Specifications for PVC Primers
K. Foundation for Cross Connection Control and Hydraulic Research - University of Southern California

1.4 WORK INCLUDED

A. The Work covers a complete, automatically controlled, spray irrigation system including: all required trenching, backfilling and compacting; sleeving, installation of pipe, valves, fittings, and all other appurtenances; connections to water, gate valves, testing; removal and relocation of irrigation controller, electrical connections, wiring, and system fine tuning. Coordinate all Work with other trades.

1.5 REQUIREMENTS
A. Work and materials shall be in accordance with the latest rules, regulations and other applicable state or local-plumbing, electrical and health codes. Nothing in the Contract Documents is to be construed to permit Work not conforming to these codes.

1.6 SUBMITTALS

A. Submit the following items under provisions of Section 01 33 00 (if used).

B. Product Data: Submit product data before beginning work. Include manufacturer's product literature for all products to be installed in this system. Include material showing manufacturer's name, catalog numbers, catalog cuts, technical data and installation, operation and maintenance instructions for each product.

C. Point of Connection Water Pressure Test: Test water pressure at point(s) of connection. Verify pressure is in the range indicated on the drawings. Submit written results of test to the Owner’s Representative.

D. Maintain a current record of all pipe and equipment placement and record any variations approved by the Owner’s Representative. Upon completion of the system and prior to release of final payment, provide a neat and legible record drawing of the completed system. Any pipe not installed in accordance with the plans as originally contracted shall be sufficiently dimensioned to a permanent structure for location after burial. Update record drawings DAILY.

E. Maintenance Manuals: Provide minimum of two (2) operation and maintenance manuals in digital format. The manuals shall be indexed and tabbed and include the following items/information:

1. List of authorized distributors and service representatives (in the area) for each item of irrigation equipment: include names, addresses and phone numbers.

2. Guarantee/warranty certificates for all equipment used and Contractor's written warranty for entire system one (1) year guarantee.

3. Manufacturer's maintenance sheets, replacement parts list and equipment brochures for all equipment used. All composite data sheets shall have the specified products used in the field clearly highlighted.

4. Winterization and Spring start up procedures.

5. A pocket for one (1) copy of the approved record drawings to be added at the time of final inspection.

1.7 SUBSTITUTIONS

A. Substitutions will be considered during the bid process per Section 01 25 00 (if used).
1.8 QUALITY ASSURANCE

A. Qualifications: Washington State licensed landscape/irrigation contractor with a minimum of three years of experience installing irrigation systems of this scale.

B. Work and materials shall be in strict accordance with the latest codes, regulations and other applicable state or local laws. Nothing in the Contract Documents is to be construed to permit work not conforming to these codes.

C. The City of Kirkland shall obtain and pay for all permits and approvals required by the local jurisdictional authorities for the full operation of the system.

D. All work called for on the drawings by notes shall be furnished and installed whether or not specifically mentioned in the specifications. Do not install the sprinkler system as indicated on the drawings when it is obvious in the field that obstructions or grade conditions exist which cause discrepancies with the construction plans, details, legend or specific notes. All such discrepancies shall be brought to the attention of the Owner’s Representative. In the event this is not done, the Contractor shall assume full responsibility for the necessary revisions.

E. Due to the scale of drawings, it is not possible to indicate all offsets, fittings, sleeves, etc. which may be required. Carefully investigate the structural and finished conditions affecting all of this work and plan accordingly. Drawings are generally diagrammatic and indicative of the work to be installed. The work shall be installed in such a manner as to avoid conflicts between irrigation system, planting and architectural features.

F. The work is subject to tests and inspections by the Owner’s Representative as specified. Furnish written notice to the Owner’s Representative one week prior to the required test or inspection.

1.9 PROJECT CONDITIONS

A. Underground utilities and elements: Locate all underground utilities and elements prior to digging and/or driving stakes. Take care to neither disturb nor damage any existing above ground or underground utilities or elements. Keep streets, sidewalks and site clean, free from debris and affected drains open and free flowing at all times.

B. Site inspection and layout: Before proceeding with any work, inspect the site, carefully check all grades and verify all dimensions and conditions affecting the work in order to proceed. Changes or alterations to the system to meet actual conditions shall be made at the Contractor's expense. Irrigation plan is diagrammatic and is not intended to show exact locations of existing or proposed piping or valves. Locate new items as closely as possible to related curbs, walls, fences or edges of paving. Pipelines shown parallel on drawing may be placed in a common trench but separated by at least 6 inches. Sprinkler heads are shown accurately and shall be installed as indicated by center of symbol.

1.10 DELIVERY, STORAGE, HANDLING AND PROTECTION
A. Protect work and materials from damage during construction and storage. PVC pipe and fittings shall be protected from extreme temperatures and other weather conditions and direct sunlight in accordance with manufacturer’s written recommendations.

B. Assume all responsibility for damage to adjacent construction and restore to its original condition should damage occur as a result of this work.

1.11 WARRANTY

A. Guarantee system against defects of installation and material for a period of 1 year after Owner’s final acceptance of the irrigation system. Guarantee shall also cover repair or damage to any part of the premises resulting from leaks or other defects in material, equipment and workmanship to the satisfaction of the Owner. During guarantee period, check and clean filters and emitters, manually flush each zone and otherwise insure adequate operation of system at maximum one-month intervals during the operational year. Guarantee shall also cover repair or damage to any part of the premises resulting from leaks or other defects in material, equipment, and workmanship. Repairs, if required, shall be done promptly upon notification at no additional cost.

B. As part of the warranty, deactivate and drain the system prior to the onset of the freezing season and reactivate the system at the onset of the spring growing season. Each event must be accomplished once during the warranty period. In the event the system is completed in a season when it will not be in use, winterize the system upon completion of testing (and approval by the Owner’s Representative) and reactivate the system in the spring. Submit a letter certifying that the system was winterized and drained and indicate the date such action was accomplished. The Contractor is responsible for any damage resulting from failure to comply.

1.12 SYSTEM FAMILIARIZATION

A. Before final acceptance of the system, provide the necessary keys and/or other tools required to operate, drain and activate the system. Provide two (2) complete sets of tools and keys to the Owner (i.e.: water keys, quick coupler keys with hose swivel attachments, valve cover keys and controller keys).

B. Provide the following minimum standards of training with the Owner’s personnel before final acceptance of the system.

1. General system operation, maintenance and winterization—4 hours on site.

PART 2 - PRODUCTS

2.1 SUMMARY

A. All materials used throughout the system shall be new, unused, and in perfect condition except as noted. Refer to the irrigation materials legend, notes, detail drawings and these specifications for specific equipment to be used. Equipment or materials installed
or furnished without prior approval of the Owner’s Representative may be rejected and the Contractor will be required to remove such materials from the site at his own expense.

2.2 BRASS PIPE AND ACCESSORIES

A. Brass pipe and fittings shall conform to industry standards and be in conformance with applicable ASTM or ANSI standards.

2.3 PLASTIC PIPE AND ACCESSORIES

A. PVC Pipe:
   1. Marked with the manufacturer’s name, class of pipe, NSF seal and date of manufacturing run. Pipe shall bear no evidence of interior or exterior extrusion marks. Conform to US Standard PS 22-70, ASTM D2241, ASTM D 1784, D3139, and D1869.
   2. Fittings: Schedule 40.

B. Schedule 40 PVC pipe for mainlines; Schedule 40 PVC for laterals.

C. All PVC pipe must be delivered in at least twenty-foot (20’) lengths.

D. Sleeves required for main and lateral lines located under paving shall be Schedule 40 PVC, with the inside diameter (I.D.) of sleeve to be twice the outside diameter (O.D.) of the insert pipe, maximum 1 insert pipe per sleeve. All wiring to be in separate sleeves from piping sleeves.

E. Sleeves under roadways (sidewalks, street rights-of-way, boulevards or parkways) where heavy vehicular traffic is anticipated shall be ductile iron pipe, with the inside diameter (I.D.) of the sleeve shall be at least 1 inch greater than the outside diameter (O.D.) of the total inserted pipes. All wiring shall be in separate gray conduit sleeve.

F. Fittings: PVC - ASTM D2464, D2466. Use Teflon tape on all threaded fittings.

2.4 CEMENT & SOLVENT

A. Cement: Weld On 705 or 711 cement (grey)

B. Primer: P-70 primer (purple).

2.5 AUTOMATIC VALVES

A. Master Valve: Size & type as indicated on drawings.

B. Automatic Valve: Size & type as indicated on drawings.
2.6 AUTOMATIC CONTROLLER
   A. Type and size as shown on the Plans and Details.
   B. Install per manufacturer’s instructions.
   C. Final location of automatic controller shall be approved by Owner’s Representative.

2.7 FLOW SENSOR
   A. Type and size as shown on the Plans and Details.
   B. Install per manufacturer’s instructions.

2.8 CONTROL WIRE FOR VALVES
   A. Insulated, single strand copper designed for 24-50 volts and UL approved as UF (Underground Feeder). UL and UF designations clearly marked or embossed on the insulation jacket of the wire. Copper conductor must meet or exceed ASTM B-3 specifications. In no case shall wire be less than 14 gauge.
   B. Control wire harness to be enclosed in Schedule 40 PVC conduit.
   C. Separate “hot” (red or black) lead for each valve. Common wire (white) for each controller. Spare wire (Orange color). Identify wire color on As-Builts.
   D. Looped wires shall be provided within four (4) feet of each wire connection to solenoid. Control wires shall also be snaked underneath mainlines to allow “slack” in the lines.
   E. Copper conductors must meet or exceed ASTM B-3 requirements.
   F. One spare wire (orange) for each 4 zones is required unless otherwise shown on the Drawings. For clarification; Zones 1 to 4 require one spare wire, Zones 5 to 8 require an additional spare wire, Zones 9 to 12 require an additional spare wire, etc. The spare wire(s) shall be installed to the farthest valve(s) location(s) from the controller. Loop the spare wires in each valve box.

2.9 QUICK COUPLING VALVES
   A. Type, manufacture and size(s) shown on the drawings. Install all quick coupling valves in a 10” diameter valve box as shown in the Details.
   B. One inch (1”), all brass, and one or two-piece bodies, with locking brass tops and have galvanized steel swing joints as shown in the Details. Provide two (2) operating keys and hose swivels.
   C. Quick coupler valve for use of compressed air for winterizing: 1”, all brass, two piece bodies with locking brass tops. Provide one (1) operating key.
2.10 GATE VALVES

A. Gate valves: Types, manufacture and sizes as shown on the Plans and Details.

B. Gate Valves two inches (2") and smaller: All bronze construction with ‘tee’ handle, 175 psi water working pressure, Mueller Oriseal Mark II, Red and White or approved equal.

2.11 POP-UP SPRINKLER HEADS

A. Types, manufacture and sizes shown on the Plans and Details.

B. All heads shall have a built-in pressure-regulating device. The device shall regulate nozzle pressure to the design pressure. The pressure-regulating device shall be an internal part of the pop-up stem.

C. The heads shall have matched precipitation rate nozzles with adjusting screws.

D. The heads shall be equipped with check valves to prevent low head drainage. The check valves shall hold back pressures equivalent to 14 feet of head.

2.12 SWING JOINTS

A. Types, manufacture, and sizes shown on the Plans and Details.

B. Swing joints for quick couplers shall be installed in valve boxes, per the Details.

C. Pre-fabricated swing joints, for irrigation heads, shall be triple swing joints. Swing shall consist of street ells, ells, and nipples for full adjustability. Fittings shall have "O" ring seals.

2.13 VALVE BOXES

A. Type, manufacture and size shown on the Plans and Details and/or the following:

1. NDS 10 inch diameter round box (for drain valves, quick couplers and gate valves), green color.

2. NDS 1220-12 with bolt down locking lid and extensions as required (for single valve only) green color.

3. NDS 1730-18 with bolt down locking lid and extensions as required (use for two valves), green color.

4. Use 10" round box for isolation valves and flush manifolds. 6" pit box for air/vacuum relief valves and flush valves.

B. Lids to be labeled: Automatic control valves - ACV, master valve boxes - MV, gate valves - GV, etc.
2.14 IDENTIFICATION

A. Detectable marking tape: Christy’s 3” detectable marking tape consists of a minimum 5 mil overall thickness; five ply composition; ultra-high molecular weight; 100% virgin polyethylene; acid, alkaline and corrosion resistant. The tape shall have a 20 gauge solid aluminum foil core, encapsulated within 2.55 mil polyethylene backing. Tape tensile strength shall be in accordance with ASTM D882-80A and be not less than 7,800 psi. Tape legend—Caution Irrigation Line Below. TA-DT-3-GI.

B. Valve Markers: Christy’s Identification Tags manufactured from polyurethane Behr Desopan, incorporating an integral attachment neck and reinforced attachment hole and will be capable of withstanding 180 lbs. pull force. Tag shall be approximately 2.25” x 2.75” in size. All lettering will be hot stamped in black and capable of withstanding outdoor usage.

1. Valve Number Markers: The standard alphanumeric designations shall incorporate lettering 1 1/8” in height. Tag color will be yellow. Marking tag will be double side stamped with zone valve number.


2.15 BACKFILL MATERIAL

A. Backfill around all irrigation heads: planting soil per planting specification.

B. Bedding material for use around all pipes and equipment as shown on the Details: native topsoil with no rocks or other debris more than 1 inch diameter or common builder’s sand.

C. 3/8” washed rock for valve box sump.

2.16 ACCESSORIES

A. Vinyl Insulated Wire Connectors: Scotch-Lok #3570 or 3M-DBY, Direct Bury Splice Kit.

B. Stainless Steel Clamps: 304 AISI stainless steel, one "ear" type. The "ear" shall be capable of being pinched with a pinching tool to secure the tubing around the insert barbed fitting. Interior clamp wall shall be smooth to prevent crimping or pinching of tubing.

C. Pressure Gauge: Fluid filled pressure gauge, dial pressure registered from 0 to 200 psi. Ashcroft 1009 AL with one quarter inch (1/4”) gage cock.

PART 3 - EXECUTION
3.1 EXAMINATION
A. Prior to starting work, schedule pre-construction meeting with Owner’s Representative. In addition, carefully inspect the preparatory work of other trades, and verify that such work is acceptable for the installation of the work of this Section. Report all unacceptable conditions to the Owner’s Representative. Do not begin work until unacceptable conditions have been resolved. Beginning of work constitutes Contractor acceptance of conditions.

3.2 LAYOUT
A. Layout in accordance with plans and details as shown on the drawings. Locate apparatus and equipment in planting areas where there is easy access for maintenance.
B. If minor changes in location of irrigation equipment are required, or are directed by the Owner’s Representative, work shall be accomplished by the Contractor at no additional cost to the Owner provided such changes are ordered before items or work directly connected to the same area are installed and provided no additional materials are required.

3.3 TRENCHING
A. Trenches: Wide enough to allow a minimum of 6 inches between parallel PVC pipe lines. Prior to installation, trenches must be adequately tamped to prevent component separation due to settling. Pipe lines depths to provide the minimum cover from finished grade as follows:
   1. 18” cover from top of main lines.
   2. 12” cover from top of lateral lines.
B. Exercise care when excavating trenches near existing trees. Where roots are one and a half inches (1-1/2”) and greater in diameter are encountered hand excavate and tunnel. When large roots are exposed, wrap with heavy burlap for protection and prevent excessive drying. Trenches dug by machines adjacent to trees having roots one and a half inches (1-1/2”) and less in diameter shall have the sides hand trimmed making a clean cut of the roots. Trenches having exposed tree roots shall be back-filled within twenty-four (24) hours unless adequately protected with moist burlap or canvas.
C. The top six inches (6”) of soil shall be kept separate from subsoil and shall be replaced as the top layer when backfill is made.
D. Excavate trenches with vertical sides and no wider at any point than is necessary to lay the pipe or install equipment. Locate outside of paved areas wherever possible.
E. Materials unsuitable for bedding of pipe to be removed to a depth 4" below trench bottom, and replaced with suitable bedding.
F. All trenches must be straight, with appropriate pipe-fittings used to allow pipe to be laid without undue bending and not have abrupt changes in grade.

G. The trench bottom must be free of rocks or sharp-edged objects.

3.4 PIPE AND FITTINGS

A. Cut PVC pipe ends at 90 degrees to the pipe length and clean all cutting burrs prior to cementing. Use of a deburring tool is highly recommended. Wipe pipe ends clean. Apply primer to both fitting and pipe end. Apply a light coat of cement on the inside of the fitting and a heavier coat on the outside of the pipe. Insert pipe into the fitting and given a quarter turn to seat the cement. Wipe excess cement from the outside of the pipe. Test pipe as indicated elsewhere in these specifications. Backfill the center of the pipe lengths until the pressure test is complete.

B. Cure all welded joints at least 15 minutes before moving and 24 hours before water is permitted in the pipe.

C. Insure that the inside of the pipe is absolutely clean. Protect any pipe ends not being worked on. Cleaning of cutting burrs is MANDATORY.

D. Where possible install PVC lines and valves adjacent to planter bed edges.

E. Provide pipe sleeves double the diameter of the enclosed irrigation line(s). Use Schedule 40 PVC pipe for sleeves. Install “link-seal” around interior pipe in sleeves to prevent soil erosion from planter bed.

F. Exercise care in handling, loading, unloading and storing to avoid damage. The pipe and fittings shall be stored under cover, and shall be transported in a vehicle with a bed long enough to allow the length of pipe to lay flat, so as not to be subject to undue bending or concentrated external load at any point. Any pipe that has been dented or damaged shall be discarded until such damage has been cut out and the pipe is rejoined with a coupling.

G. Appropriate primer shall be used with solvent glue. Solvent welded joints shall be given at least fifteen (15) minutes set-up time before moving or handling. Pipe shall be partially center loaded to prevent arching and slipping. No water shall be permitted in pipe until a period of at least 24 hours has elapsed for solvent weld setting and curing.

H. No PVC pipe may be threaded or connected to a threaded fitting without an adapter. Use Teflon tape on all male threads.

I. Great care must be taken to insure the inside of the pipe is absolutely clean. Any pipe ends not being worked on must be protected and not left open.

3.5 BRASS PIPE AND FITTINGS
A. Brass pipe shall be installed in accordance with the local Plumbing Code and as shown on the Plans and Details.

B. Teflon tape all male threads to prevent leaks and corrosion.

C. Wrap all brass pipes with black PVC tape where they pass through grouted openings in concrete vaults.

3.6 PIPE SLEEVES

A. Place Schedule 40 main line in PVC Schedule 40 sleeves at least 2x larger than the pipe diameter under paved areas. Under drives and roads use ductile iron pipe or PVC Schedule 80 sleeves at least 2x larger than the insert pipe diameter under paved areas.

B. Place Schedule 40 lateral lines in PVC Schedule 40 sleeves at least 2x larger than the pipe diameter under paved areas. Under drives and roads use ductile iron pipe or PVC Schedule 80 sleeves at least 2x larger than the insert pipe diameter under paved areas.

C. Sleeve trenches shall be back-filled with approved backfill material (6 inches minimum above and 4 inches below the pipe) and compacted in layers to 95% compaction, using manual or mechanical tamping devices. Trenches for piping shall be compacted to equal the compaction of the existing adjacent undisturbed soil and shall be left in firm unyielding condition. All trenches shall be left flush with the adjoining grade.

D. Extend sleeves twelve inches (12”) minimum beyond back edge of curbs and pavement. Provide temporary seal for pipe ends and mark locations at grade with wood stakes.

3.7 RISERS AND SWING JOINTS

A. All pop-up sprinkler heads and quick coupler swing joints must be constructed according to the Details.

B. Minimum riser size shall be the pipe size of the sprinkler head.

C. All threaded joints are to have Teflon tape (approved for PVC pipe) applied to male threads only.

D. Risers are to be capped after installation in preparation for pressure testing.

E. All pop-up sprinkler heads and quick couplers shall have swing joints that allow the head to be set perpendicular and flush with finish grades.

3.8 QUICK COUPLING VALVE

A. Install in 10” diameter valve box as shown in the Details.

3.9 AUTOMATIC VALVES
A. Flush supply lines before installing automatic valves. Install one union upstream of valve in manifold. Use valve box extensions to ensure that box extends a minimum of 5 inches below the bottom of the box valve. Leave valve pit with a clean layer of gravel in the bottom with 4 inch clearance (min.) between gravel and bottom of valve.

3.10 CONTROL WIRES

A. Install in accordance with local code.

B. Control wires shall be taped together at five (5) foot intervals with black electrical tape; then this bundle shall be snaked along the bottom of the supply lines to allow for slack in the line for repairs.

C. All splices must be contained within the valve box where a valve is installed. Allow 36” minimum expansion coils for each connection so that the valve bonnet may be removed and placed outside the box for maintenance. All splice to be made with vinyl insulated connectors and sealed in epoxy resin, Scotchlock No. 3570 or DBY connectors.

D. Place control wires in trench prior to placing pipe. Cover control wires with minimum 2” of approved backfill.

E. Tie a loose 36 inch long loop in all wiring at changes of direction greater than 30 degrees. Untie all loops after all connections have been made.

F. One unconnected spare orange control wire (one spare wire for each 4 valves) is to be run from the controller through each intermediate control valve box. Provide a thirty-six inch (36”) long, loop in each box. Where control valves run in opposite directions from the controller, run a separate spare wire in each direction.

G. Minimum size of wire is to be determined strictly by the following chart:

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H. The control wires shall be color coded as follows: Neutral or common wire – White, Lead-in wire – Black, Extra wire – Orange.
I. Control wires shall be installed in 2-inch minimum gray PVC schedule 80 sleeve under all paved areas.

J. All wires shall be brought to the irrigation controller. Bring wires into the box through the conduit.

3.11 AUTOMATIC CONTROLLERS

A. Final location of controller approved by Owner’s Representative. The 120-volt electrical power to the controller is to be furnished by a licensed electrician. Irrigation Contractor is responsible for the low voltage valve electrical hookup.

B. Install irrigation controller & cabinet per manufacturer's specifications and details.

C. A diagram of schedule shall be posted in the controller to facilitate the selection of the valves to be operated.

D. Install all control equipment in controller cabinet per manufacturer's specifications.

3.12 SYSTEM FLUSHING

A. Flush entire system prior to the installation of valves and sprinkler heads components.

3.13 POP-UP SPRINKLER HEADS

A. Install per details. Spacing of heads shall not exceed spacing shown on the Plans for any reason.

B. Heads along curbs, walks, paving, etc. shall be placed 1/2 inch above finish grade and no closer than 4 inches from paving edge.

C. All heads shall be set perpendicular to finish grade unless otherwise designated on the Plans.

D. Backfill around heads per the Details.

3.14 BACKFILLING

A. Back-filling shall be done when pipe is not in an expanded condition due to heat or pressure. Cooling of the pipe can be accomplished by operating the system for a short time before back-fill, or by back-filling in the early part of the morning before the heat of the day.

B. In refilling the trenches, the fill around, 4 inches below, and 6 inches above the pipe and fittings shall be suitable bedding material or sand, as required, and tamped. The remainder of the backfill shall contain no lumps or rocks larger than three inches. A
three-inch separation is required between all pipes when more than one pipe occupies
the trench.

C. All roots, rocks and surplus excavation shall be removed from the site unless otherwise
directed. Any turf areas buried under ditch excavation shall be raked clean of any
excavated material.

D. Trenches under roads or paved areas shall be back-filled and tamped with a mechanical
tamper in successive six-inch (6") lifts. Paving shall be replaced to the satisfaction of
the Owner’s Representative.

E. Prior to completing backfill, place detectable marking tape directly above the installed
lateral and supply mains and secure to pipe with tape for future line detection. Provide
extra length to clearly expose ends in the valve boxes.

F. If, for any reason, any part of the sprinkler system is back-filled before approved
location, testing, or inspection is authorized, it must be completely uncovered and
exposed until approved for back-filling by the Owner’s Representative.

3.15 PRESSURE TEST

A. Notify the Owner’s Representative at least 72 hours prior to the test.

B. Valves do not need to be installed for pressure test. Valve manifolds, quick couplers
and drain valve swing joints may be capped. Purge all air from the mainline prior to
testing.

C. Hydrostatically test the mainline at a pressure of 150 psi. To be valid, all tests must be
performed under the direction and supervision of the Owner’s Representative.
Maximum allowable drop is 0 (zero) psi in a one-hour test.

D. Hydro-static pressure test Lateral lines at test at existing static water pressure. To be
valid, all tests must be performed under the direction and supervision of the Owner’s
Representative. Maximum allowable drop is 0 (zero) psi in a one-hour test.

3.16 CLEANING AND REPAIRS

A. Repair or replace any damaged materials, surfaces, and finishes caused by Work of this
Section to the satisfaction of the Owner and at no additional cost to the Owner.

B. Clean up as each portion as Work progresses. Remove refuse and excess dirt from the
site and legally dispose of it off-site. All walks and paving shall be swept down.

3.17 PERFORMANCE TEST
A. Request Owner’s Representative attendance at the system coverage test. Give a minimum of one-week prior notice. Prior to performance test, adjust valves, check heads, check for leaks and coverage.

B. Perform a system coverage test for each zone, in the presence of the Owner’s Representative. Repair any clogged or damaged irrigation components. Correct all deficiencies, without additional cost, until the system is approved by the Owner’s Representative. Test system for both manual and fully automatic operation.

3.18 BALANCE AND ADJUSTMENT

A. Balance and adjust the various components of the sprinkler system so the overall operation of the system is most efficient. This includes a synchronization of the controllers, adjustments to pressure regulations, pressure relief valves, part circle sprinkler heads, drip emitters and individual station adjustments on the controller.

3.19 MAINTENANCE TRAINING

A. Schedule a training session for the Owner’s maintenance personnel for the operation of the system. Furnish sufficient training to the Owner’s personnel in the operation, maintenance, and winterization of the system. The Owner’s Representative will be notified of this session at least 72 hours in advance and may be part of the training session. The Contractor shall be liable for all damages or losses resulting from failure to comply with the provisions of this paragraph.

3.20 WINTERIZATION

A. Deactivate and drain the system prior to the onset of the freezing season and reactivate at the onset of the spring season. Accomplish each at least once during the warranty period. If construction is completed when the system is not in use, winterize after testing. Certify by letter the dates of winterization/activation. Repair damage from failure to comply.

B. When using compressed air to winterize the system, do so in short cycles at no more than 40-psi air pressure. Do not allow pipe close to the compressor to get hot to the touch.

3.21 FINAL APPROVAL

A. Upon completion of all tests, final approval for the system will be contingent upon Contractor providing reproducible “as-built” drawings and three-ring binders of all catalog cuts/manufacturer’s instruction/maintenance and operation information as well as complete sets of all tools and keys required.

END OF SECTION
PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:
   1. Subgrade preparation
   2. Topsoil installation in planting beds and lawn areas.

B. Related Sections:
   1. Section 31 10 00 Site Clearing
   2. Section 31 23 16 Excavation
   3. Section 23 23.00 Fill and Backfill
   4. Section 23 23.15 Trench Backfill
   5. Section 31 23 19.16 Geotextile
   6. Section 32 84 00 Irrigation
   7. Section 32 93 00 Landscape Planting
   8. Section 32 93 10 Tree and Shrub Protection
   9. Section 33 40 10 Bioretention soils

1.02 SUBMITTALS

A. Make submittals in accordance with Section 01 33 00.

B. Samples: Deliver samples, in large size Ziploc bags, of all soils (components if separate), mulch, and gravel to the project site for review at the Pre-Landscaping Conference. Include a list of sources. Include laboratory test results and amendment recommendations with topsoil and general fill samples. Samples shall be unaltered and of quantity sufficient to allow for proper inspection and review.

C. The Contractor shall submit four (1) copy to the Architect/Engineer for approval of current sieve analysis and the source of the imported base sand proposed for use on the project. The sieve analysis shall include the same sieve sizes as those indicated in the specifications and shall be wet sieves as designated in the specifications.
DIVISION 32—EXTERIOR IMPROVEMENTS
Section 32 91 13—Soil Preparation

D. Testing: Test all soil and soil components intended for project as follows.

1. Provide a one cubic foot representative sample of each component from supplier stockpiles. All stockpile sampling shall be per ASTM D 75 and Appendixes for securing samples from stockpiles. Stockpiles shall be manufactured sufficiently in advance of testing so that pH, organic content, and carbon/nitrogen ratio have stabilized.

2. Provide a detailed analysis of imported topsoil from an approved, local, testing laboratory. Perform all tests for gradation, organic content, soil chemistry and pH. Testing reports shall include the following tests and recommendations.
   a. Mechanical gradation (sieve analysis) shall be performed and compared to the USDA Soil Classification System. Sieve analysis shall be by combined hydrometer and wet sieving using sodium hexametaphosphate as a dispersant in compliance with ASTM D 422 after destruction of organic matter by H2O2. To facilitate review and approval of sieve analysis, provide a computer generated gradation curve from Laboratory.
   b. Percent of organics shall be determined by the loss on ignition of oven-dried samples. Test samples minus #10 material shall be oven-dried to a constant weight at a temperature of 450 degrees Fahrenheit.
   c. Chemical analysis shall be undertaken for Nitrate Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Magnesium, extractable Aluminum, Lead, Zinc, Cadmium, Copper, Soluble Salts, and pH and buffer pH. A Conductivity Meter shall be used to measure Soluble Salts in 1:2 soil/water (v/v). Except where otherwise noted, nutrient tests shall be for available nutrients.

3. Soil analysis tests shall show recommendations for soil additives to correct soils deficiencies and enhance fertility to accomplish planting work as specified.

4. Laboratory to send testing report and recommendations directly to the Owner.

PART 2 - PRODUCTS

2.01 TOPSOIL

A. General

B. Imported Topsoil Mix: 85% sandy loam soil and 15% organic soil amendment by volume.

1. Sandy Loam:
   a. Shall meet or exceed the requirements of WSDOT Topsoil Type A, of the Current Edition of the "Standard Specifications for Road, Bridge and Municipal Construction" (WSDOT/APWA)
   b. Shall be of a sandy loam textural class as determined by the U.S. Department of Agriculture Classification System

2. Organic Soil Amendment
   a. Composted Municipal Yard Waste. Compost products shall meet the following physical criteria:
      1) 100 percent shall pass through a 1-inch sieve when tested in accordance with WSDOT Test Method 602 and 603 (AASHTO T87 and T88).
      2) The pH range shall be between 5.5 and 8.5 when tested in accordance with WSDOT Test.
      3) Foreign material (plastic, mineral soils, concrete, metal etc.) shall be no more than 2 percent on a dry weight or volume basis, whichever provides for the least amount of foreign material.
      4) Compost material to a temperature adequate to kill weeds and weed seeds.
      5) Documentation that the compost meets federal and state health and safety regulations.
   b. Slow release organic fertilizers per soil test results and recommendations.

3. Topsoil Source:
   b. Or approved equal.

C. Slow Release Organic Fertilizers: The following fertilizer specification is to be used for bid price only. Specific amendments and fertilizer specification will be determined by soil laboratory from submitted soil samples. Adjustments to this formulation shall be at no cost to the Owner:
1. Soil amendments/Fertilizer (available from Horizon Locations (425) 828-4554) or approved substitution:
   
a. Evergreen Trees and Shrubs: TurfGro 8-2-4 (granulated), 0.33 lbs (1 cup) per one gallon container + 0.16 lbs (½ cup) per foot of height or width, whichever is greater.
   
b. Deciduous Trees and Shrubs: TurfGro 8-2-4 (granulated), 0.16 lbs (½ cup) per foot of height or width, whichever is greater, + 0.33 lbs (1 cup) per cubic foot of soil in rootball
   
c. Perennials, grasses, groundcovers and vines: TurfGro 8-2-4 (granulated), 0.16 lbs (½ cup) per foot of height or width, whichever is greater, + 0.33 lbs (1 cup) per cubic foot of soil in rootball
   
d. All planting beds to receive Montana rock phosphate 1 lb per 15 sq ft. and North Atlantic Kelp 10 lbs per 1,000 sq ft
   
e. PH Adjusters Lime: 50% Agricultural grade finely ground dolomitic limestone and 50% calcium carbonate limestone with gradation as follows: minimum 75 percent passing 100-mesh sieve, and 100 percent passing 20-mesh sieve

PART 3 - EXECUTION

3.01 SUBGRADES AND SOIL DEPTHS

A. Native grade is to be left clean and even at the following depths:
   
1. Planting area subgrades: 12” below finish grade. Provide 8 inches compacted depth topsoil and 4 inch depth mulch.
   
2. Mitigation planting area subgrades: Pit planting. Refer to Drawings included in Critical Area Report

3.02 SUBGRADE PREPARATION

A. If the subgrades are established, or prepared by others prior to commencement of work described in this Section, verify that subgrades are complete. Commencement of work indicates acceptance of subgrades. Rotovate or scarify all compacted subgrades to promote a transition between subgrade material and imported topsoil. Remove debris from areas. Float or drag subgrades to produce smooth, uniform surfaces. Distribute excess soil evenly throughout the site or haul off the site if required.
DIVISION 32—EXTERIOR IMPROVEMENTS
Section 32 91 13—Soil Preparation

B. Minimal subgrade preparation is required for undisturbed turf areas. Do not rotovate or scarify grades in these areas unless approved by the Architect/Engineer.

3.03 INSTALLATION

A. Imported Topsoil Application at Planting and Lawn areas:

1. Scarify compacted subgrades to a depth of 4 inches.

2. Apply 1/2 depth of topsoil, mix with subgrade, and compact.

3. Apply remaining topsoil and compact to specified depth.

4. Compact each lift of topsoil and fill to 85% of maximum dry density, as measured in accordance with ASTM D1557. Soil depth measured after compaction.

5. Mound finish grade of planting areas. Provide minimum 2% slope of finished topsoil from high point in center of planting area or planter toward edges.

6. Provide smooth grades as shown on the drawings. Grade to ensure adequate drainage in all areas.

7. Rake to a smooth, uniform finish.

B. Fine grade all areas to uniform finish following grading information shown on the plans. Feather new grades into existing grades. All grades shall flow smoothly into one another.

END OF SECTION
PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Furnish all materials, equipment, and labor necessary for preparation, seeding, fertilizing, mulching, and protection of hydroseeded areas. For type of seed and requirements for planting soil see the Plans and/or other sections of these Specifications.

B. Related Sections:

1. Section 31 00 00 Earthwork
2. Section 32 40 00 Living Wall System
3. Section 32 84 00 Irrigation
4. Section 32 93 00 Landscape Planting

1.02 QUALITY ASSURANCE

A. Seed: Seed to be furnished in containers that show the following information: seed name, lot number, net weight, percentage of purity, germination, weed seed and inert material. Seed which has become wet, moldy, or otherwise damaged will not be accepted. Seed to conform to the requirements of the Washington State seed law and when applicable the Federal Seed Act, and to be certified grade or better.

1.03 SUBMITTALS

A. Seed Mix: Complete analysis including purity test data and germination test dates for each cultivar used.

B. Seed vendor's certification for required seed mixture, indicating percentage by weight and percentages of purity, germination and weed seed for each species.

C. Mulch and tackifier: Submit source and type to be used.

D. Fertilizer: Source and type to be used.

1.04 FIELD QUALITY CONTROL

A. Grading Inspection
DIVISION 32—EXTERIOR IMPROVEMENTS
Section 32 92 19—Hydroseeding

1. Rough grading to be inspected and approved by Engineer prior to placing planting soil.

2. Finish grading to be inspected and approved by Engineer prior to seed application.

B. Inspections

1. The contractor to request a provisional inspection upon completion of the work. Upon completion of punch list, provisional acceptance will be made in writing by the owner.

2. Final acceptance will be at the end of the one year guarantee period, and after all required repairs have been made.

1.05 GUARANTEE AND REPLACEMENT

A. Hydroseeding to be guaranteed per Section 32 93 00 Landscape Planting.

B. Seeded areas must have a relatively uniform stand of vegetation with no bare spots over 6" square at the time of provisional acceptance. Reseed at the original rate and fertilize with 15-22-15 at the rate of 15 lbs. per 1,000 square feet. All areas failing to vigorously establish within 90 days after germination or a growing season whichever is longest for any reason whatsoever to be redone.

PART 2 - PRODUCTS

2.01 MULCH

A. Mulch to be wood cellulose fiber from Alder, containing no growth or germination inhibiting substances; a soil binding agent (tackifier) is required; mulch to be dyed a suitable color to facilitate placement.

2.02 SOIL BINDING AGENT

A. Soil binding agent to consist of non-toxic, biodegradable materials which are environmentally safe such as ESI - TAK or approved equal.

2.03 SEED

A. Seed to be the following:

1. Hydroseed: Native Seed Mix
   a. PT 404 Native Upland Mix with Color. Source: PT Lawn Seed 503.239.7518 www.ptlawnseed.com
   b. Mix Includes:
      1) California Brome – Bromus carinatus
DIVISION 32—EXTERIOR IMPROVEMENTS
Section 32 92 19—Hydroseeding

2) Blue Wildrye – *Elymus glaucus*
3) Streambank Rye – *Lupinus rivularis*
4) Western Yarrow – *Achillea millefolium*

PART 3 - EXECUTION

3.01 PREPARATION:

A. All soil preparation operations, compaction and clean-up of debris to be done prior to seeding as specified elsewhere.

3.02 COMPACTION:

A. Compact with sheeps foot roller, cleated crawler tractor, vibratory roller, or equipment approved by owner. Equipment must produce 150-300 pounds per square inch of ground pressure. Compaction to produce a uniform rough textured surface free of tire ruts, depressions, low spots and ready for seeding and mulching. A minimum of four passes are required. After compaction, finish grade to be flush with the top of curbs, catch basins and other structures.

3.03 WATERING:

A. If required by the owner, water to be provided to condition the soil for compaction or to provide dust control. Water to be furnished and applied from on-site supply or by watering truck if necessary.

3.04 SEEDING:

A. Fertilizer, seed and mulch to be applied in one operation with approved hydraulic equipment. Apply materials at the following rates:

1. Mulch - 50 lbs. per 1,000 square feet.
2. Seed – 1 lb. per 1,000 square feet.
3. Soil Binding Agent - 1 lb. per 1,000 square feet.

B. Seeding shall not be done during windy weather or when the ground is frozen. Give the Owner 48 hours notice of seeding operation. Seeding season will be March 15th to October 15th. No seeding to be done before or after these dates without Owner’s written approval. If seeding is done during Summer, then regular watering must be provided by means of the fully automatic irrigation system.
DIVISION 32—EXTERIOR IMPROVEMENTS
Section 32 92 19—Hydroseeding

C. Equipment to utilize water as carrying agent utilizing continuous built-in agitation system. Equipment with a gear pump is not acceptable.

D. Pump a continuous, non-fluctuating supply of homogenous slurry to provide a uniform distribution of material over designated areas.

3.05 MAINTENANCE

A. Maintain seeded areas until vegetation is well established and exhibits a vigorous growing condition.

B. Maintenance to include protection, and watering, until Physical Completion.

3.06 ACCEPTANCE

A. Inspection to determine Physical Completion of seeded areas will be made by the Owner’s Representative upon Contractor’s request. Provide notification at least five (5) working days before requested inspection date.

1. Seeded areas will be provisionally accepted provided all requirements, including maintenance, have been complied with and vegetation is well established and exhibits a vigorous growing condition.

2. Areas failing to show a vigorous stand of vegetation to be reseeded at the contractor’s expense.

B. Upon Physical Completion, the owner will assume maintenance.

3.07 CLEANING

A. Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, soil, debris, and equipment. Repair damage resulting from seeding operations.

END OF SECTION
PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Trees.
   2. Shrubs.
   3. Ground covers and vines.
   4. Perennials and grasses.
   5. Root barrier.
   6. Livestakes

B. Related Sections:
   1. Section 31 00 00 – Site Clearing
   2. Section 31 23 16 – Excavation
   3. Section 31 23 23.00 – Fill and Backfill
   4. Section 31 23 19.16 - Geotextile
   5. Section 32 19 13 – Soil Preparation
   6. Section 32 84 00 - Irrigation
   7. Section 32 92 19 – Hydoseeding

C. Drawings, general provisions of the Contract, and Division-01 Specification sections, apply to this section.

1.02 REFERENCES

A. Plant Grading:
   1. American Association of Nurserymen.
B. Plant Material Identification:

C. American Society for Testing and Materials (ASTM):

1.03 SUBMITTALS

A. Make submittals in accordance with Section 01 33 00.

B. Plant procurement list:
   1. Not less than 60 days prior to installation, furnish a written schedule of the location, root condition, and size of all plants indicated on the drawings. Indicate plants that must be reviewed, approved, and dug while dormant.
   2. Only plants grown in Hardiness Zone 1 through 8b as established by the USDA Plant Hardiness Zone Map, latest edition, will be accepted.

C. Mulch Sample: Deliver in large size Ziploc bags to the project site for review at the Pre-Landscaping Conference. Include material source and sieve analysis. Samples shall be unaltered and of quantity sufficient to allow for proper inspection and review.

D. Tree Ties and Stakes: Provide source and manufactures cut sheet

1.04 QUALITY ASSURANCE

A. Qualifications of Landscaping Subcontractor: Landscaping firm shall be active and experienced in landscape work of the type specified, and able to show evidence of successful completion of projects of similar scope.
B. Comply with referenced standards for identification and grading of plant materials. All plants shall conform to the State of Washington No. 1 as to:

1. Health and vitality.
2. Condition of foliage.
3. Root system.
4. Freedom from pest or mechanical damage.
5. Plant form according to the accepted normal shape of the species.

C. Pre-Landscaping Conference:

1. In conjunction with the procurement of plants specified herein, meet with the Architect/Engineer or his representative to discuss and verify contract requirements, schedule, local materials, and local planting methods.

D. Planting Conditions: Do not install plants during excessive weather conditions including: frozen soil, overly saturated soil, high winds or extreme heat.

1.05 DELIVERY, STORAGE AND HANDLING

A. Store plant materials from time of approval until delivery to job site for installation.

B. Take adequate precautions to protect the plants during delivery, handling, and storage, and replace damaged plants at no additional cost to the Owner.

C. Maintain all stored plants until delivery to job site for installation.

D. Live stakes shall be transported and stored in shaded, cool, moist conditions. They must be covered in burlap and wetted daily while stored.

1.06 SEQUENCING AND SCHEDULING

A. Coordinate landscaping with work of other trades specified elsewhere.

B. Do not perform landscaping work in areas subject to the subsequent work of other sections, unless approved otherwise.

C. Perform work in accordance with the approved schedule specified in Submittals. If a schedule delay occurs, immediately notify the Architect/Engineer and revise and resubmit schedule.
D. Collect live stakes between October and March when the plants are dormant. Install live stakes as soon as possible after collection and no longer than two weeks after collection.

1.07 SUBCONTRACTOR GUARANTEE

A. In accordance Division-01 Specification sections, guarantee materials and workmanship for a period of one year following Physical Completion.

B. During the warranty period, the Subcontractor will not be held responsible for damage to properly installed plants resulting from excessive weather conditions as described in this section, or other factors beyond the Subcontractor’s control.

C. For plants requiring replacement, reinstate a one year warranty beginning from the date of replacement.

D. Replacement:

1. Plants found in unsatisfactory condition, as determined by the Architect/Engineer, shall be removed from the site. All removed plants shall be replaced as soon as conditions permit within the normal planting season, at no additional cost to the Owner.

2. Perform all corrective procedures in accordance with contract requirements.

3. Exceptions: During the Warranty period, Contractor will not be held responsible for damage to properly installed plants resulting from vandalism, excessive weather conditions, negligence on the part of the Owner, or other factors beyond the Contractor’s control.

4. Warranty shall not include damage or loss of trees, plants, or groundcovers caused by fires, floods, freezing rains, lightning storms, or winds over seventy-five (75) MPH, winter kill caused by extreme cold and severe winter conditions not typical of the planting area as classified by the most current USDA Plant Hardiness zone map

5. Replacement plants shall be of the same variety, size and root condition as existing adjacent plant materials and shall include new growth that may have occurred since planting, such that replacement plants match existing plants of the same variety.

1.08 MAINTENANCE

A. Maintain the landscape work until 30 days after Physical Completion. After that time, the Owner will become responsible for maintenance.
DIVISION 32—EXTERIOR IMPROVEMENTS
Section 32 93 00—Landscape Planting

B. Planting area maintenance work includes checking irrigation operation, weeding, cultivating, removing dead materials, resetting plants to proper grades or upright position, mowing, edging, and other operations necessary to the proper care of the landscape work. Minimum of one site visit every two weeks is required.

PART 2 - PRODUCTS

2.01 EXTERIOR PLANTS

A. Plant materials: Furnish nursery-grown trees, shrubs, groundcovers, vines, perennials and grasses complying with ANSI Z60.1, with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock free of disease, insects, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.

1. Provide balled and burlapped, fabric bag-grown, container-grown, or live stake plant material as specified in the plant schedule.

2. Renewable Resources: Plants specified are indigenous or low maintenance varieties, tolerant of site's existing soils and climate without supplemental irrigation or fertilization once established.

2.02 PLANTING MATERIALS

A. Slow Release Organic Fertilizers: See Section 32 91 13 Soil Preparation.

B. Live Stakes:

1. Live stake cuttings must meet the following criteria:
   a. Must be collected from healthy plants while the plants are dormant.
   b. The top of the cutting shall have a straight cut immediately above a bud.
   c. The bottom of the cutting shall have an approximate 45 degree angle.
   d. Must be cut and installed with the bark intact with no branches or stems attached.
   e. Must be 1” to 1 ½” in diameter over the entire length.
   f. Must be 4’ to 5’ in length.

C. Mulch:

1. Mulch products must meet the following criteria:
   a. 100 percent shall pass through a 1-inch sieve when tested in accordance with WSDOT Test Method 602 and 603 (AASHTO T87 and T88).
b. The pH range shall be between 5.5 and 8.5 when tested in accordance with WSDOT Test.

c. Foreign material (plastic, mineral soils, concrete, metal etc.) shall be no more than 2 percent on a dry weight or volume basis, whichever provides for the least amount of foreign material.

d. Compost material to a temperature adequate to kill weeds and weed seeds.

e. Color shall be dark brown.

2. Mulch Source:

a. Mulch from recycled site debris: Coordinate with Site Clearing Section to identify and prepare suitable organic debris for use as mulch on site. Submit sample for testing and apply nitrification agent as recommended.

b. “Summit Compost” available from NW Washington Compost (360) 563-2408. or approved substitute.

1) Nitrification Agent for “Summit Compost” Mulch: mix at least 3 lbs of Nitroform per cubic yard of Summit Compost.

2.03 PLANTING ACCESSORIES

A. Tree Stakes:

1. 2” diameter Lodgepole Pine doweled tree stakes, 8 feet long.

B. Tree Ties:

1. “Chainlock” Tree Tie, 1” thick, black.

C. Plastic Root Barrier:

1. Polypropylene with ultraviolet inhibitors, 75% post-consumer recycled content. DeepRoot UB 18-2 or approved equal.

PART 3 - EXECUTION

3.01 EXTERIOR PLANTING

A. Install per locations indicated on plans.

B. Bed Establishment:
1. Loosen subgrade of planting beds to a minimum depth of 8 inches.

2. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.

3. Thoroughly blend planting soil mix off-site before spreading or spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil mix.

4. Spread planting soil mix to a depth of 8 inches, but not less than required to meet finish grades after natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.

5. Finish Grading: Grade planting beds to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

C. Trees and Shrubs:

1. Pits and Trenches: Excavate circular pits with sides sloped inward. Trim base leaving center area raised slightly to support root ball and assist in drainage. Do not further disturb base. Scarify sides of plant pit smeared or smoothed during excavation. Excavate approximately three times as wide as ball diameter.

2. Install root control barrier, per manufacturer’s recommendations, between back of sidewalk and plantings. Top of root control barrier to be flush with bottom of mulch.

3. Set trees and shrubs plumb and in center of pit or trench with top of root ball flush with adjacent finish grades.

   a. Balled and Burlapped: Remove burlap and wire baskets from tops of root balls and partially from sides, but do not remove from under root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation.

   b. Container grown: Carefully remove root ball from container without damaging root ball or plant. Loosen girdled or circling roots and scarify rootball.

   c. Fabric Bag Grown: Carefully remove root ball from fabric bag without damaging root ball or plant. Do not use planting stock if root ball is cracked or broken before or during planting operation.
d. Bare root: Carefully remove packing materials and soak roots in water 3 to 6 hours. Prune dead or damaged roots. Do not allow roots to dry out. Mound soil in the bottom of the planting hole to near ground level and gently spread roots to cascade down over the sides of the mound.

e. Place planting soil mix around root ball in layers, tamping to settle mix and eliminate voids and air pockets. When pit is approximately one-half backfilled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed. Water again after placing and tamping final layer of planting soil mix.

D. Tree and Shrub Pruning: Prune and thin trees and shrubs according to standard horticultural practice. Do not over prune. Prune trees to retain required height and spread. Do not cut tree leaders; remove only injured or dead branches from trees. Prune shrubs to retain natural character. Shrub sizes indicated are sizes after pruning.

E. Ground Covers, vines, perennials and grasses:
  1. Set out and space ground cover and plants as indicated.
  2. Dig holes large enough to allow spreading of roots, and backfill with planting soil.
  3. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water.
  4. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.
  5. Protect plants from hot sun and wind; remove protection if plants show evidence of recovery from transplanting shock.

F. Live stakes:
  1. Provide 1” diameter pilot hole for each live stake.
  2. Install live stake cutting so that half the length is buried in soil.
  3. Water thoroughly after planting.

G. Planting Bed Mulching:
DIVISION 32—EXTERIOR IMPROVEMENTS
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1. Mulch backfilled surfaces of planting beds and other areas indicated. Apply 4-inch average thickness of mulch, and finish level with adjacent finish grades. Taper mulch to 1” depth at trunks or stems.

H. Protect exterior plants from damage due to landscape operations, operations by other contractors and trades, and others. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged exterior planting.

I. Properly protect all plantings from the harmful effects of wind, unusual weather, construction activities, and abuse until final acceptance.

J. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION
DIVISION 32—EXTERIOR IMPROVEMENTS
Section 32 93 10—Tree & Plant Protection

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes administrative and procedural requirements for the protection of trees, shrubs, and plant material not designated for removal. Such trees, shrubs, and plant materials shall be left in place and protected from damage or injury by the Contractor during construction, using full and adequate methods of protection as described herein or as directed by the Engineer.

1.02 TREE WORK

A. Tree work, including root pruning shall be performed by experienced certified tree specialists working in their area of expertise, contractor shall submit and obtain approval for subcontractors performing tree work from the Engineer prior to performing any tree work within the Washington Park Arboretum.

1.03 RELATED SECTIONS:

A. Section 01 57 13 - Construction Stormwater Control
B. Section 02 41 00 - Demolition
C. Section 31 00 00 – Site Clearing
D. Section 31 23 16 – Excavation
E. Section 31 23 23.00 – Fill and Backfill
F. Section 31 37 00 - Riprap

PART 2 - PRODUCTS

2.01 RIGID TREE PROTECTION FENCING:

A. Rigid tree protection fencing shall be comprised of the following:

1. Chain link fencing materials including driven posts, rails (as required), braces and mesh, 6’-0” in height from finish grade.
2. Posts and rails shall be a minimum of 1-1/2” OD steel pipe and of sufficient length for direct embedment as indicated on plans.
3. Mesh shall be 2”x 2” x 11ga. minimum woven chain link fabric.
4. If approved by Engineer, post bases shall be minimum 16”x 8” x 8” high concrete piers with sleeves for posts, or approved equal.
5. Planking materials shall be either steel plates or timber made of 4-inch thick material and shall cover a minimum area 8 square feet.

PART 3 - EXECUTION

3.01 PROTECTION WITHIN THE DRIP-LINE OR WITHIN TREE PROTECTION FENCING:

A. Where existing trees are within the area of work, or where existing trees outside the area of work have drip-lines extending into the area of work, the Contractor shall employ all methods to minimize adverse impact to these existing trees including limbs and roots. The Contractor shall notify the Engineer of any construction work within the drip-line of trees at least one (1) Working Day before the scheduled activity. These methods may include but not be limited to:

1. Temporary chain link construction fencing.
2. Temporary tie-up of low limbs.
3. Application of a 4- to 6-inch thick layer of mulch (or wood chips salvaged from clearing and grubbing operations) within the drip-line of trees.
4. Timber or steel planking for protection of surface roots from Equipment.
5. Tree root pruning or other tree root treatment as directed by the Engineer and/or the SPR Senior Urban Forester.

B. No storage of equipment or materials shall be allowed within the drip-line of trees not designated for removal or within the tree protection fencing boundary at any time. Steel planking, or timber planking shall be used to support backhoe and other Equipment stabilizers when set within the drip-line of a tree or sodded / planting area.

C. Where sidewalk, curb, and pavement removal and placement operations occur that impact tree roots 1-inch or greater in diameter, the Engineer will determine how these tree roots are to be handled.

D. Tree protection fencing is temporary and may be moved and re-used as the trail construction progresses. No work shall commence until the tree protection fence is in place for any given work zone and no tree protection shall be moved until the work is substantially complete in any given work zone.

3.02 ABOVE-GRADE WORK:

A. Tree removal or tree trimming within 10 feet of any overhead utility lines require the Contractor notify the utility provider (PSE) with at least two (2) weeks’ notice.
B. When the Contractor anticipates construction operations that will unavoidably affect tree limbs, the Contractor shall notify the Engineer at least five (5) Working Days in advance of commencing such operations. Coordinate with the City Parks Department to make arrangements for inspection.

1. Before trimming any trees, the Contractor shall notify the Engineer of the proposed method and the amount of trimming anticipated.

2. Trimming shall be done by a professional tree service company whose past and current performance is in accordance with National Arborist Association tree-pruning standards.

3.03 TRENCHING, TUNNELING AND GRADING WITHIN THE DRIP-LINE:

A. Trenching, tunneling and grading within the drip-line of existing trees not designated for removal shall be reviewed by the Engineer prior to commencing work, and defined zone clearance requirements reviewed in the field.

B. Excavation or tunneling of any kind within the “critical root zone,” as defined by the Standard Plans, and/or within the tree protection fencing boundary will not be allowed unless the Contractor requests permission to do so at least two (2) Working Days in advance and receives approval of the Engineer. Contact the City of Kirkland inspection team to make arrangements for inspection.

C. Treatment of Roots: Excavation around roots 2-inch in diameter and greater requires handwork.

1. Individual tree roots 2-inch or greater in diameter shall not be cut, but rather protected when within the drip-line of the tree and within the area designated to be protected by the tree protection fence.

2. Tree roots smaller than 1-inch in diameter shall be cleanly cut flush with the edge of the trench or tunnel.

3. Ripping or tearing of tree roots will not be allowed.

4. When large roots are exposed in any excavation, wrap with heavy, wet burlap for protection and to prevent excessive drying.

5. Trenches having exposed the roots shall be backfilled within 24 hours unless adequately protected with moist burlap or canvas.

6. An Air Spade or Air Knife is a compressed air tool that removes soil without damaging roots, even fine fibrous roots. The tools convert compressed air to a directional jet stream by use of specially nozzles fitted to the end of a hand held lance. The skilled use of this compressed air tool will break up and remove the soil from around tree roots. The finely
focused stream of air penetrates the ground to a depth of up to 30 cm and can be aimed to crumble and blast the soil away. It is possible to cause damage to the root cortex of thin barked species. Two specially designed filter units are necessary to reduce the oil content of the air stream down to a more acceptable 0.05 parts per million. It is important to install filters in the air line between the compressor unit and the hand held lance.

3.04 REPAIR, REPLACEMENT AND PAYMENT FOR DAMAGE:

A. Trees or other plant material not ordered or designated to be removed but that are destroyed or irreparably damaged by Contractor operations as determined by the Engineer, shall be repaired or replaced by the Contractor in accordance with the Engineer’s recommendations (at least 2 replacement trees for every 1 tree removed).

1. Replacements shall be of the same species and as nearly as possible of the same size as the trees to be replaced (minimum of 2” caliper).

2. The Contractor shall allow one (1) Working Day advance notice for inspection of nursery stock replacements by the Engineer.

B. Payment: In addition to the Contractor’s restoration approved by the Engineer, the Contractor will be assessed damages for the difference in the dollar value of the damaged tree, shrub, or other plant material, and the dollar value of the replacement.

1. The dollar value will be determined by the Engineer from the “Guide for Establishing Values of Trees and Other Plants,” prepared by the Council of Tree and Landscape Appraisers, current edition. Damages assessed will be deducted from moneys due or that may become due to the Contractor.

2. The University of Washington uses CTLA (Council of Tree and Landscape Appraisers) formulas to appraise value of plant collections. The Trunk Formula Method (TFM) is used for trees unable to be transplanted based on a similar tree. UW plant collection adjustment factors fall under three formula factors: Species rating, Location (includes site, contribution and placement by percent), and Installation Costs that accounts for UW’s curation and propagation/nursery production costs.

   a. Appraised value = Basic tree cost x Species% x Condition% x Location%.

   b. Basic Tree Cost = Trunk area increase of the appraised tree x Unit Tree Cost + Installed Tree Cost Location = (Site% + Contribution% + Placement%) divided by 3.
DIVISION 32—EXTERIOR IMPROVEMENTS
Section 32 93 10—Tree & Plant Protection

c. Current Installation Costs for deciduous tree collections are $2,002 and conifers are $924.

C. Planting of replacement stock shall be done in accordance with the requirements of the Contract Documents during the first fall or spring planting period, whichever comes first.

END OF SECTION
DIVISION 33

UTILITIES
PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. American Association of State Highway and Transportation Officials (AASHTO).
3. ASTM International (ASTM):
   a. A53/A53M, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
4. NSF International (NSF):
   a. NSF/ANSI 61, Drinking Water System Components - Health Effects.
   b. NSF/ANSI 372, Drinking Water System Components - Lead Content.

1.02 SUBMITTALS

A. Action Submittals:

1. Shop Drawings:
   a. Product Data:
      1) Pipe material data.
      2) Materials of construction for corporation stops, curb stops, and meter stops. Check valves, back-flow assemblies, valve box.
      3) Fitting types.
      4) Meter boxes, vaults and covers.
   b. Details with dimensions and fabricating tolerances for component ends.
   c. Drawing showing how components of water service connection will fit together.
   d. Operating pressure and allowable test pressure for components making up the service connection.
   e. Allowable test pressure for connected components.
   f. Proposed thrust restraint data for restraining joints including drawing details, materials, assembly ratings, and pipe attachment methods.
   g. Factory test results of components.
B. Informational Submittals:

1. Manufacturer’s Certificate of Compliance, in accordance with AWWA C800.
2. Manufacturer’s Certificate of Compliance, in accordance with NSF/ANSI 61.
3. Statement of Qualifications:
   a. Piping manufacturer.
   b. Fitting and specials manufacturer.
4. Procedure for field testing water mains and service connections, including disinfection.

PART 2 PRODUCTS

2.01 GENERAL

A. Components and Materials in Contact with Water for Human Consumption: Comply with the requirements of the Safe Drinking Water Act and other applicable federal, state, and local requirements. Provide certification by manufacturer or an accredited certification organization recognized by the Authority Having Jurisdiction that components and materials comply with the maximum lead content standard in accordance with NSF/ANSI 61 and NSF/ANSI 372.

1. Use or reuse of components and materials without a traceable certification is prohibited.

2.02 SERVICE CONNECTION

A. Refer to Northshore Utility District Engineering Specifications and Standard Water Details 4, and coordinate product names and requirements with these Specifications. Furnish components same size as nominal designation of service pipe for the 1-inch service line.

1. 1-inch corporation stop.
2. 1-inch curb stop.
3. 1-inch meter coupling.
4. Meter with meter box.
5. Pressure reducing check valves.

B. Refer to Northshore Utility District Engineering Specifications and Standard Water Detail 4, and coordinate product names and requirements with these Specifications. Furnish components same size as nominal designation of service pipe for the 1-inch service line.

1. 1-inch corporation stop.
2. 1-inch curb stop.
3. 1-inch ball valve with cast iron valve box
4. 1-inch meter coupling.
5. Meter with meter box.
6. Pressure reducing check valves.

2.03 SERVICE SADDLES

A. Provide in accordance with the following:

<table>
<thead>
<tr>
<th>Mainline Material</th>
<th>Saddle Characteristics</th>
<th>Tap Size</th>
<th>Manufacturer*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ductile Iron Class 52 or Greater</td>
<td>Not Applicable (Direct Taping will be allowed)</td>
<td>1&quot;</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>
| Ductile Iron Pipe, Less Than Class 52, Cast Iron | Single strap epoxy coated ductile iron casting with CC threads.                        | 1", 1-1/2", 2" | Mueller Company
                                                          |                                                          |                | Type DR1S                              |
|                                            |                                                                                        |                | Ford Meter Box Company
                                                          |                                                          |                | Type FC101                              |
|                                            |                                                                                        |                | Romac Industries, Inc.
                                                          |                                                          |                | Type 101NS                              |
|                                            |                                                                                        |                | Or approved equal                     |
| PVC Pipe                                   | Double strap saddle with coated saddle and wide stainless steel straps                  | 1", 1-1/2", 2" | Mueller Company
                                                          | Epoxy coated ductile iron casting with CC threads.                                     |                | Type DR2S                              |
|                                            | No U-bolt Type straps will be allowed                                                 |                | Ford Meter Box Company
                                                          |                                                          |                | Type FC202                              |
|                                            |                                                                                        |                | Romac Industries, Inc.
                                                          |                                                          |                | Type 202NS                              |
|                                            |                                                                                        |                | Or approved equal                     |

*Model number for each manufacturer will depend on pipe material saddle is attached to and whether the native soils are aggressive or relatively neutral.

1. Choose model number for each manufacturer based on pipe being saddled and corrosivity of surrounding soils.
2. Style:
   a. Double strap with wide straps for metal pipe.
   b. One-piece, full-circle, single stainless body with double bolt for use on plastic pipe.
3. Saddle: Coated to prevent corrosion.
4. Manufacturers:
   b. Ford Meter Box Company.
   c. Romac Industries.

2.04 CORPORATION STOPS

A. Shall be per Northshore Utility District Standard Water Detail 4 and Detail 5.

2.05 MISCELLANEOUS FITTINGS

A. Service materials including valves, pipe and fittings be as specified on the
   Standard Details. All brass appurtenances shall be “lead free” and conform to
   NSF/ANSI 372 and NSF/ANSI 61 standards.

2.06 CHECK VALVES

A. One-inch check valves shall be per Northshore Utility District Standard Water
   Detail 4 and Detail 5.

2.07 METER BOXES, VAULTS, AND COVERS

A. Characteristics:
   1. Able to withstand AASHTO H20 loading characteristics.
   2. Rectangular body.
   3. Cast iron lid, removable for meter reading.

B. The meter boxes shall be according to the Northshore Utility District Standard
   Water Detail 13, 1 inch to 2-inch Fire Sprinkler or Irrigation Backflow
   Prevention.

C. The premise isolation backflow assembly use, either a double check valve
   assembly or reduced pressure backflow assembly (backflow assembly), shall meet
   WAC 246-290-490 “Cross-Connection Control” and be an approved assembly as
   shown on the Washington State approval listing.

D. The backflow assembly is to be tested at installation and annually thereafter. The
   test shall be performed by a certified Washington State Backflow Assembly
   Tester. Certified testers shall be determined per Northshore Utility District
   Standard Water Detail 13.
E. Manufacturers and Products:

<table>
<thead>
<tr>
<th>Service Size</th>
<th>Characteristics</th>
<th>Manufacturer &amp; Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4” through 2”</td>
<td>Rectangular concrete body and cast-iron lids; extensions as required</td>
<td>Brooks Products, Inc.; model number dependent on service size</td>
</tr>
</tbody>
</table>

2.08 METER YOKES

A. Shall be per Northshore Utility District Standard Water Detail 4 and Detail 5.

2.09 BALL VALVES

A. Shall be Ford No. B11-666 or approved equal for 1-inch piping.

B. Valve box shall be two-piece cast iron per the Northshore Utility District Engineering Specifications and Standard Water Detail 4 and Detail 5.

C. Shall be connected with brass nipple, length to fit.

D. Adapter, MIPxPack Joint, Ford No. C86-66 or approved equal for 1-inch piping connections.

E. Locator Wire: 14-gauge copper, continuous, solid core, neoprene coated per the Specifications. Connection at the meter setter shall be made with an all stainless-steel hose clamp. Connection at the main line wire shall be made with a split-bolt connector. Strip coating prior to connection.

F. 1-1/2-inch meter setter shall be Ford VBH8612B or approved equal.

G. 1-inch meter setter with dual check valve shall be Ford VBHC74-84W-11-44A-FP-NL, A.Y. McDonald 762-412WDDDD 44x15, or Mueller 390B2588-6A03N or approved equal with 1 inch, minus 90 degree brass street elbow (if required by District) and 1 inch adapter.

2.10 METERS

A. Characteristics:

1. Size to match associated piping service and flow requirements.
2. Magnetic drive, positive displacement.
3. Connections to match adjacent piping.
4. Materials to resist soil corrosivity (if any).
5. Frost protection bottom.
6. Rated for working pressure of adjacent piping.
7. Meters will be furnished by Owner.
2.11 POLYETHYLENE PLASTIC PIPE

A. Characteristics:

1. Manufactured from ultra-high molecular weight, high-density polyethylene.
2. Conforming to ASTM D2239, PE 4710, and AWWA C901.
4. Standard dimension ratio (SDR) of 7 or smaller.
5. At a minimum, the pipe pressure rating, SIDR, and ASTM classification shall be clearly printed on the pipe.

B. Manufacturer and Product: Phillips Products Co.; Driscopipe 5100.

PART 3 EXECUTION

3.01 GENERAL

A. Install water meters after entire water system is ready for operation.

B. Depth of cover over the pipe shall be minimum 18 inches.

C. Install service connection in accordance with Northshore Utility District Standard Details.

3.02 TRENCH EXCAVATION AND BACKFILL

A. In accordance with Northshore Utility District Engineering Specifications Section 9.7 or Sections 31 23 16, Excavation and Section 31 23 23.15, Trench Backfill.

3.03 CONNECTION TO MAIN

A. All service installations shall be according to the Standard Details.

B. Clean exterior of main of dirt and other foreign matter that may impair the quality of the completed connection.

C. Place service clamp (saddle) at desired location.

D. Clamp by tightening alternate nuts progressively.

E. Do not place service clamp within 1 foot of pipe joint, or another clamp.

F. Make taps with adapters for the size main being tapped.
3.04 UNDERCROSSING OF HARD SURFACE ROADS
A. Open-cut asphalt or concrete roads.

3.05 POLYETHYLENE PLASTIC PIPE
A. Install in conformance with manufacturer’s recommendations.

3.06 METER BOXES
A. Installation:
   1. Construct enclosures plumb, and flush with existing ground surface unless shown otherwise.
   2. Use standard extension sections to adjust to grade.
   3. Place lightly compacted earth backfill inside meter box to depth shown.
   4. Backfill around meter vaults as specified in Section 31 23 23.15, Trench Backfill.
   5. Install meter in horizontal position with dial at required depth below cover.
   8. The backflow assembly shall be installed immediately behind the water meter on private property.

3.07 TESTING
A. After backfilling the water main with sufficient material to prevent movement of the pipeline and allowing sufficient time for the concrete blocking to set, the water main shall be pressure tested in convenient lengths as directed by the District. In general, new mains shall be tested between valves and large sections of untested main will not be permitted to accumulate.

B. Testing shall occur per Northshore Utility District Engineering Specification, Test Duration: At least 15 minutes.

C. Inspect for leaks and repair before backfilling.

3.08 DISINFECTION OF SERVICE CONNECTIONS
A. Sterilization and flushing of water mains and services shall occur per Northshore Utility District Engineering Specifications 10.22.

B. Extra chlorine will be put into the system by Owner during service connection transfers to provide adequate disinfection capacity when above procedures are executed.

END OF SECTION
SECTION 33 12 19
WATER UTILITY DISTRIBUTION FIRE HYDRANTS

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. American Water Works Association (AWWA):
   a. C502, Dry-Barrel Fire Hydrants.
   b. C600, Installation of Ductile-Iron Mains and Their Appurtenances.
3. FM Global Approved.
4. NSF International (NSF):
   a. NSF/ANSI 61, Drinking Water System Components - Health Effects.
   b. NSF/ANSI 372, Drinking Water System Components - Lead Content.
5. UL: 246, Standard for Hydrants for Fire-Protection Service.

1.02 SUBMITTALS

A. Action Submittals: Catalog cuts of system components.

1. Include calculations for thrust blocks for high-pressure installations (if required).

B. Informational Submittal:

1. Certificate of Compliance: Upon completion of the system installation, verify all fire department hose connections, and check all fire safety devices to ensure their readiness for emergency connection and operation.

PART 2 PRODUCTS

2.01 GENERAL

A. Components and Materials in Contact with Water for Human Consumption: Comply with the requirements of the Safe Drinking Water Act and other applicable federal, state, and local requirements. Provide certification by manufacturer or an accredited certification organization recognized by the
Authority Having Jurisdiction that components and materials comply with the maximum lead content standard in accordance with NSF/ANSI 61 and NSF/ANSI 372.

1. Use or reuse of components and materials without a traceable certification is prohibited.

2.02 LOW PRESSURE HYDRANTS

A. Hydrant:

1. Break flange or safety top type.
2. Nominal 5-1/4-inch main valve opening with 6-inch bottom connections.
3. Conform to AWWA C502, except working pressure of psi.
4. Two 2-1/2-inch NST hose ports.
5. One 5-inch pumper connection with Storz Adapter (integral or non-integral).
6. Operating Nuts: 1-1/4-inch point to flat pentagon nut operating by turning to the left.
7. Nozzle shall be fitted with renewable bronze nipples locked in place.
8. Mechanical joint inlet connection.
9. Coated with Steelcote SR53 heavy duty brush type enamel. Top coat shall be two brush coats of Sherwin/Williams White Industrial Enamel No. B54W101, in accordance with the Northshore Utility District Standard Water Details 3: Fire Hydrant Assembly.
10. Manufacturers and Products. Use one of the following in conformance with AWWA Standard Specification C-502:
   a. Mueller Co.; Superior Centurion.
   b. American Darling; B-62-B.
   c. Clow; Medallion.
   d. M&H; 129.
   e. East Jordan Iron Works; WaterMaster 5CD250.

B. Main Valve:

1. Depth of Bury: 3-1/2 feet.
2. Equip with O-ring seals.
3. Valve opens on counterclockwise rotation.

2.03 PRECAST CONCRETE PIER BLOCK

A. Nominal dimensions of 8-inch thickness by 16-inch square base.

B. Compressive Strength: 3,000 psi at 28 days.
DIVISION 33—UTILITIES
Section 33 12 19—Water Utility Distribution Fire Hydrants

2.04 GRAVEL FOR DRAINAGE
   A. Washed 3/4-inch crushed rock or graded river gravel. Free of organic matter, sand, loam, clay, and other small particles that will restrict water flow through gravel.

2.05 FOUNDATION STABILIZATION MATERIAL
   A. Furnish when existing trench material or imported pipe base material will not support soft or flooded spots in excavated trench.
   B. Maximum 3-inch hard rock free from excessive clay material, but enough fines to bind larger fragments.

2.06 CONCRETE FOR THRUST BLOCKING
   B. Compressive Strength: 2,500 psi at 28 days.
   C. Aggregate Size: 1-1/2 inches.
   D. Slump: 2 inches to 4 inches.

2.07 THRUST TIES
   A. 3/4-inch-diameter steel rods.
   B. Duc-Lugs Manufacturer: Romac.

PART 3 EXECUTION

3.01 GENERAL
   A. Install hydrants in accordance with Section 3.7 and Section 3.8 of AWWA C600, unless specified otherwise.

3.02 EXCAVATION
   A. Excavate to subgrade. Fill over excavated areas with foundation stabilization material. Tamp to provide firm foundation.

3.03 BASE BLOCK
   A. Place on firm, level subgrade to ensure uniform support.
3.04 INSTALLATION OF HYDRANTS

A. Locate hydrants to provide accessibility and to minimize potential damage from vehicles.
   1. Relocate improperly set hydrants.
   2. Hydrant Located behind Curbs: Set barrel so pumper nozzle or hose nozzle caps are a minimum of 18 inches from gutter face of curb.
   3. Hydrant Located in Space between Curb and Sidewalk: Not less than 8 inches, clear from sidewalks.
   5. Set hydrants so safety flange is a minimum of 2 inches above finished ground or sidewalk level.
   6. Fire hydrants shall be set plumb and ports shall be oriented as directed by the Fire Protection District of Kirkland.

B. Place hydrant on base block carefully to prevent the base block from breaking.

C. Joints shall conform to Section 3.4 of AWWA C600 when cast or ductile iron pipe is used.

D. 6 inch Cl 52 ductile iron pipe, 3 foot minimum and 50 foot maximum with restrained joints.

E. Gate valves shall be ductile iron body valves with resilient wedge conforming to the latest revision of AWWA Standard C515 and shall be NSF 61 approved. Valves shall have epoxy coating fusion bonded to all internal and external surfaces of the valve body and bonnet in compliance with AWWA C550. The wedge shall be fully encapsulated in rubber. The valves shall be non-rising stem, open to the left, equipped with standard 2 inch square operating nuts, and O-ring seals at all joints.
   1. Manufacturers and Products:
      a. Resilient Wedge Gate:
         1) Mueller; Super Centurion.
         2) American Darling; B-62-B.
         3) Clow Medallion.
         4) M&H; Series 129.
         5) East Jordan Works; Watermaster SCD250.
      b. Gate valves shall also be per the Northshore Utility Department Standard Water Detail 3.
DIVISION 33—UTILITIES
Section 33 12 19—Water Utility Distribution Fire Hydrants

F. Valve boxes shall be two-piece, cast iron, East Jordan Iron Works, per the Northshore Utility Department Standard Water Detail 3 and:
   1. Valve box cover, 06800209.
   2. Valve box top, 85557016U.
   3. Valve box bottom, 85556024U.

G. Maintain hydrant in a plumb position during subsequent Work.

3.05 GRAVEL FOR DRAINAGE
A. Place gravel around base block and hydrant bottom in accordance with Section 3.7 of AWWA C600.

3.06 CONCRETE THRUST BLOCKING
A. Place blocking after hydrant is set in final position and join to pipe.
B. Concrete thrust block shall have a minimum of 4 square feet of bearing area against undisturbed earth for a standard pressure installation.
   1. Calculate required bearing area for high pressure installation.

3.07 THRUST TIES
A. Install thrust ties in lieu of concrete thrust blocking when ground surface behind hydrant is less than 2 feet above top of hydrant base.
   1. Install two tie rods between main valve and hydrant.
   2. Install mechanical joint glands with lugs in joints between hydrant and main valve.

END OF SECTION
PART 1 GENERAL

1.01 SUMMARY

A. This section specifies bioretention facility and construction requirements.

1.02 SUBMITTALS

A. Procedures: See Section 01 33 00, Submittal Procedures.

B. Bioretention Soil:

1. Aggregate Analysis: Grain size analysis results of the Mineral Aggregate for Bioretention Soil performed by an independent laboratory in accordance with ASTM D422, Standard Test Method for Particle Size Analysis of Soils.

2. Compost Analysis: Quality analysis results for the compost for Bioretention Soil performed in accordance with STA standards.


4. Mix Samples:
   a. Two 5-gallon Samples of the Bioretention Soil mix, along with the following information:
      1) The Manufacturer’s Certificate(s) of Compliance from the Supplier of the Bioretention Soil mix, and (if different), the Suppliers of the mineral aggregate and compost components, including their name(s) and address(es).
      2) A description of the equipment and methods to mix the mineral aggregate and compost to produce Bioretention Soil.
      3) Laboratory Information. Including the following information about the testing laboratories:
         a) Name of Laboratory including contact person(s).
         b) Address(es).
         c) Phone contact(s).
         d) E-mail address(es).
         e) Qualifications of laboratory and personnel including date of current certification by STA, ASTM, AASHTO, or approved equal.
PART 2 PRODUCTS

2.01 BIORETENTION SOIL

A. Bioretention Soil:

1. Bioretention soil mix (BSM) shall be per City of Kirkland standard CK-L.01.

2.02 MINERAL AGGREGATE FOR BIORETENTION SOIL

1. Mineral aggregate shall be well graded.
2. Coefficient of Uniformity (D60/D10) equal or greater to 4.
3. Coefficient of Curve (D302/D60/D10) between 1 and 3.
4. Gradation:

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8 inch</td>
<td>100</td>
</tr>
<tr>
<td>#4</td>
<td>95 - 100</td>
</tr>
<tr>
<td>#10</td>
<td>75 - 90</td>
</tr>
<tr>
<td>#40</td>
<td>25 - 40</td>
</tr>
<tr>
<td>#100</td>
<td>4 - 10</td>
</tr>
<tr>
<td>#200</td>
<td>2 - 4</td>
</tr>
</tbody>
</table>

2.03 COMPOST


B. Shall be produced at a composting facility permitted by the Washington Department of Ecology.

C. No visible free water or dust shall be produced when handling material.

D. Shall be tested in accordance with the US Composting Council “Testing Methods for the Examination of Compost and Composting” (TMECC).

E. Shall have a pH between 6.0 and 8.5.

F. Shall have a manufactured inert content less than 1 percent.

G. Shall have a minimum organic matter content of 40 percent by dry weight.

H. Shall have a maturity greater than 80 percent per TMECC.
I. Shall have stability of 7mg CO2 – C/G OM/day or below per TMECC.

J. Shall have a carbon to nitrogen ratio less than 25:1.

K. Testing Requirements: The compost Supplier shall test all compost products within 90 calendar days prior to application, at the Supplier’s expense. Samples shall be collected using the Seal of Testing Assurance (STA) Sample collection protocol, available from the U.S. Composting Council, Phone: (631) 737-4931, www.compostingcouncil.org. The Sample shall be tested by an independent STA Program certified laboratory. A copy of the approved independent STA Program laboratory test report shall be submitted to the Engineer prior to initial application of the compost.

L. Screen to the following size gradation for Fine Compost when tested in accordance with TMECC test method 02.02-B, “Sample Sieving for Aggregate Size Classification.”

1. Fine Compost shall meet the following gradation by dry weight:
   a. Minimum percent passing 2 inch equals 100 percent.
   b. Minimum percent passing 1 inch equals 99 percent.
   c. Minimum percent passing 5/8 inch equals 90 percent.
   d. Minimum percent passing 1/4 inch equals 75 percent.

2.04 BIORETENTION UNDERDRAIN

A. Bioretention Underdrain:

1. Slotted subsurface drain shall be PVC pipe per ASTM D1785 SCH 40.
2. Slots must be cut perpendicular to the long axis of the pipe and be 0.04 inch to 0.069 inches by 1-inch long and be spaced 0.25 inches apart. Slots shall be arranged in four rows spaced on 45-degree centers and cover half the circumference of the pipe.
3. A 6-inch rigid nonperforated observation pipe shall be connected to the underdrain every 250 feet to provide a cleanout port, as well as an observation well to monitor dewatering rates.

2.05 MINERAL AGGREGATE TYPE 26

A. For Gradation, refer to Section 31 23 23, Fill and Backfill

2.06 ROCK PAD AT INLET AND OUTFALL

A. Streambed Cobble:

1. Maximum Size: 4 inches.
2. Gradation:

<table>
<thead>
<tr>
<th>Approximate Size</th>
<th>Percent Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 inch</td>
<td>70 - 100</td>
</tr>
<tr>
<td>3” square</td>
<td>30 - 60</td>
</tr>
<tr>
<td>3/4” square</td>
<td>10 max</td>
</tr>
<tr>
<td>U.S. No. 4</td>
<td>0 - 3</td>
</tr>
</tbody>
</table>

3. The portion passing the U.S. No. 4 sieve shall have a minimum sand equivalent of 60.

2.07 MULCH AND PLANTING

A. See Section 32 91 13, Soil Preparation, for mulch.

B. See Section 32 93 00, Landscape Planting, for plants and planting requirements.

PART 3 EXECUTION

3.01 BIORETENTION CELL CONSTRUCTION

A. General Requirements:

1. Exclude runoff to cells until completion. Runoff shall not be allowed to enter the bioretention cell until authorized by the Project Representative.

2. Protect bioretention soil from water. Bioretention soil shall be protected from rainfall, surface runoff and other sources of added moisture at the Supplier’s site, in covered conveyance, and at the Project Site until incorporated into the Work.

3. Excluded heavy equipment from cells and berms. No heavy equipment shall operate within the cell or earth berm perimeter once bioretention cell excavation has begun, including during exaction, backfilling, tree pit preparation, mulching, or planting.

4. If the footprint of the cell was used as sedimentation best management practices (BMPs), the sediment shall be completely removed by overexcavate at least 3 inches below the bottom of the sediment or the top of the subgrade and backfill with granular fill.

3.02 GRADING AND PLACEMENT FOR BIORETENTION CELLS

A. The Contractor shall scarify the surface of the subgrade to a minimum depth of 3 inches prior to placement of bioretention soil or mineral aggregate for discharge subbase gravel, if applicable.
B. Soil placement and consolidation shall not occur when the bioretention soil is excessively wet.

C. Placing bioretention soil shall not be allowed if the area receiving bioretention soil is frozen, excessively wet or saturated or has been subjected to more than 1/2 inch of precipitation within 48-hours prior to mixing or placement. The Engineer will have final authority to determine if wet or saturated conditions exist.

D. The Contractor shall not convey runoff to the bioretention cell grading until the Project Site draining to the bioretention area has been stabilized and authorization is given by Engineer. Prior to the area being stabilized and the cell being planted, runoff shall be prevented from entering the bioretention cells, and is authorized by the Engineer.

E. Excavation:
   1. No heavy equipment shall operate within the cell or earth berm perimeter once bioretention cell excavation has begun, including during excavation, backfilling, tree pit preparation, mulching, or planting.
   2. At the locations shown on Drawings, bioretention cells shall be excavated to accommodate the placing of bioretention soil and gravel backfill for drain for discharge subbase gravel as shown on Drawings.
   3. The Contractor shall provide the Engineer the opportunity to inspect the excavation prior to placement of any material or subgrade soil scarification.
   4. After excavation to subgrade, if any sediment laden runoff has entered the cell, the sediment deposition shall be removed by overexcavating the cell by a 3-inch minimum. An additional 3-inches of bioretention soil shall be placed at the Contractor’s expense.

F. If applicable, after placement of gravel backfill for drain for discharge subbase gravel, if any sediment laden runoff has entered the cell, the sediment deposition shall be removed by excavating gravel backfill in the cell by a 3-inch minimum and replacing it with clean gravel backfill for drain at the Contractor’s expense.

G. Place bioretention soil as shown on Drawings in loose lifts of 8 inches. Compact bioretention soil to a relative compaction of 85 percent to 90 percent of modified maximum dry density (ASTM D1557), where slopes allow, as determined by the Engineer. Final soil depth shall be measured and verified only after the soil has been compacted. Final depth of bioretention soil shall be as shown on Drawings.

H. After placement of bioretention soil, and before planting or mulching, the Contractor shall notify the Engineer at least 1 working day in advance. The Engineer will perform compaction testing.
I. Rake soil to final grade. Cell shall be consolidated or compacted as specified above, and approved by Engineer prior to planting.

END OF SECTION
PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section and any supplemental Data Sheets:

1. American Association of State Highway and Transportation Officials (AASHTO):

2. American Water Works Association (AWWA):
   c. C110/A21.10, Ductile-Iron and Gray-Iron Fittings, 3 in. Through 48 in. (75 mm Through 1200 mm) for Water and Other Liquids.

3. ASTM International (ASTM):
   c. C14, Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe.
   g. C361, Standard Specification for Reinforced Concrete Low-Head Pressure Pipe.
j. C497, Standard Test Methods for Concrete Pipe, Manhole Sections, or Tile.
m. C618, Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.
x. F794, Standard Specification for Poly(Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter.
y. F894, Standard Specification for Polyethylene (PE) Large Diameter Profile Wall Sewer and Drain Pipe.

1.02 DEFINITION

A. Standard Specifications: When referenced in this section, shall mean Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction, 2018
DIVISION 33—UTILITIES
Section 33 41 01—Storm Drain and Sanitary Sewer Piping

1.03 SUBMITTALS

A. Informational Submittals: Manufacturer’s Certification of Compliance.

B. All product data and information sheets.

PART 2 PRODUCTS

2.01 PIPE AND FITTINGS

A. Ductile iron pipe, and polyvinyl chloride (PVC), as specified in the Data Sheets following “End of Section.” ADS/Hancor pipe is not allowed to be installed within the City of Kirkland.

B. Underdrain pipe shall be slotted PVC Schedule 40 conforming to City of Kirkland Standard CK-L.01.

2.02 SERVICE AND DRAIN CONNECTIONS

A. Pipe and fittings for individual service connection shall be of one type of material throughout.

B. Flexible Expansion Joint:

1. EBAA IRON Flex-Tend or approved equal.
2. 50/50 expansion / contraction travel.
3. Single Ball MJ x MJ.

C. Meg-A-Lugs.

2.03 STORM CLEAN OUT

A. The clean out shall be 8 inches in size and as shown on Drawings, with the exception of label as DRAIN on the cast iron lid.

B. A cast-in-place concrete ring around the casting shall be Class 3000 concrete.

PART 3 EXECUTION

3.01 INSTALLATION OF PIPE, FITTINGS, AND APPURTEINANCES

A. General:

1. Pipe laying shall proceed upgrade with spigot ends pointing in direction of flow.
2. Excavate bell holes at each joint to permit correct assembly and inspection of entire joint.
3. Pipe invert may deviate from line or grade up to 1/2 inch for line and 1/4 inch for grade, provided that finished pipe line will present a uniform bore, and such variation does not result in a level or reverse sloping invert, or less than minimum slope shown.

4. Pipe bedding shall form continuous and uniform bearing and support for pipe barrel between joints. Pipe shall not rest directly on bell or pipe joint.

5. Prevent entry of foreign material into gasketed joints.

6. Plug or close off pipes that are stubbed off for manhole, concrete structure, or for connection by others, with temporary watertight plugs.

B. Ductile Iron Pipe Corrosion Protection:

1. Remove foreign material from the exterior of the pipe.

2. Wrap pipe with polyethylene encasement tube 2 feet longer than the pipe section prior to laying pipe section.

3. After assembling the pipe joint, overlap encasement tube with adjacent tube and seal joints with securing tape.

4. Provide additional securing tape at 3-foot intervals along the pipe.

5. Repair rips, punctures, or other damage to the polyethylene with securing tape.

6. Fittings may be wrapped with a flat sheet or split tube provided all seams are securely taped.

C. Service Connections:

1. Install sewer service expansion joint in-line with building service and 6-inch ductile iron service, without deflection.

2. Minimum Slope: 1/8 inch per foot unless otherwise shown on Drawings.

D. Square-End Underdrains: Cover top and sides of the joints with a strip of asphalt-saturated 30-pound roofing felt.

E. Perforated Underdrain: Lay with open joints and with perforations down.

3.02 PRESSURE TESTING

A. As specified in Section 7-04.3(1) Cleaning and Testing of the Standard Specifications.

3.03 SANITARY SEWER INSPECTION

A. Sanitary Sewers shall be inspected by the use of a Closed Circuit Television (CCTV) camera per Northshore Utility District Engineering Specifications, Methods of Construction, Section 10.7(e)
3.04 REPAIR AND RETESTING

A. Sections of pipe not meeting the pressure test requirements have individual joints tested and sealed.

B. Following repairs, sections shall be retested as specified.

3.05 STORM CLEANING

A. Prior to final acceptance and final manhole-to-manhole inspection of the storm drain system by Engineer, flush and clean all parts of the system, plugging downstream end of system to prevent sediment and debris from entering the existing storm drain system or the adjacent wetland. Remove all accumulated construction debris, rocks, gravel, sand, silt, and other foreign material from the storm drain system at or near the closest downstream manhole. If necessary, use mechanical rodding or bucketing equipment. Do not allow sediment, debris, turbid water, or other foreign substances to enter existing storm drain system or the adjacent wetland.

B. Upon Engineer’s final manhole-to-manhole inspection of the sewer system, if any foreign matter is still present in the system, reflush and clean the sections and portions of the lines as required.

C. Flush underdrain system, disposing of sediment and debris off site. After flushing underdrain system, clean downstream catch basin and structures.

3.06 SUPPLEMENTS

A. The supplements listed below, following “End of Section,” are a part of this Specification:

<table>
<thead>
<tr>
<th>Number</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>-.02</td>
<td>Ductile Iron</td>
</tr>
<tr>
<td>-.03</td>
<td>Polyvinyl Chloride (PVC) SDR 35</td>
</tr>
</tbody>
</table>

END OF SECTION
## SECTION 33 41 01.02
**DUCTILE IRON**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
</table>
| Pipe                  | Thickness Class: 52  
                         Thickness Design: ASTM A746  
| Interior Lining       | Cement-Mortar: AWWA C104/A21.4.                                                                                                                                                                           |
| Exterior Coating      | For exposed pipe segment only. AWWA C151/A21.50.                                                                                                                                                           |
| Protective Encasement | Securing Tape: Thermoplastic material with minimum thickness 8 mils, width 1 inch, and pressure sensitive adhesive face capable of bonding to metal, bituminous coating, and polyethylene. |
| Fittings              | AWWA C110/A21.10.                                                                                                                                                                                          |
| Fittings—Lining and Coating | AWWA C116/A21.16.                                                                                                                                               |
| Joints                | Rubber Gasketed Push-On: AWWA C111/A21.11 with lubricant as approved by manufacturer.                                                                                                                   |
| Plugs                 | Removable. Removal shall provide a socket suitable for making a flexible jointed lateral connection or extension.                                                                                          |
| Source Quality Control| In accordance with specified reference standard.                                                                                                                                                           |

END OF SECTION
### SECTION 33 41 01.03
POLYVINYL CHLORIDE (PVC)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipe: 15-inch diameter and under</td>
<td>ASTM D3034: Standard dimension ratio less than 35, except that the cell classification shall be 12454-B or 12454-C as defined in ASTM D1784.</td>
</tr>
<tr>
<td>Pipe: 18- through 24-inch diameter</td>
<td>ASTM F679: Standard dimension ratio less than 35, except that the cell classification shall be 12454-C as defined in ASTM D1784.</td>
</tr>
<tr>
<td>Ribbed Profile Pipe: 18- through 36-inch diameter</td>
<td>ASTM F794: Minimum stiffness of 46 psi when tested in accordance with ASTM D2412, except that the cell classification shall be 12454-C as defined in ASTM D1784.</td>
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<tr>
<td>Joints</td>
<td>ASTM D3212 rubber gasketed.</td>
</tr>
<tr>
<td>Gaskets</td>
<td>ASTM F477. Lubricants: As approved by manufacturer.</td>
</tr>
<tr>
<td>Fittings</td>
<td>PVC, gasketed. Provide plug when service piping is not required.</td>
</tr>
<tr>
<td>Plugs</td>
<td>Removable. Removal shall provide a socket suitable for making a flexible jointed lateral connection or extension.</td>
</tr>
<tr>
<td>Source Quality Control Testing</td>
<td>In accordance with specified ASTM.</td>
</tr>
</tbody>
</table>

END OF SECTION
SECTION 33 44 13.13
CATCH BASINS AND MANHOLES

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards that may be referenced in this section:

2. ASTM International (ASTM):
   c. A615/A615M, Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.

1.02 DEFINITIONS

A. Standard Specifications: When referenced in this section, shall mean Washington State Department of Transportation Standard Specifications for Road, Bridge, and Construction 2018.


1.03 SUBMITTAL

A. Action Submittals:

1. Shop Drawings including details of construction, knock out size, direction, and elevation, reinforcing and joints, anchors, lifting, and other items cast into members.
2. Shop Drawings of any appurtenance inside the catch basin, such as orifice, or any other flow control fixtures.
1.04 QUALITY ASSURANCE

A. Construct manhole as Precast Manholes with Base Liner in conformance with Northshore Utility District Standard Sewer Details 1 and Northshore Utility Department Standard Specifications.

B. Manufacturer Qualifications:
   1. Precast Concrete and Precast Prestressed Concrete: Product of manufacturer with 3 years’ experience producing precast concrete products of quality specified.
   2. Precast Plant: PCI certified plant with current specifications
   3. The Contractor shall provide written certification from the manhole manufacturer that the manholes provided meet or exceed the specifications and that the materials used in the construction of the manhole are in accordance with the specifications. Manhole certification shall be per Northshore Utility District Standard Specifications Section 9.3 (k), added as a Supplement following “End of Section.”

PART 2 PRODUCTS

2.01 CONCRETE

A. Type: Ready-mixed, conforming to ASTM C94/C94M, Alternate 2.
B. Compressive Field Strength: Not less than 2,500 psi at 28 days.
C. Maximum Size of Aggregate: 1-1/2 inch.
D. Slump: Between 2 inches and 4 inches.
E. Assumed Field Strength: 85 percent of strength of laboratory-cured cylinders.

2.02 REINFORCING STEEL

A. Conform to ASTM A615/A615M, Grade 60, deformed bars.

2.03 PRECAST UNITS

A. Conform to ASTM C478 and Drawings.
   1. Submit details of proposed units to Engineer for review.
B. Concrete Risers for Extensions: 6 inches high maximum and of same quality as sections.
   1. Confirm acceptability of risers with Engineer before installation.
DIVISION 33—UTILITIES
Section 33 44 13.13—Catch Basins and Manholes

2.04 MORTAR

A. Standard premixed mortar conforming to ASTM C387/C387M, Type S, or proportion one part portland cement to two parts clean, well-graded sand which will pass a 1/8-inch screen.

B. Admixtures may be used if not exceeding the following percentages of weight of cement:
   1. Hydrated Lime: 10 percent.
   2. Diatomaceous Earth or Other Inert Materials: 5 percent.

C. Consistency of Mortar: As required to readily adhere to concrete.

2.05 FRAMES AND GRATINGS

A. Frames and Grates for Catch Basins and Storm Drain Inlets shall be per Kirkland Pre-approved Plans: Cast iron conforming to ASTM A48/A48, Class 30.

B. Bearing Surfaces: Clean and provide uniform contact.

C. Castings: Tough, close-grained gray iron, sound, smooth, clean, free from blisters, blowholes, shrinkage, cold shuts, and defects.

2.06 MANHOLES

A. General: Manholes shall be per Northshore Utility District Engineering Specifications, Section 9.3 and Section 9.4, and is included as a Supplement following “End of Section.”

B. Manhole Base Liner:
   1. All new manholes shall be installed with a prefabricated manhole base liner made of polypropylene (PP) and/or fiberglass reinforced plastic (FRP).
   2. Manhole base liners shall be per Northshore Utility District Engineering Specifications, Section 9.3(b), and is included as a Supplement following “End of Section.”

C. Manhole Sections: Manhole base liners shall be per Northshore Utility District Engineering Specifications, Section 9.3(a), and is included as a Supplement following “End of Section.”

D. Manhole Steps: Manhole base liners shall be per Northshore Utility District Engineering Specifications, Section 9.3(c), and is included as a Supplement following “End of Section.”
E. Manhole Channels: Manhole base liners shall be per Northshore Utility District Engineering Specifications, Section 9.3(e), and is included as a Supplement following “End of Section.”

F. Pipe Connections: Manhole base liners shall be per Northshore Utility District Engineering Specifications, Section 9.3(f), and is included as a Supplement following “End of Section.”

2.07 SEWER CLEANOUT

A. Cleanout frame and cover shall be locking type equal to Amorcast 12 inch by 12 inch by 12 inch RPM Box Assembly with Pentahead locking bolt style and “CO” imprinted on cover, part number A6001423A (see NUD Standard Sewer Detail 9).

2.08 MANHOLE FRAME AND COVER

A. Manhole base liners shall be per Northshore Utility District Engineering Specifications, Section 9.4, and is included as a Supplement following “End of Section.”

PART 3 EXECUTION

3.01 GENERAL

A. Installation shall meet the requirements of Standard Specification Section 7-05 and Section 9-04.

3.02 EXCAVATION AND BACKFILL

A. Excavation: As specified in Section 31 23 16, Excavation.

B. Backfill: As specified in Section 31 23 23, Fill and Backfill.

3.03 CONSTRUCTION OF CATCH BASINS AND INLETS

A. Construct inlets and catch basins at locations shown and in accordance with Drawings. Construct tight and well-braced forms to dimensions and elevations required. Chamfer form corners.

B. Prior to placing concrete, remove water and debris from forms. Moisten forms just prior to placing concrete. Handle concrete from transporting vehicle to forms in a continuous manner as rapidly as practical without segregation or loss of ingredients. Immediately after placing, compact concrete with mechanical vibrator. Limit duration of vibration to time necessary to produce satisfactory consolidation without causing segregation.
C. Screed top surface of exposed slabs and walls. When initial water has been absorbed, float surfaces with wood float and lightly trowel with steel trowel to smooth finish free from marks or irregularities. Finish exposed edges with steel edging tool. Remove forms and patch defects in concrete with mortar mixed in same proportions as original concrete mix.

D. Use a membrane-forming curing compound to prevent loss of moisture for 7 days. Apply curing compound immediately after removal of forms or finishing of slabs. Protect concrete from damage during curing period.

3.04 PLACING PRECAST UNITS

A. Place on 6 inch minimum compacted granular fill, as specified in Section 31 23 23, Fill and Backfill.

B. If material in bottom of trench is unsuitable for supporting unit, excavate and backfill to required grade with 3-inch minus, clean, pit-run material. Set units to grade at locations shown.

3.05 EXTENSIONS

A. Install watertight extensions as shown in Standard Details. Lay risers in mortar with sides plumb and tops to grade. Seal joints with mortar, with interior and exterior troweled smooth. Prevent mortar from drying out and cure by applying a curing compound.

3.06 INSTALLATION OF FRAMES AND GRATES

A. Set frames and grates at elevations indicated or as determined in field and in conformance with Drawings.

B. Frames may be cast in, or set in mortar.

3.07 CLEANING

A. Upon completion, clean structure of silt, debris, and foreign matter.

3.08 SUPPLEMENTS

A. The supplement listed below, following “End of Section,” is a part of this Specification:


END OF SECTION
(d) FLEXIBLE COUPLING ADAPTERS

Flexible coupling adapters shall meet the specifications set forth in the AWWA Standard C219 coupling specification and be rated for working pressures up to 250 psi. Flexible coupling adapters shall be Romac XR501, Hymax 2000, or District approved equal.

9.3 MANHOLES

Manholes shall be of the offset type, shall be precast concrete sections with a precast base, and shall be made from 3,000 psi structural concrete. All manhole joints shall be watertight and shall be confined O-ring type. They shall be constructed in full compliance with the Standard Details and as further specified herein.

Manhole materials and manufacturing shall be in accordance with ASTM C478.

Minimum standard manhole depth is eight (8) feet and maximum depth is eighteen (18) feet. Depths other than within this range shall require special design and approval by the District.

The base sections and risers of the manholes shall be arranged so no pipes pass through the manhole joints.

(a) Manhole Sections

Manhole sections shall be placed and aligned so as to provide plumb vertical sides and vertical alignment of the ladder steps. The completed manhole shall be rigid, true to dimension and be watertight. The ladder shall be rigidly attached to the side of the manhole.

Manhole grade rings shall be reinforced 3,000 psi structural concrete, 24 inches in diameter and 4 inches high. Grade rings shall be set in a full-width bed of cement grout. Provide grout between rings and between upper ring and casting. Inside rings shall be troweled smooth with 1/2" (minimum) of grout in order to provide a watertight surface.

In addition to the O-ring rubber gaskets, all new manhole joints shall be sealed with a flexible butyl joint sealant conforming to ASTM C990-96 and Federal Specification SS-S-210. The flexible butyl joint sealant shall be “Kent Seal #2” as manufactured by Hamilton-Kent Company or “Ram-Nek” as manufactured by K.T. Snyder Company.

Steel lifting loops or hooks for precast manhole components shall be removed to a minimum depth of one (1) inch below the surface and the remaining hole packed with grout. Precast sections with damaged joint surfaces or with cracks or other damage that may permit infiltration will not be allowed.
Reinforcement for precast manholes shall be in accordance with ASTM C 478-97.

(b) BASE LINERS

All new manholes shall be installed with a prefabricated manhole base liner made of polypropylene (PP) and/or fiberglass reinforced plastic (FRP). The base liner shall be integrally cast and adequately anchored inside new precast concrete manhole base sections during the concrete casting process at the manhole suppliers manufacturing facility. The base liner shall be cast integral with the precast concrete manhole base section in accordance with the liner manufacturer's specifications. The liner must be fully supported during the casting process and lifting devices shall not penetrate the base liner.

The manhole base liner shall be prefabricated from a one piece homogeneous composite and/or thermoplastic with a minimum thickness of 0.12" (3 mm) and shall be in lengths and nominal inside diameters corresponding to the precast concrete base section and be a non load-bearing component, which is resistant to the chemical environment normally found in wastewater collection systems. The outer surface of the liner shall be coated with aggregate and/or PP pellets bonded to the outer surface and have perforated PP I-beam "bonding bridge" anchors bonded to the outer surface in order to insure adequate anchoring to concrete base sections to pass vacuum testing with 10" of negative pressure.

The inside liner surfaces shall be free of bulges, dents and other defects that result in a variation of inside diameter of more than 1/4" (7 mm) for base liner flow channel and pipe connections. The precast concrete pipe penetration joint surfaces shall be free of excess concrete at external and internal surfaces to insure a proper seal between the pipe connection and the liner.

The manhole base liner shall include full flow channels with side-walls to the crown of the pipe. The inner surface of the bench shall be provided with an anti-skid pattern. Watertight gasketed pipe bell connections to suit specific pipe types, grade and alignment, shall be monolithically attached to the base liners and shall extend to the outside profile of the precast concrete structure.

If PP base liner is utilized, a minimum slope of 0.06' is acceptable across the invert channel. The FRP base liner shall require the District standard minimum slope of 0.1' across the invert channel.
Base liner properties shall be in accordance with the following:

**MATERIALS**

**Polypropylene (PP):**
- 100% Copolymer
- Minimum thickness: 3mm
- Hardness: 75 Shore D
- Density: 56.8 lb/ft³ (0.91 g/cm³)
- Color: Dull mustard/goldenrod

**Fiberglass Reinforced Plastic (FRP):** Polyurethane Hybrid Composite
- Glass fiber: Type E, min fiber length of 0.625” (16mm), 10 - 12% content by weight
- Inert filler: 10 - 13% content by weight
- Minimum thickness: 3mm
- Hardness: 85 Shore D
- Density: 73.0 lb/ft³ (1.17 g/cm³)
- Color: Dull mustard/goldenrod

**Aggregate bonding medium:** Processed sand containing crushed & uncrushed dry and cleaned semi-round particles in the 0.08 - 0.12” (2 - 3mm) size range

**Gaskets:** Polysisoprene, unless otherwise specified
- Hardness: 50 - 55 Shore A

**PHYSICAL PROPERTIES**

**Percolation Test:**
- Water absorption of top surface - 0.032%

**Thermal shock (CSA-B45-M93):**
- 100 thermal cycles - no sign of surface defects
Chemical Resistance (ASTM D1308):

<table>
<thead>
<tr>
<th>Selected Reagents</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric Acid 69%</td>
<td>No surface Degradation - Surface Staining</td>
</tr>
<tr>
<td>Hydrochloric Acid 60%</td>
<td>No surface Degradation</td>
</tr>
<tr>
<td>Ammonia 28%</td>
<td>No surface Degradation</td>
</tr>
<tr>
<td>Sodium Hydroxide 5.25%</td>
<td>No surface Degradation</td>
</tr>
<tr>
<td>Sulfuric Acid 50%</td>
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<tr>
<td>Sulfuric Acid 70%</td>
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<td>Sulfuric Acid 80%</td>
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<td>Acetone</td>
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<tr>
<td>Unleaded Gasoline</td>
<td>No surface Degradation</td>
</tr>
<tr>
<td>Turpentine</td>
<td>No surface Degradation</td>
</tr>
<tr>
<td>Acetone Immersion (ASTM D2152)</td>
<td>No Attack</td>
</tr>
</tbody>
</table>

Base liners shall be manufactured and supplied by Predl Systems North America of Burnaby, B.C.

(c) MANHOLE STEPS

Manhole steps shall be made of ½" Grade 60 Steel reinforcing bars coated with copolymer polypropylene, equal to Lane International Manhole step No. P-14850.

The steps shall be installed at the manhole manufacturer's yard in conformance with the step manufacturer requirements. At a minimum, the step ends shall be coated with non-shrink epoxy grout and driven into pre-drilled holes with dimensions of 1” inch diameter and 3-1/2” depth. The pre-drilled holes shall not penetrate the exterior manhole wall.

(d) GRADE ADJUSTMENT

The depth of the 24” diameter manhole neck from the top of the frame to the top of the cone shall be from between 14” and 26”.

(e) CHANNELS

All new manholes shall be provided with fiberglass reinforced plastic base liners per Subsection 9.3.b of these specifications, unless otherwise indicated on the plans or approved by the District. Manholes approved for cement concrete channels shall conform to this subsection of the specifications.
Channels shall be made to conform accurately to the sewer grade and shall be brought together smoothly with well-rounded junctions, subject to approval by the District.

Channels shall consist of commercial grade concrete, minimum Class 3000 in accordance with Section 6-02 of the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

The channels shall be field poured after the inlet and outlet pipes have been laid and firmly grouted into place at the proper elevation. Allowances shall be made for a minimum of one-tenth foot (0.1") drop in elevation across the manhole in the direction of flow. The maximum allowable drop in inlet elevation across the manhole in the direction of flow shall be 0.5 ft. Channel sides shall be carried up vertically from the invert to three-quarters of the diameter of the various pipes. The concrete bench shall be warped evenly and sloped two percent (2%) to drain. Rough, uneven surfaces will not be permitted. Channels shall be constructed to allow the installation and use of a mechanical plug of the appropriate size.

(f) PIPE CONNECTIONS

All pipe entering or leaving the manhole shall be placed on firmly compacted bedding. Special care shall be taken to see that the openings through which pipes enter the structure are completely and firmly filled with mortar from the outside to insure water tightness. All PVC pipe connections to manholes shall be made with GPK PVC Manhole Adapters (also known as “sand collars”) with an external abrasive silica layer or Kor-N-Seal Connector manufactured by NPC, Inc.

All stubbed out sewer pipes placed through manhole walls for future connections shall be suitably plugged and blocked in a manner acceptable to the District.

(g) SHELF REPAIRS

Shelf repairs at connections to the existing manholes shall be class 3000 commercial grade cement in accordance with the Engineering Specifications.

(h) GROUT

Grout for all uses including, but not limited to, manhole channels, shelves, pick-holes, and adjusting rings, shall be cement based, nonshrink, noncorrosive, and nonmetallic grout conforming to ASTM C 1107, Grade C. Grout shall be Dayton 1107 Advantage Grout as provided by Dayton Superior Corporation, Oregon, IL., or approved equal. The District may sample and test grout to determine conformance with the specifications.
(i) DROP MANHOLES

Drop manholes shall, in all respects, be constructed as a standard manhole with the exception of the drop connection as shown on the Standard Detail.

(j) LIFT HOLES

All lift holes shall be completely filled smooth with grout both inside and out in order to insure water-tightness.

(k) MANHOLE CERTIFICATION

The Contractor shall provide written certification from the manhole manufacturer that the manholes provided meet or exceed the specifications and that the materials used in the construction of the manhole are in accordance with the specifications. A Manufacturer’s Certificate of Compliance shall be provided for each manhole delivered to the project and shall include the manufacturer’s name and address, the District’s manhole number, reference to the applicable project specifications being used, the design mix and 28-day strength of the cement concrete used, drawings indicating reinforcing steel details, such as size and location, results of materials testing conducted by the manufacturer and the signature of a responsible corporate official of the manufacturer.

The District may test manholes and materials used at any time, including after installation, and any manhole not conforming to the specifications shall be rejected by the District and replaced with a conforming manhole provided and installed by the Contractor.

9.4 MANHOLE AND CLEANOUT FRAME AND COVERS

Frames and covers shall be cast iron and conform to the Standard Details and these specifications. Castings shall conform to the requirements of ASTM A-48, Class 30 and shall be free of porosity, shrink cavities, cold shuts or cracks, or any surface defects that would impair serviceability. Repair of defects by welding, or by the use of smooth-on or similar material, will not be permitted. Frames and covers shall be machine-finished or ground on seating surfaces so as to assure non-rocking fit in any position and interchangeability of covers.

All manhole frames and covers will be locking type. Manhole frame and cover shall be East Jordan Ergo Assembly, Part No. 001040105L01.

Cleanout frame and cover shall be locking type equal to Armorcast 12"x12"x12" RPM Box Assembly with Pentahead locking bolt style and “CO” imprinted on cover, part number A6001423A (see NUD Standard Sewer Detail #9).
PREVAILING WAGES
PREVAILING WAGE RATES

Prevailing wage rates can be found at:
www.lni.wa.gov/tradeslicensing/prevwage/wagerates

King County

A copy of the applicable wage rates is available for viewing in our office:

City Hall Annex
310 1st Street
Kirkland, WA 98033

The City of Kirkland will mail a hard copy of the applicable wage rates upon request.
Send your request to the Project Engineer, or jmuse@kirklandwa.gov
Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker’s wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

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<th>County</th>
<th>Trade</th>
<th>Job Classification</th>
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<th>Overtime</th>
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<td>King Cement Masons</td>
<td>Troweling Machine Operator</td>
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<td>King Electricians - Inside</td>
<td>Cable Splicer</td>
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<td>King Fence Erectors</td>
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<td>7A</td>
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<td>4V 8Y</td>
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<td>King Flaggers</td>
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<td>King Heat &amp; Frost Insulators And Asbestos Workers</td>
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<td>King Laborers</td>
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<td>4V 8Y</td>
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<td>4V 8Y</td>
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<td>King Laborers</td>
<td>Change House Or Dry Shack</td>
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<td>7A</td>
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<td>King Laborers</td>
<td>Chipping Gun (30 Lbs. And Over)</td>
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<td>$50.86</td>
<td>7A</td>
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<td>Laborers</td>
<td>Chuck Tender</td>
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<td>7A</td>
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<td>Laborers</td>
<td>Concrete Dumper/Chute Operator</td>
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<td>Grinders</td>
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<td>Hazardous Waste Worker (Level C)</td>
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Combination Of High Pressure Air & Water On Concrete & Rock, Sandblast, Gunite, Shotcrete, Water Blaster, Vacuum Blaster)

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APPENDIX A: PLANS
UNDER SEPARATE COVER
APPENDIX B: PERMITS
ARMY CORPS PERMIT
Regulatory Branch

Ms. Jessica Redman
Environmental Science Associates
5309 Shilshole Avenue Northwest, Suite 200
Seattle, WA 98107

Reference: NWS-2017-1097
Kirkland, City of
(Totem Lake Park Boardwalk)

Dear Ms. Redman:

We have reviewed your memorandum dated October 5, 2017, to determine if a Department of the Army (DA) permit would be required to drive pin-piles for the installation of a new boardwalk over wetlands at Kirkland, Washington, as depicted on the enclosed drawings dated September 28, 2017. We have reviewed the information you provided to us pursuant to Section 404 of the Clean Water Act, and determined that a DA permit is not required for your proposed work as described in your memorandum and drawings.

Under Section 404 of the Clean Water Act, a DA permit is normally required for the discharge of dredged or fill material (e.g., fill, excavation, or mechanized land clearing) into waters of the U.S., including wetlands and navigable waters of the U.S. For more information, see the enclosed Clean Water Act Extracts and Definitions. Because driving pin-piles and installing structures over wetlands, as described in your memorandum, does not involve a discharge of dredged or fill material, a Section 404 DA permit is not required.

While a DA permit is not required, local, State, and other Federal requirements may still apply. For assistance in determining other permit requirements for the proposed project, we recommend you contact the Washington State Governor’s Office of Regulatory Innovation and Assistance via the internet at www.oria.wa.gov.
If you have any questions, please contact Mr. Andrew Shuckhart at andrew.j.shuckhart@usace.army.mil or by phone at (206) 316-3822

Sincerely,

[Signature]

Matthew Bennett, Section Chief
Regulatory Branch

Enclosures
CLean Water Act
ExtracTs and Definitions

ExtracTs from the Clean Water Act:

1. SECTION 404
   (a) The Secretary of the Army, acting through the Chief of Engineers, may issue permits, after notice and opportunity for public hearings for the discharge of dredged or fill material into the navigable waters at specified disposal sites.

   (b) Subject to subsection (c) of this section, each such disposal site shall be specified for each such permit by the Secretary of the Army (1) through the application of guidelines developed by the Administrator of the Environmental Protection Agency (Administrator), in conjunction with the Secretary of the Army, which guidelines shall be based upon criteria comparable to the criteria applicable to the territorial seas, the contiguous zone, and the ocean under section 403(c), and (2) in any case where such guidelines under clause (1) alone would prohibit the specification of a site, through the application additionally of the economic impacts of the site on navigation and anchorage.

   (c) The Administrator is authorized to prohibit the specification (including the withdrawal of specification) of any defined area as a disposal site, and he is authorized to deny or restrict the use of any defined area for specification (including the withdrawal of specification) as a disposal site, whenever he determines, after notice and opportunity for public hearings, that the discharge of such materials into such area will have an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas. Before making such determination, the Administrator shall set forth in writing and make public his findings and his reasons for making any determination under this subsection.

2. SECTION 301
   This section prohibits the discharge of any pollutant including fill or dredged material except as in compliance with various sections of the Clean Water Act, including Section 404.

3. SECTION 307
   The Administrator shall publish a list of toxic pollutants. Each toxic pollutant shall be subject to effluent standards (which may include a prohibition). Under this section it is unlawful to violate any such effluent standards or prohibition.

4. SECTION 309
   This section provides that any person who willfully or negligently violates the provisions of this Act may be punished by a fine of not less than $2,500 or more than $37,500 per day of violation or by imprisonment for not more than one year or by both. In addition, any person violating this Act may be subject to a civil penalty of not more than $37,500 per day of violation.
DEFINITIONS regarding the Clean Water Act:

The term "wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The Corps of Engineers has the responsibility for determining whether a specific wetland area is within Section 404 jurisdiction.

The term "adjacent" means bordering, contiguous, or neighboring. Wetlands separated from other waters of the United States by manmade dikes or barriers, natural river berms, beach dunes, and the like are "adjacent wetlands."

The term "discharge of dredged material" means the addition, including redeposition, of dredged material, runoff from a contained land or water disposal area, and any addition, including redeposition, of excavated material. These activities include mechanized landclearing, grading, filling in low areas, sidecasting of excavated material from new ditching work, and other placement of excavated material into waters of the United States, including wetlands.

The term "discharge of fill material" means the addition of fill material used for the primary effect of replacing any portion of a water of the U.S. with dry land or of changing the bottom elevation of a water of the U.S., including wetlands. The placement of pilings constitutes a discharge of fill material when such placement has or would have the effect of a discharge of fill material.

The term "ordinary high water mark" means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area.
memorandum

date

October 5, 2017

to

Andrew Shuckart – US Army Corps of Engineers Regulatory Project Manager – North King County

from

Jessica Redman, Ecologist

subject

Totem Lake Park Boardwalk, Kirkland, WA

This memorandum serves as a cover letter to the attached boardwalk construction sequence and site plans for the proposed Totem Lake Park. As per our telephone conversation on September 20, 2017, these materials are being provided to determine if a Clean Water Act – Section 404 permit will be necessary for project construction.

The study area is located within Totem Lake Park, in the northeast portion of the City of Kirkland (Section 28, Township 26N, Range 5E) (Figure 1). It is located within the Juanita Creek basin on the east side of Interstate 405. Totem Lake Park is generally bordered by residential developments to the north and commercial developments to the west, south, and east. Interstate 405 lies approximately 0.2 miles to the west and the Cross Kirkland Corridor Trail (CKC Trail) extends along the southeastern perimeter of the Park.

Totem Lake Park covers 17 acres and was originally part of the Totem Lake Mall property. In 1973, the mall’s developer donated the land to the King Conservation District (KCD) and the site is currently co-managed by KCD and the City. The City is proposing improvements to Totem Lake Park under a Master Plan. This Project is Phase 1 of the Master Plan and would construct an approximately 870 linear-foot boardwalk on the eastern portion of the property. The boardwalk will provide a connection between the CKC Trail and the existing foot path on the north side of the park. Footings for portions of the boardwalk within the wetland will be pre-cast hollow pipe piles. The boardwalk will be constructed incrementally behind piling installation to provide a stable work surface over the wetland. The boardwalk will be composed of open grating to minimize impacts to wetland functions. Removal of existing vegetation for construction will be performed by hand and limited to the extent possible. All construction equipment will be kept above water levels during the entirety of construction. For more details, please see the attached Boardwalk Construction Sequence memorandum and project information.

Based on our conversation, I assume that the enclosed materials will be sufficient for you to conclude if a permit will be required or not. I look forward to an email or letter with your decision. Alternately, if further materials or a pre-application meeting would be of use, please let me know. Also, feel free to contact me if you have any questions at 206-789-9658 or jredman@esassoc.com.
Boardwalk construction sequence to limit impacts to the Totem Lake wetland complex for the east boardwalk. Project is schedule for construction in 2019.

- Project description and intent:
  - Construct a boardwalk supported by pipe pilings through an existing wetland.
  - Impacts to the existing wetland will be limited to the greatest extent feasible.
  - Provide mitigation for all impacts on site.
  - Boardwalk will be a wood frame structure with steel grating that will meet ADA requirements and allow light to penetrate through to vegetation below, to the greatest extent possible.
  - Elevation of boardwalk will be such that no element of the wood framing system will be below water during 100 year storm events (approx. elevation of 125).
  - Materials selected for the structure shall be environmentally selected to avoid known risks to wetland systems. (Avoid galvanized materials, no arsenic, or any caustic materials).

- Work limits and tree / plant protection:
  - Work limits shall be defined to limit impacts to the surrounding wetland complex.
  - Work will be limited to a 10 foot offset from centerline of boardwalk along the alignment path as indicated on plans.
  - No access will be allowed beyond the work limit lines for heavy construction. Wetland enhancement planting may occur beyond these limits.

- Site preparation and clearing:
  - Clear existing vegetation by hand. Vegetation will be cut flush to the ground or to the water surface. No mechanized clearing will occur.
  - Haul excess material from site if not suitable to leave in place.

- Pipe pilings:
To: Project team  
From: Matt Martenson / Matt Martenson  
Date: 10.3.17  
Page: 2 of 3

Subject: Boardwalk Construction Sequence

- No excavation, disturbance of site soils, or mechanized clearing shall be allowed.
- Project design to consider pipe piling size to limit impact to the greatest extent feasible. 2 inch diameter pipe piles are being investigated since they do not require large equipment to install.
- Construct temporary platforms over wetland grade and cut vegetation to drive piles.

- Boardwalk framing and decking:
  - Boardwalk will be constructed incrementally behind piling installation to provide a more stable work surface over the wetland.
  - All construction equipment will be kept above water levels during the entirety of construction.
  - Boardwalk framing and decking materials have been selected for the ability to be installed with small equipment (or by hand) to avoid impacts.
  - Boardwalk will be built in approximate 8'-0" wide x 20'-0" long segments.

- Site restoration
  - Any temporary impacts to wetland vegetation will be mitigated through wetland enhancement, post-construction.

- Suggested Boardwalk Construction Sequence
  1. Construct concrete abutment outside of wetland at end(s) of boardwalk.
  2. Clear maximum 12'-0" wide x 24'-0" long section of woody vegetation at beginning (or continuation) of boardwalk alignment, by hand. Leave soil, roots, and emergent plants in place.
  3. Lay plywood or other sheet good to use as work surface on installed pipe pilings.
  4. Manually drive a group of 2” diameter piles using power/hand tools (no motorized or tracked vehicles) approximately 20'-0" from abutment or piles, whichever is closer.
5. Construct framing and decking in approximate 20'-0" segments.
6. Remove work surface from under constructed framing and decking
7. Repeat steps 2 through 6.

Note: All construction equipment will be kept above water levels during the entirety of construction.

End of Memo
HPA PERMIT
The City of Kirkland Public Works Department
ATTENTION: Brian Baker
123 5th Avenue
Kirkland, WA 98033

Environmental Science Associates
ATTENTION: Jessica Redman
5309 Shilshole Ave NW
Seattle, WA 98107-5344

Project Name: Totem Lake Park Development -- Phase 1
Project Description: This project is Phase 1 of the Master Plan and would construct an approximately 720 linear-foot boardwalk over the Totem Lake Wetland (Wetland A) on the eastern and northern portion of the property. The boardwalk will provide a connection between the Cross Kirkland Corridor Trail and the existing foot path on the north side of the park.

PROVISIONS

TIMING - PLANS - INVASIVE SPECIES CONTROL

1. TIMING LIMITATION: You may begin the project immediately and you must complete the project by January 13, 2024, provided: Project mitigation shall be completed prior to or concurrent with other project construction activities.

2. APPROVED PLANS: You must accomplish the work per plans and specifications submitted with the application and approved by the Washington Department of Fish and Wildlife entitled, "Totem Lake Park Phase 1", labeled "60% DESIGN SUBMITTAL", and dated July 18, 2018; and per the "Draft TOTEM LAKE PARK DEVELOPMENT --PHASE 1 Critical Areas Report and Conceptual Mitigation Plan", dated November 2018, except as modified by this Hydraulic Project Approval (HPA). You must have a copy of these plans and this HPA available on site during all phases of the project construction.

3. INVASIVE SPECIES CONTROL: Thoroughly clean all equipment and gear before arriving and leaving the job site to prevent the transport and introduction of aquatic invasive species. Properly dispose of any water and chemicals used to clean gear and equipment. You can find additional information in the Washington Department of Fish and Wildlife's Invasive Species Management Protocols (November 2012), available online at http://wdfw.wa.gov/publications/01490/wdfw01490.pdf.

NOTIFICATION REQUIREMENTS

4. PRE- AND POST-CONSTRUCTION NOTIFICATION: You, your agent, or contractor must contact the Washington Department of Fish and Wildlife by e-mail to larry.fisher@dfw.wa.gov and to HPAapplications@dfw.wa.gov; mail to Post Office Box 43234, Olympia, Washington 98504-3234; or fax to (360) 902-2946 at least three business days before starting work, and again within seven days after completing the work. The notification must include the permittee's name, project location, starting date for work or date the work was completed, and the permit number. See also Provision 28 regarding approval of the large woody material installations by the habitat biologist.

5. FISH KILL/ WATER QUALITY PROBLEM NOTIFICATION: If a fish kill occurs or fish are observed in distress at the job site, immediately stop all activities causing harm. Immediately notify the Washington Department of Fish and Wildlife habitat biologist listed below of the problem by calling 425-313-5683 or 425-449-6790. If the likely cause of the fish kill or fish distress is related to water quality, also notify the Washington Military Department Emergency Management Division at 1-800-258-5990. Activities related to the fish kill or fish distress must not resume until the Washington Department of Fish and Wildlife gives approval. The Washington Department of Fish and Wildlife may
require additional measures to mitigate impacts.

STAGING, JOB SITE ACCESS, AND EQUIPMENT

6. Establish staging areas (used for equipment storage, vehicle storage, fueling, servicing, and hazardous material storage) in a location and manner that will prevent contaminants such as petroleum products, hydraulic fluid, fresh concrete, sediments, sediment-laden water, chemicals, or any other toxic or harmful materials from entering waters of the state.

7. Clearly mark boundaries to establish the limit of work associated with site access and construction.

8. Limit the removal of native woody vegetation to the minimum amount needed to construct the project.

9. Check equipment daily for leaks and complete any required repairs in an upland location before using the equipment in or near the water.

10. Use environmentally acceptable lubricants composed of biodegradable base oils such as vegetable oils, synthetic esters, and polyalkylene glycols in equipment operated in or near the water.

CONSTRUCTION-RELATED SEDIMENT, EROSION AND POLLUTION CONTAINMENT

11. Protect all disturbed areas from erosion. Maintain erosion and sediment control until all work and cleanup of the job site has been completed.

12. All erosion control materials that will remain onsite must be composed of 100% biodegradable materials.

13. Straw used for erosion and sediment control, must be certified free of noxious weeds and their seeds.

14. Stop all hydraulic project activities except those needed to control erosion and siltation, if flow conditions arise that will result in erosion or siltation of waters of the state.

15. Prevent project contaminants, such as petroleum products, hydraulic fluid, fresh concrete, sediments, sediment-laden water, chemicals, or any other toxic or harmful materials, from entering or leaching into waters of the state.

16. Route construction water (wastewater) from the project to an upland area above the limits of anticipated floodwater. Remove fine sediment and other contaminants before discharging the construction water to waters of the state.

17. Deposit waste material from the project, such as construction debris, silt, excess dirt, or overburden, in an upland area above the limits of anticipated floodwater unless the material is approved by the Washington Department of Fish and Wildlife for reuse in the project.

18. Deposit all trash from the project at an appropriate upland disposal location.

CONSTRUCTION MATERIALS

19. Store all construction and deconstruction material in a location and manner that will prevent contaminants such as petroleum products, hydraulic fluid, fresh concrete, sediments, sediment-laden water, chemicals, or any other toxic or harmful materials from entering waters of the state.

20. Do not use wood treated with oil-type preservatives (creosote, pentachlorophenol) in any hydraulic project. You may use wood treated with waterborne preservatives (ACZA, ACQ) provided the wood is approved by the Western Wood Preservers Institute for use in the aquatic environment. Any use of treated wood in the aquatic environment must follow guidelines and best management practices available at www.wwpinstitute.org.

DEMOBILIZATION AND CLEANUP

21. Do not relocate removed or replaced structures within waters of the state. Remove and dispose of these structures in an upland area above the limits of anticipated floodwater.

22. Seed areas disturbed by construction activities with a native seed mix suitable for the site that has at least one quick-establishing plant species.

23. Complete installation of mitigation plantings prior to the end of the first dormant season (late fall through late winter)
after completion of other project grading activities per the approved plan (Provision 2). Maintain plantings for at least three years to ensure at least eighty percent initial survival of each species of a contingency species approved by the habitat biologist. Failure to achieve the eighty percent survival in year three will require you to submit a plan with follow-up measures to achieve requirements or reasons to modify requirements.

24. Upon completion of the project, remove all materials or equipment from the site and dispose of all excess spoils and waste materials in an upland area above the limits of anticipated floodwater.

25. Remove temporary erosion and sediment control methods after job site is stabilized or within three months of project completion, whichever is sooner.

### LOCATION #1:

**Site Name:** Totem Lake Park, Kirkland, WA

**WRIA**

**Waterbody:**

**Tributary to:**

**08 - Cedar - Sammamish**

Juanita Creek

Juanita Bay

**1/4 SEC:**

**Section:**

**Township:**

**Range:**

**Latitude:**

**Longitude:**

**County:**

28

26 N

05 E

47.7115805

-122.1746305

King

**Location #1 Driving Directions**

From I-405 N take exit 20B for 120th Avenue NE. Continue on to 120th Avenue NE. Make a right on Totem Lake Way

### APPLY TO ALL HYDRAULIC PROJECT APPROVALS

This Hydraulic Project Approval pertains only to those requirements of the Washington State Hydraulic Code, specifically Chapter 77.55 RCW. Additional authorization from other public agencies may be necessary for this project. The person(s) to whom this Hydraulic Project Approval is issued is responsible for applying for and obtaining any additional authorization from other public agencies (local, state and/or federal) that may be necessary for this project.

This Hydraulic Project Approval shall be available on the job site at all times and all its provisions followed by the person(s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work.

This Hydraulic Project Approval does not authorize trespass.

The person(s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work may be held liable for any loss or damage to fish life or fish habitat that results from failure to comply with the provisions of this Hydraulic Project Approval.

Failure to comply with the provisions of this Hydraulic Project Approval could result in a civil penalty of up to one hundred dollars per day and/or a gross misdemeanor charge, possibly punishable by fine and/or imprisonment.
All Hydraulic Project Approvals issued under RCW 77.55.021 are subject to additional restrictions, conditions, or revocation if the Department of Fish and Wildlife determines that changed conditions require such action. The person(s) to whom this Hydraulic Project Approval is issued has the right to appeal those decisions. Procedures for filing appeals are listed below.

MINOR MODIFICATIONS TO THIS HPA: You may request approval of minor modifications to the required work timing or to the plans and specifications approved in this HPA unless this is a General HPA. If this is a General HPA you must use the Major Modification process described below. Any approved minor modification will require issuance of a letter documenting the approval. A minor modification to the required work timing means any change to the work start or end dates of the current work season to enable project or work phase completion. Minor modifications will be approved only if spawning or incubating fish are not present within the vicinity of the project. You may request subsequent minor modifications to the required work timing. A minor modification of the plans and specifications means any changes in the materials, characteristics or construction of your project that does not alter the project's impact to fish life or habitat and does not require a change in the provisions of the HPA to mitigate the impacts of the modification. If you originally applied for your HPA through the online Aquatic Protection Permitting System (APPS), you may request a minor modification through APPS. A link to APPS is at http://wdfw.wa.gov/licensing/hpa/. If you did not use APPS you must submit a written request that clearly indicates you are seeking a minor modification to an existing HPA. Written requests must include the name of the applicant, the name of the authorized agent if one is acting for the applicant, the APP ID number of the HPA, the date issued, the permitting biologist, the requested changes to the HPA, the reason for the requested change, the date of the request, and the requestor's signature. Send by mail to: Washington Department of Fish and Wildlife, PO Box 43234, Olympia, Washington 98504-3234, or by email to HPAnotifications@dfw.wa.gov. You should allow up to 45 days for the department to process your request.

MAJOR MODIFICATIONS TO THIS HPA: You may request approval of major modifications to any aspect of your HPA. Any approved change other than a minor modification to your HPA will require issuance of a new HPA. If you originally applied for your HPA through the online Aquatic Protection Permitting System (APPS), you may request a major modification through APPS. A link to APPS is at http://wdfw.wa.gov/licensing/hpa/. If you did not use APPS you must submit a written request that clearly indicates you are requesting a major modification to an existing HPA. Written requests must include the name of the applicant, the name of the authorized agent if one is acting for the applicant, the APP ID number of the HPA, the date issued, the permitting biologist, the requested changes to the HPA, the reason for the requested change, the date of the request, and the requestor's signature. Send your written request by mail to: Washington Department of Fish and Wildlife, PO Box 43234, Olympia, Washington 98504-3234. You may email your request for a major modification to HPAnotifications@dfw.wa.gov. You should allow up to 45 days for the department to process your request.

APPEALS INFORMATION

If you wish to appeal the issuance, denial, conditioning, or modification of a Hydraulic Project Approval (HPA), Washington Department of Fish and Wildlife (WDFW) recommends that you first contact the department employee who issued or denied the HPA to discuss your concerns. Such a discussion may resolve your concerns without the need for further appeal action. If you proceed with an appeal, you may request an informal or formal appeal. WDFW encourages you to take advantage of the informal appeal process before initiating a formal appeal. The informal appeal process includes a review by department management of the HPA or denial and often resolves issues faster and with less legal complexity than the formal appeal process. If the informal appeal process does not resolve your concerns, you may advance your appeal to the formal process. You may contact the HPA Appeals Coordinator at (360) 902-2534 for more information.
A. INFORMAL APPEALS: WAC 220-660-460 is the rule describing how to request an informal appeal of WDFW actions taken under Chapter 77.55 RCW. Please refer to that rule for complete informal appeal procedures. The following information summarizes that rule.

A person who is aggrieved by the issuance, denial, conditioning, or modification of an HPA may request an informal appeal of that action. You must send your request to WDFW by mail to the HPA Appeals Coordinator, Department of Fish and Wildlife, Habitat Program, PO Box 43234, Olympia, Washington 98504-3234; e-mail to HPAapplications@dfw.wa.gov; fax to (360) 902-2946; or hand-delivery to the Natural Resources Building, 1111 Washington St SE, Habitat Program, Fifth floor. WDFW must receive your request within 30 days from the date you receive notice of the decision. If you agree, and you applied for the HPA, resolution of the appeal may be facilitated through an informal conference with the WDFW employee responsible for the decision and a supervisor. If a resolution is not reached through the informal conference, or you are not the person who applied for the HPA, the HPA Appeals Coordinator or designee may conduct an informal hearing or review and recommend a decision to the Director or designee. If you are not satisfied with the results of the informal appeal, you may file a request for a formal appeal.

B. FORMAL APPEALS: WAC 220-660-470 is the rule describing how to request a formal appeal of WDFW actions taken under Chapter 77.55 RCW. Please refer to that rule for complete formal appeal procedures. The following information summarizes that rule.

A person who is aggrieved by the issuance, denial, conditioning, or modification of an HPA may request a formal appeal of that action. You must send your request to WDFW by mail to the clerk of the Pollution Control Hearings Boards and serve a copy on WDFW within 30 days from the date you receive notice of the decision. You may serve WDFW by mail to the HPA Appeals Coordinator, Department of Fish and Wildlife, Habitat Program, PO Box 43234, Olympia, Washington 98504-3234; e-mail to HPAapplications@dfw.wa.gov; fax to (360) 902-2946; or hand-delivery to the Natural Resources Building, 1111 Washington St SE, Habitat Program, Fifth floor. The time period for requesting a formal appeal is suspended during consideration of a timely informal appeal. If there has been an informal appeal, you may request a formal appeal within 30 days from the date you receive the Director's or designee's written decision in response to the informal appeal.

C. FAILURE TO APPEAL WITHIN THE REQUIRED TIME PERIODS: If there is no timely request for an appeal, the WDFW action shall be final and unappealable.
Determination of Non-Significance (DNS)

Case No.: SEP18-00520  DATE ISSUED: December 20, 2018

Project Name: Totem Lake Park – Phase 1

Project Location: 12031 NE Totem Lake Way and Totem Lake Park

Project Description: Construct a portion of the Totem Lake Park Master Plan (Phase 1). The proposal is for the construction of the following park improvements: restrooms, kiosk, parking, terraced seating, passive lawn area, a play area, promenade walk with seating nodes, an elevated lake viewing pier, and a boardwalk trail with habitat viewing. The proposal, which includes a mitigation plan, is being evaluated through the City's Public Agency and Public Utility Exception critical area review process.

Proponent: Brian Baker, Public Works Project Coordinator with City of Kirkland

Project Planner: Scott Guter

Lead agency is the City of Kirkland

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21.030 (2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public upon request.

This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for 14 days from the date issued. Comments must be submitted to Scott Guter, project planner at sguter@kirklandwa.gov by 5:00 PM on January 3, 2019. Please reference case number SEP18-00520.

Responsible official:

Adam Weinstein, AICP, Planning & Building Director
Date: December 17, 2018
City of Kirkland
Planning & Building Department
123 Fifth Avenue, Kirkland, WA 98033 – 425.587.3600

You may appeal this determination to the Planning & Building Department at City of Kirkland, 123 Fifth Avenue, Kirkland, WA 98033 no later than 5:00 PM on January 3, 2019 (date, 14 days from date issued) by a Written Notice of Appeal. You should be prepared to make specific factual objections and reference case number SEP18-00520. Contact Scott Guter, project planner in the Planning & Building Department at 425.587.3247 to ask about the procedures for SEPA appeals. See also KMC 24.02.230 Administrative Appeals.

Publish in The Seattle Times on: Wednesday, December 26, 2018
Distribute this notice with a copy of the Environmental Checklist to:

GENERAL NOTICING

- Department of Ecology - Environmental Review
- Muckleshoot Tribal Council - Environmental Division, Tribal Archeologist
- Muckleshoot Tribal Council - Environmental Division, Fisheries Division Habitat
- Cascade Water Alliance – Director of Planning
- Totem Lake Neighborhood Association
- Lake Washington School District No. 414: Budget Manager and Director of Support Services
- Washington State Dept. of Archaeology & Historic Preservation
- King County Dept. of Transportation - Employer Transportation Representative
- Seattle & King County Public Health - SEPA Coordinator

AGENCIES WITH JURISDICTION, AFFECTED AGENCIES, AND/OR INTERESTED PARTIES

- Department of Ecology - Environmental Review
- Department of Fish and Wildlife – Olympia
- Muckleshoot Tribal Council - Environmental Division, Fisheries Division Habitat Program
- U.S. Army Corps of Engineers - Seattle District
- Eastside Audubon Society
- Northshore Utility District - Operations Department, Engineering Director, and Senior Civil Engineer
- Seattle City Light - Department of Finance and Administration

cc: Applicant
    King Conservation District
    Planning Department File, Case No. SAR18-00519

Distributed by: ___________________________ December 20, 2018

(Karin Bayes, Office Specialist) Date
DEPT. OF ECOLOGY
CONSTRUCTION STORM
WATER GENERAL PERMIT
April 30, 2019

Brian Baker  
City of Kirkland  
123 5th Ave.  
Kirkland, WA  98033-6189

RE: Coverage under the Construction Stormwater General Permit (CSWGP)

<table>
<thead>
<tr>
<th>Permit number:</th>
<th>WAR307876</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Name:</td>
<td>Totem Lake Park Phase 1</td>
</tr>
</tbody>
</table>
| Location:      | 12031 NE Totem Lake Way, Kirkland, WA  
                 County: King |
| Disturbed Acres: | 3.3 |

Dear Brian Baker:

The Washington State Department of Ecology (Ecology) received your Notice of Intent for coverage under Ecology’s Construction Stormwater General Permit (CSWGP). This is your permit coverage letter. Your permit coverage is effective April 30, 2019. Please retain this permit coverage letter as the official record of permit coverage for your site.

Ecology has approved use of electronic formats as long as they are easily produced on your construction site. A mobile friendly copy of the CSWGP permit, permit forms, and information related to your permit can be viewed and downloaded at www.ecology.wa.gov/eCoverage-packet. Please contact your Permit Administrator, listed below, if you would like to receive a hard copy of the CSWGP.

Please take time to read the entire permit and contact Ecology if you have any questions.

Electronic Discharge Monitoring Reports (WQWebDMR)  
This permit requires that Permittees submit monthly discharge monitoring reports (DMRs) for the full duration of permit coverage (from issuance date to termination). DMRs must be submitted electronically using Ecology’s secure online system, WQWebDMR. To sign up for WQWebDMR go to www.cew.wa.gov/programs/wq/permits/paris/webdmr.html. If you have questions, contact the portal staff at (360) 407-7097 (Olympia area), or (800) 633-6193/option 3, or email WQWebPortal@ecy.wa.gov.
Appeal Process
You have a right to appeal coverage under the general permit to the Pollution Control Hearing Board (PCHB). Appeals must be filed within 30 days of the date of receipt of this letter. Any appeal is limited to the general permit's applicability or non-applicability to a specific discharger. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. “Date of receipt” is defined in RCW 43.21B.001(2). For more information regarding your right to appeal, go to https://fortress.wa.gov/ecy/publications/SummaryPages/1710007.html to view Ecology’s Focus Sheet: Appeal of General Permit Coverage.

Ecology Field Inspector Assistance
If you have questions regarding stormwater management at your construction site, please contact Maria Zeman of Ecology's Northwest Regional Office in Bellevue at Maria.Zeman@ecy.wa.gov, or at 425-649-7100.

Questions or Additional Information
Ecology is committed to providing assistance. Please review our web page at www.ecology.wa.gov/constructionstormwaterpermit. If you have questions about the Construction Stormwater General Permit, please contact your Permit Administrator, Jess Eakens at jess.eakens@ecy.wa.gov or (360) 407-6442.

Sincerely,

Vincent McGowan, P.E., Manager
Program Development Services Section
Water Quality Program
CONSTRUCTION STORMWATER GENERAL PERMIT

National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit for Stormwater Discharges Associated with Construction Activity

State of Washington
Department of Ecology
Olympia, Washington 98504

In compliance with the provisions of
Chapter 90.48 Revised Code of Washington
(State of Washington Water Pollution Control Act)
and
Title 33 United States Code, Section 1251 et seq.
The Federal Water Pollution Control Act (The Clean Water Act)

Until this permit expires, is modified, or revoked, Permittees that have properly obtained coverage under this general permit are authorized to discharge in accordance with the special and general conditions that follow.

[Signature]
Heather R. Bartlett
Water Quality Program Manager
Washington State Department of Ecology
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SUMMARY OF PERMIT REPORT SUBMITTALS

Refer to the Special and General Conditions within this permit for additional submittal requirements. Appendix A provides a list of definitions. Appendix B provides a list of acronyms.

Table 1: Summary of Required Submittals

<table>
<thead>
<tr>
<th>Permit Section</th>
<th>Submittal</th>
<th>Frequency</th>
<th>First Submittal Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>S5.A and S8</td>
<td>High Turbidity/Transparency Phone Reporting</td>
<td>As Necessary</td>
<td>Within 24 hours</td>
</tr>
<tr>
<td>S5.B</td>
<td>Discharge Monitoring Report</td>
<td>Monthly*</td>
<td>Within 15 days following the end of each month</td>
</tr>
<tr>
<td>S5.F and S8</td>
<td>Noncompliance Notification – Telephone Notification</td>
<td>As necessary</td>
<td>Within 24-hours</td>
</tr>
<tr>
<td>S5.F</td>
<td>Noncompliance Notification – Written Report</td>
<td>As necessary</td>
<td>Written approval from Ecology is required prior to using chemical treatment (with the exception of dry ice or CO2 to adjust pH)</td>
</tr>
<tr>
<td>S9.C</td>
<td>Request for Chemical Treatment Form</td>
<td>As necessary</td>
<td>Written approval from Ecology is required prior to using chemical treatment (with the exception of dry ice or CO2 to adjust pH)</td>
</tr>
<tr>
<td>G2</td>
<td>Notice of Change in Authorization</td>
<td>As necessary</td>
<td></td>
</tr>
<tr>
<td>G6</td>
<td>Permit Application for Substantive Changes to the Discharge</td>
<td>As necessary</td>
<td></td>
</tr>
<tr>
<td>G8</td>
<td>Application for Permit Renewal</td>
<td>1/permit cycle</td>
<td>No later than 180 days before expiration</td>
</tr>
<tr>
<td>G9</td>
<td>Notice of Permit Transfer</td>
<td>As necessary</td>
<td></td>
</tr>
<tr>
<td>G20</td>
<td>Notice of Planned Changes</td>
<td>As necessary</td>
<td></td>
</tr>
<tr>
<td>G22</td>
<td>Reporting Anticipated Non-compliance</td>
<td>As necessary</td>
<td></td>
</tr>
</tbody>
</table>

SPECIAL NOTE: *Permittees must submit electronic Discharge Monitoring Reports (DMRs) to the Washington State Department of Ecology monthly, regardless of site discharge, for the full duration of permit coverage. Refer to Section S5.B of this General Permit for more specific information regarding DMRs.

Table 2: Summary of Required On-site Documentation

<table>
<thead>
<tr>
<th>Document Title</th>
<th>Permit Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permit Coverage Letter</td>
<td>See Conditions S2, S5</td>
</tr>
<tr>
<td>Construction Stormwater General Permit</td>
<td>See Conditions S2, S5</td>
</tr>
<tr>
<td>Site Log Book</td>
<td>See Conditions S4, S5</td>
</tr>
<tr>
<td>Stormwater Pollution Prevention Plan (SWPPP)</td>
<td>See Conditions S9, S5</td>
</tr>
</tbody>
</table>
SPECIAL CONDITIONS

S1. PERMIT COVERAGE

A. Permit Area

This Construction Stormwater General Permit (CSWGP) covers all areas of Washington State, except for federal operators and Indian Country as specified in Special Condition S1.E.3.

B. Operators Required to Seek Coverage Under this General Permit:

1. Operators of the following construction activities are required to seek coverage under this CSWGP:

   a. Clearing, grading and/or excavation that results in the disturbance of one or more acres (including off-site disturbance acreage authorized in S1.C.2) and discharges stormwater to surface waters of the State; and clearing, grading and/or excavation on sites smaller than one acre that are part of a larger common plan of development or sale, if the common plan of development or sale will ultimately disturb one acre or more and discharge stormwater to surface waters of the State.

      i. This includes forest practices (including, but not limited to, class IV conversions) that are part of a construction activity that will result in the disturbance of one or more acres, and discharge to surface waters of the State (that is, forest practices that prepare a site for construction activities); and

   b. Any size construction activity discharging stormwater to waters of the State that the Washington State Department of Ecology (Ecology):

      i. Determines to be a significant contributor of pollutants to waters of the State of Washington.

      ii. Reasonably expects to cause a violation of any water quality standard.

2. Operators of the following activities are not required to seek coverage under this CSWGP (unless specifically required under Special Condition S1.B.1.b. above):

   a. Construction activities that discharge all stormwater and non-stormwater to ground water, sanitary sewer, or combined sewer, and have no point source discharge to either surface water or a storm sewer system that drains to surface waters of the State.

   b. Construction activities covered under an Erosivity Waiver (Special Condition S2.C).

   c. Routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.
C. Authorized Discharges:

1. **Stormwater Associated with Construction Activity.** Subject to compliance with the terms and conditions of this permit, Permittees are authorized to discharge stormwater associated with construction activity to surface waters of the State or to a storm sewer system that drains to surface waters of the State. (Note that “surface waters of the State” may exist on a construction site as well as off site; for example, a creek running through a site.)

2. **Stormwater Associated with Construction Support Activity.** This permit also authorizes stormwater discharge from support activities related to the permitted construction site (for example, an on-site portable rock crusher, off-site equipment staging yards, material storage areas, borrow areas, etc.) provided:
   
   a. The support activity relates directly to the permitted construction site that is required to have an NPDES permit; and
   b. The support activity is not a commercial operation serving multiple unrelated construction projects, and does not operate beyond the completion of the construction activity; and
   c. Appropriate controls and measures are identified in the Stormwater Pollution Prevention Plan (SWPPP) for the discharges from the support activity areas.

3. **Non-Stormwater Discharges.** The categories and sources of non-stormwater discharges identified below are authorized conditionally, provided the discharge is consistent with the terms and conditions of this permit:
   
   a. Discharges from fire-fighting activities.
   b. Fire hydrant system flushing.
   c. Potable water, including uncontaminated water line flushing.
   d. Hydrostatic test water.
   e. Uncontaminated air conditioning or compressor condensate.
   f. Uncontaminated ground water or spring water.
   g. Uncontaminated excavation dewatering water (in accordance with S9.D.10).
   h. Uncontaminated discharges from foundation or footing drains.
   i. Uncontaminated or potable water used to control dust. Permittees must minimize the amount of dust control water used.
   j. Routine external building wash down that does not use detergents.
   k. Landscape irrigation water.

The SWPPP must adequately address all authorized non-stormwater discharges, except for discharges from fire-fighting activities, and must comply with Special Condition S3.
At a minimum, discharges from potable water (including water line flushing), fire hydrant system flushing, and pipeline hydrostatic test water must undergo the following: dechlorination to a concentration of 0.1 parts per million (ppm) or less, and pH adjustment to within 6.5 – 8.5 standard units (su), if necessary.

D. Prohibited Discharges:

The following discharges to waters of the State, including ground water, are prohibited.

1. Concrete wastewater.

2. Wastewater from washout and clean-up of stucco, paint, form release oils, curing compounds and other construction materials.

3. Process wastewater as defined by 40 Code of Federal Regulations (CFR) 122.2 (see Appendix A of this permit).

4. Slurry materials and waste from shaft drilling, including process wastewater from shaft drilling for construction of building, road, and bridge foundations unless managed according to Special Condition S9.D.9.j.

5. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance.

6. Soaps or solvents used in vehicle and equipment washing.


8. Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, unless managed according to Special Condition S9.D.10.

E. Limits on Coverage

Ecology may require any discharger to apply for and obtain coverage under an individual permit or another more specific general permit. Such alternative coverage will be required when Ecology determines that this CSWGP does not provide adequate assurance that water quality will be protected, or there is a reasonable potential for the project to cause or contribute to a violation of water quality standards.

The following stormwater discharges are not covered by this permit:

1. Post-construction stormwater discharges that originate from the site after completion of construction activities and the site has undergone final stabilization.

2. Non-point source silvicultural activities such as nursery operations, site preparation, reforestation and subsequent cultural treatment, thinning, prescribed burning, pest and fire control, harvesting operations, surface drainage, or road construction and maintenance, from which there is natural runoff as excluded in 40 CFR Subpart 122.

3. Stormwater from any federal operator.
4. Stormwater from facilities located on “Indian Country” as defined in 18 U.S.C. §1151, except portions of the Puyallup Reservation as noted below.

   Indian Country includes:
   a. All land within any Indian Reservation notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation. This includes all federal, tribal, and Indian and non-Indian privately owned land within the reservation.
   b. All off-reservation Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.
   c. All off-reservation federal trust lands held for Native American Tribes.

      Puyallup Exception: Following the Puyallup Tribes of Indians Land Settlement Act of 1989, 25 U.S.C. §1773; the permit does apply to land within the Puyallup Reservation except for discharges to surface water on land held in trust by the federal government.

5. Stormwater from any site covered under an existing NPDES individual permit in which stormwater management and/or treatment requirements are included for all stormwater discharges associated with construction activity.

6. Stormwater from a site where an applicable Total Maximum Daily Load (TMDL) requirement specifically precludes or prohibits discharges from construction activity.

S2. APPLICATION REQUIREMENTS

A. Permit Application Forms

   1. Notice of Intent Form/Timeline

      a. Operators of new or previously unpermitted construction activities must submit a complete and accurate permit application (Notice of Intent, or NOI) to Ecology.

      b. Operators must apply using the electronic application form (NOI) available on Ecology’s website http://www.ecy.wa.gov/programs/wq/stormwater/construction/index.html. Permittees unable to submit electronically (for example, those who do not have an internet connection) must contact Ecology to request a waiver and obtain instructions on how to obtain a paper NOI.

         Department of Ecology
         Water Quality Program - Construction Stormwater
         PO Box 47696
         Olympia, Washington 98504-7696
c. The operator must submit the NOI at least 60 days before discharging stormwater from construction activities and must submit it on or before the date of the first public notice (see Special Condition S2.B below for details). The 30-day public comment period begins on the publication date of the second public notice. Unless Ecology responds to the complete application in writing, based on public comments, or any other relevant factors, coverage under the general permit will automatically commence on the thirty-first day following receipt by Ecology of a completed NOI, or the issuance date of this permit, whichever is later; unless Ecology specifies a later date in writing as required by WAC173-226-200(2).

d. If an applicant intends to use a Best Management Practice (BMP) selected on the basis of Special Condition S9.C.4 (“demonstrably equivalent” BMPs), the applicant must notify Ecology of its selection as part of the NOI. In the event the applicant selects BMPs after submission of the NOI, it must provide notice of the selection of an equivalent BMP to Ecology at least 60 days before intended use of the equivalent BMP.

e. Permittees must notify Ecology regarding any changes to the information provided on the NOI by submitting an updated NOI. Examples of such changes include, but are not limited to:

   i. Changes to the Permittee’s mailing address,

   ii. Changes to the on-site contact person information, and

   iii. Changes to the area/acreage affected by construction activity.

f. Applicants must notify Ecology if they are aware of contaminated soils and/or groundwater associated with the construction activity. Provide detailed information with the NOI (as known and readily available) on the nature and extent of the contamination (concentrations, locations, and depth), as well as pollution prevention and/or treatment BMPs proposed to control the discharge of soil and/or groundwater contaminants in stormwater. Examples of such detail may include, but are not limited to:

   i. List or table of all known contaminants with laboratory test results showing concentration and depth,

   ii. Map with sample locations,

   iii. Temporary Erosion and Sediment Control (TESC) plans,

   iv. Related portions of the Stormwater Pollution Prevention Plan (SWPPP) that address the management of contaminated and potentially contaminated construction stormwater and dewatering water,

   v. Dewatering plan and/or dewatering contingency plan.
2. Transfer of Coverage Form

The Permittee can transfer current coverage under this permit to one or more new operators, including operators of sites within a Common Plan of Development, provided the Permittee submits a Transfer of Coverage Form in accordance with General Condition G9. Transfers do not require public notice.

B. Public Notice

For new or previously unpermitted construction activities, the applicant must publish a public notice at least one time each week for two consecutive weeks, at least 7 days apart, in a newspaper with general circulation in the county where the construction is to take place. The notice must contain:

1. A statement that “The applicant is seeking coverage under the Washington State Department of Ecology’s Construction Stormwater NPDES and State Waste Discharge General Permit”.

2. The name, address and location of the construction site.

3. The name and address of the applicant.

4. The type of construction activity that will result in a discharge (for example, residential construction, commercial construction, etc.), and the number of acres to be disturbed.

5. The name of the receiving water(s) (that is, the surface water(s) to which the site will discharge), or, if the discharge is through a storm sewer system, the name of the operator of the system.

6. The statement: “Any persons desiring to present their views to the Washington State Department of Ecology regarding this application, or interested in Ecology’s action on this application, may notify Ecology in writing no later than 30 days of the last date of publication of this notice. Ecology reviews public comments and considers whether discharges from this project would cause a measurable change in receiving water quality, and, if so, whether the project is necessary and in the overriding public interest according to Tier II antidegradation requirements under WAC 173-201A-320. Comments can be submitted to: Department of Ecology, PO Box 47696, Olympia, Washington 98504-7696 Attn: Water Quality Program, Construction Stormwater.”
C. Erosivity Waiver

Construction site operators may qualify for an erosivity waiver from the CSWGP if the following conditions are met:

1. The site will result in the disturbance of fewer than 5 acres and the site is not a portion of a common plan of development or sale that will disturb 5 acres or greater.

2. Calculation of Erosivity “R” Factor and Regional Timeframe:
   a. The project’s rainfall erosivity factor (“R” Factor) must be less than 5 during the period of construction activity, as calculated (see the CSWGP homepage [http://www.ecy.wa.gov/programs/wq/stormwater/construction/index.html](http://www.ecy.wa.gov/programs/wq/stormwater/construction/index.html) for a link to the EPA’s calculator and step by step instructions on computing the “R” Factor in the EPA Erosivity Waiver Fact Sheet). The period of construction activity starts when the land is first disturbed and ends with final stabilization. In addition:
   b. The entire period of construction activity must fall within the following timeframes:
      i. For sites west of the Cascades Crest: June 15 – September 15.
      ii. For sites east of the Cascades Crest, excluding the Central Basin: June 15 – October 15.
      iii. For sites east of the Cascades Crest, within the Central Basin: no additional timeframe restrictions apply. The Central Basin is defined as the portions of Eastern Washington with mean annual precipitation of less than 12 inches. For a map of the Central Basin (Average Annual Precipitation Region 2), refer to [http://www.ecy.wa.gov/programs/wq/stormwater/construction/resourcesguidance.html](http://www.ecy.wa.gov/programs/wq/stormwater/construction/resourcesguidance.html).

3. Construction site operators must submit a complete Erosivity Waiver certification form at least one week before disturbing the land. Certification must include statements that the operator will:
   a. Comply with applicable local stormwater requirements; and
   b. Implement appropriate erosion and sediment control BMPs to prevent violations of water quality standards.

4. This waiver is not available for facilities declared significant contributors of pollutants as defined in Special Condition S1.B.1.b. or for any size construction activity that could reasonably expect to cause a violation of any water quality standard as defined in Special Condition S1.B.1.b.ii.

5. This waiver does not apply to construction activities which include non-stormwater discharges listed in Special Condition S1.C.3.
6. If construction activity extends beyond the certified waiver period for any reason, the operator must either:

   a. Recalculate the rainfall erosivity “R” factor using the original start date and a new projected ending date and, if the “R” factor is still under 5 and the entire project falls within the applicable regional timeframe in Special Condition S2.C.2.b, complete and submit an amended waiver certification form before the original waiver expires; or

   b. Submit a complete permit application to Ecology in accordance with Special Condition S2.A and B before the end of the certified waiver period.

S3. COMPLIANCE WITH STANDARDS

A. Discharges must not cause or contribute to a violation of surface water quality standards (Chapter 173-201A WAC), ground water quality standards (Chapter 173-200 WAC), sediment management standards (Chapter 173-204 WAC), and human health-based criteria in the National Toxics Rule (40 CFR Part 131.36). Discharges not in compliance with these standards are not authorized.

B. Prior to the discharge of stormwater and non-stormwater to waters of the State, the Permittee must apply all known, available, and reasonable methods of prevention, control, and treatment (AKART). This includes the preparation and implementation of an adequate SWPPP, with all appropriate BMPs installed and maintained in accordance with the SWPPP and the terms and conditions of this permit.

C. Ecology presumes that a Permittee complies with water quality standards unless discharge monitoring data or other site-specific information demonstrates that a discharge causes or contributes to a violation of water quality standards, when the Permittee complies with the following conditions. The Permittee must fully:

   1. Comply with all permit conditions, including planning, sampling, monitoring, reporting, and recordkeeping conditions.

   2. Implement stormwater BMPs contained in stormwater management manuals published or approved by Ecology, or BMPs that are demonstrably equivalent to BMPs contained in stormwater technical manuals published or approved by Ecology, including the proper selection, implementation, and maintenance of all applicable and appropriate BMPs for on-site pollution control. (For purposes of this section, the stormwater manuals listed in Appendix 10 of the Phase I Municipal Stormwater Permit are approved by Ecology.)

D. Where construction sites also discharge to ground water, the ground water discharges must also meet the terms and conditions of this CSWGP. Permittees who discharge to ground water through an injection well must also comply with any applicable requirements of the Underground Injection Control (UIC) regulations, Chapter 173-218 WAC.
S4. MONITORING REQUIREMENTS, BENCHMARKS AND REPORTING TRIGGERS

A. Site Log Book

The Permittee must maintain a site log book that contains a record of the implementation of the SWPPP and other permit requirements, including the installation and maintenance of BMPs, site inspections, and stormwater monitoring.

B. Site Inspections

The Permittee’s site inspections must include all areas disturbed by construction activities, all BMPs, and all stormwater discharge points under the Permittee’s operational control. (See Special Conditions S4.B.3 and B.4 below for detailed requirements of the Permittee’s Certified Erosion and Sediment Control Lead [CESCL].)

Construction sites one acre or larger that discharge stormwater to surface waters of the State must have site inspections conducted by a certified CESCL. Sites less than one acre may have a person without CESCL certification conduct inspections.

1. The Permittee must examine stormwater visually for the presence of suspended sediment, turbidity, discoloration, and oil sheen. The Permittee must evaluate the effectiveness of BMPs and determine if it is necessary to install, maintain, or repair BMPs to improve the quality of stormwater discharges.

Based on the results of the inspection, the Permittee must correct the problems identified by:

a. Reviewing the SWPPP for compliance with Special Condition S9 and making appropriate revisions within 7 days of the inspection.

b. Immediately beginning the process of fully implementing and maintaining appropriate source control and/or treatment BMPs as soon as possible, addressing the problems no later than within 10 days of the inspection. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when an extension is requested by a Permittee within the initial 10-day response period.

c. Documenting BMP implementation and maintenance in the site log book.

2. The Permittee must inspect all areas disturbed by construction activities, all BMPs, and all stormwater discharge points at least once every calendar week and within 24 hours of any discharge from the site. (For purposes of this condition, individual discharge events that last more than one day do not require daily inspections. For example, if a stormwater pond discharges continuously over the course of a week, only one inspection is required that week.) The Permittee may reduce the inspection frequency for temporarily stabilized, inactive sites to once every calendar month.
3. The Permittee must have staff knowledgeable in the principles and practices of erosion and sediment control. The CESCL (sites one acre or more) or inspector (sites less than one acre) must have the skills to assess the:
   a. Site conditions and construction activities that could impact the quality of stormwater, and
   b. Effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges.

4. The SWPPP must identify the CESCL or inspector, who must be present on site or on-call at all times. The CESCL must obtain this certification through an approved erosion and sediment control training program that meets the minimum training standards established by Ecology (see BMP C160 in the manual referred to in Special Condition S9.C.1 and 2).

5. The Permittee must summarize the results of each inspection in an inspection report or checklist and enter the report/checklist into, or attach it to, the site log book. At a minimum, each inspection report or checklist must include:
   a. Inspection date and time.
   b. Weather information, the general conditions during inspection and the approximate amount of precipitation since the last inspection, and precipitation within the last 24 hours.
   c. A summary or list of all implemented BMPs, including observations of all erosion/sediment control structures or practices.
   d. A description of the locations:
      i. Of BMPs inspected;
      ii. Of BMPs that need maintenance and why;
      iii. Of BMPs that failed to operate as designed or intended; and
      iv. Where additional or different BMPs are needed, and why.
   e. A description of stormwater discharged from the site. The Permittee must note the presence of suspended sediment, turbidity, discoloration, and oil sheen, as applicable.
   f. Any water quality monitoring performed during inspection.
   g. General comments and notes, including a brief description of any BMP repairs, maintenance or installations made following the inspection.
   h. A summary report and a schedule of implementation of the remedial actions that the Permittee plans to take if the site inspection indicates that the site is out of compliance. The remedial actions taken must meet the requirements of the SWPPP and the permit.
i. The name, title, and signature of the person conducting the site inspection, a phone number or other reliable method to reach this person, and the following statement: “I certify that this report is true, accurate, and complete to the best of my knowledge and belief.”

Table 3: Summary of Primary Monitoring Requirements

<table>
<thead>
<tr>
<th>Size of Soil Disturbance¹</th>
<th>Weekly Site Inspections</th>
<th>Weekly Sampling w/ Turbidity Meter</th>
<th>Weekly Sampling w/ Transparency Tube</th>
<th>Weekly pH Sampling²</th>
<th>CESCL Required for Inspections?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sites that disturb less than 1 acre, but are part of a larger Common Plan of Development</td>
<td>Required</td>
<td>Not Required</td>
<td>Not Required</td>
<td>Not Required</td>
<td>No</td>
</tr>
<tr>
<td>Sites that disturb 1 acre or more, but fewer than 5 acres</td>
<td>Required</td>
<td>Sampling Required – either method³</td>
<td>Required</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Sites that disturb 5 acres or more</td>
<td>Required</td>
<td>Required</td>
<td>Not Required⁴</td>
<td>Required</td>
<td>Yes</td>
</tr>
</tbody>
</table>

¹ Soil disturbance is calculated by adding together all areas that will be affected by construction activity. Construction activity means clearing, grading, excavation, and any other activity that disturbs the surface of the land, including ingress/egress from the site.

² If construction activity results in the disturbance of 1 acre or more, and involves significant concrete work (1,000 cubic yards of poured concrete or recycled concrete over the life of a project) or the use of engineered soils (soil amendments including but not limited to Portland cement-treated base [CTB], cement kiln dust [CKD], or fly ash), and stormwater from the affected area drains to surface waters of the State or to a storm sewer stormwater collection system that drains to other surface waters of the State, the Permittee must conduct pH sampling in accordance with Special Condition S4.D.

³ Sites with one or more acres, but fewer than 5 acres of soil disturbance, must conduct turbidity or transparency sampling in accordance with Special Condition S4.C.

⁴ Sites equal to or greater than 5 acres of soil disturbance must conduct turbidity sampling using a turbidity meter in accordance with Special Condition S4.C.
C. Turbidity/Transparency Sampling Requirements

1. Sampling Methods
   a. If construction activity involves the disturbance of 5 acres or more, the Permittee must conduct turbidity sampling per Special Condition S4.C.
   b. If construction activity involves 1 acre or more but fewer than 5 acres of soil disturbance, the Permittee must conduct either transparency sampling or turbidity sampling per Special Condition S4.C.

2. Sampling Frequency
   a. The Permittee must sample all discharge points at least once every calendar week when stormwater (or authorized non-stormwater) discharges from the site or enters any on-site surface waters of the state (for example, a creek running through a site); sampling is not required on sites that disturb less than an acre.
   b. Samples must be representative of the flow and characteristics of the discharge.
   c. Sampling is not required when there is no discharge during a calendar week.
   d. Sampling is not required outside of normal working hours or during unsafe conditions.
   e. If the Permittee is unable to sample during a monitoring period, the Permittee must include a brief explanation in the monthly Discharge Monitoring Report (DMR).
   f. Sampling is not required before construction activity begins.
   g. The Permittee may reduce the sampling frequency for temporarily stabilized, inactive sites to once every calendar month.

3. Sampling Locations
   a. Sampling is required at all points where stormwater associated with construction activity (or authorized non-stormwater) is discharged off site, including where it enters any on-site surface waters of the state (for example, a creek running through a site).
   b. The Permittee may discontinue sampling at discharge points that drain areas of the project that are fully stabilized to prevent erosion.
   c. The Permittee must identify all sampling point(s) on the SWPPP site map and clearly mark these points in the field with a flag, tape, stake or other visible marker.
   d. Sampling is not required for discharge that is sent directly to sanitary or combined sewer systems.
e. The Permittee may discontinue sampling at discharge points in areas of the project where the Permittee no longer has operational control of the construction activity.

4. Sampling and Analysis Methods

a. The Permittee performs turbidity analysis with a calibrated turbidity meter (turbidimeter) either on site or at an accredited lab. The Permittee must record the results in the site log book in nephelometric turbidity units (NTUs).

b. The Permittee performs transparency analysis on site with a 1¾-inch-diameter, 60-centimeter (cm)-long transparency tube. The Permittee will record the results in the site log book in centimeters (cm).

Table 4: Monitoring and Reporting Requirements

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Analytical Method</th>
<th>Sampling Frequency</th>
<th>Benchmark Value</th>
<th>Phone Reporting Trigger Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbidity</td>
<td>NTU</td>
<td>SM2130</td>
<td>Weekly, if discharging</td>
<td>25 NTUs</td>
<td>250 NTUs</td>
</tr>
<tr>
<td>Transparency</td>
<td>cm</td>
<td>Manufacturer instructions, or Ecology guidance</td>
<td>Weekly, if discharging</td>
<td>33 cm</td>
<td>6 cm</td>
</tr>
</tbody>
</table>

5. Turbidity/Transparency Benchmark Values and Reporting Triggers

The benchmark value for turbidity is 25 NTUs or less. The benchmark value for transparency is 33 centimeters (cm). Note: Benchmark values do not apply to discharges to segments of water bodies on Washington State’s 303(d) list (Category 5) for turbidity, fine sediment, or phosphorus; these discharges are subject to a numeric effluent limit for turbidity. Refer to Special Condition S8 for more information.

a. Turbidity 26 – 249 NTUs, or Transparency 32 – 7 cm:

   If the discharge turbidity is 26 to 249 NTUs; or if discharge transparency is less than 33 cm, but equal to or greater than 6 cm, the Permittee must:

   i. Review the SWPPP for compliance with Special Condition S9 and make appropriate revisions within 7 days of the date the discharge exceeded the benchmark.

   ii. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible, addressing the problems within 10 days of the date the discharge exceeded the benchmark. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when the Permittee requests an extension within the initial 10-day response period.
iii. Document BMP implementation and maintenance in the site log book.

b. Turbidity 250 NTUs or greater, or Transparency 6 cm or less:

If a discharge point’s turbidity is 250 NTUs or greater, or if discharge transparency is less than or equal to 6 cm, the Permittee must complete the reporting and adaptive management process described below.

i. Telephone or submit an electronic report to the applicable Ecology Region’s Environmental Report Tracking System (ERTS) number (or through Ecology’s Water Quality Permitting Portal [WQWebPortal] – Permit Submittals when the form is available) within 24 hours, in accordance with Special Condition S5.A.

- **Central Region** (Okanogan, Chelan, Douglas, Kittitas, Yakima, Klickitat, Benton): (509) 575-2490
- **Eastern Region** (Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman): (509) 329-3400
- **Northwest Region** (Kitsap, Snohomish, Island, King, San Juan, Skagit, Whatcom): (425) 649-7000
- **Southwest Region** (Grays Harbor, Lewis, Mason, Thurston, Pierce, Clark, Cowlitz, Skamania, Wahkiakum, Clallam, Jefferson, Pacific): (360) 407-6300

Links to these numbers and the ERTS reporting page are located on the following web site:

ii. Review the SWPPP for compliance with Special Condition S9 and make appropriate revisions within 7 days of the date the discharge exceeded the benchmark.

iii. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible, addressing the problems within 10 days of the date the discharge exceeded the benchmark. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when the Permittee requests an extension within the initial 10-day response period.


v. Sample discharges daily until:

a) Turbidity is 25 NTUs (or lower); or

b) Transparency is 33 cm (or greater); or
c) The Permittee has demonstrated compliance with the water quality limit for turbidity:

1) No more than 5 NTUs over background turbidity, if background is less than 50 NTUs, or

2) No more than 10% over background turbidity, if background is 50 NTUs or greater; or

d) The discharge stops or is eliminated.

D. pH Sampling Requirements – Significant Concrete Work or Engineered Soils

If construction activity results in the disturbance of 1 acre or more, and involves significant concrete work (significant concrete work means greater than 1000 cubic yards poured concrete or recycled concrete used over the life of a project) or the use of engineered soils (soil amendments including but not limited to Portland cement-treated base [CTB], cement kiln dust [CKD], or fly ash), and stormwater from the affected area drains to surface waters of the State or to a storm sewer system that drains to surface waters of the State, the Permittee must conduct pH sampling as set forth below. Note: In addition, discharges to segments of water bodies on Washington State’s 303(d) list (Category 5) for high pH are subject to a numeric effluent limit for pH; refer to Special Condition S8.

1. For sites with significant concrete work, the Permittee must begin the pH sampling period when the concrete is first poured and exposed to precipitation, and continue weekly throughout and after the concrete pour and curing period, until stormwater pH is in the range of 6.5 to 8.5 (su).

2. For sites with recycled concrete where monitoring is required, the Permittee must begin the weekly pH sampling period when the recycled concrete is first exposed to precipitation and must continue until the recycled concrete is fully stabilized with the stormwater pH in the range of 6.5 to 8.5 (su).

3. For sites with engineered soils, the Permittee must begin the pH sampling period when the soil amendments are first exposed to precipitation and must continue until the area of engineered soils is fully stabilized.

4. During the applicable pH monitoring period defined above, the Permittee must obtain a representative sample of stormwater and conduct pH analysis at least once per week.

5. The Permittee must sample pH in the sediment trap/pond(s) or other locations that receive stormwater runoff from the area of significant concrete work or engineered soils before the stormwater discharges to surface waters.

6. The benchmark value for pH is 8.5 standard units. Anytime sampling indicates that pH is 8.5 or greater, the Permittee must either:
a. Prevent the high pH water (8.5 or above) from entering storm sewer systems or surface waters; or

b. If necessary, adjust or neutralize the high pH water until it is in the range of pH 6.5 to 8.5 (su) using an appropriate treatment BMP such as carbon dioxide (CO$_2$) sparging or dry ice. The Permittee must obtain written approval from Ecology before using any form of chemical treatment other than CO$_2$ sparging or dry ice.

7. The Permittee must perform pH analysis on site with a calibrated pH meter, pH test kit, or wide range pH indicator paper. The Permittee must record pH sampling results in the site log book.

S5. REPORTING AND RECORDKEEPING REQUIREMENTS

A. High Turbidity Reporting

Anytime sampling performed in accordance with Special Condition S4.C indicates turbidity has reached the 250 NTUs or more (or transparency less than or equal to 6 cm) high turbidity reporting level, the Permittee must either call the applicable Ecology Region’s Environmental Report Tracking System (ERTS) number by phone within 24 hours of analysis or submit an electronic ERTS report (or submit an electronic report through Ecology’s Water Quality Permitting Portal (WQWebPortal) – Permit Submittals when the form is available). See the CSWGP web site for links to ERTS and the WQWebPortal: [http://www.ecy.wa.gov/programs/wq/stormwater/construction/index.html](http://www.ecy.wa.gov/programs/wq/stormwater/construction/index.html). Also, see phone numbers in Special Condition S4.C.5.b.i.

B. Discharge Monitoring Reports (DMRs)

Permittees required to conduct water quality sampling in accordance with Special Conditions S4.C (Turbidity/Transparency), S4.D (pH), S8 (303[d]/TMDL sampling), and/or G13 (Additional Sampling) must submit the results to Ecology.


Permittees unable to submit electronically (for example, those who do not have an internet connection) must contact Ecology to request a waiver and obtain instructions on how to obtain a paper copy DMR at:

Department of Ecology  
Water Quality Program - Construction Stormwater  
PO Box 47696  
Olympia, Washington 98504-7696

Permittees who obtain a waiver not to use WQWebDMR must use the forms provided to them by Ecology; submittals must be mailed to the address above. Permittees shall
submit DMR forms to be received by Ecology within 15 days following the end of each month.

If there was no discharge during a given monitoring period, all Permittees must submit a DMR as required with “no discharge” entered in place of the monitoring results. DMRs are required for the full duration of permit coverage (from issuance date to termination). For more information, contact Ecology staff using information provided at the following web site: www.ecy.wa.gov/programs/wq/permits/paris/contacts.html.

C. Records Retention

The Permittee must retain records of all monitoring information (site log book, sampling results, inspection reports/checklists, etc.), Stormwater Pollution Prevention Plan, copy of the permit coverage letter (including Transfer of Coverage documentation), and any other documentation of compliance with permit requirements for the entire life of the construction project and for a minimum of three years following the termination of permit coverage. Such information must include all calibration and maintenance records, and records of all data used to complete the application for this permit. This period of retention must be extended during the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by Ecology.

D. Recording Results

For each measurement or sample taken, the Permittee must record the following information:

1. Date, place, method, and time of sampling or measurement.
2. The first and last name of the individual who performed the sampling or measurement.
3. The date(s) the analyses were performed.
4. The first and last name of the individual who performed the analyses.
5. The analytical techniques or methods used.
6. The results of all analyses.

E. Additional Monitoring by the Permittee

If the Permittee monitors any pollutant more frequently than required by this permit using test procedures specified by Special Condition S4 of this permit, the results of this monitoring must be included in the calculation and reporting of the data submitted in the Permittee’s DMR.

F. Noncompliance Notification

In the event the Permittee is unable to comply with any part of the terms and conditions of this permit, and the resulting noncompliance may cause a threat to human health or the environment (such as but not limited to spills of fuels or other materials, catastrophic pond or slope failure, and discharges that violate water quality standards), or exceed
numeric effluent limitations (see S8. Discharges to 303(d) or TMDL Waterbodies), the Permittee must, upon becoming aware of the circumstance:

1. Notify Ecology within 24-hours of the failure to comply by calling the applicable Regional office ERTS phone number (refer to Special Condition S4.C.5.b.i. or www.ecy.wa.gov/programs/wq/stormwater/construction/turbidity.html for Regional ERTS phone numbers).

2. Immediately take action to prevent the discharge/pollution, or otherwise stop or correct the noncompliance, and, if applicable, repeat sampling and analysis of any noncompliance immediately and submit the results to Ecology within five (5) days of becoming aware of the violation.

3. Submit a detailed written report to Ecology within five (5) days, of the time the Permittee becomes aware of the circumstances, unless requested earlier by Ecology. The report must be submitted using Ecology’s Water Quality Permitting Portal (WQWebPortal) - Permit Submittals, unless a waiver from electronic reporting has been granted according to S5.B. The report must contain a description of the noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

The Permittee must report any unanticipated bypass and/or upset that exceeds any effluent limit in the permit in accordance with the 24-hour reporting requirement contained in 40 C.F.R. 122.41(l)(6).

Compliance with these requirements does not relieve the Permittee from responsibility to maintain continuous compliance with the terms and conditions of this permit or the resulting liability for failure to comply. Upon request of the Permittee, Ecology may waive the requirement for a written report on a case-by-case basis, if the immediate notification is received by Ecology within 24 hours.

G. Access to Plans and Records

1. The Permittee must retain the following permit documentation (plans and records) on site, or within reasonable access to the site, for use by the operator or for on-site review by Ecology or the local jurisdiction:

   a. General Permit

   b. Permit Coverage Letter

   c. Stormwater Pollution Prevention Plan (SWPPP)

   d. Site Log Book

2. The Permittee must address written requests for plans and records listed above (Special Condition S5.G.1) as follows:
a. The Permittee must provide a copy of plans and records to Ecology within 14 days of receipt of a written request from Ecology.

b. The Permittee must provide a copy of plans and records to the public when requested in writing. Upon receiving a written request from the public for the Permittee’s plans and records, the Permittee must either:

i. Provide a copy of the plans and records to the requester within 14 days of a receipt of the written request; or

ii. Notify the requester within 10 days of receipt of the written request of the location and times within normal business hours when the plans and records may be viewed; and provide access to the plans and records within 14 days of receipt of the written request; or

iii. Within 14 days of receipt of the written request, the Permittee may submit a copy of the plans and records to Ecology for viewing and/or copying by the requester at an Ecology office, or a mutually agreed location. If plans and records are viewed and/or copied at a location other than at an Ecology office, the Permittee will provide reasonable access to copying services for which a reasonable fee may be charged. The Permittee must notify the requester within 10 days of receipt of the request where the plans and records may be viewed and/or copied.

S6. PERMIT FEES

The Permittee must pay permit fees assessed by Ecology. Fees for stormwater discharges covered under this permit are established by Chapter 173-224 WAC. Ecology continues to assess permit fees until the permit is terminated in accordance with Special Condition S10 or revoked in accordance with General Condition G5.

S7. SOLID AND LIQUID WASTE DISPOSAL

The Permittee must handle and dispose of solid and liquid wastes generated by construction activity, such as demolition debris, construction materials, contaminated materials, and waste materials from maintenance activities, including liquids and solids from cleaning catch basins and other stormwater facilities, in accordance with:

A. Special Condition S3, Compliance with Standards

B. WAC 173-216-110

C. Other applicable regulations

S8. DISCHARGES TO 303(d) OR TMDL WATERBODIES

A. Sampling and Numeric Effluent Limits For Certain Discharges to 303(d)-listed Waterbodies
1. Permittees who discharge to segments of waterbodies listed as impaired by the State of Washington under Section 303(d) of the Clean Water Act for turbidity, fine sediment, high pH, or phosphorus, must conduct water quality sampling according to the requirements of this section, and Special Conditions S4.C.2.b-f and S4.C.3.b-d, and must comply with the applicable numeric effluent limitations in S8.C and S8.D.

2. All references and requirements associated with Section 303(d) of the Clean Water Act mean the most current listing by Ecology of impaired waters (Category 5) that exists on January 1, 2016, or the date when the operator’s complete permit application is received by Ecology, whichever is later.

B. Limits on Coverage for New Discharges to TMDL or 303(d)-listed Waters

Operators of construction sites that discharge to a TMDL or 303(d)-listed waterbody are not eligible for coverage under this permit unless the operator:

1. Prevents exposing stormwater to pollutants for which the waterbody is impaired, and retains documentation in the SWPPP that details procedures taken to prevent exposure on site; or

2. Documents that the pollutants for which the waterbody is impaired are not present at the site, and retains documentation of this finding within the SWPPP; or

3. Provides Ecology with data indicating the discharge is not expected to cause or contribute to an exceedance of a water quality standard, and retains such data on site with the SWPPP. The operator must provide data and other technical information to Ecology that sufficiently demonstrate:

   a. For discharges to waters without an EPA-approved or -established TMDL, that the discharge of the pollutant for which the water is impaired will meet in-stream water quality criteria at the point of discharge to the waterbody; or

   b. For discharges to waters with an EPA-approved or -established TMDL, that there is sufficient remaining wasteload allocation in the TMDL to allow construction stormwater discharge and that existing dischargers to the waterbody are subject to compliance schedules designed to bring the waterbody into attainment with water quality standards.

Operators of construction sites are eligible for coverage under this permit if Ecology issues permit coverage based upon an affirmative determination that the discharge will not cause or contribute to the existing impairment.

C. Sampling and Numeric Effluent Limits for Discharges to Water Bodies on the 303(d) List for Turbidity, Fine Sediment, or Phosphorus

1. Permittees who discharge to segments of water bodies on the 303(d) list (Category 5) for turbidity, fine sediment, or phosphorus must conduct turbidity sampling in accordance with Special Condition S4.C.2 and comply with either of the numeric effluent limits noted in Table 5 below.
2. As an alternative to the 25 NTUs effluent limit noted in Table 5 below (applied at the point where stormwater [or authorized non-stormwater] is discharged off-site), Permittees may choose to comply with the surface water quality standard for turbidity. The standard is: no more than 5 NTUs over background turbidity when the background turbidity is 50 NTUs or less, or no more than a 10% increase in turbidity when the background turbidity is more than 50 NTUs. In order to use the water quality standard requirement, the sampling must take place at the following locations:

a. Background turbidity in the 303(d)-listed receiving water immediately upstream (upgradient) or outside the area of influence of the discharge.

b. Turbidity at the point of discharge into the 303(d)-listed receiving water, inside the area of influence of the discharge.

3. Discharges that exceed the numeric effluent limit for turbidity constitute a violation of this permit.

4. Permittees whose discharges exceed the numeric effluent limit shall sample discharges daily until the violation is corrected and comply with the non-compliance notification requirements in Special Condition S5.F.

Table 5: Turbidity, Fine Sediment & Phosphorus Sampling and Limits for 303(d)-Listed Waters

<table>
<thead>
<tr>
<th>Parameter identified in 303(d) listing</th>
<th>Parameter Sampled</th>
<th>Unit</th>
<th>Analytical Method</th>
<th>Sampling Frequency</th>
<th>Numeric Effluent Limit¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbidity</td>
<td>Turbidity</td>
<td>NTU</td>
<td>SM2130</td>
<td>Weekly, if discharging</td>
<td>25 NTUs, at the point where stormwater is discharged from the site; OR In compliance with the surface water quality standard for turbidity (S8.C.2.a)</td>
</tr>
<tr>
<td>Fine Sediment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phosphorus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹Permittees subject to a numeric effluent limit for turbidity may, at their discretion, choose either numeric effluent limitation based on site-specific considerations including, but not limited to, safety, access and convenience.

D. Discharges to Water Bodies on the 303(d) List for High pH

1. Permittees who discharge to segments of water bodies on the 303(d) list (Category 5) for high pH must conduct pH sampling in accordance with the table below, and comply with the numeric effluent limit of pH 6.5 to 8.5 su (Table 6).
Table 6: pH Sampling and Limits for 303(d)-Listed Waters

<table>
<thead>
<tr>
<th>Parameter identified in 303(d) listing</th>
<th>Parameter Sampled/Units</th>
<th>Analytical Method</th>
<th>Sampling Frequency</th>
<th>Numeric Effluent Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>High pH</td>
<td>pH /Standard Units</td>
<td>pH meter</td>
<td>Weekly, if discharging</td>
<td>In the range of 6.5 – 8.5</td>
</tr>
</tbody>
</table>

2. At the Permittee’s discretion, compliance with the limit shall be assessed at one of the following locations:
   a. Directly in the 303(d)-listed waterbody segment, inside the immediate area of influence of the discharge; or
   b. Alternatively, the Permittee may measure pH at the point where the discharge leaves the construction site, rather than in the receiving water.

3. Discharges that exceed the numeric effluent limit for pH (outside the range of 6.5 – 8.5 su) constitute a violation of this permit.

4. Permittees whose discharges exceed the numeric effluent limit shall sample discharges daily until the violation is corrected and comply with the non-compliance notification requirements in Special Condition S5.F.

E. Sampling and Limits for Sites Discharging to Waters Covered by a TMDL or Another Pollution Control Plan

1. Discharges to a waterbody that is subject to a Total Maximum Daily Load (TMDL) for turbidity, fine sediment, high pH, or phosphorus must be consistent with the TMDL. Refer to http://www.ecy.wa.gov/programs/wq/tmdl/TMDLsbyWria/TMDLbyWria.html for more information on TMDLs.
   a. Where an applicable TMDL sets specific waste load allocations or requirements for discharges covered by this permit, discharges must be consistent with any specific waste load allocations or requirements established by the applicable TMDL.
      i. The Permittee must sample discharges weekly or as otherwise specified by the TMDL to evaluate compliance with the specific waste load allocations or requirements.
      ii. Analytical methods used to meet the monitoring requirements must conform to the latest revision of the Guidelines Establishing Test Procedures for the Analysis of Pollutants contained in 40 CFR Part 136. Turbidity and pH methods need not be accredited or registered unless conducted at a laboratory which must otherwise be accredited or registered.
   b. Where an applicable TMDL has established a general waste load allocation for construction stormwater discharges, but has not identified specific requirements,
compliance with Special Conditions S4 (Monitoring) and S9 (SWPPPs) will constitute compliance with the approved TMDL.

c. Where an applicable TMDL has not specified a waste load allocation for construction stormwater discharges, but has not excluded these discharges, compliance with Special Conditions S4 (Monitoring) and S9 (SWPPPs) will constitute compliance with the approved TMDL.

d. Where an applicable TMDL specifically precludes or prohibits discharges from construction activity, the operator is not eligible for coverage under this permit.

2. Applicable TMDL means a TMDL for turbidity, fine sediment, high pH, or phosphorus that is completed and approved by EPA before January 1, 2016, or before the date the operator’s complete permit application is received by Ecology, whichever is later. TMDLs completed after the operator’s complete permit application is received by Ecology become applicable to the Permittee only if they are imposed through an administrative order by Ecology, or through a modification of permit coverage.

S9. STORMWATER POLLUTION PREVENTION PLAN

The Permittee must prepare and properly implement an adequate Stormwater Pollution Prevention Plan (SWPPP) for construction activity in accordance with the requirements of this permit beginning with initial soil disturbance and until final stabilization.

A. The Permittee’s SWPPP must meet the following objectives:

1. To implement best management practices (BMPs) to prevent erosion and sedimentation, and to identify, reduce, eliminate or prevent stormwater contamination and water pollution from construction activity.

2. To prevent violations of surface water quality, ground water quality, or sediment management standards.

3. To control peak volumetric flow rates and velocities of stormwater discharges.

B. General Requirements

1. The SWPPP must include a narrative and drawings. All BMPs must be clearly referenced in the narrative and marked on the drawings. The SWPPP narrative must include documentation to explain and justify the pollution prevention decisions made for the project. Documentation must include:

   a. Information about existing site conditions (topography, drainage, soils, vegetation, etc.).

   b. Potential erosion problem areas.

   c. The 13 elements of a SWPPP in Special Condition S9.D.1-13, including BMPs used to address each element.
d. Construction phasing/sequence and general BMP implementation schedule.

e. The actions to be taken if BMP performance goals are not achieved—for example, a contingency plan for additional treatment and/or storage of stormwater that would violate the water quality standards if discharged.

f. Engineering calculations for ponds, treatment systems, and any other designed structures. When a treatment system requires engineering calculations, these calculations must be included in the SWPPP. Engineering calculations do not need to be included in the SWPPP for treatment systems that do not require such calculations.

2. The Permittee must modify the SWPPP if, during inspections or investigations conducted by the owner/operator, or the applicable local or state regulatory authority, it is determined that the SWPPP is, or would be, ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site. The Permittee must then:

a. Review the SWPPP for compliance with Special Condition S9 and make appropriate revisions within 7 days of the inspection or investigation.

b. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible, addressing the problems no later than 10 days from the inspection or investigation. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when an extension is requested by a Permittee within the initial 10-day response period.


The Permittee must modify the SWPPP whenever there is a change in design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the State.

C. Stormwater Best Management Practices (BMPs)

BMPs must be consistent with:

1. Stormwater Management Manual for Western Washington (most current approved edition at the time this permit was issued), for sites west of the crest of the Cascade Mountains; or

2. Stormwater Management Manual for Eastern Washington (most current approved edition at the time this permit was issued), for sites east of the crest of the Cascade Mountains; or

3. Revisions to the manuals listed in Special Condition S9.C.1. & 2., or other stormwater management guidance documents or manuals which provide an equivalent level of pollution prevention, that are approved by Ecology and incorporated into this permit in accordance with the permit modification requirements of WAC 173-226-230; or
4. Documentation in the SWPPP that the BMPs selected provide an equivalent level of pollution prevention, compared to the applicable Stormwater Management Manuals, including:

a. The technical basis for the selection of all stormwater BMPs (scientific, technical studies, and/or modeling) that support the performance claims for the BMPs being selected.

b. An assessment of how the selected BMP will satisfy AKART requirements and the applicable federal technology-based treatment requirements under 40 CFR part 125.3.

D. SWPPP – Narrative Contents and Requirements

The Permittee must include each of the 13 elements below in Special Condition S9.D.1-13 in the narrative of the SWPPP and implement them unless site conditions render the element unnecessary and the exemption from that element is clearly justified in the SWPPP.

1. Preserve Vegetation/Mark Clearing Limits

a. Before beginning land-disturbing activities, including clearing and grading, clearly mark all clearing limits, sensitive areas and their buffers, and trees that are to be preserved within the construction area.

b. Retain the duff layer, native topsoil, and natural vegetation in an undisturbed state to the maximum degree practicable.

2. Establish Construction Access

a. Limit construction vehicle access and exit to one route, if possible.

b. Stabilize access points with a pad of quarry spalls, crushed rock, or other equivalent BMPs, to minimize tracking sediment onto roads.

c. Locate wheel wash or tire baths on site, if the stabilized construction entrance is not effective in preventing tracking sediment onto roads.

d. If sediment is tracked off site, clean the affected roadway thoroughly at the end of each day, or more frequently as necessary (for example, during wet weather). Remove sediment from roads by shoveling, sweeping, or pickup and transport of the sediment to a controlled sediment disposal area.

e. Conduct street washing only after sediment removal in accordance with Special Condition S9.D.2.d. Control street wash wastewater by pumping back on site or otherwise preventing it from discharging into systems tributary to waters of the State.

3. Control Flow Rates

a. Protect properties and waterways downstream of development sites from erosion and the associated discharge of turbid waters due to increases in the
velocity and peak volumetric flow rate of stormwater runoff from the project site, as required by local plan approval authority.

b. Where necessary to comply with Special Condition S9.D.3.a, construct stormwater retention or detention facilities as one of the first steps in grading. Assure that detention facilities function properly before constructing site improvements (for example, impervious surfaces).

c. If permanent infiltration ponds are used for flow control during construction, protect these facilities from siltation during the construction phase.

4. Install Sediment Controls

The Permittee must design, install and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants. At a minimum, the Permittee must design, install and maintain such controls to:

a. Construct sediment control BMPs (sediment ponds, traps, filters, infiltration facilities, etc.) as one of the first steps in grading. These BMPs must be functional before other land disturbing activities take place.

b. Minimize sediment discharges from the site. The design, installation and maintenance of erosion and sediment controls must address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the site.

c. Direct stormwater runoff from disturbed areas through a sediment pond or other appropriate sediment removal BMP, before the runoff leaves a construction site or before discharge to an infiltration facility. Runoff from fully stabilized areas may be discharged without a sediment removal BMP, but must meet the flow control performance standard of Special Condition S9.D.3.a.

d. Locate BMPs intended to trap sediment on site in a manner to avoid interference with the movement of juvenile salmonids attempting to enter off-channel areas or drainages.

e. Provide and maintain natural buffers around surface waters, direct stormwater to vegetated areas to increase sediment removal and maximize stormwater infiltration, unless infeasible.

f. Where feasible, design outlet structures that withdraw impounded stormwater from the surface to avoid discharging sediment that is still suspended lower in the water column.

5. Stabilize Soils

a. The Permittee must stabilize exposed and unworked soils by application of effective BMPs that prevent erosion. Applicable BMPs include, but are not limited to: temporary and permanent seeding, sodding, mulching, plastic covering, erosion control fabrics and matting, soil application of polyacrylamide
(PAM), the early application of gravel base on areas to be paved, and dust control.

b. The Permittee must control stormwater volume and velocity within the site to minimize soil erosion.

c. The Permittee must control stormwater discharges, including both peak flow rates and total stormwater volume, to minimize erosion at outlets and to minimize downstream channel and stream bank erosion.

d. Depending on the geographic location of the project, the Permittee must not allow soils to remain exposed and unworked for more than the time periods set forth below to prevent erosion:

   West of the Cascade Mountains Crest
   During the dry season (May 1 - September 30): 7 days
   During the wet season (October 1 - April 30): 2 days

   East of the Cascade Mountains Crest, except for Central Basin*
   During the dry season (July 1 - September 30): 10 days
   During the wet season (October 1 - June 30): 5 days

   The Central Basin*, East of the Cascade Mountains Crest
   During the dry season (July 1 - September 30): 30 days
   During the wet season (October 1 - June 30): 15 days

   *Note: The Central Basin is defined as the portions of Eastern Washington with mean annual precipitation of less than 12 inches.

e. The Permittee must stabilize soils at the end of the shift before a holiday or weekend if needed based on the weather forecast.

f. The Permittee must stabilize soil stockpiles from erosion, protected with sediment trapping measures, and where possible, be located away from storm drain inlets, waterways, and drainage channels.

g. The Permittee must minimize the amount of soil exposed during construction activity.

h. The Permittee must minimize the disturbance of steep slopes.

i. The Permittee must minimize soil compaction and, unless infeasible, preserve topsoil.

6. Protect Slopes

   a. The Permittee must design and construct cut-and-fill slopes in a manner to minimize erosion. Applicable practices include, but are not limited to, reducing continuous length of slope with terracing and diversions, reducing slope steepness, and roughening slope surfaces (for example, track walking).
b. The Permittee must divert off-site stormwater (run-on) or ground water away from slopes and disturbed areas with interceptor dikes, pipes, and/or swales. Off-site stormwater should be managed separately from stormwater generated on the site.

c. At the top of slopes, collect drainage in pipe slope drains or protected channels to prevent erosion.

   i. West of the Cascade Mountains Crest: Temporary pipe slope drains must handle the peak 10-minute flow rate from a Type 1A, 10-year, 24-hour frequency storm for the developed condition. Alternatively, the 10-year, 1-hour flow rate predicted by an approved continuous runoff model, increased by a factor of 1.6, may be used. The hydrologic analysis must use the existing land cover condition for predicting flow rates from tributary areas outside the project limits. For tributary areas on the project site, the analysis must use the temporary or permanent project land cover condition, whichever will produce the highest flow rates. If using the Western Washington Hydrology Model (WWHM) to predict flows, bare soil areas should be modeled as "landscaped area."

   ii. East of the Cascade Mountains Crest: Temporary pipe slope drains must handle the expected peak flow rate from a 6-month, 3-hour storm for the developed condition, referred to as the short duration storm.

d. Place excavated material on the uphill side of trenches, consistent with safety and space considerations.

e. Place check dams at regular intervals within constructed channels that are cut down a slope.

7. Protect Drain Inlets

   a. Protect all storm drain inlets made operable during construction so that stormwater runoff does not enter the conveyance system without first being filtered or treated to remove sediment.

   b. Clean or remove and replace inlet protection devices when sediment has filled one-third of the available storage (unless a different standard is specified by the product manufacturer).

8. Stabilize Channels and Outlets

   a. Design, construct and stabilize all on-site conveyance channels to prevent erosion from the following expected peak flows:

      i. West of the Cascade Mountains Crest: Channels must handle the peak 10-minute flow rate from a Type 1A, 10-year, 24-hour frequency storm for the developed condition. Alternatively, the 10-year, 1-hour flow rate indicated by an approved continuous runoff model, increased by a factor of 1.6, may be used. The hydrologic analysis must use the existing land
cover condition for predicting flow rates from tributary areas outside the project limits. For tributary areas on the project site, the analysis must use the temporary or permanent project land cover condition, whichever will produce the highest flow rates. If using the WWHM to predict flows, bare soil areas should be modeled as "landscaped area."

ii. East of the Cascade Mountains Crest: Channels must handle the expected peak flow rate from a 6-month, 3-hour storm for the developed condition, referred to as the short duration storm.

b. Provide stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes, and downstream reaches at the outlets of all conveyance systems.

9. Control Pollutants

Design, install, implement and maintain effective pollution prevention measures to minimize the discharge of pollutants. The Permittee must:

a. Handle and dispose of all pollutants, including waste materials and demolition debris that occur on site in a manner that does not cause contamination of stormwater.

b. Provide cover, containment, and protection from vandalism for all chemicals, liquid products, petroleum products, and other materials that have the potential to pose a threat to human health or the environment. On-site fueling tanks must include secondary containment. Secondary containment means placing tanks or containers within an impervious structure capable of containing 110% of the volume contained in the largest tank within the containment structure. Double-walled tanks do not require additional secondary containment.

c. Conduct maintenance, fueling, and repair of heavy equipment and vehicles using spill prevention and control measures. Clean contaminated surfaces immediately following any spill incident.

d. Discharge wheel wash or tire bath wastewater to a separate on-site treatment system that prevents discharge to surface water, such as closed-loop recirculation or upland land application, or to the sanitary sewer with local sewer district approval.

e. Apply fertilizers and pesticides in a manner and at application rates that will not result in loss of chemical to stormwater runoff. Follow manufacturers’ label requirements for application rates and procedures.

f. Use BMPs to prevent contamination of stormwater runoff by pH-modifying sources. The sources for this contamination include, but are not limited to: bulk cement, cement kiln dust, fly ash, new concrete washing and curing waters, recycled concrete stockpiles, waste streams generated from concrete grinding and sawing, exposed aggregate processes, dewatering concrete vaults, concrete
pumping and mixer washout waters. (Also refer to the definition for "concrete wastewater" in Appendix A--Definitions.)

g. Adjust the pH of stormwater or authorized non-stormwater if necessary to prevent an exceedance of groundwater and/or surface water quality standards.

h. Assure that washout of concrete trucks is performed off-site or in designated concrete washout areas only. Do not wash out concrete truck drums or concrete handling equipment onto the ground, or into storm drains, open ditches, streets, or streams. Washout of concrete handling equipment may be disposed of in a designated concrete washout area or in a formed area awaiting concrete where it will not contaminate surface or ground water. Do not dump excess concrete on site, except in designated concrete washout areas. Concrete spillage or concrete discharge directly to groundwater or surface waters of the State is prohibited. Do not wash out to formed areas awaiting LID facilities.

i. Obtain written approval from Ecology before using any chemical treatment, with the exception of CO$_2$ or dry ice used to adjust pH.

j. Uncontaminated water from water-only based shaft drilling for construction of building, road, and bridge foundations may be infiltrated provided the wastewater is managed in a way that prohibits discharge to surface waters. Prior to infiltration, water from water-only based shaft drilling that comes into contact with curing concrete must be neutralized until pH is in the range of 6.5 to 8.5 (su).

10. Control Dewatering

a. Permittees must discharge foundation, vault, and trench dewatering water, which have characteristics similar to stormwater runoff at the site, into a controlled conveyance system before discharge to a sediment trap or sediment pond.

b. Permittees may discharge clean, non-turbid dewatering water, such as well-point ground water, to systems tributary to, or directly into surface waters of the State, as specified in Special Condition S9.D.8, provided the dewatering flow does not cause erosion or flooding of receiving waters. Do not route clean dewatering water through stormwater sediment ponds. Note that “surface waters of the State” may exist on a construction site as well as off site; for example, a creek running through a site.

c. Other dewatering treatment or disposal options may include:

   i. Infiltration.

   ii. Transport off site in a vehicle, such as a vacuum flush truck, for legal disposal in a manner that does not pollute state waters.
iii. Ecology-approved on-site chemical treatment or other suitable treatment technologies (see S9.D.9.i. regarding chemical treatment written approval).

iv. Sanitary or combined sewer discharge with local sewer district approval, if there is no other option.

v. Use of a sedimentation bag with discharge to a ditch or swale for small volumes of localized dewatering.

d. Permittees must handle highly turbid or contaminated dewatering water separately from stormwater.

11. Maintain BMPs

a. Permittees must maintain and repair all temporary and permanent erosion and sediment control BMPs as needed to assure continued performance of their intended function in accordance with BMP specifications.

b. Permittees must remove all temporary erosion and sediment control BMPs within 30 days after achieving final site stabilization or after the temporary BMPs are no longer needed.

12. Manage the Project

a. Phase development projects to the maximum degree practicable and take into account seasonal work limitations.

b. Inspection and monitoring – Inspect, maintain and repair all BMPs as needed to assure continued performance of their intended function. Conduct site inspections and monitoring in accordance with Special Condition S4.

c. Maintaining an updated construction SWPPP – Maintain, update, and implement the SWPPP in accordance with Special Conditions S3, S4 and S9.

13. Protect Low Impact Development (LID) BMPs

The primary purpose of LID BMPs/On-site LID Stormwater Management BMPs is to reduce the disruption of the natural site hydrology. LID BMPs are permanent facilities.

a. Permittees must protect all Bioretention and Rain Garden facilities from sedimentation through installation and maintenance of erosion and sediment control BMPs on portions of the site that drain into the Bioretention and/or Rain Garden facilities. Restore the facilities to their fully functioning condition if they accumulate sediment during construction. Restoring the facility must include removal of sediment and any sediment-laden Bioretention/Rain Garden soils, and replacing the removed soils with soils meeting the design specification.
b. Permittees must maintain the infiltration capabilities of Bioretention and Rain Garden facilities by protecting against compaction by construction equipment and foot traffic. Protect completed lawn and landscaped areas from compaction due to construction equipment.

c. Permittees must control erosion and avoid introducing sediment from surrounding land uses onto permeable pavements. Do not allow muddy construction equipment on the base material or pavement. Do not allow sediment-laden runoff onto permeable pavements.

d. Permittees must clean permeable pavements fouled with sediments or no longer passing an initial infiltration test using local stormwater manual methodology or the manufacturer’s procedures.

e. Permittees must keep all heavy equipment off existing soils under LID facilities that have been excavated to final grade to retain the infiltration rate of the soils.

E. SWPPP – Map Contents and Requirements

The Permittee’s SWPPP must also include a vicinity map or general location map (for example, a USGS quadrangle map, a portion of a county or city map, or other appropriate map) with enough detail to identify the location of the construction site and receiving waters within one mile of the site.

The SWPPP must also include a legible site map (or maps) showing the entire construction site. The following features must be identified, unless not applicable due to site conditions:

1. The direction of north, property lines, and existing structures and roads.
2. Cut and fill slopes indicating the top and bottom of slope catch lines.
3. Approximate slopes, contours, and direction of stormwater flow before and after major grading activities.
4. Areas of soil disturbance and areas that will not be disturbed.
5. Locations of structural and nonstructural controls (BMPs) identified in the SWPPP.
6. Locations of off-site material, stockpiles, waste storage, borrow areas, and vehicle/equipment storage areas.
7. Locations of all surface water bodies, including wetlands.
8. Locations where stormwater or non-stormwater discharges off-site and/or to a surface waterbody, including wetlands.
9. Location of water quality sampling station(s), if sampling is required by state or local permitting authority.
10. Areas where final stabilization has been accomplished and no further construction-phase permit requirements apply.

11. Location or proposed location of LID facilities.

S10. NOTICE OF TERMINATION

A. The site is eligible for termination of coverage when it has met any of the following conditions:

1. The site has undergone final stabilization, the Permittee has removed all temporary BMPs (except biodegradable BMPs clearly manufactured with the intention for the material to be left in place and not interfere with maintenance or land use), and all stormwater discharges associated with construction activity have been eliminated; or

2. All portions of the site that have not undergone final stabilization per Special Condition S10.A.1 have been sold and/or transferred (per General Condition G9), and the Permittee no longer has operational control of the construction activity; or

3. For residential construction only, the Permittee has completed temporary stabilization and the homeowners have taken possession of the residences.

B. When the site is eligible for termination, the Permittee must submit a complete and accurate Notice of Termination (NOT) form, signed in accordance with General Condition G2, to:

   Department of Ecology
   Water Quality Program – Construction Stormwater
   PO Box 47696
   Olympia, Washington 98504-7696

   When an electronic termination form is available, the Permittee may choose to submit a complete and accurate Notice of Termination (NOT) form through the Water Quality Permitting Portal rather than mailing a hardcopy as noted above.

   The termination is effective on the thirty-first calendar day following the date Ecology receives a complete NOT form, unless Ecology notifies the Permittee that the termination request is denied because the Permittee has not met the eligibility requirements in Special Condition S10.A.

   Permittees are required to comply with all conditions and effluent limitations in the permit until the permit has been terminated.

   Permittees transferring the property to a new property owner or operator/Permittee are required to complete and submit the Notice of Transfer form to Ecology, but are not required to submit a Notice of Termination form for this type of transaction.
GENERAL CONDITIONS

G1. DISCHARGE VIOLATIONS

All discharges and activities authorized by this general permit must be consistent with the terms and conditions of this general permit. Any discharge of any pollutant more frequent than or at a level in excess of that identified and authorized by the general permit must constitute a violation of the terms and conditions of this permit.

G2. SIGNATORY REQUIREMENTS

A. All permit applications must bear a certification of correctness to be signed:
   1. In the case of corporations, by a responsible corporate officer;
   2. In the case of a partnership, by a general partner of a partnership;
   3. In the case of sole proprietorship, by the proprietor; or
   4. In the case of a municipal, state, or other public facility, by either a principal executive officer or ranking elected official.

B. All reports required by this permit and other information requested by Ecology (including NOIs, NOTs, and Transfer of Coverage forms) must be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
   1. The authorization is made in writing by a person described above and submitted to Ecology.
   2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.

C. Changes to authorization. If an authorization under paragraph G2.B.2 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph G2.B.2 above must be submitted to Ecology prior to or together with any reports, information, or applications to be signed by an authorized representative.

D. Certification. Any person signing a document under this section must make the following certification:

   “I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my
knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

G3. **RIGHT OF INSPECTION AND ENTRY**

The Permittee must allow an authorized representative of Ecology, upon the presentation of credentials and such other documents as may be required by law:

A. To enter upon the premises where a discharge is located or where any records are kept under the terms and conditions of this permit.

B. To have access to and copy – at reasonable times and at reasonable cost – any records required to be kept under the terms and conditions of this permit.

C. To inspect – at reasonable times – any facilities, equipment (including monitoring and control equipment), practices, methods, or operations regulated or required under this permit.

D. To sample or monitor – at reasonable times – any substances or parameters at any location for purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act.

G4. **GENERAL PERMIT MODIFICATION AND REVOCATION**

This permit may be modified, revoked and reissued, or terminated in accordance with the provisions of Chapter 173-226 WAC. Grounds for modification, revocation and reissuance, or termination include, but are not limited to, the following:

A. When a change occurs in the technology or practices for control or abatement of pollutants applicable to the category of dischargers covered under this permit.

B. When effluent limitation guidelines or standards are promulgated pursuant to the CWA or Chapter 90.48 RCW, for the category of dischargers covered under this permit.

C. When a water quality management plan containing requirements applicable to the category of dischargers covered under this permit is approved, or

D. When information is obtained that indicates cumulative effects on the environment from dischargers covered under this permit are unacceptable.

G5. **REVOCATION OF COVERAGE UNDER THE PERMIT**

Pursuant to Chapter 43.21B RCW and Chapter 173-226 WAC, the Director may terminate coverage for any discharger under this permit for cause. Cases where coverage may be terminated include, but are not limited to, the following:

A. Violation of any term or condition of this permit.

B. Obtaining coverage under this permit by misrepresentation or failure to disclose fully all relevant facts.
C. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.

D. Failure or refusal of the Permittee to allow entry as required in RCW 90.48.090.

E. A determination that the permitted activity endangers human health or the environment, or contributes to water quality standards violations.

F. Nonpayment of permit fees or penalties assessed pursuant to RCW 90.48.465 and Chapter 173-224 WAC.

G. Failure of the Permittee to satisfy the public notice requirements of WAC 173-226-130(5), when applicable.

The Director may require any discharger under this permit to apply for and obtain coverage under an individual permit or another more specific general permit. Permittees who have their coverage revoked for cause according to WAC 173-226-240 may request temporary coverage under this permit during the time an individual permit is being developed, provided the request is made within ninety (90) days from the time of revocation and is submitted along with a complete individual permit application form.

G6. REPORTING A CAUSE FOR MODIFICATION

The Permittee must submit a new application, or a supplement to the previous application, whenever a material change to the construction activity or in the quantity or type of discharge is anticipated which is not specifically authorized by this permit. This application must be submitted at least sixty (60) days prior to any proposed changes. Filing a request for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not relieve the Permittee of the duty to comply with the existing permit until it is modified or reissued.

G7. COMPLIANCE WITH OTHER LAWS AND STATUTES

Nothing in this permit will be construed as excusing the Permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

G8. DUTY TO REAPPLY

The Permittee must apply for permit renewal at least 180 days prior to the specified expiration date of this permit. The Permittee must reapply using the electronic application form (NOI) available on Ecology’s website. Permittees unable to submit electronically (for example, those who do not have an internet connection) must contact Ecology to request a waiver and obtain instructions on how to obtain a paper NOI.
G9. TRANSFER OF GENERAL PERMIT COVERAGE

Coverage under this general permit is automatically transferred to a new discharger, including operators of lots/parcels within a common plan of development or sale, if:

A. A written agreement (Transfer of Coverage Form) between the current discharger (Permittee) and new discharger, signed by both parties and containing a specific date for transfer of permit responsibility, coverage, and liability (including any Administrative Orders associated with the Permit) is submitted to the Director; and

B. The Director does not notify the current discharger and new discharger of the Director’s intent to revoke coverage under the general permit. If this notice is not given, the transfer is effective on the date specified in the written agreement.

When a current discharger (Permittee) transfers a portion of a permitted site, the current discharger must also submit an updated application form (NOI) to the Director indicating the remaining permitted acreage after the transfer.

G10. REMOVED SUBSTANCES

The Permittee must not re-suspend or reintroduce collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of stormwater to the final effluent stream for discharge to state waters.

G11. DUTY TO PROVIDE INFORMATION

The Permittee must submit to Ecology, within a reasonable time, all information that Ecology may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Permittee must also submit to Ecology, upon request, copies of records required to be kept by this permit [40 CFR 122.41(h)].

G12. OTHER REQUIREMENTS OF 40 CFR

All other requirements of 40 CFR 122.41 and 122.42 are incorporated in this permit by reference.

G13. ADDITIONAL MONITORING

Ecology may establish specific monitoring requirements in addition to those contained in this permit by administrative order or permit modification.

G14. PENALTIES FOR VIOLATING PERMIT CONDITIONS

Any person who is found guilty of willfully violating the terms and conditions of this permit shall be deemed guilty of a crime, and upon conviction thereof shall be punished by a fine of up to ten thousand dollars ($10,000) and costs of prosecution, or by imprisonment at the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional violation.
Any person who violates the terms and conditions of a waste discharge permit shall incur, in addition to any other penalty as provided by law, a civil penalty in the amount of up to ten thousand dollars ($10,000) for every such violation. Each and every such violation shall be a separate and distinct offense, and in case of a continuing violation, every day’s continuance shall be deemed to be a separate and distinct violation.

G15. UPSET

Definition – “Upset” means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of the following paragraph are met.

A Permittee who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that: 1) an upset occurred and that the Permittee can identify the cause(s) of the upset; 2) the permitted facility was being properly operated at the time of the upset; 3) the Permittee submitted notice of the upset as required in Special Condition S5.F, and; 4) the Permittee complied with any remedial measures required under this permit.

In any enforcement proceeding, the Permittee seeking to establish the occurrence of an upset has the burden of proof.

G16. PROPERTY RIGHTS

This permit does not convey any property rights of any sort, or any exclusive privilege.

G17. DUTY TO COMPLY

The Permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

G18. TOXIC POLLUTANTS

The Permittee must comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if this permit has not yet been modified to incorporate the requirement.
G19. PENALTIES FOR TAMPERING

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than two years per violation, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this condition, punishment shall be a fine of not more than $20,000 per day of violation, or imprisonment of not more than four (4) years, or both.

G20. REPORTING PLANNED CHANGES

The Permittee must, as soon as possible, give notice to Ecology of planned physical alterations, modifications or additions to the permitted construction activity. The Permittee should be aware that, depending on the nature and size of the changes to the original permit, a new public notice and other permit process requirements may be required. Changes in activities that require reporting to Ecology include those that will result in:

A. The permitted facility being determined to be a new source pursuant to 40 CFR 122.29(b).

B. A significant change in the nature or an increase in quantity of pollutants discharged, including but not limited to: for sites 5 acres or larger, a 20% or greater increase in acreage disturbed by construction activity.

C. A change in or addition of surface water(s) receiving stormwater or non-stormwater from the construction activity.

D. A change in the construction plans and/or activity that affects the Permittee’s monitoring requirements in Special Condition S4.

Following such notice, permit coverage may be modified, or revoked and reissued pursuant to 40 CFR 122.62(a) to specify and limit any pollutants not previously limited. Until such modification is effective, any new or increased discharge in excess of permit limits or not specifically authorized by this permit constitutes a violation.

G21. REPORTING OTHER INFORMATION

Where the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to Ecology, it must promptly submit such facts or information.

G22. REPORTING ANTICIPATED NON-COMPLIANCE

The Permittee must give advance notice to Ecology by submission of a new application or supplement thereto at least forty-five (45) days prior to commencement of such discharges, of any facility expansions, production increases, or other planned changes, such as process modifications, in the permitted facility or activity which may result in noncompliance with permit limits or conditions. Any maintenance of facilities, which might necessitate
unavoidable interruption of operation and degradation of effluent quality, must be scheduled
during non-critical water quality periods and carried out in a manner approved by Ecology.

G23.  REQUESTS TO BE EXCLUDED FROM COVERAGE UNDER THE PERMIT

Any discharger authorized by this permit may request to be excluded from coverage under
the general permit by applying for an individual permit. The discharger must submit to the
Director an application as described in WAC 173-220-040 or WAC 173-216-070,
whichever is applicable, with reasons supporting the request. These reasons will fully
document how an individual permit will apply to the applicant in a way that the general
permit cannot. Ecology may make specific requests for information to support the request.
The Director will either issue an individual permit or deny the request with a statement
explaining the reason for the denial. When an individual permit is issued to a discharger
otherwise subject to the construction stormwater general permit, the applicability of the
construction stormwater general permit to that Permittee is automatically terminated on the
effective date of the individual permit.

G24.  APPEALS

A.  The terms and conditions of this general permit, as they apply to the appropriate class of
dischargers, are subject to appeal by any person within 30 days of issuance of this
general permit, in accordance with Chapter 43.21B RCW, and Chapter 173-226 WAC.

B.  The terms and conditions of this general permit, as they apply to an individual
discharger, are appealable in accordance with Chapter 43.21B RCW within 30 days of
the effective date of coverage of that discharger. Consideration of an appeal of general
permit coverage of an individual discharger is limited to the general permit’s
applicability or nonapplicability to that individual discharger.

C.  The appeal of general permit coverage of an individual discharger does not affect any
other dischargers covered under this general permit. If the terms and conditions of this
general permit are found to be inapplicable to any individual discharger(s), the matter
shall be remanded to Ecology for consideration of issuance of an individual permit or
permits.

G25.  SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or
application of any provision of this permit to any circumstance, is held invalid, the
application of such provision to other circumstances, and the remainder of this permit shall
not be affected thereby.

G26.  BYPASS PROHIBITED

A.  Bypass Procedures

Bypass, which is the intentional diversion of waste streams from any portion of a
treatment facility, is prohibited for stormwater events below the design criteria for
stormwater management. Ecology may take enforcement action against a Permittee for bypass unless one of the following circumstances (1, 2, 3 or 4) is applicable.

1. Bypass of stormwater is consistent with the design criteria and part of an approved management practice in the applicable stormwater management manual.

2. Bypass for essential maintenance without the potential to cause violation of permit limits or conditions.

   Bypass is authorized if it is for essential maintenance and does not have the potential to cause violations of limitations or other conditions of this permit, or adversely impact public health.

3. Bypass of stormwater is unavoidable, unanticipated, and results in noncompliance of this permit.

   This bypass is permitted only if:

   a. Bypass is unavoidable to prevent loss of life, personal injury, or severe property damage. “Severe property damage” means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass.

   b. There are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, maintenance during normal periods of equipment downtime (but not if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance), or transport of untreated wastes to another treatment facility.

   c. Ecology is properly notified of the bypass as required in Special Condition S5.F of this permit.

4. A planned action that would cause bypass of stormwater and has the potential to result in noncompliance of this permit during a storm event.

   The Permittee must notify Ecology at least thirty (30) days before the planned date of bypass. The notice must contain:

   a. A description of the bypass and its cause.

   b. An analysis of all known alternatives which would eliminate, reduce, or mitigate the need for bypassing.

   c. A cost-effectiveness analysis of alternatives including comparative resource damage assessment.

   d. The minimum and maximum duration of bypass under each alternative.

   e. A recommendation as to the preferred alternative for conducting the bypass.
f. The projected date of bypass initiation.

g. A statement of compliance with SEPA.

h. A request for modification of water quality standards as provided for in WAC 173-201A-110, if an exceedance of any water quality standard is anticipated.

i. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass.

5. For probable construction bypasses, the need to bypass is to be identified as early in the planning process as possible. The analysis required above must be considered during preparation of the Stormwater Pollution Prevention Plan (SWPPP) and must be included to the extent practical. In cases where the probable need to bypass is determined early, continued analysis is necessary up to and including the construction period in an effort to minimize or eliminate the bypass.

Ecology will consider the following before issuing an administrative order for this type bypass:

a. If the bypass is necessary to perform construction or maintenance-related activities essential to meet the requirements of this permit.

b. If there are feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment down time, or transport of untreated wastes to another treatment facility.

c. If the bypass is planned and scheduled to minimize adverse effects on the public and the environment.

After consideration of the above and the adverse effects of the proposed bypass and any other relevant factors, Ecology will approve, conditionally approve, or deny the request. The public must be notified and given an opportunity to comment on bypass incidents of significant duration, to the extent feasible. Approval of a request to bypass will be by administrative order issued by Ecology under RCW 90.48.120.

B. Duty to Mitigate

The Permittee is required to take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.
APPENDIX A – DEFINITIONS

AKART is an acronym for “all known, available, and reasonable methods of prevention, control, and treatment.” AKART represents the most current methodology that can be reasonably required for preventing, controlling, or abating the pollutants and controlling pollution associated with a discharge.

Applicable TMDL means a TMDL for turbidity, fine sediment, high pH, or phosphorus, which was completed and approved by EPA before January 1, 2016, or before the date the operator’s complete permit application is received by Ecology, whichever is later.

Applicant means an operator seeking coverage under this permit.

Benchmark means a pollutant concentration used as a permit threshold, below which a pollutant is considered unlikely to cause a water quality violation, and above which it may. When pollutant concentrations exceed benchmarks, corrective action requirements take effect. Benchmark values are not water quality standards and are not numeric effluent limitations; they are indicator values.

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: stormwater associated with construction activity, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Buffer means an area designated by a local jurisdiction that is contiguous to and intended to protect a sensitive area.

Bypass means the intentional diversion of waste streams from any portion of a treatment facility.

Calendar Day A period of 24 consecutive hours starting at 12:00 midnight and ending the following 12:00 midnight.

Calendar Week (same as Week) means a period of seven consecutive days starting at 12:01 a.m. (0:01 hours) on Sunday.

Certified Erosion and Sediment Control Lead (CESCL) means a person who has current certification through an approved erosion and sediment control training program that meets the minimum training standards established by Ecology (see BMP C160 in the SWMM).

Chemical Treatment means the addition of chemicals to stormwater and/or authorized non-stormwater prior to filtration and discharge to surface waters.

Clean Water Act (CWA) means the Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, and 97-117; USC 1251 et seq.

Combined Sewer means a sewer which has been designed to serve as a sanitary sewer and a storm sewer, and into which inflow is allowed by local ordinance.
Common Plan of Development or Sale means a site where multiple separate and distinct construction activities may be taking place at different times on different schedules and/or by different contractors, but still under a single plan. Examples include: 1) phased projects and projects with multiple filings or lots, even if the separate phases or filings/lots will be constructed under separate contract or by separate owners (e.g., a development where lots are sold to separate builders); 2) a development plan that may be phased over multiple years, but is still under a consistent plan for long-term development; 3) projects in a contiguous area that may be unrelated but still under the same contract, such as construction of a building extension and a new parking lot at the same facility; and 4) linear projects such as roads, pipelines, or utilities. If the project is part of a common plan of development or sale, the disturbed area of the entire plan must be used in determining permit requirements.

Composite Sample means a mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increases while maintaining a constant time interval between the aliquots.

Concrete Wastewater means any water used in the production, pouring and/or clean-up of concrete or concrete products, and any water used to cut, grind, wash, or otherwise modify concrete or concrete products. Examples include water used for or resulting from concrete truck/mixer/pumper/tool/chute rinsing or washing, concrete saw cutting and surfacing (sawing, coring, grinding, roughening, hydro-demolition, bridge and road surfacing). When stormwater comingles with concrete wastewater, the resulting water is considered concrete wastewater and must be managed to prevent discharge to waters of the State, including groundwater.

Construction Activity means land disturbing operations including clearing, grading or excavation which disturbs the surface of the land. Such activities may include road construction, construction of residential houses, office buildings, or industrial buildings, site preparation, soil compaction, movement and stockpiling of topsoils, and demolition activity.

Contaminant means any hazardous substance that does not occur naturally or occurs at greater than natural background levels. See definition of “hazardous substance” and WAC 173-340-200.

Contaminated Groundwater means groundwater which contains contaminants, pollutants, or hazardous substances that do not occur naturally or occur at levels greater than natural background.

Contaminated Soil means soil which contains contaminants, pollutants, or hazardous substances that do not occur naturally or occur at levels greater than natural background.

Demonstrably Equivalent means that the technical basis for the selection of all stormwater BMPs is documented within a SWPPP, including:

1. The method and reasons for choosing the stormwater BMPs selected.
2. The pollutant removal performance expected from the BMPs selected.
3. The technical basis supporting the performance claims for the BMPs selected, including any available data concerning field performance of the BMPs selected.
4. An assessment of how the selected BMPs will comply with state water quality standards.
5. An assessment of how the selected BMPs will satisfy both applicable federal technology-based treatment requirements and state requirements to use all known, available, and reasonable methods of prevention, control, and treatment (AKART).

**Department** means the Washington State Department of Ecology.

**Detention** means the temporary storage of stormwater to improve quality and/or to reduce the mass flow rate of discharge.

**Dewatering** means the act of pumping ground water or stormwater away from an active construction site.

**Director** means the Director of the Washington State Department of Ecology or his/her authorized representative.

**Discharger** means an owner or operator of any facility or activity subject to regulation under Chapter 90.48 RCW or the Federal Clean Water Act.

**Domestic Wastewater** means water carrying human wastes, including kitchen, bath, and laundry wastes from residences, buildings, industrial establishments, or other places, together with such ground water infiltration or surface waters as may be present.

**Ecology** means the Washington State Department of Ecology.

**Engineered Soils** means the use of soil amendments including, but not limited, to Portland cement treated base (CTB), cement kiln dust (CKD), or fly ash to achieve certain desirable soil characteristics.

**Equivalent BMPs** means operational, source control, treatment, or innovative BMPs which result in equal or better quality of stormwater discharge to surface water or to ground water than BMPs selected from the SWMM.

**Erosion** means the wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitational creep.

**Erosion and Sediment Control BMPs** means BMPs intended to prevent erosion and sedimentation, such as preserving natural vegetation, seeding, mulching and matting, plastic covering, filter fences, sediment traps, and ponds. Erosion and sediment control BMPs are synonymous with stabilization and structural BMPs.

**Federal Operator** is an entity that meets the definition of “Operator” in this permit and is either any department, agency or instrumentality of the executive, legislative, and judicial branches of
the Federal government of the United States, or another entity, such as a private contractor, performing construction activity for any such department, agency, or instrumentality.

**Final Stabilization** (same as fully stabilized or full stabilization) means the establishment of a permanent vegetative cover, or equivalent permanent stabilization measures (examples of permanent non-vegetative stabilization methods include, but are not limited to riprap, gabions or geotextiles) which prevents erosion.

**Ground Water** means water in a saturated zone or stratum beneath the land surface or a surface waterbody.

**Hazardous Substance** means any dangerous or extremely hazardous waste as defined in RCW 70.105.010 (5) and (6), or any dangerous or extremely dangerous waste as designated by rule under chapter 70.105 RCW; any hazardous substance as defined by rule under chapter 70.105 RCW; any substance that, on the effective date of this section, is a hazardous substance under section 101(14) of the federal cleanup law, 42 U.S.C., Sec. 9601(14); petroleum or petroleum products; and any substance or category of substances, including solid waste decomposition products, determined by the director by rule to present a threat to human health or the environment if released into the environment. The term hazardous substance does not include any of the following when contained in an underground storage tank from which there is not a release: crude oil or any fraction thereof or petroleum, if the tank is in compliance with all applicable federal, state, and local law.

**Injection Well** means a well that is used for the subsurface emplacement of fluids. (See Well.)

**Jurisdiction** means a political unit such as a city, town or county; incorporated for local self-government.

**National Pollutant Discharge Elimination System (NPDES)** means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring, and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of the Federal Clean Water Act, for the discharge of pollutants to surface waters of the State from point sources. These permits are referred to as NPDES permits and, in Washington State, are administered by the Washington State Department of Ecology.

**Notice of Intent (NOI)** means the application for, or a request for coverage under this general permit pursuant to WAC 173-226-200.

**Notice of Termination (NOT)** means a request for termination of coverage under this general permit as specified by Special Condition S10 of this permit.

**Operator** means any party associated with a construction project that meets either of the following two criteria:

- The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or
• The party has day-to-day operational control of those activities at a project that are
necessary to ensure compliance with a SWPPP for the site or other permit conditions
(e.g., they are authorized to direct workers at a site to carry out activities required by the
SWPPP or comply with other permit conditions).

**Permittee** means individual or entity that receives notice of coverage under this general permit.

**pH** means a liquid’s measure of acidity or alkalinity. A pH of 7 is defined as neutral. Large
variations above or below this value are considered harmful to most aquatic life.

**pH Monitoring Period** means the time period in which the pH of *stormwater* runoff from a site
must be tested a minimum of once every seven days to determine if *stormwater* pH is between
6.5 and 8.5.

**Point Source** means any discernible, confined, and discrete conveyance, including but not
limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, and container from
which *pollutants* are or may be discharged to surface waters of the State. This term does not
include return flows from irrigation agriculture. (See Fact Sheet for further explanation.)

**Pollutant** means dredged spoil, solid waste, incinerator residue, filter backwash, sewage,
garbage, domestic sewage sludge (biosolids), munitions, chemical wastes, biological materials,
radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and
industrial, municipal, and agricultural waste. This term does not include sewage from vessels
within the meaning of section 312 of the CWA, nor does it include dredged or fill material
discharged in accordance with a permit issued under section 404 of the CWA.

**Pollution** means contamination or other alteration of the physical, chemical, or biological
properties of waters of the State; including change in temperature, taste, color, turbidity, or odor
of the waters; or such discharge of any liquid, gaseous, solid, radioactive or other substance into
any *waters of the State* as will or is likely to create a nuisance or render such waters harmful,
detrimental or injurious to the public health, safety or welfare; or to domestic, commercial,
industrial, agricultural, recreational, or other legitimate beneficial uses; or to livestock, wild
animals, birds, fish or other aquatic life.

**Process Wastewater** means any water which, during manufacturing or processing, comes into
direct contact with or results from the production or use of any raw material, intermediate
product, finished product, byproduct, or waste product. If *stormwater* commingles with process
wastewater, the commingled water is considered process wastewater.

**Receiving Water** means the waterbody at the point of discharge. If the discharge is to a *storm
sewer system*, either surface or subsurface, the receiving water is the waterbody to which the
storm system discharges. Systems designed primarily for other purposes such as for ground
water drainage, redirecting stream natural flows, or for conveyance of irrigation water/return
flows that coincidentally convey *stormwater* are considered the receiving water.
Representative means a stormwater or wastewater sample which represents the flow and characteristics of the discharge. Representative samples may be a grab sample, a time-proportionate composite sample, or a flow proportionate sample. Ecology’s Construction Stormwater Monitoring Manual provides guidance on representative sampling.

Responsible Corporate Officer for the purpose of signatory authority means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Sanitary Sewer means a sewer which is designed to convey domestic wastewater.

Sediment means the fragmented material that originates from the weathering and erosion of rocks or unconsolidated deposits, and is transported by, suspended in, or deposited by water.

Sedimentation means the depositing or formation of sediment.

Sensitive Area means a waterbody, wetland, stream, aquifer recharge area, or channel migration zone.

SEPA (State Environmental Policy Act) means the Washington State Law, RCW 43.21C.020, intended to prevent or eliminate damage to the environment.

Significant Amount means an amount of a pollutant in a discharge that is amenable to available and reasonable methods of prevention or treatment; or an amount of a pollutant that has a reasonable potential to cause a violation of surface or ground water quality or sediment management standards.

Significant Concrete Work means greater than 1000 cubic yards poured concrete or recycled concrete used over the life of a project.

Significant Contributor of Pollutants means a facility determined by Ecology to be a contributor of a significant amount(s) of a pollutant(s) to waters of the State of Washington.

Site means the land or water area where any "facility or activity" is physically located or conducted.

Source Control BMPs means physical, structural or mechanical devices or facilities that are intended to prevent pollutants from entering stormwater. A few examples of source control
BMPs are erosion control practices, maintenance of stormwater facilities, constructing roofs over storage and working areas, and directing wash water and similar discharges to the sanitary sewer or a dead end sump.

**Stabilization** means the application of appropriate BMPs to prevent the erosion of soils, such as, temporary and permanent seeding, vegetative covers, mulching and matting, plastic covering and sodding. See also the definition of Erosion and Sediment Control BMPs.

**Storm Drain** means any drain which drains directly into a storm sewer system, usually found along roadways or in parking lots.

**Storm Sewer System** means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains designed or used for collecting or conveying stormwater. This does not include systems which are part of a combined sewer or Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

**Stormwater** means that portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater drainage system into a defined surface waterbody, or a constructed infiltration facility.

**Stormwater Management Manual (SWMM) or Manual** means the technical Manual published by Ecology for use by local governments that contain descriptions of and design criteria for BMPs to prevent, control, or treat pollutants in stormwater.

**Stormwater Pollution Prevention Plan (SWPPP)** means a documented plan to implement measures to identify, prevent, and control the contamination of point source discharges of stormwater.

**Surface Waters of the State** includes lakes, rivers, ponds, streams, inland waters, salt waters, and all other surface waters and water courses within the jurisdiction of the State of Washington.

**Temporary Stabilization** means the exposed ground surface has been covered with appropriate materials to provide temporary stabilization of the surface from water or wind erosion. Materials include, but are not limited to, mulch, riprap, erosion control mats or blankets and temporary cover crops. Seeding alone is not considered stabilization. Temporary stabilization is not a substitute for the more permanent “final stabilization.”

**Total Maximum Daily Load (TMDL)** means a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet state water quality standards. Percentages of the total maximum daily load are allocated to the various pollutant sources. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The TMDL calculations must include a "margin of safety" to ensure that the waterbody can be protected in case there are unforeseen events or unknown sources of the pollutant. The calculation must also account for seasonable variation in water quality.
Transfer of Coverage (TOC) means a request for transfer of coverage under this general permit as specified by General Condition G9 of this permit.

Treatment BMPs means BMPs that are intended to remove pollutants from stormwater. A few examples of treatment BMPs are detention ponds, oil/water separators, biofiltration, and constructed wetlands.

Transparency means a measurement of water clarity in centimeters (cm), using a 60 cm transparency tube. The transparency tube is used to estimate the relative clarity or transparency of water by noting the depth at which a black and white Secchi disc becomes visible when water is released from a value in the bottom of the tube. A transparency tube is sometimes referred to as a “turbidity tube.”

Turbidity means the clarity of water expressed as nephelometric turbidity units (NTUs) and measured with a calibrated turbidimeter.

Uncontaminated means free from any contaminant. See definition of “contaminant” and WAC 173-340-200.

Waste Load Allocation (WLA) means the portion of a receiving water’s loading capacity that is allocated to one of its existing or future point sources of pollution. WLAs constitute a type of water quality based effluent limitation (40 CFR 130.2[h]).

Water-only Based Shaft Drilling is a shaft drilling process that uses water only and no additives are involved in the drilling of shafts for construction of building, road, or bridge foundations.

Water quality means the chemical, physical, and biological characteristics of water, usually with respect to its suitability for a particular purpose.

Waters of the State includes those waters as defined as "waters of the United States" in 40 CFR Subpart 122.2 within the geographic boundaries of Washington State and "waters of the State" as defined in Chapter 90.48 RCW, which include lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and water courses within the jurisdiction of the state of Washington.

Well means a bored, drilled or driven shaft, or dug hole whose depth is greater than the largest surface dimension. (See Injection well.)

Wheel Wash Wastewater means any water used in, or resulting from the operation of, a tire bath or wheel wash (BMP C106: Wheel Wash), or other structure or practice that uses water to physically remove mud and debris from vehicles leaving a construction site and prevent track-out onto roads. When stormwater comingles with wheel wash wastewater, the resulting water is considered wheel wash wastewater and must be managed according to Special Condition S9.D.9.
## APPENDIX B – ACRONYMS

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<tr>
<th>Acronym</th>
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<td>AKART</td>
<td>All Known, Available, and Reasonable Methods of Prevention, Control, and Treatment</td>
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<td>BMP</td>
<td>Best Management Practice</td>
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<td>CESCL</td>
<td>Certified Erosion and Sediment Control Lead</td>
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<td>CFR</td>
<td>Code of Federal Regulations</td>
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<td>CKD</td>
<td>Cement Kiln Dust</td>
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<td>cm</td>
<td>Centimeters</td>
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<td>CTB</td>
<td>Cement-Treated Base</td>
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<td>CWA</td>
<td>Clean Water Act</td>
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<td>DMR</td>
<td>Discharge Monitoring Report</td>
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<td>EPA</td>
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<td>ERTS</td>
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<td>NPDES</td>
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<td>Nephelometric Turbidity Unit</td>
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<td>RCW</td>
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<td>SWMM</td>
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<td>SWPPP</td>
<td>Stormwater Pollution Prevention Plan</td>
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<td>TMDL</td>
<td>Total Maximum Daily Load</td>
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<td>UIC</td>
<td>Underground Injection Control</td>
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<td>WQ</td>
<td>Water Quality</td>
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<tr>
<td>WWHM</td>
<td>Western Washington Hydrology Model</td>
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</table>
## Notice of Intent

**Construction Stormwater General Permit**

### I. Contact Information

| **Applicant** |  |  |
|----------------|--------------------------|
| **Honorific:** | First Name: Frank | Last Name: Reinart |
| **Organization Name:** | City of Kirkland | Title: Planner |
| **Mailing Address:** | 123 5th Ave |  |
| **City:** | Kirkland | **State:** WA | **Zip Code:** 98033-6189 |
| **Email:** | freinart@kirklandwa.gov |  |
| **Primary Phone:** | 425-587-3823 | **Secondary Phone:** |
| **UBI Number:** |  |  |

| **Permittee** |  |  |
|----------------|--------------------------|
| **Honorific:** | First Name: Brian | Last Name: Baker |
| **Organization Name:** | City of Kirkland | Title: Project Coordinator |
| **Mailing Address:** | 123 5th Ave |  |
| **City:** | Kirkland | **State:** WA | **Zip Code:** 98033-6189 |
| **Email:** | bbaker@kirklandwa.gov |  |
| **Primary Phone:** | 425-587-3874 | **Secondary Phone:** |
| **UBI Number:** |  |  |

| **Site Contact** |  |  |
|------------------|--------------------------|
| **Honorific:** | First Name: Brian | Last Name: Baker |
| **Organization Name:** | City of Kirkland | Title:  |
| **Mailing Address:** | 123 5th Ave |  |
| **City:** | Kirkland | **State:** WA | **Zip Code:** 98033-6189 |
| **Email:** | bbaker@kirklandwa.gov |  |
| **Primary Phone:** | 425-587-3874 | **Secondary Phone:** |
| **UBI Number:** |  |  |
Site Owner

Honorific:  
First Name: Tracey  
Last Name: Dunlap  
Organization Name: City of Kirkland  
Title: Deputy City Manager  
Mailing Address: 123 5th Ave  
City: Kirkland  
State: WA  
Zip Code: 98033-6189  
Email: tdunlap@kirklandwa.gov  
Primary Phone: 425-587-3101  
Secondary Phone:  
UBI Number:  

II. Electronic Discharge Monitoring Reporting

You must submit monthly discharge monitoring reports using Ecology’s Electronic Discharge Monitoring Reporting (WQWebDMR) system. To sign up for WQWebDMR, or to register a new site, go to ecology.wa.gov/Regulations-Permits/Permits-certifications/Stormwater-General-permits, and click on the "Construction Stormwater" link. You will find information on WQWebDMR under the "WQWebDMR and PARIS" link on the right-hand side. If you are unable to submit your DMRs electronically, you may contact Ecology to request a waiver. Ecology will generally only grant waiver requests to those permittees without internet access. Only a permittee or representative, designated in writing, may request access to or a waiver from WQWebDMR. To have the ability to use the system immediately, you must submit the Electronic Signature Agreement with your application. If you have questions on this process, contact Ecology’s WQWebDMR staff at WQWebPortal@ecy.wa.gov or 360-407-7097.

III. Site Information

Site Project Name: Totem Lake Park Phase 1  
Street Address or Location Description: 12031 NE Totem Lake Way  
City: Kirkland  
County: King  
Zip Code: 98034  
Latitude: 47.711887  
Longitude: -122.177561  

Type of Construction Activity:  
☐ Residential  
☐ Commercial  
☐ Industrial  
☐ Highway or Road (city, county, state)  
☐ Utilities (specify):  
☒ Other (specify): Park Recreational  

Site Acreage  
Total site/project size: 18.8 acres  
Total disturbed area: 3.3 acres  

Total area of soil disturbance for your site/project over the life of the project. Include grading, equipment staging, excavation, borrow pit, material storage areas, dump areas, haul roads, side-cast areas, off-site construction support areas, and all other soil disturbance acreage associated with the project.

Will 1,000 cubic yards or more of poured concrete or recycled concrete be used over the life of the project?  
☐ Yes  ☒ No  

Estimated project start date: 6/1/2019  
Estimated project completion date: 7/31/2020

Other Permits  
None

IV. Existing Site Conditions

1. Are you aware of contaminated soils on this site?  
☐ Yes  ☒ No  

2. Are you aware of groundwater contamination located within the site boundary?  
☐ Yes  ☒ No

3. If you answered yes to question 1 or 2, will any contaminated soils be disturbed or will any contaminated groundwater be discharged due to the proposed construction activity?  
☐ Yes  ☒ No
If yes, please provide detailed information (as known and readily available) on the nature and extent of the contamination (concentrations, locations, and depth) as well as pollution prevention and/or treatment Best Management Practices (BMPs) proposed to control the discharge of soil and/or groundwater contaminants in stormwater. This should include information that would be included in related portions of the Stormwater Pollution Prevention Plan (SWPPP) that describe how contaminated and potentially contaminated construction stormwater and dewatering water will be managed. You may attach this information separately, if needed.

V. Stormwater Pollution Prevention Plan (SWPPP)

You must develop a SWPPP prior to starting construction. Do not submit your SWPPP with your application. If you answered yes to the questions in Part IV, please submit the information that would be included in related portions of the SWPPP that describe how contaminated and potentially contaminated construction stormwater and dewatering water will be managed.

VI. Best Management Practices (BMPs)

You must use the BMPs listed in the Stormwater Management Manual for Western Washington or the Stormwater Management Manual for Eastern Washington or other manuals approved by Ecology. Alternatively, you may use demonstrably equivalent BMPs on the basis of permit condition S9.C.4. If you intend to use a BMP at your site that is not included in these manuals, but that you believe meets the definition of a demonstrably equivalent BMP, you must notify the appropriate regional office. (See Definitions in the Construction Stormwater General Permit).*

http://ecology.wa.gov/Regulations-Permits/Permits-certifications/Stormwater-general-permits/Construction-stormwater-permit#contacts

*Note that if you receive permit coverage without indicating the preference for a demonstrably equivalent BMP and later decide to use one, you must provide Ecology with notice of the selection of an equivalent BMP no less than 60 days before the intended use of the equivalent BMP.

VII. Discharge/Receiving Water Information

Indicate whether your site’s stormwater and/or dewatering water could enter surface waters, directly and/or indirectly:

[ ] Water will discharge directly or indirectly (through a storm drain system or roadside ditch) into one or more surface waterbodies (wetlands, creeks, lakes, and all other surface waters and water courses).

If your discharge is to a storm sewer system, provide the name of the operator of the storm sewer system:

City of Kirkland

[ ] Water will discharge to ground with 100% infiltration, with no potential to reach surface waters under any conditions.

If your project includes dewatering, you must include dewatering plans and discharge locations in your site Stormwater Pollution Prevention Plan.

Location of Discharge into Surface Waterbody

<table>
<thead>
<tr>
<th>Outfall Number</th>
<th>Outfall Description</th>
<th>Surface Waterbody Name</th>
<th>Outfall Type</th>
<th>Latitude</th>
<th>Longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAKE</td>
<td>Surface to Totem Lake Wetland</td>
<td>Totem Lake</td>
<td>Surface Water Body</td>
<td>47.711569</td>
<td>-122.177443</td>
</tr>
</tbody>
</table>

VIII. State Environmental Policy Act (SEPA)

This Notice of Intent (NOI) is incomplete and cannot be approved until the applicable SEPA requirements under Chapter 197-11 WAC are met.

Who is the SEPA lead agency on your site? City of Kirkland

Has the SEPA lead agency issued a final decision on your checklist? [ ] Yes [ ] No [ ] Exempt

If No: The NOI is incomplete. Ecology will hold the application until a final SEPA decision is made or the Construction Stormwater NOI public comment period ends, whichever is later. You must notify Ecology once the lead agency has issued a determination.
If Yes: Type of SEPA decision issued: DNS

Date of final SEPA decision: 12/20/2018
Date when all SEPA-related comment & appeal periods ended or will end: 1/24/2019

If Exempt:

☐ Watershed Restoration & Fish Habitat Enhancement Exemption (RCW 43.21C.0382).
☐ Infill Development Exemption (RCW 43.21C.229).
☐ Planned Action Exemption (RCW 43.21C.031).
☐ Categorical Exemption. Under what section of the SEPA Rule (WAC 197-11-800) is it exempt?

Section:

IX. Public Notice

You must publish a public notice at least once a week for two consecutive weeks with seven days between publications, in at least a single newspaper of general circulation in the county in which the facility is located. Ecology cannot grant permit coverage sooner than the end of the 30-day public comment period, which begins on the date of the second public notice.

<table>
<thead>
<tr>
<th>Newspaper Name</th>
<th>First Public Notice Date</th>
<th>Second Public Notice Date</th>
</tr>
</thead>
</table>

X. Certification of Permittees

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Permittee Signature

Date: 3/27/2019

Submission ID: 1666940

Page 4 of 4
SEPA PERMIT
DETERMINATION OF NON-SIGNIFICANCE (DNS)

Case No.: SEP18-00520  
DATE ISSUED: December 20, 2018

Project Name: Totem Lake Park – Phase 1

Project Location: 12031 NE Totem Lake Way and Totem Lake Park

Project Description: Construct a portion of the Totem Lake Park Master Plan (Phase 1). The proposal is for the construction of the following park improvements: restrooms, kiosk, parking, terraced seating, passive lawn area, a play area, promenade walk with seating nodes, an elevated lake viewing pier, and a boardwalk trail with habitat viewing. The proposal, which includes a mitigation plan, is being evaluated through the City’s Public Agency and Public Utility Exception critical area review process.

Proponent: Brian Baker, Public Works Project Coordinator with City of Kirkland

Project Planner: Scott Guter

Lead agency is the City of Kirkland

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21.030 (2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public upon request.

This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for 14 days from the date issued. Comments must be submitted to Scott Guter, project planner at sguter@kirklandwa.gov by 5:00 PM on January 3, 2019. Please reference case number SEP18-00520.

Responsible official:

Adam Weinstein, AICP, Planning & Building Director  
Date: December 17, 2018  
City of Kirkland  
Planning & Building Department  
123 Fifth Avenue, Kirkland, WA 98033 – 425.587.3600

You may appeal this determination to the Planning & Building Department at City of Kirkland, 123 Fifth Avenue, Kirkland, WA 98033 no later than 5:00 PM on January 3, 2019 (date, 14 days from date issued) by a Written Notice of Appeal. You should be prepared to make specific factual objections and reference case number SEP18-00520. Contact Scott Guter, project planner in the Planning & Building Department at 425.587.3247 to ask about the procedures for SEPA appeals. See also KMC 24.02.230 Administrative Appeals.

Publish in The Seattle Times on: Wednesday, December 26, 2018
Distribute this notice with a copy of the Environmental Checklist to:

**GENERAL NOTICING**

- Department of Ecology - Environmental Review
- Muckleshoot Tribal Council - Environmental Division, Tribal Archeologist
- Muckleshoot Tribal Council - Environmental Division, Fisheries Division Habitat
- Cascade Water Alliance – Director of Planning
- Totem Lake Neighborhood Association
- Lake Washington School District No. 414: Budget Manager and Director of Support Services
- Washington State Dept. of Archaeology & Historic Preservation
- King County Dept. of Transportation - Employer Transportation Representative
- Seattle & King County Public Health - SEPA Coordinator

**AGENCIES WITH JURISDICTION, AFFECTED AGENCIES, AND/OR INTERESTED PARTIES**

- Department of Ecology - Environmental Review
- Department of Fish and Wildlife – Olympia
- Muckleshoot Tribal Council - Environmental Division, Fisheries Division Habitat Program
- U.S. Army Corps of Engineers - Seattle District
- Eastside Audubon Society
- Northshore Utility District - Operations Department, Engineering Director, and Senior Civil Engineer
- Seattle City Light - Department of Finance and Administration

**cc:**

Applicant

King Conservation District:

Planning Department File, Case No. SAR18-00519

Distributed by: [Signature] December 20, 2018

(Karin Bayes, Office Specialist) Date
PSE PERMIT
COMMERCIAL ELECTRIC FACILITIES CONTRACT

CUSTOMER (OWNER) NAME: City of Kirkland

CO-OWNER NAME (IF APPLICABLE)

SERVICE ADDRESS: 12031 NE Totem Lake Way
CITY: Kirkland
STATE: WA
ZIP: 98034

BILLING ADDRESS: 123 5th Ave
CITY: Kirkland
STATE: WA
ZIP: 98033

PHONE: 206-441-4522
EMAIL: bbaker@kirklandwa.gov
PSE WORK ORDER NO.: 105090647

Summary of Charges:

Construction Costs: $10,187.94
Transformation Charges: $1,986.81
Less Applicable Margin Allowance: $0.00
Sub-Total (Potential Refundable Costs): $12,174.75
Permitting Fees*: $0.00
Relocation/Removal of Existing Facilities: $0.00
Other Non-Refundable Construction Charges: $0.00
Sub-Total (Non-Refundable Costs): $0.00
Total Amount to be Billed Under This Contract: $12,174.75

Customer Initials: [ ]

Brief Description of Work:
Primary line extension, new padmount transformer

Brief Description of Other Costs:
N/A

*If the above Permitting Fees are associated with service work only, those costs will be billed with the applicable service charges below after the service is energized.

SECONDARY SERVICE CHARGES (PERMANENT AND TEMPORARY) ARE NOT INCLUDED IN THE SUMMARY OF CHARGES ABOVE

Any applicable Secondary Service Type charges listed below will be billed after your service line installation, based on the actual work performed. Base Costs, in the table below, include Schedule 87 tax and are current costs effective 11/1/2018. These charges also do not include permitting fees, trenching and other excavation related work that is your responsibility. The Secondary Service Type charges from the list below that apply to your project will be invoiced on a second bill.

<table>
<thead>
<tr>
<th>Secondary Service Type (480 Voltage or Below)</th>
<th>Base Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single wire run to handhole or transformer</td>
<td>$611.12</td>
</tr>
<tr>
<td>Each additional run of wire (per circuits)</td>
<td>$140.60</td>
</tr>
<tr>
<td>Each additional trip beyond 1st trip due to customer requirements</td>
<td>$418.48 per trip</td>
</tr>
<tr>
<td>Hourly rate for additional engineering</td>
<td>$182.67</td>
</tr>
<tr>
<td>Underground Temporary Service Charge</td>
<td>$182.00</td>
</tr>
<tr>
<td>Overhead Temporary Service Charge</td>
<td>$260.00</td>
</tr>
<tr>
<td>Overhead Permanent Service Charge</td>
<td>$1,039.57</td>
</tr>
</tbody>
</table>

Customer Initials: [ ]

By signing this contract you are authorizing PSE to continue with all the needed elements to complete your project. Upon receipt of a signed contract, PSE will bill you for the amount indicated on the “Total Amount to Be Billed Under This Contract” line. The bill will sent to the billing address listed on this contract. PSE requires payment of these line extension charges prior to scheduling construction. Payments can be made via pse.com (fees may apply), by mail, or at a PSE Pay Station. Delaying payment may result in a construction delay for your project. Customer requested changes in the scope of the project may result in additional charges, and/or delays to your project.

Signature: [Signature]
Name: Kathy Brown
Title: PW Director
Date: 03/21/2019
TERMS AND CONDITIONS

PROJECT INFORMATION

1. The PSE drawing shows the proposed scope of your project including the location of permanent, above ground electrical facilities required to provide electrical service to your project. Fault current information for transformers associated with your project is noted on the work sketch drawing. Please review this drawing as soon as possible to ensure there are no unforeseen conflicts between PSE’s design and your project. If you determine there are conflicts or if you identify a discrepancy while reviewing the drawing for your project, please contact me at the number below. This is attached as Exhibit A.

2. Additional construction-related information and information on metering and service entrance requirements are provided in PSE’s Electric Service handbook for commercial projects. If you would like a copy of the handbook please contact me at the number below. It is your responsibility to provide your project manager, site superintendent, and/or subcontractors with any relevant information from this correspondence that apply to their work in support of your project.

3. The Excavation Requirements & Final Grade Certification must be signed by the project owner or designee and returned to me along with a signed copy of this contract. This is attached as Exhibit B.

4. Transformers have been sized for diversified commercial loads only, and shall not be used for high load factor (continuous) temporary power uses, such as electric heaters for dry-out. Fault currents for non-residential transformers in your project are noted on the attached PSE design drawing. Please notify the PSE representative listed on this contract immediately if you believe there are conflicts between this design and your project. It is your responsibility to provide your project manager, site superintendent, and subcontractors with any information from this correspondence and its attachments that apply to their work.

5. The requirements for trenching by customers on public right-of-ways and/or on Puget Sound Energy easements must be signed by the project owner or designee and returned along with a signed copy of this contract. This is attached as Exhibit C.

POTENTIAL REFUNDS

Margin Allowance:

If PSE has not provided a Margin Allowance or if your Margin Allowance exceeds $75,000, PSE agrees to calculate and refund the Margin Allowance, subject to Schedule 85, up to two (2) years after the line extension is energized. Customers are responsible for making the refund request.

DIM Refund:

Other refunds associated with the line extension charge may be available if additional permanent service hook-ups are made to your line extension. These service hook-ups must be made within five (5) years of the date on which your project is initially energized. Customers are responsible for making all refund requests. A refund may be requested one (1) time within six (6) years of the date on which your line extension is initially energized. It is the customer’s responsibility to make the refund request. Your refund request should be directed to PSE’s Customer Accounting Coordinators at Schedule85refundrequests@pse.com.

RATE SCHEDULE 85

All terms and conditions, costs, and refunds are in accordance with PSE’s Rate Schedule 85, and any discrepancies between this contract and the Rate Schedule will be resolved in favor of the Rate Schedule. Rate Schedule 85 contains more detailed information covering costs, refunds, rights, and obligations than is reflected in this contract. The entirety of Rate Schedule 85 can be viewed at PSE’s website www.pse.com.

This cost information is valid for 90 days from the date of this contract. Should we receive your contract after this period, the costs will be subject to changes.

The amount noted on this contract is an estimated cost; however PSE’s Schedule 85 line extension tariff requires customers to pay the actual cost of construction. PSE will determine the actual cost of the job once construction is complete. If the actual cost of the job is more than 10% above or below the estimated cost, an additional billing or refund will result to account for the difference.
REQUIREMENTS FOR TRENCHING BY CUSTOMERS ON PUBLIC RIGHT-OF-WAYS AND/OR ON PUGET SOUND ENERGY, INC. EASEMENTS

The following outlines most local governmental guidelines and company standards for trenching on a public right-of-way or Puget Sound Energy, Inc. (PSE) easement. Any trenching performed by the customer, or their contractor, under a PSE permit or easement must comply with these requirements.

1. All trench construction must be performed by a Washington State licensed and bonded contractor.
2. Trench excavation, backfill, restoration, and facility placement must be coordinated with a PSE designated representative, and receive on-site approval by that representative, and local jurisdiction.
3. Right-of-way easement trenching and backfill must be performed during normal business hours, Monday through Friday. Same day excavation and backfill is required for all trenching. Job start notification to the local jurisdiction is the responsibility of Potelco, Inc. Customer shall notify Potelco Project Manager three working days prior to trenching. Penalties for failure to comply with this requirement will be borne by the customer.
4. If the job scope requires excavation beyond a single day, fencing and barricading must be installed around utility facilities exposed above the trench, if allowed, must be in accordance with local regulatory requirements.
5. PSE, all participating utilities, and One-Call Locate, must be notified a minimum of 72 hours in advance of the date and time for right-of-way trenching and facility placement. The One-Call Locate number is 1-800-424-5555. State law requires locating service notification.
6. Excavated material must remain clear of the roadway whenever possible. Excavation material, spoils, and debris shall be removed off-site each day, in accordance with local regulatory requirements. All erosion control requirements in accordance with local regulatory requirements are the responsibility of the customer.
7. Material excavated from the shoulder of the right-of-way shall be properly disposed, and replaced with select backfill material in accordance with local regulatory requirements.
8. Proper compaction is required to comply with local regulatory specifications. If the permit requires compaction testing, the cost of said testing is the responsibility of the customer.
9. All permit requirements, traffic control plans, traffic control and flagging shall meet local regulatory specifications and satisfaction.
10. In the event of failure to abide by the above requirements, PSE reserves the right, at its sole discretion, to assume trenching. In the event of delays due to equipment failure, PSE may assume trenching to meet regulatory and joint construction requirements. The customer is responsible for all trenching costs, and will reimburse the company for costs should PSE perform the trenching.

Customer Initials: 

11. The customer agrees to indemnify, defend and hold harmless PSE from all liability (including reasonable attorneys’ fees) arising out of, or in connection with, the above mentioned trenching activities.

Customer Initials: 

I AGREE TO ADHERE TO THE ABOVE CONDITIONS

Service Address: 12031 NE Totem Lake Way  
Kirkland 98034  
Work Order Number: 105090647

Signature: [Signature]  
Name: Kathy Brown  
Title: PW Director  
Date: 08/21/2019
PSE ELECTRICAL FACILITIES
EXCAVATION REQUIREMENTS AND FINAL GRADE CERTIFICATION

PURPOSE
This document is an agreement between Puget Sound Energy (PSE) and the Owner/Developer (Developer) who is providing excavation for the installation of PSE's facilities. This document does not provide an easement for operating rights. If PSE determines that a recordable easement on the Developer's property or other property is necessary, it shall be the Developer's responsibility to obtain such easements in a form acceptable to PSE prior to construction.

EXCAVATION REQUIREMENTS
The requirements and conditions outlined below apply when you provide the excavation for PSE's electrical facilities as a condition of receiving electrical service for your project. If you need additional information, please call the PSE contact person listed below.

1. Developer is responsible for acquiring utility locates by calling One-Call, 1-800-424-5555 at least 48 hours (two full working week days) prior to digging. The excavation must meet the requirements of the Washington Administrative Code and Safety Standards.

2. Developer shall call the PSE contact person noted below for trench and route approval prior to starting excavation.

3. The electrical primary trench shall be excavated to provide a minimum of 36 inches of facility coverage, to a maximum trench depth of 48 inches. The electric service trench shall be excavated to provide a minimum of 24 inches of facility coverage, to a maximum trench depth of 36 inches. A 12 inch horizontal separation is required between PSE electrical facilities and other utilities within a joint trench.

4. All back fill must be free of sharp objects and construction debris. Developer shall provide and install sand bedding and shading for electrical facility protection as directed by PSE's contact person. Developer is responsible for any damages caused by improper backfill or compaction.

5. Developer agrees to maintain a minimum of 2 feet of horizontal clearance between PSE conduit, pipe or conductors and any foundation on Developer's property.

6. The vault excavation shall be dug to the dimensions noted on the attached work sketch. Vault holes shall have a solid level bottom with a 6 inch deep layer of crushed rock bedding.

7. Developer shall provide the excavation for PSE electrical facilities within the designed location. Developer shall identify and provide final grade, property lines, and utility easements prior to installation of PSE's electrical facilities.

8. Developer will be financially liable for the relocation of PSE's facilities which are inadequately covered, located outside the area where PSE has adequate operating rights, improperly graded inhibiting standard access and/or any damages resulting from dig-ins due to changes or variations in grade that are made after the installation of PSE's facilities.

FINAL GRADE CERTIFICATION
By my signing below, I certify that the electrical facilities work area shall be at final grade prior to excavation. I assume full responsibility for my excavation work and the resulting location of these facilities. I also agree to indemnify, defend, and hold harmless Puget Sound Energy from all liability arising out of, or in connection with my work, including but not limited to all claims, losses, damages, and expenses, including reasonable attorney's fees, which result from my failure to excavate within easement areas or rights-of-way, or from digging without adequate rights on adjoining properties.

Service Address: 12031 NE Totem Lake Way Kirkland 98034 Work Order Number: 105090647

Signature: [Signature] Name: Kathy Brown Title: PW Director Date: 03/21/2017
NUD PERMIT
REQUEST FOR WATER METER REMOVAL

I, [Kathy Brown, City of Kirkland], request to have the water meter removed from the property addressed at 12031 NE Totem Lake Way, and identified under District account number [Redacted]. I have been informed that a $75 fee will be added to the final water bill for the removal of the meter. I am aware that if the property is connected to the public sewer system, I must obtain a permit from the District, and cap the side sewer connection at the property line. I am aware that I will continue to be billed for sewer base charges, even after the water meter has been removed, until the side sewer capping has been inspected and approved by the District. I understand that there will be charges for future reconnection.

REASON FOR METER REMOVAL REQUEST (check one):

- Home is being demolished.
- Home is vacant or will be vacant for an extended period of time.
- Home is unsafe/uninhabitable.
- Other (briefly describe): [Redacted]
- Property is being redeveloped.

Signature: [Redacted]

Date: [Redacted]

Phone No.: (425) 587-3874

Address to Send Final Bill: 123 5th Ave Kirkland WA 98033

ATTN: Brian Baker

FOR DISTRICT USE ONLY

Routing - Initial & Date

Engineering

Finance

File

Operations

GIS

Acct. status to be: [Redacted] Dormant [Redacted] Closed

Latest Revision Date: 7/12/18
# NORTHSHORE UTILITY DISTRICT
6230 NF 186th St
Kenmore, WA 98028-2684

Phone: (425) 398-4400 | Fax: (425) 398-4430 | www.nud.net

---

**This Estimate is Valid for 45 Days from the Date Shown Below**

**Name:**
**City of Kirkland**

**Date:**
2/29/2019

**Location:**
Toliver Lake Park Phase One

**Work Order:**

**Phone:**
425-587-3900

---

**Install 2 Water Services and 1 Fire hydrant. Abandon 1 Fire hydrant, hydrant run and water services**

**Description of work:**
Remove sidewalk and trench patch with HMA. No roadway included in bid.

---

## Labor:

<table>
<thead>
<tr>
<th>Employee Type</th>
<th>Hours</th>
<th>Wage</th>
<th>Labor Cost</th>
<th>Overhead</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Utility Worker (3555)</td>
<td>32</td>
<td>$43.49</td>
<td>$1,391.68</td>
<td>2.25%</td>
<td>$1,431.93</td>
</tr>
<tr>
<td>Senior Utility Worker (2155)</td>
<td>32</td>
<td>$38.02</td>
<td>$1,224.64</td>
<td>2.25%</td>
<td>$1,252.16</td>
</tr>
<tr>
<td>Utility Worker (1099)</td>
<td>32</td>
<td>$28.94</td>
<td>$826.08</td>
<td>2.25%</td>
<td>$852.00</td>
</tr>
<tr>
<td>Utility Worker (1099)</td>
<td>30</td>
<td>$29.50</td>
<td>$885.00</td>
<td>2.25%</td>
<td>$907.50</td>
</tr>
<tr>
<td>Utility Worker (1065)</td>
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<td>$28.95</td>
<td>$868.50</td>
<td>2.25%</td>
<td>$893.75</td>
</tr>
</tbody>
</table>

**subtotal**

$17,709.25

---

## Equipment (Tools & Equipment require bid):

<table>
<thead>
<tr>
<th>Equipment Type</th>
<th>Hours</th>
<th>Cost/ea</th>
<th>Cost</th>
<th>Overhead</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steer Pump (TR65S)</td>
<td>30</td>
<td>$13.00</td>
<td>$465.00</td>
<td>2.25%</td>
<td>$476.25</td>
</tr>
<tr>
<td>Hauler Truck (TR250)</td>
<td>24</td>
<td>$71.00</td>
<td>$1,704.00</td>
<td>2.25%</td>
<td>$1,729.00</td>
</tr>
<tr>
<td>Dump Truck (TR875)</td>
<td>30</td>
<td>$44.00</td>
<td>$1,320.00</td>
<td>2.25%</td>
<td>$1,347.00</td>
</tr>
<tr>
<td>FS50 Truck (TR401)</td>
<td>28</td>
<td>$21.00</td>
<td>$572.40</td>
<td>2.25%</td>
<td>$585.72</td>
</tr>
<tr>
<td>Mid Excavator (TR286)</td>
<td>16</td>
<td>$30.00</td>
<td>$480.00</td>
<td>2.25%</td>
<td>$492.00</td>
</tr>
<tr>
<td>Dump Truck (TR550)</td>
<td>6</td>
<td>$17.00</td>
<td>$102.00</td>
<td>2.25%</td>
<td>$104.50</td>
</tr>
</tbody>
</table>

**subtotal**

$3,397.50

---

## Materials:

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Cost/ea</th>
<th>Cost</th>
<th>Overhead</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete Mixer</td>
<td>2</td>
<td>$49.23</td>
<td>$98.46</td>
<td>2.25%</td>
<td>$101.44</td>
</tr>
<tr>
<td>Concrete Mixer</td>
<td>2</td>
<td>$89.49</td>
<td>$178.98</td>
<td>2.25%</td>
<td>$183.55</td>
</tr>
<tr>
<td>Heavy B Asphalt</td>
<td>5</td>
<td>$89.99</td>
<td>$449.95</td>
<td>2.25%</td>
<td>$466.08</td>
</tr>
<tr>
<td>Poly Pipe Skimmer</td>
<td>4</td>
<td>$27.17</td>
<td>$108.68</td>
<td>2.25%</td>
<td>$112.07</td>
</tr>
<tr>
<td>Wire Manger</td>
<td>2</td>
<td>$348.57</td>
<td>$697.14</td>
<td>2.25%</td>
<td>$715.52</td>
</tr>
<tr>
<td>Brass Coupling Adapter (4)</td>
<td>2</td>
<td>$29.75</td>
<td>$59.50</td>
<td>2.25%</td>
<td>$62.03</td>
</tr>
<tr>
<td>Brass Coupling Adapter (49)</td>
<td>2</td>
<td>$14.23</td>
<td>$28.46</td>
<td>2.25%</td>
<td>$30.19</td>
</tr>
<tr>
<td>Brass 90 Degree Bend Fitting</td>
<td>2</td>
<td>$8.32</td>
<td>$16.64</td>
<td>2.25%</td>
<td>$17.13</td>
</tr>
<tr>
<td>Valve Plug</td>
<td>2</td>
<td>$51.49</td>
<td>$102.98</td>
<td>2.25%</td>
<td>$107.14</td>
</tr>
<tr>
<td>1 in Poly Pipe</td>
<td>200</td>
<td>$0.54</td>
<td>$108.00</td>
<td>2.25%</td>
<td>$111.50</td>
</tr>
<tr>
<td>Remac Tap 8 x 6 Cutting Sleeve</td>
<td>1</td>
<td>$531.25</td>
<td>$531.25</td>
<td>2.25%</td>
<td>$542.55</td>
</tr>
<tr>
<td>6 in Gate Valve</td>
<td>1</td>
<td>$533.89</td>
<td>$533.89</td>
<td>2.25%</td>
<td>$550.79</td>
</tr>
<tr>
<td>6 in Di Cap</td>
<td>2</td>
<td>$48.99</td>
<td>$98.00</td>
<td>2.25%</td>
<td>$101.00</td>
</tr>
<tr>
<td>6 in MA Plug</td>
<td>2</td>
<td>$88.77</td>
<td>$177.54</td>
<td>2.25%</td>
<td>$182.49</td>
</tr>
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<td>6 in Fire Hydrant</td>
<td>1</td>
<td>$2,811.48</td>
<td>$2,811.48</td>
<td>2.25%</td>
<td>$2,876.58</td>
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<tr>
<td>Rear End Follower</td>
<td>5</td>
<td>$41.44</td>
<td>$207.20</td>
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<td>$212.30</td>
</tr>
<tr>
<td>Drain Rock</td>
<td>0.5</td>
<td>$25.75</td>
<td>$12.88</td>
<td>2.25%</td>
<td>$13.19</td>
</tr>
<tr>
<td>Concrete Block Large</td>
<td>3</td>
<td>$2.83</td>
<td>$8.49</td>
<td>2.25%</td>
<td>$9.19</td>
</tr>
<tr>
<td>Concrete Block Small</td>
<td>8</td>
<td>$1.80</td>
<td>$14.40</td>
<td>2.25%</td>
<td>$15.00</td>
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<tr>
<td>Valve Can Lid</td>
<td>1</td>
<td>$17.70</td>
<td>$17.70</td>
<td>2.25%</td>
<td>$18.18</td>
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<tr>
<td>Steel Tape 6 in w Gasket</td>
<td>1</td>
<td>$15.36</td>
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<tr>
<td>Valve Can Lid</td>
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<td>$68.82</td>
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</tr>
<tr>
<td>Top Soil</td>
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<td>$22.60</td>
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<tr>
<td>Valve Can Top</td>
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<td>$41.34</td>
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<tr>
<td>Valve Can Bottom</td>
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<td>$55.99</td>
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<td>Concrete Bags 800</td>
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<td>$3.31</td>
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<td>Gravel Crushed Rock</td>
<td>20</td>
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**subtotal**

$9,755.27

---

## Reimbursables:

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<th>Description</th>
<th>Quantity</th>
<th>Cost/ea</th>
<th>Cost</th>
<th>Overhead</th>
<th>Total</th>
</tr>
</thead>
</table>

**administrative / other**

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Cost/ea</th>
<th>Cost</th>
<th>Overhead</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permit</td>
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<td>$500.00</td>
<td>$500.00</td>
<td>2.25%</td>
<td>$510.00</td>
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</table>

**subtotal**

$510.00

---

## Taxable Subtotal (Minus Reimbursables):

$27,468.27

**Sales Tax:**
10.00%

$2,746.93

**Deposit Required:**

$30,212.80

---

I understand that the required deposit amount is an estimate only, and that the actual costs for labor and materials may exceed this amount. Upon payment of the deposit, I authorize the described work to commence. I understand I will be invoiced for all costs that exceed the paid deposit, and agree to pay any such invoice within 30 days of billing.

**Print Name:**
John F. Starbard

**Signature:**
[Signature]

[END]

**Northshore Utility District Application For Water Service Agreement**

6830 NE 185th St., Kenmore, WA 98028 | 425-398-4400 Fax: 425-398-4430

---

**Applicant to Complete all Blue Highlighted Sections – PLEASE PRINT**

| Property Address: | 12031 NE TOTEM LAKE WAY |
| City: | KIRKLAND |
| Zip code: | 98033 |
| Property Owner: | CITY OF KIRKLAND |
| Owner Address: | 123 FIFTH AVE. |
| City: | KIRKLAND |
| State: | WA |
| Zip code: | 98033 |
| Business Phone: | 425-587-3874 |
| Home Phone: | |

**Type of Development**

- [ ] Single Family
- [ ] Condo/Townhomes
- [ ] Apartment Complex
- [ ] Commercial Building
- [ ] Fire Sprinklers/Protection

**Additional Information:** RESTROOM PERMIT

---

**District to Complete this Section**

| Account Number: | |
| Jurisdiction: | |
| Service & Set: | |
| Cycle: | |
| Service Only: | |
| Set Only: | |
| Upgrade: | |
| Lighting Area #: | |
| Future Service Install: | |

**Bill Fire Protection charges to:**

- [ ] Protected Acct:
- [ ] or Fire Acct:

**Type of Development**

- [ ] Domestic
- [ ] Water ULID
- [ ] Fire Protection
- [ ] Irrigation
- [ ] DE Project

**Meter Information**

- [ ] Meter #:
- [ ] Size:
- [ ] Make:
- [ ] Transmitter #:
- [ ] Meter Rte #:
- [ ] Seq #:
- [ ] Register #:
- [ ] Read:
- [ ] Install Date:

**Legal Description**

- [ ] Tax ID: 692840003200
- [ ] Lot #:
- [ ] Block:

**Legal Description:**

**I HAVE READ AND FULLY UNDERSTAND AND ACCEPT THE TERMS AND CONDITIONS OF THIS AGREEMENT LISTED ON THE REVERSE SIDE**

- [ ] Print Applicant Name: JOHN STARBARD
- [ ] Business Phone: (425) 587-3874
- [ ] Owner
- [ ] Owner's Rep

**Applicant Signature:**

- [ ] Date: 03/21/19

---

**Routing - Initial and Date**

- [ ] App. Taken By:
- [ ] Approved for Install:
- [ ] Cross Conn. Review:
- [ ] Finance Dept.:
- [ ] Dispatch:
- [ ] Scanning:

**CONTINUED ON REVERSE SIDE**
The undersigned hereby applies for water meter and water service from Northshore Utility District ("District"); for the property ("Property") described on the reverse side of this application. The undersigned is:

- the legal owner or owners ("Owner") of Property.
- a representative of the legal owner(s) of Property ("Owner(s)") who is authorized to present information related to this application and accept the terms and conditions stated herein. If this undersigned is not so authorized by the Owner, the undersigned agrees to pay the cost of such removal. At its sole option, the District may choose to discontinue service until the obstruction is removed. The District has been designed to provide normal minimum static water pressure of 30 and 140 pounds per square inch (PSI), measured at the meter. Applicant assumes the responsibility to determine the exact water pressure at the meter. Where pressure exceeds 60 PSI, it shall be Applicant's responsibility to install, at Applicant's sole expense, an appropriate type of pressure regulator with strainers. (Reference: Uniform Plumbing Code, 19th Edition Sec. 1007b). If Applicant desires higher pressure than is provided, it is the Applicant's responsibility to install the facilities necessary to achieve the desired pressure. The District shall use its best efforts to ensure safe and adequate pressure in the mains, but shall not be liable for damage resulting from negligence of Applicant in failing to provide reasonable safeguards for its own property.

The Applicant agrees to comply with all current City, State and District regulations and as may be modified and revised regarding cross-connections. Where applicable and possible, the District shall install water meters in a meter bank in a sequence that corresponds to the location of the property receiving service. Connecting Property to the correct meter is the responsibility of Applicant. If Applicant or his contractor connects Property to the incorrect meter, Applicant is responsible for all undercharging of water actually used since such incorrect connection by Property or neighboring properties and for correcting the situation. This requirement shall be binding upon all subsequent property owners.

Applicant understands that for all new construction, the side sewer connection must be inspected and approved by the District prior to the water meter installation. Billing for service charges shall commence for all service units effective the date of installation of a water meter, regardless of the terms and conditions of this agreement, at amounts then owing or thereafter accruing to the District shall become immediately due and payable. Applicant may be charged late fees and interest charges of 15% per month on any water or service charges not paid by the due date, as well as all costs, including attorney's fees, incurred by the District in collecting such charges or in enforcing this Agreement. Pursuant to Title 57 of the Revised Codes of Washington, all unpaid water charges of every description shall become a priority lien against Property. By the exercise of this Agreement, Applicant agrees to pay the related expenses incurred by the District including reasonable attorney's fees. In such event, Applicant shall forfeit all right to service from the service connection and all related fees previously paid.

12. Applicant warrants that all information on drawings, plans and documents submitted in support of this application are correct and accurate. Any alteration in construction from the submitted plan and drawings done without written approval by the District shall void this application and the related approval.

13. Applicant agrees to (a) not to obstruct access to the meter for reading, repair, or service in any manner, (b) to keep the meter free from dirt and debris, and (c) to restrain dogs or any other animals which may interfere with reading the meter. If Applicant fails to remove any obstruction to the meter within 30 days of notice from the District, the District may remove such obstruction and Applicant agrees to pay the cost of such removal. At its sole option, the District may choose to discontinue service until the obstruction is removed. The District has been designed to provide normal minimum static water pressure of 30 and 140 pounds per square inch (PSI), measured at the meter. Applicant assumes the responsibility to determine the exact water pressure at the meter. Where pressure exceeds 60 PSI, it shall be Applicant's responsibility to install, at Applicant's sole expense, an appropriate type of pressure regulator with strainers. (Reference: Uniform Plumbing Code, 19th Edition Sec. 1007b). If Applicant desires higher pressure than is provided, it is the Applicant's responsibility to install the facilities necessary to achieve the desired pressure. The District shall use its best efforts to ensure safe and adequate pressure in the mains, but shall not be liable for damage resulting from negligence of Applicant in failing to provide reasonable safeguards for its own property.

17. Applicant understands that for all new construction, the side sewer connection must be inspected and approved by the District prior to the water meter installation. Billing for service charges shall commence for all service units effective the date of installation of a water meter, regardless of the terms and conditions of this agreement, at amounts then owing or thereafter accruing to the District shall become immediately due and payable. Applicant may be charged late fees and interest charges of 15% per month on any water or service charges not paid by the due date, as well as all costs, including attorney's fees, incurred by the District in collecting such charges or in enforcing this Agreement. Pursuant to Title 57 of the Revised Codes of Washington, all unpaid water charges of every description shall become a priority lien against Property. By the exercise of this Agreement, Applicant agrees to pay the related expenses incurred by the District including reasonable attorney's fees. In such event, Applicant shall forfeit all right to service from the service connection and all related fees previously paid.

19. Unless specifically exempted, no water connections or water service lines or property connections, including but not limited to, the connections authorized hereunder shall be made until the District has approved the plans and specifications, and passed upon the suitability of the work. No water service or property connection shall be made until the District has approved the plans and specifications, and after the District has been satisfied with the work. No water service or property connection shall be made until the District has approved the plans and specifications, and after the District has been satisfied with the work.

20. By execution of this Agreement, Applicant guarantees payment of all fees, rates, and charges due for any other account(s) that Applicant may have with the District.

21. In the event any action or proceeding is brought by either party against the other related to this Agreement, the substantially prevailing party shall be entitled to recover from the other party its costs, including but not limited to reasonable attorney's fees, incurred in such action or proceeding, including any trial, appeal, or bankruptcy proceeding, which amounts shall be included in any judgment entered in such action or proceeding. Provided, however, that if more than one matter is disputed and each party prevails as to one or more of the disputed matters, then such costs, expenses and attorney's fees shall be awarded in proportion to the monetary values of the matters on which each party prevailed. As part of the consideration for this Agreement, each of the parties hereof waives the right to try to settle any dispute without trial or to trial of any provisions of this Agreement, the venue of the same shall be King County, Washington.

22. The terms of this Application/Agreement shall be subject to the terms and conditions set forth in the District's Water Service Agreement.
### Northshore Utility District Application For Water Service Agreement

6830 NE 185th St., Kenmore, WA 98028 | 425-398-4400 | Fax: 425-398-4430

**Applicant to Complete all Blue Highlighted Sections – PLEASE PRINT**

<table>
<thead>
<tr>
<th>Property Address:</th>
<th>12031 NE Totem Lake Way</th>
</tr>
</thead>
<tbody>
<tr>
<td>City:</td>
<td>Kirkland</td>
</tr>
<tr>
<td>Zip code:</td>
<td>98033</td>
</tr>
<tr>
<td>Property Owner:</td>
<td>City of Kirkland</td>
</tr>
<tr>
<td>Owner Address:</td>
<td>123 Fifth Ave.</td>
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<tr>
<td>City:</td>
<td>Kirkland</td>
</tr>
<tr>
<td>State:</td>
<td>WA</td>
</tr>
<tr>
<td>Zip code:</td>
<td>98033</td>
</tr>
<tr>
<td>Business Phone:</td>
<td>425-587-3874</td>
</tr>
<tr>
<td>Home Phone:</td>
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### District to Complete this Section

<table>
<thead>
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<tr>
<td>Jurisdiction:</td>
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<td>Cycle:</td>
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<td>Service &amp; Set:</td>
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<tr>
<td>Set Only:</td>
</tr>
<tr>
<td>Upgrade:</td>
</tr>
<tr>
<td>Lighting Area #:</td>
</tr>
<tr>
<td>This account provides ____ inch fire protection to accounts:</td>
</tr>
<tr>
<td>This account receives ____ inch fire protection from accounts:</td>
</tr>
<tr>
<td>Bill Fire Protection charges to: Protected Acct:</td>
</tr>
<tr>
<td>Domestic:</td>
</tr>
<tr>
<td>Water ULID:</td>
</tr>
<tr>
<td>Fire Protection</td>
</tr>
<tr>
<td>Irrigation:</td>
</tr>
<tr>
<td>DE Project:</td>
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### Type of Development

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<thead>
<tr>
<th>Single Family:</th>
<th>Condo/Townhomes:</th>
<th>Apartment Complex:</th>
<th>Commercial Building:</th>
<th>Fire Sprinklers/Protection:</th>
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<tbody>
<tr>
<td>Sq. Footage:</td>
<td>Individually Metered:</td>
<td># of Buildings in Complex:</td>
<td>Restaurant:</td>
<td>Irrigation System:</td>
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<td># of Units:</td>
<td># of Stories:</td>
<td>Sq. Footage:</td>
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### Meter Information

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<tr>
<td>Register #:</td>
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<td>Install Date:</td>
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<tr>
<td>Meter Location:</td>
<td>Backside connection verified:</td>
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<tr>
<td>Meter # before:</td>
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### Additional Information

**IRRIGATION SYSTEM**

### Legal Description

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<th>69284000 3200</th>
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<tr>
<td>Lot #:</td>
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<td>Block:</td>
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### Checklist

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<tr>
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<tr>
<td>Meter Sizing Verification Form Received:</td>
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<tr>
<td>Stake Provided or Meter Box Installed:</td>
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<tr>
<td>Premise Isolation: DCVA</td>
<td>RPBA</td>
<td>Flow Through</td>
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<td>Lock Meter:</td>
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### Connection Fee Information

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<tr>
<td>Local Facilities Charge:</td>
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<td>Major Facilities Charge:</td>
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<tr>
<td>Fire Protection Charge:</td>
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<tr>
<td>ROW Permit Fee: (Misc.)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**I HAVE READ AND FULLY UNDERSTAND AND ACCEPT THE TERMS AND CONDITIONS OF THIS AGREEMENT LISTED ON THE REVERSE SIDE**

**Print Applicant Name:** JOHN STARBAIRD

**Business Phone:** (425) 587-3874

**Applicant Signature:**

**Date:** 03/21/19

**Continued on Reverse Side**
NORTHSIDE UTILITY DISTRICT
Application and Agreement for Water Service | TERMS and CONDITIONS

The undersigned hereby applies for a water meter and water service from Northside Utility District ("District") for the property ("Property") described on the reverse side of this application. The undersigned is:

☑ the legal owner or owners ("Owner") of Property
☑ a representative of the legal owner(s) of Property ("Owner"), who is authorized to present information related to this application and accept the terms and conditions stated herein. If the undersigned is not so authorized by Owner to act on his/her behalf for the purposes stated herein, this application will be void and the water service so granted hereunder terminated without refund of any fees paid.

Current and future owner(s) of Property and/or their representative(s) are, individually and collectively, hereinafter referred to as "Applicant." Applicant agrees to the following terms as conditions for receiving water service from District:

1. Applicant shall pay all applicable charges and follow all regulations set forth by the District currently and hereinafter adopted by the Board of Commissioners.

2. If Applicant: (a) fails to pay charges billed by District when due, or (b) violates the regulations of District or the terms and conditions of this Agreement, District may discontinue the water service at Applicant's expense until the charges are paid and/or Applicant is no longer in violation of the District's regulations and/or the terms and conditions of this Agreement. Applicant shall be required to pay a reconnection fee before water service is resumed.

3. Applicant understands that the base water charges will continue even when the service property is vacant and no water is used. (Applicant should consider inquiring about pulling the water meter for a much extended vacancy.)

4. Applicant agrees to indemnify and hold District harmless for any and all claims for damages caused by water supply disruptions, tampering by third parties, and/or system malfunction including, without limitation, claims for damages to persons or property, direct or consequential damages, special damages, or loss of profit or revenue. Such interruption or failure shall constitute a breach of contract on the part of District, or in any way relieve the Applicant from performing the obligations of this Agreement.

5. Applicant will be responsible for any damage caused by Applicant or his/her agents to the District's facilities, including, but not limited to, manholes, service lines, meters, meter locks, meter boxes and other appurtenances. Applicant shall be billed for, and agrees to pay, the cost of damage repairs. Any District invoice for such damage not paid within thirty (30) days of mailing shall incur interest of 12% per annum until paid. Further, District shall have the right to terminate water service until the invoice is paid.

6. Applicant understands that it is a federal crime to tamper (operating or cutting) with any of a water utility's facilities (as described in the preceding paragraph). Violator is subject to fine (up to $1,000,000) and/or jail sentence (up to 20 years).

7. All service connection lines up to and including the meter and meter box shall remain the property of the District. Private plumbing from the meter to the building or structure receiving service shall remain Property owner's property.

8. Identifying and staking water meter location is the responsibility of Applicant. Stakes are to be set at the edge of the right-of-way, adjacent to the property line. Failure to accurately identify and stake meter location may result in additional service charges. In order to avoid scheduling and installation delays, the stake must be in place prior to scheduling the work.

9. In the event of meter malfunction (such as a stuck meter), District shall estimate the water consumption of Property based on its historical average usage of the past three years regardless of the actual occupant(s) or occupancy.

10. With the exception of a County City approved accessory dwelling unit, Applicant agrees that water service may not be furnished to any building or facility other than the dwelling or building identified to District as the structure to receive service at the time of application. District agrees to provide water service for the specific land use as indicated on the front of the application.

11. Changes of land use or increasing total square footage to above 5,000 S.F. for a single family home will void this Agreement and require re-application for service.

12. Applicant warrants that all information on drawings, plans and documents submitted in support of this application are correct and accurate. Any alteration in construction from the submitted plans and drawings done without written approval of the District will void this application and the related approval.

13. Applicant agrees: (a) not to obstruct access to the meter for reading, repair, or service in any manner, (b) to keep the meter free from dirt and debris, and (c) to restrain dogs or any other animals which may interfere with reading the meter. If Applicant fails to remove any obstruction to the meter within 30 days of notice from the District, District may remove such obstruction and Applicant agrees to pay the cost of such removal. At its sole option, District may also choose to discontinue service until the obstruction is removed.

14. The District's system has been designed to provide normal minimum static water pressure of 30 and 140 pounds per square inch (PSI), measured at the water meter. Applicant assumes the responsibility to determine the exact water pressure at the water meter. Where pressure exceeds 60 PSI, it shall be Applicant's responsibility to install, at Applicant's sole expense, an appropriate type of pressure regulator with a cutout. (Reijken Uniform Plumbing Code, 19th Edition, Sec. 1007b.) If Applicant desires higher pressure than provided, it is the Applicant's responsibility to install the facilities necessary to achieve the desired pressure. The District shall use its best efforts to ensure safe and adequate pressure in the mains, but shall not be liable for damage resulting from negligence of Applicant in failing to provide reasonable safeguards for his/her own property.

15. The Applicant agrees to comply with all current City, State and District regulations and as may be modified and revised regarding cross-connections.

16. Where applicable and possible, the District shall install water meters in a meter box in a sequence that corresponds to the location of the premises receiving service. Connecting Property to the correct meter is the responsibility of Applicant. If Applicant or his contractor connects Property to the incorrect meter, Applicant is responsible for all undercharging of water actually used since such incorrect connection or Property or neighboring properties and for correcting the situation. This requirement shall be binding upon all subsequent property owners.

17. Applicant understands that for all new construction, the side sewer connection must be inspected and approved by the District prior to the water meter installation.

18. Billing for service charges shall commence on the date of installation of a water meter, regardless of occupancy. In the event of nonpayment or default by the applicant in the performance of any of the terms and conditions of this agreement, all amounts then owing or thereafter accruing to the District shall become immediately due and payable. Applicant may be charged late fees and interest charges of 1% per month on any water or service charges not paid by the due date, as well as all costs, including attorney's fees, incurred by the District for collection of all unpaid charges or in enforcing this Agreement. Pursuant to Title 57 of the Revised Codes of Washington, all unpaid water charges of every description become a prior lien against Property. In the event of the foreclosures of said lien by the District, the applicant agrees to pay the related expenses incurred by the District including reasonable attorney's fees. In such event, Applicant shall for all right to service from this service connection and all related fees previously paid.

19. Unless specific exemption applies, the regulated agreement, encroachment upon any District utility easement within Property shall void this application.

20. By execution of this Agreement, Applicant guarantees payment of all fees, rates, and charges due for any other account(s) that Applicant may have with District.

21. In the event any action or proceeding is brought by either party against the other related to this Agreement, the substantially prevailing party shall be entitled to recover from the other party its costs, including attorney's fees, incurred in such action or proceeding, including any trial, appeal, or bankruptcy proceeding, which amount shall be included in any judgment entered in such action or proceeding; provided, however, that if more than one matter is disputed and each party prevails as to one or more of the disputed matters, then such costs and expenses and attorney's fees shall be awarded in proportion to the monetary values of the matters on which each party prevailed. As part of this consideration for this Agreement, costs, expenses and attorney's fees waived the right to trial by jury in connection with any dispute or action under this Agreement. In any action brought to interpret or enforce any of the provisions of this Agreement, the venue of the same shall be King County, Washington.

22. The terms of this Application/Agreement shall be conditions running with Property binding upon all subsequent owners of Property.

Print Name: JOHN STARABARD
Signature: J.S.
Date: March 21, 2017

Mailing Address: 123 FIFTH AVE KIRKLAND WA 98033
Email Address: BEAKER@KIRKLANDWA.GOV (on behalf of Kathy Brown)
Phone: (425) 587-3874

[End of document]
Northshore Utility District - Application for Side Sewer Permit

Applicant to Complete all Yellow Highlighted Sections - PLEASE PRINT

| Prop. Address: 12031 NE TOTEM LAKE WAY | City: KIRKLAND | Zip code: 98033 |
| Owner: CITY OF KIRKLAND | Phone/Email: 425-587-3874 |
| Sewer Contractor: TRD | Contractor phone #: |
| Tax ID/Parcel #: 6928400003200 | Water Meter Size: 1" |

NUD Comments:

| District Use Only |
| Account #: | Permit #: |
| Project Name: |
| Single Family | Commercial | Church |
| Park | School | Restaurant |
| Municipality | Apartment # of units |
| Industrial/Manufactured | Manufactured # of units |
| Condo/Town single meter | Condo, # of units |

Easement needed | Provided | City limits:

Pumped System | Agreement Signed |

| Description | Cost | Date Paid | Receipt # |
| SS Permit | |
| MFC | |
| LFC | |
| Depreciation | |
| ROW | |
| Misc. | |

Total |

Checklist |

| | | |
| ROW Permit Issued | Site Plan |
| Metro Form Complete | Approved Contractor |

Permit to: | Date: |

F.O.G. Required |

| | | |
| Grease Interceptor | Oil/Water Separator |

Inspection |

| Inspector(s): | Date(s): |
| Water Test | Air Test: |
| Pass Date | Type of pipe: |
| Cleanout Box Inspected By: | Date: |

Routing - Initial and Date |

App. Taken By: | Approved for Install: |
| FOG Inspector: | Dispatch/Activate: |
| Finance | GIS: |
| Scanning: | Doc #: |
NORTHSIDE UTILITY DISTRICT
Application and Agreement for Side Sewer Permit and Service | TERMS and CONDITIONS

The undersigned hereby applies for permission to construct or repair a side sewer to the service property ("Property"), as described on the reverse side of this Application/Agreement. The undersigned is the:
- the legal owner(s) ("Owner") of Property.
- a representative of the legal owner(s) of Property ("Owner"), who is authorized to present information related to this application and accept the terms and conditions stated herein on behalf of Owner. If the undersigned is not so authorized by Owner to act on his/her/their behalf for the purposes stated herein, this Application/Agreement shall be void and the sewer service so granted hereunder terminated without refund of any fees paid.

Current and future owner(s) of Property and/or their representative(s) are, individually and collectively, hereinafter referred to as "Aplicant." The terms of this Application/Agreement shall be conditions running with Property binding upon all subsequent owners of Property. Applicant agrees to the following terms as conditions for receiving sanitary sewer service from Northside Utility District ("District"):  
1. All applicable charges, regulations and construction requirements, adopted and set forth by District from time to time, shall be paid and complied with fully and completely. Unpaid charges shall become a lien against Property and subject to foreclosure pursuant to RCW 57.
2. Applicant hereby agrees to maintain the side sewer constructed under this permit in accordance with the rules and regulations of District, and will permit entry access by authorized representatives of District onto Property, at any reasonable time, for the purpose of inspection for compliance with all District regulations.
3. Applicant is notified that District's sewer system is a sanitary sewer and agrees not to allow connection from storm water drainage from any source into the District's collection system. This includes, but is not limited to, roof downspouts, building footing drains, springs or underground water from any property, and any outside groundwater drains.
4. Applicant and the applicant's contractor agree to indemnify and hold District harmless, for any liability, damage and/or costs, which may accrue from the prosecution of side sewer work under this permit.
5. Applicant and Applicant's contractor agree to safeguard the work done under this permit in such a manner as to prevent injury and/or damage to the public. Such precautions shall include the employment of all necessary safety measures such as lighting, barricades and safe access, ingress or egress throughout the working area and to comply with all regulatory requirements for job site safety.
6. In order to protect the District's sewer system and the public health and welfare, Applicant agrees to employ a side sewer subcontractor approved by District, registered by the State of Washington with adequate and satisfactory liability insurance, for all work to be prosecuted within public rights-of-way and on private property.
7. No backfilling shall be done until the work has been inspected and approved by the District's authorized inspector. Applicant and Applicant's contractor must call for inspection upon completion of construction, before backfilling, of any portion of the side sewer.
8. Applicant and Applicant's contractor agree that all street cleanup and road restoration shall be made to the satisfaction of all governing authorities (City, County, State and Federal agencies and District) and any private property owners impacted by the construction or repair of the side sewer. Applicant and the Applicant's contractor agree to obtain, at no cost or liability to District, all necessary permits for the construction work (except the right-of-way permit) to be accomplished under this permit. District will obtain any necessary right-of-way permit at Applicant's expense.
9. Applicant agrees to indemnify and hold District harmless under any situation or condition, which may develop, on or in Property's side sewer lateral, which lateral is the subject of this application, whereby sewage fails to flow, backs up and/or is deposited on Property or the premises of Owner.
10. Additional inspection or callback resulting from the contractor's inability to have work ready for inspection when the contractor schedules an inspection appointment, poor workmanship or failure to comply with the regulations and construction requirements of District, shall be paid for by Applicant on a time and materials basis at rates published (rate resolution) on the District's website. Failure to pay for the services rendered will result in a lien being filed against Property and refusal of service by District.
11. Applicant understands that for all new construction, the side sewer connection must be inspected and approved by the District prior to the water meter installation.
12. A notice of occupancy or change of ownership shall be furnished to the District immediately upon a change of ownership and/or occupancy of Property.
13. Applicant warrants that all information on the drawings, plans and document submitted in support of this application is correct and accurate. Construction alteration from the submitted plans and drawings, without written consent from District, will void this Application/Agreement and the side sewer permit so issued.
14. To avoid delaying Applicant's project, this side sewer permit may be approved prior to the proper installation of the sewer clean-out box at the connection. However, it said clean-out box is not properly installed and inspected within 30 days of Property's connection to water service or supply. Applicant agrees that District shall have the right to rescind the approval of the side sewer permit and withhold water and sewer services from Applicant until said clean-out box is properly installed and inspected.
15. Unless specific exemption applies per negotiated agreement, encroachment upon any District utility easement within Property shall void this Application/Agreement and the side sewer permit so issued.
16. Billing for sewer service will commence with the inspected and approved side sewer connection regardless of water service availability, completion or occupancy status of the connected structure. In the event any action or proceeding is brought by either party against the other related to this Application/Agreement, the substantially prevailing party shall be entitled to recover from the other party its costs, including but not limited to reasonable attorney's fees, incurred in such action or proceeding, including any trial, appeal, or bankruptcy proceeding, which amounts shall be included in any judgment entered in such action or proceeding; provided, however, that if more than one matter is disputed and each party prevails as to one or more of the disputed matters, then such costs, expenses and attorney's fees shall be awarded in proportion to the monetary values of the matters on which each party prevails. As part of the consideration for this Application/Agreement, each of the parties hereto waives the right to trial by jury in connection with any dispute or action under this Application/Agreement. In any action brought to interpret or enforce any of the provisions of this Agreement, the venue of same shall be King County, Washington.
DEMOLITION PERMIT:
EXISTING BUILDING
City of Kirkland
123 Fifth Avenue
Kirkland WA 98033
425-587-3600

DEMOLITION PERMIT

Permit Number: DEM19-01211
Type: Demolition
Work Class: Demolition

Permit Information

Job Address: 12031 NE TOTEM LAKE WAY
KIRKLAND, WA 98034

Project: TOTEM LAKE PARK
Parcel: 6928400032
Valuation:

Dwelling Units:

Septic System:

Application Date: 02/20/2019
Issue Date: 09/04/2019
Expiration Date: 09/04/2021

Code Edition:

Scope of Work

Totem Lake Park Demo: Demolish existing yuppie pawn building (7,000 sf) and abandon the utilities on site.

Contacts

<table>
<thead>
<tr>
<th>Type</th>
<th>Contact Name</th>
<th>Address</th>
<th>Phone</th>
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</thead>
<tbody>
<tr>
<td>Applicant</td>
<td>MBP Contact 2018</td>
<td>123 5TH AVE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MBP.com</td>
<td>KIRKLAND, WA 98033</td>
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<tr>
<td>Owner</td>
<td>CITY OF KIRKLAND</td>
<td>123 5TH AVE</td>
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<td>Owner is Contractor</td>
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<tr>
<td>Primary Contact</td>
<td>Brian Baker</td>
<td>123 5TH AVE</td>
<td>425 587-3874</td>
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<td>City of Kirkland</td>
<td>KIRKLAND, WA 98033</td>
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</table>

Type of Occupancy

Type of Structure

Type of Work

Demolition

Conditions

The City approved plans and permit inspection record must remain on the job site for use by City inspection personnel.

Any sales tax reported to the State in association with this project should be coded to the City of Kirkland tax location code 1716. I certify that the information furnished by me is true and correct to the best of my knowledge and the applicable City of Kirkland requirements will be met.

☐ OWNER: or ☐ AGENT: _______________________________ Date: ________________

(Print)

______________________________

(Signature)
DESCRIPTION OF WORK:
Totem Lake Park Demo: Demolish existing yuppie pawn building and abandon the utilities on site.

Building Department Conditions:

Demolition Conditions

You may contact Tanya Elder at 425-587-3614 for Building Department questions related to this permit.

1. SCOPE - Do not exceed scope of permit.

2. A separate permit is required for any new construction.

3. This demolition permit does not authorize any cutting or digging for footings or foundations. A SEPERATE BUILDING PERMIT MUST BE ISSUED PRIOR TO ANY FOOTING OR FOUNDATION WORK.

4. No excavation or fill is authorized to encroach upon a neighboring property without explicit agreement by the adjoining property owner.

5. Excavations and/or slopes created by removing structures of any kind shall be far enough from property lines and/or neighboring structures to prevent slopes steeper than 1:1. Should it be likely that you will create a steeper slope, you are required to submit a building permit application with engineered plans prior to creating the slope. Contact the Building Division at 425-587-3600 for additional information.

6. The removal of underground tanks such as but not limited to fuel tanks is not included with this permit. The City of Kirkland does not currently issue permits to remove such tanks, however applicants are encouraged to seek out other possible authorities having jurisdiction in order to determine if permits may be required by those agencies.

Asbestos Requirements for Demolition

It shall be unlawful for any person to cause or allow demolition unless the property owner or the owner's agent determines whether there are suspect asbestos-containing materials in the work area and obtain an asbestos survey of any suspect asbestos-containing materials by a currently certified building inspector. For more information contact the Puget Sound Clean Air Agency at 206-343-8800 or 1-800-552-3565.
PCD 1. ALL - HOURS OF CONSTRUCTION - All development activity and heavy equipment operation is restricted to 7:00 a.m. to 8:00 p.m. Monday through Friday, and 9:00 a.m. to 6:00 p.m. Saturday. Other restrictions on Saturday include: no working in the right-of-way, no work requiring inspection, and no trucking into or out of the site; however, light grading work on-site on Saturday is allowed. NO development activity or heavy equipment operation may occur on Sundays or the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.

PCD 2. MAXIMUM NOISE LEVELS - All mechanical units shall comply with the maximum environmental noise levels established pursuant to the Noise Control Act of 1974, Revised Code of Washington (RCW) 70.107. See Chapter 173-60 Washington Administrative Code (WAC). A link to the WAC and RCW is available at www.kirklandpermits.net.

PCD 3. SF/DEMO-TREE PROTECTION - Prior to any grading or site construction, the applicant shall install temporary but immovable construction fencing around the drip line of all significant trees to be retained. Tree fencing shall remain in place until the Planning Department authorizes its removal.

PCD 4. SF/DEMO–NO TREE REMOVAL ALLOWED - Except as authorized on the approved site plan, no tree removal is permitted as part of this demolition permit without prior Planning Department approval.

PCD 5. PLACING MATERIALS NEAR TREES. No person may conduct any activity within the protected area of any tree designated to remain, including, but not limited to, operating or parking equipment, placing solvents, storing building material or soil deposits, or dumping concrete washout or other chemicals. During construction, no person shall attach any object to any tree designated for protection.
Public Works Department Conditions:

PUBLIC WORKS CONDITIONS

Demo Conditions

1. Scheduling a Public Works Inspection: All required inspections must be requested by the contractor or permit applicant by 3:00 PM on the day prior to the inspection. Request inspections by going online at www.mybuildingpermit.com. If you need to speak with your Public Works Construction Inspector prior to scheduling your first inspection, call 425.587.3800; be prepared to provide your permit number and site address.

2. All Work Must Meet Kirkland Standards: All work associated with this project, including street improvements and utility connections, must meet the City of Kirkland Public Works Standards and Policies. Purchase the Manual from Public Works or view online at www.kirklandwa.gov (navigate to PW Development Services).

3. PW Sign-Off Prior to Bldg Final Inspection: The Building Permit Inspection Card must be signed off by Public Works prior to any request for the final building inspection.

4. Daily work is limited to Monday through Friday, from 7:00 a.m. to 8:00 p.m. (arterial traffic lanes is 9 a.m. to 3:30 p.m.) and Saturday 9:00 a.m. to 6:00 p.m. No utility work in the ROW after 12:00 p.m. on Fridays; restoration only.
   A. No work will be allowed on holidays that are observed by the City of Kirkland.
   B. No work on Sunday.
   C. No work is allowed on Saturday in the public right-of-way or any on-site utilities; light grading is permitted onsite. Also, no trucks permitted to haul in or out.
   D. The following is the schedule of City closure days and holidays, and the work allowed:
      • MLK Jr. Day - onsite grading only
      • President's Day - onsite grading only
      • Memorial Day - no work
      • Independence Day - no work
      • Labor Day - no work
      • Veteran’s Day observed - onsite grading only
      • Thanksgiving Day - no work
      • Day after Thanksgiving - onsite grading only
      • Christmas Eve observed - onsite grading only
      • Christmas Day - no work
      • New Year’s Eve observed - onsite grading only
      • New Year’s Day - no work

5. Contact NUD or WWD For Final Billing: Applicant must contact NUD (425-398-4400) or WWD (425-487-41000 for final billing and must close account prior to any demolition activity. Retirement of water and sewer services shall be overseen and inspected by that district.

6. No Stockpiling in Right-Of-Way: All rights-of-ways, streets and sidewalks shall be kept clean and shall not be used for stockpiling any construction materials of debris.

7. Protect Adjacent Properties: Adequate drainage protection must be provided for adjacent properties. Whether during a demolition, or during construction, applicants must control development runoff during any phase so as to ensure activities will not cause a nuisance or adversely impact adjacent private and public property.

8. Cover All Exposed Soil: Construction drainage control shall be maintained by the developer and subject to periodic inspections. During the period from May 1 to September 30, all denuded soils must be covered within 7 days; between October 1 and April 30, all denuded soils must be covered within 12 hours. Additional erosion control measures may be required based on site and weather conditions. Exposed soils shall be stabilized at the end of the workday prior to a weekend, holiday, or predicted rain event.

9. Illicit Discharges and Connections (Municipal Code 15.52) are prohibited into the Storm Drain System: Contractor is responsible for keeping streets clean and free of contaminants at all times and for preventing an illicit discharge (KMC 15.52) into the municipal storm drain system. If your construction project causes an illicit discharge to the municipal storm drain system, the City of Kirkland Storm Maintenance Division will be called to clean the public storm system, and other affected public infrastructure. The contractor(s), property owner, vendor, and any other responsible party may be charged all costs associated with the clean-up and may also be assessed a fine (KMC 1.12.200). The minimum fine is $500. A fine for a repeat violation shall be determined by multiplying the surface water fine by the number of violations. A fine may be reduced or waived for persons who immediately self-report violation to the city at 425-587-3900. A Final Inspection of your Project will not be granted until all costs associated with the clean-up, and
Public Works Department Conditions:

penalties, are paid to the City of Kirkland.

10. Install Erosion Control Prior to Construction: Erosion control measures approved by the Public Works Department must be installed and inspected prior to the commencement of any construction.

11. Erosion Control Inspections: Erosion and Sediment Control (ESC) Inspections Required: Approved ESC measures must be installed prior to commencement of construction, and periodic inspections will be conducted during the course of construction.
   - ESC Inspection #1 - Required prior to pouring concrete for foundation and footings.
   - ESC Inspection #2 - Required after foundation backfill, rough grading, and prior to subfloor framing inspection. Subfloor framing inspection will not be performed until this ESC inspection has been successfully completed.
   - ESC Inspection #3 - Required for final site stabilization. A final building department inspection and sign-off will not occur until the final ESC inspection has been fully completed.
   - For demolition permits, only ESC Inspection #3 is required.

12. Replace Damaged Public Improvement: Any public improvements damaged during construction shall be replaced prior to final building inspection.

13. Shoring Requirements: During any site excavation and/or demolition, a minimum 1 to 1 (45 degrees) cut slopes must be maintain from the edge of any roadways/access roads to the bottom of the excavations. An engineered temporary shoring design with site stabilization measures must be used to quickly stabilize hazardous cuts during construction (all exposed soil and slopes must be stabilized for erosion control). Deep cuts adjacent to roadways where 1 to 1 slopes cannot be maintained or soils conditions require additional stabilization measures, the project soils engineer must be on site to provide guidance during excavation.
City of Kirkland  
123 5th Avenue  
Kirkland, WA 98033

City of Kirkland  
123 5th Avenue  
Kirkland, WA 98033

REQUIRED INSPECTIONS - DO NOT COVER ANY WORK PRIOR TO INSPECTION

How to request an inspection:
1) Go to http://www.MyBuildingPermit.com
2) Select Kirkland as the Jurisdiction.
3) Select Permit Number or Address.
4) Follow the on-screen instructions.

<table>
<thead>
<tr>
<th>BUILDING ADDRESS</th>
<th>PARCEL NUMBER</th>
<th>DATE PRINTED</th>
<th>PERMIT TYPE</th>
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INSPECTION RECORD - THIS CARD MUST BE POSTED ON SITE
Schedule an inspection by 6:00 PM for next day inspections
Schedule online at: www.MyBuildingPermit.com

Permit #: **DEM19-01211**

REQUIRED INSPECTIONS - DO NOT COVER ANY WORK PRIOR TO INSPECTION

<table>
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<tr>
<th>Inspection</th>
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<td>PW - Erosion Control</td>
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* Note: 1st erosion control inspection is required prior to any excavation.  
* 2nd erosion control inspection is required after foundation backfill.  
(These erosion control inspections only apply if they are listed on the above checklist)

Departmental staff: BLD is Building Dept, PW is Public Works Dept, PCD is Planning Dept, and FIR is Fire Dept

NOTE: THIS INSPECTION RECORD IS THE CERTIFICATE OF OCCUPANCY WHEN THE BUILDING FINAL INSPECTION HAS BEEN APPROVED
City of Kirkland
Totent Lake Park Phase 1
PKC139020
JOB NO. 00-00-PW
100% DESIGN SUBMITTAL
February 08, 2019

Asbestos Requirements for Demolition
It shall be unlawful for any person to cause or allow demolition unless the property owner or the owner's agent determines whether there are suspected asbestos-containing materials in the work area and obtain an asbestos survey of any suspected asbestos-containing materials by a currently certified building inspector. For more information contact the Puget Sound Clean Air Agency at 206-343-6000 or 1-800-552-3655.

Related Permits: BNR19-01207, DNO19-01213, LSM19-01212

Team Contact Info

City/Owner Contact Info

Applicable Codes:

Drawing Set Printing and Reproduction Notes/Req's:

City of Kirkland

Vicinity Map

PROJECT AREA

100% Design Submittal

5/22/2019

G000
1. THE APPROVED CONSTRUCTION SEQUENCE SHALL BE AS FOLLOWS:
   a. CONDUCT PRE-CONSTRUCTION MEETING.
   b. FLAG OR PENCE CLEARANCE LIMIT.
   c. POST SIGN WITH NAME AND PHONE NUMBER OF TESC SUPERVISOR.
   d. COMMENCE SITE CLEARANCE (SPLICING, GRADING, AND INSTALLATION CONSTRUCTION ENTRANCE).
   e. MARK OUT CLEARANCE LIMITS.
   f. CONSTRUCT SEQUENCE NOTE FROM THE PLAN.
   g. GEOTECHNICAL CONSTRUCTION WORK.
   h. CONTRACTOR MAINTAIN SITE ACCESS AND CONSTRUCTION ENTRANCE.
   i. CLEAN UP EROSION CONTROL MATERIALS.

2. EROSION/SEDIMENTATION CONTROL PLAN NOTES:
   a. CONSTRUCTION IS TO BE PERFORMED DURING DRY WEATHER.
   b. ALL CLEARANCE LIMITS SHALL BE MAINTAINED.
   c. ALL CLEARANCE LIMITS SHALL BE MAINTAINED.

3. MATERIALS TO BE EROSION/SEDIMENT CONTROL PLAN:
   a. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE SMALL PROJECT SERVICE SPECIFICATIONS AND THE STANDARD DETAILS OF NORTHSHORE UTILITY DISTRICT.
   b. UTILITIES:
      i. THE APPLICABLE APPROVALS OF EXISTING UTILITIES ARE KNOWN ON PLANS AND PROFILES FOR CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EROSION/SEDIMENT CONTROL PLAN.
      ii. THE CONTRACTOR MAY REQUIRE ADDITIONAL PERMITS FOR POSSIBLE ADDITIONAL UTILITIES NOT SHOWN ON PLANS.
   c. THE CONSTRUCTION OF THE CONTRACTOR TO BE PERFORMED BY THE CONTRACTOR.
     1. ANY UTILITIES LOCATED IN OR UNDERGROUND UTILITIES "AS SHOWN ON PLANS"
        a. ALL UNDERGROUND UTILITIES SET FOR CONSTRUCTION OR PLANNING.
        b. ANY UTILITIES LOCATED IN OR UNDERGROUND UTILITIES ARE SHOWN ON PLANS.
   d. PRE-CONSTRUCTION CONFERENCE SHALL BE HELD AT THE CITY OF KIRKLAND AND KIRKLAND, WASH. 1996-0005-009 PRE-CONSTRUCTION CONFERENCE.
   e. SURVEYING:
      i. SURVEYING REPORTS SHALL BE SUBMITTED AT THE CITY OF KIRKLAND AND KIRKLAND, WASH. 1996-0005-009 SURVEYING.
   f. PLACEMENT:
      i. IDENTIFICATION OF EROSION/SEDIMENT CONTROL PLAN:
         1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE SMALL PROJECT SERVICE SPECIFICATIONS AND THE STANDARD DETAILS OF NORTHSHORE UTILITY DISTRICT.
   g. PLACEMENT:
      i. MATERIALS TO BE PLACED IN ACCORDANCE WITH THE SMALL PROJECT SERVICE SPECIFICATIONS AND THE STANDARD DETAILS OF NORTHSHORE UTILITY DISTRICT.
   h. UTILITIES:
      i. THE APPLICABLE APPROVALS OF EXISTING UTILITIES ARE KNOWN ON PLANS AND PROFILES FOR CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EROSION/SEDIMENT CONTROL PLAN.
      ii. THE CONTRACTOR MAY REQUIRE ADDITIONAL PERMITS FOR POSSIBLE ADDITIONAL UTILITIES NOT SHOWN ON PLANS.
   i. THE CONSTRUCTION OF THE CONTRACTOR TO BE PERFORMED BY THE CONTRACTOR.
BUILDING PERMIT: RESTROOM
**Permit Information**

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<td>Parcel:</td>
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| Scope of Work |

Totem Lake Park: Construct restroom building. (separate MNR19-01208 & PNR19-01209)

**Contacts**

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<tr>
<th>Type</th>
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<tr>
<td></td>
<td></td>
<td>KIRKLAND, WA 98033</td>
<td>C:</td>
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<tr>
<td>Contractor</td>
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**General Conditions**

1. The issuance of this permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of any other ordinances of the jurisdiction.
2. The approved plans shall not be changed, modified, or altered without authorization from the building official.
3. This permit, inspection record and approved plans are required to be on the job site at all times.
4. All development activity and heavy equipment operation is restricted to 7:00 a.m. to 8:00 p.m., Monday through Friday, and 9:00 a.m. to 6:00 on Saturdays. No development activity or heavy equipment operation may occur on Sundays or holidays observed by the City.
5. All work is subject to field inspection. Do not cover any work until approved by a City inspector.
6. Inspection(s) required - Schedule on [http://MyBuildingPermit.com](http://MyBuildingPermit.com)
7. Contact the Building Division at 425-587-3600 with any questions.

The City approved plans, permit and inspection record must remain on the job site for use by City inspection personnel.

Any sales tax reported to the State in association with this project should be coded to the City of Kirkland tax location code 1716.

I certify that the information furnished by me is true and correct to the best of my knowledge and the applicable City of Kirkland requirements will be met.

[ ] Owner or [ ] Agent

(Check one) (Print Name) Date

(Signature)

SEE ATTACHED SHEET FOR SPECIFIC CONDITIONS
**SPECIFIC PERMIT CONDITIONS**

<table>
<thead>
<tr>
<th>BUILDING ADDRESS</th>
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<th>PERMIT TYPE</th>
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<td>7/5/2019</td>
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</tbody>
</table>

**DESCRIPTION OF WORK:**
Totem Lake Park: Construct restroom building. (separate MNR19-01208 & PNR19-01209)

---

**Building Department Conditions:**

You may contact Tanya Elder at 425-587-3614 for Building Department questions related to this permit.

**SCOPE - Do not exceed scope of permit.**

A REVISION or SEPARATE PERMIT IS REQUIRED FOR:

Any modification beyond the original scope of the issued permit.

Separate permits are required for plumbing, mechanical or electrical work.

**INSPECTIONS REQUIRED - See permit for instructions on how to schedule inspections.**

**SPECIAL INSPECTIONS REQUIRED – Welding, CMU, Piles, etc.**

---

**Planning Department Conditions:**

Planning Department Conditions** Contact Christian Geitz at 425.587.3246

PCD 1. PLN TO PERFORM FINAL PRIOR TO BLD - BUILDING PERMIT INSPECTION CARD MUST BE SIGNED OFF BY PLANNING PRIOR TO ANY REQUEST FOR FINAL BUILDING INSPECTION. PLEASE CALL 425-587-3235 TO REQUEST INSPECTION. 24 HOUR ADVANCE NOTICE REQUIRED FOR INSPECTION.

PCD 2. REVISED SITE PLAN - Any proposed changes to the approved site plan must be submitted as a revision to the building permit for review and approval prior to implementation.

PCD 3. ALL - PROHIBITED VEGETATION - Plants listed as prohibited in the Kirkland Plant List (available from the Planning Department) shall not be planted in the City. These plants include Blackberry, Fragrant water lily, Ivy, Herb Robert, Knotweed, Old man's beard, Poison hemlock, Reed canary grass, Scotch broom, Spurge laurel, Yellow archangel, and Yellow flag iris. Other plants, while not prohibited, are discouraged, including Butterfly bush, English holly, and English laurel.

PCD 4. NON-NATIVE INVASIVE AND NOXIOUS PLANTS (KZC 95.51.5) - It is the responsibility of the property owner to remove non-native invasive plants and noxious plants from the vicinity of any tree or other vegetation that the City has required to be planted or protected. Removal must be performed in a manner that will not harm the tree or other vegetation that the City has required to be planted or protected. Prior to calling for a final inspection remove ivy from all trees from the ground up 5 feet above grade and from the trunk out 1 foot.

PCD 5. ALL - HOURS OF CONSTRUCTION - All development activity and heavy equipment operation is restricted to 7:00 a.m. to 8:00 p.m. Monday through Friday, and 9:00 a.m. to 6:00 p.m. Saturday. Other restrictions on Saturday include: no working in the right-of-way, no work requiring inspection, and no trucking in or out of the site; however, light grading work on-site on Saturday is allowed. NO development activity or heavy equipment operation may occur on Sundays or the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.

PCD 6. MAXIMUM NOISE LEVELS - All mechanical units shall comply with the maximum environmental noise levels established pursuant to the Noise Control Act of 1974, Revised Code of Washington (RCW) 70.107. See Chapter 173-60 Washington Administrative Code (WAC). A link to the WAC and RCW is available at www.kirklandpermits.net.

PCD 7. WETLAND/STREAM BUFFER PROTECTION – Prior to beginning development activities, the applicant shall install a 6 -foot-high construction-phase chain link fence or equivalent fence, as approved by the Planning Official along the upland boundary of the entire wetland buffer with silt screen fabric installed per City standard, in a manner approved by the Planning Official. The construction-phase fence shall remain upright in the approved location for the duration of
Planning Department Conditions:

Development activities.

PCD 8. SPLIT RAIL FENCE: Prior to Final Inspection, the applicant shall install between the upland boundary of all wetland buffers and the developed portion of the site, either (1) a permanent 3- to 4-foot-tall split rail fence; or (2) permanent planting of equal barrier value; or (3) equivalent barrier, as approved by the Planning Official. Installation of the permanent fence or planted barrier must be done by hand where necessary to prevent machinery from entering the wetland or its buffer.

Public Works Department Conditions:

PUBLIC WORKS CONDITIONS

1. Refer to the Contract Documents for construction of the subject project, including but not limited to all terms, conditions, provisions, agreements, construction plans, specifications, addenda, and all applicable standards, codes, laws, and regulations.

2. The CIP Division of Public Works will manage the construction process and provide inspections for right-of-way /street /public utilities improvements, for land surface modifications, and for construction stormwater pollution prevention /erosion and sediment control. Inspections may be provided by consultant(s) working on behalf of the CIP Division and/or by in-house staff, unless otherwise specified by the Contract Documents.
**City of Kirkland**  
**123 5th Avenue**  
**Kirkland, WA 98033**

**How to request an inspection:**  
1) Go to [http://www.MyBuildingPermit.com](http://www.MyBuildingPermit.com)  
2) Select Kirkland as the Jurisdiction.  
3) Select Permit Number or Address.  
4) Follow the on-screen instructions.

---

**Permit #: BNR19-01207**

<table>
<thead>
<tr>
<th>BUILDING ADDRESS</th>
<th>PARCEL NUMBER</th>
<th>DATE PRINTED</th>
<th>PERMIT TYPE</th>
<th>WORKCLASS</th>
<th>SQ FT</th>
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<td>6928400032</td>
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<td>Building Non Residential - BNR</td>
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**REQUIRED INSPECTIONS - DO NOT COVER ANY WORK PRIOR TO INSPECTION**

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<tr>
<th>Inspection</th>
<th>IRV</th>
<th>Date</th>
<th>Insp</th>
<th>Inspection</th>
<th>IRV</th>
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<tr>
<td>1 BLD - Pre-con</td>
<td>200</td>
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<td>2 BLD - Piles</td>
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<tr>
<td>3 BLD - Footings/Setback/UFER</td>
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<tr>
<td>4 BLD - Foundation Walls</td>
<td>212</td>
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<tr>
<td>5 BLD - Concrete Slab/PT Deck</td>
<td>223</td>
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<td>6 BLD - Footing Perimeter Drains</td>
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<tr>
<td>7 BLD - Tightline Exterior Roof Drain</td>
<td>273</td>
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<tr>
<td>8 BLD - CMU Walls</td>
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<tr>
<td>9 BLD - Exterior Wall Sheathing</td>
<td>253</td>
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<tr>
<td>10 BLD - Roof Sheathing</td>
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<td>11 BLD - Exterior Membrane/Flashing</td>
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<td>12 BLD - Hard Lid Framing</td>
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<td>13 BLD - Venting/Ventilation &amp; Indoor Air Quality</td>
<td>283</td>
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<td>14 BLD - Framing</td>
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<td>15 BLD - Other</td>
<td>201</td>
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<td>16 PCD - Tree Fencing Installation</td>
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<td>17 FIR - Final</td>
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<td>18 BLD - Final</td>
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</table>

* Note: 1st erosion control inspection is required prior to any excavation.  
* 2nd erosion control inspection is required after foundation backfill.  
(These erosion control inspections only apply if they are listed on the above checklist)

**Departmental staff:** BLD is Building Dept, PW is Public Works Dept, PCD is Planning Dept, and FIR is Fire Dept

**NOTE:** THIS INSPECTION RECORD IS THE CERTIFICATE OF OCCUPANCY WHEN THE BUILDING FINAL INSPECTION HAS BEEN APPROVED
Toilet facilities covered on this permit. BNR19-01207.
Related permits reviewed separately: ENR19-01119, MNR19-01208, PNR19-01209

Additional elements of the Totem Lake Park are permitted separately.

Special Inspections required.
WOOD

31. TIMBER CONNECTORS CALLED OUT BY LETTERS AND NUMBERS SHALL BE "*ST ItS-" TYPE CONNECTORS, AND BE SPECIFIED IN THE DRAWINGS. ALL JOISTS, LAGS, AND BEAMS SHALL BE OF STEEL CONSTRUCTION. SIMILAR OR EQUIVALENT STEEL CONSTRUCTION MATERIALS SHALL BE APPROVED BY THE CONTRACTOR AND SHALL BE SPECIFIED IN THE DRAWINGS. WOOD CONNECTORS SHALL BE STEEL FORcers AND SHALL BE SPECIFIED IN THE DRAWINGS.

32. ALL TIMBER BEAMS, PLATES, AND CONNECTORS SHALL BE OF STEEL CONSTRUCTION OR EQUIVALENT. STEEL CONNECTORS SHALL BE ANY STEEL CONNECTORS ACCEPTABLE TO THE CONTRACTOR. STEEL CONNECTORS SHALL BE STEEL FORCERS AND SHALL BE SPECIFIED IN THE DRAWINGS.

33. ALL STEEL CONNECTORS SHALL BE STEEL FORCERS AND SHALL BE SPECIFIED IN THE DRAWINGS. STEEL FORCERS SHALL BE OF STEEL CONSTRUCTION OR EQUIVALENT. STEEL FORCERS SHALL BE STEEL FORcERS AND SHALL BE SPECIFIED IN THE DRAWINGS.

34. ALL STEEL SHEET METAL SHALL BE OF STEEL CONSTRUCTION OR EQUIVALENT. STEEL SHEET METAL SHALL BE STEEL FORCERS AND SHALL BE SPECIFIED IN THE DRAWINGS.

35. ALL STEEL SHEET METAL SHALL BE OF STEEL CONSTRUCTION OR EQUIVALENT. STEEL SHEET METAL SHALL BE STEEL FORcERS AND SHALL BE SPECIFIED IN THE DRAWINGS.

36. ALL STEEL SHEET METAL SHALL BE OF STEEL CONSTRUCTION OR EQUIVALENT. STEEL SHEET METAL SHALL BE STEEL FORcERS AND SHALL BE SPECIFIED IN THE DRAWINGS.

37. ALL STEEL SHEET METAL SHALL BE OF STEEL CONSTRUCTION OR EQUIVALENT. STEEL SHEET METAL SHALL BE STEEL FORcERS AND SHALL BE SPECIFIED IN THE DRAWINGS.

38. ALL STEEL SHEET METAL SHALL BE OF STEEL CONSTRUCTION OR EQUIVALENT. STEEL SHEET METAL SHALL BE STEEL FORcERS AND SHALL BE SPECIFIED IN THE DRAWINGS.
# Statement of Special Inspections

Special inspections shall be provided per the requirements of IBC section 1705 and as noted herein.

## Driven Deep Foundation Elements

<table>
<thead>
<tr>
<th>Requirement and Inspection Type</th>
<th>Continuous</th>
<th>Periodic</th>
<th>Comments</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Verify element materials, sizes and locations comply with the requirements.</td>
<td>X</td>
<td></td>
<td></td>
<td>IBC 1705.1</td>
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<tr>
<td>2. Review driving operations and monitoring complete and accurate records for each element</td>
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<tr>
<td>3. Test steel foundation inspection requirements for steel pile elements</td>
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<td>IBC 1705.2</td>
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## Structural Steel

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1. Fabricate and design steel</td>
<td></td>
<td></td>
<td>X</td>
<td>AISC 360, Section 4.1</td>
</tr>
<tr>
<td>a. Compliance with details shown on construction documents</td>
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<tr>
<td>b. Application of joint details at each connection</td>
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<td></td>
<td></td>
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<tr>
<td>2. Material Verification of Welding Materials</td>
<td></td>
<td></td>
<td>X</td>
<td>AISC 360, Section 4.2</td>
</tr>
<tr>
<td>a. Certification covering the conformity to applicable requirements</td>
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<td></td>
<td></td>
<td>AISC 360, Section 4.2</td>
</tr>
<tr>
<td>b. Manufacturer's certificate of compliance required</td>
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</tr>
<tr>
<td>3. Inspection of Welding</td>
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<td></td>
<td>X</td>
<td>AISC 360, Section 5.1</td>
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<tr>
<td>a. Complete and partial joint penetration groove weld</td>
<td></td>
<td></td>
<td></td>
<td>AISC 360, Section 5.1</td>
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<tr>
<td>b. Single pass fillet welds, 3/8&quot;</td>
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## Concrete and Concrete Reinforcing

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<th>Comments</th>
<th>Reference</th>
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<tbody>
<tr>
<td>1. Inspection of reinforcing steel including reinforcement</td>
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<td>AIC 330, Cl. 7.12, 7.12, 25.1.6.3, 25.1.6.4</td>
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<tr>
<td>2. Inspection of anchors cast in concrete</td>
<td>X</td>
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<td>AIC 330, 17.2</td>
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<td>3. Inspection of post-installed anchors in hardened concrete members</td>
<td></td>
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<td>X</td>
<td>AIC 330, 15.9.2.4</td>
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<tr>
<td>a. Anchoring anchors</td>
<td>X</td>
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<td>AIC 330, 15.9.2.4</td>
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<tr>
<td>b. Verifying use of required design mix</td>
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<td></td>
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<td>AIC 330, 25.1.6.4</td>
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<tr>
<td>5. Inspect column for clear, conformity to arranged place of set, shape, location and dimensions of the concrete member being formed</td>
<td>X</td>
<td></td>
<td></td>
<td>AIC 330, 25.1.1.25</td>
</tr>
</tbody>
</table>

## Notes

1. Testing and Special Inspection reports shall be prepared for each inspection form on a daily basis. Written work is performed in such reports, reports shall be submitted to owners, contractors, building officials, architects and structural engineers.
2. "Structural Steel" refers to steel foundation defined by AISC 360, "Code of Standard Practice for Steel Buildings and Bridges."
Related permits: ENR19-01119, MNR19-01208, PNR19-01209
All other elements are permitted separately.
**PLAN**

- Run chord steel reinforcing through joint as shown - terminate @ 90° std hook
-peon (2) vert bars cont to @ 90° std hook
- R1 @ 90° std hook
- @ R1 @ 90° std hook
- @ R1 @ 90° std hook
- @ @ 90° std hook
- @ @ 90° std hook
- @ @ 90° std hook
- @ @ 90° std hook

**SECTION**

- Vert and horiz reinf per cnw wall specs:
- Vert reinf @ 24" on c/c, 1-1/2" dia.
- Horiz reinf @ 1/2" dia. @ 24" o/c.
- Covered base in common size
- Vert doveles per cnw wall specs:
- Vert reinf @ 24" on c/c, 1-1/2" dia.
- Horiz reinf @ 1/2" dia. @ 24" o/c.
- Wall type: Boundary walking
- Chamfer: @ 45°, @ 45°, @ 45°, @ 45°.
- Shear wall:
  - Type: Boundary walking
  - 4x16 @ 24" o/c, @ 1" dia.
  - @ 12" dia.
  - @ 12" dia.
  - @ 12" dia.
  - @ 12" dia.

**BEAM SECTION**

- Supported beam @ 3/4" x 1-1/2"
- Supported beam @ 3/4" x 1-1/2"
- Supported beam @ 3/4" x 1-1/2"
- Supported beam @ 3/4" x 1-1/2"

**STEEL BEAM SECTION**

- Supported beam @ 3/4" x 1-1/2"
- Supported beam @ 3/4" x 1-1/2"
- Supported beam @ 3/4" x 1-1/2"
- Supported beam @ 3/4" x 1-1/2"
### ABBREVIATIONS

<table>
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<tr>
<th>Code</th>
<th>Meaning</th>
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<tbody>
<tr>
<td>CFD</td>
<td>Cribbing Batten (For Masonry)</td>
</tr>
<tr>
<td>CPA</td>
<td>Cribbing Panel (For Masonry)</td>
</tr>
<tr>
<td>CPT</td>
<td>Cribbing Panel (For Concrete)</td>
</tr>
<tr>
<td>CWB</td>
<td>Concrete Wall Beam</td>
</tr>
<tr>
<td>FTI</td>
<td>Foundation Tie I</td>
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<tr>
<td>GLD</td>
<td>Glass Door</td>
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<tr>
<td>GND</td>
<td>Ground</td>
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<tr>
<td>GW</td>
<td>Glass Wall</td>
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<td>HS</td>
<td>Highway</td>
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<tr>
<td>LDR</td>
<td>Large Door</td>
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<tr>
<td>MLD</td>
<td>Medium Door</td>
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<tr>
<td>MGL</td>
<td>Medium Glass Door</td>
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<tr>
<td>NLF</td>
<td>Non-Locking Frame</td>
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<tr>
<td>OVL</td>
<td>Overhang</td>
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<tr>
<td>PCB</td>
<td>Present Building</td>
</tr>
<tr>
<td>PDL</td>
<td>Photoelectric Detector</td>
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<td>Security Door (Electrical)</td>
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<td>SGD</td>
<td>Security Door (Mechanical)</td>
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<tr>
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<td>Sliding Door</td>
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<td>SW</td>
<td>Screen Wall</td>
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<td>Temporary Frame</td>
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<td>Temporary Beam</td>
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<td>TMB</td>
<td>Temporary Beam (For Masonry)</td>
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<td>TSB</td>
<td>Temporary Support Beam</td>
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<td>Temporary Support Beam (For Masonry)</td>
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### SYMBOLS

#### PROJECT NORTH PLAN
- **Sheet Number (S)**: 1
- **Section Cut Elevation Number (S)**: 1

#### SHEET NUMBER

#### SECTION CUT ELEVATION NUMBER OR LETTER

#### SHEET LETTER

#### SHEET NUMBER

#### ELEVATION LETTER

#### SHEET DRAWN

#### SHEET TAKEN

#### DETAIL NUMBER

#### SHEET TAKEN

#### LOADER TYPE

#### GLAZING TYPE

#### WALL TYPE

#### DOOR FLUSH NOTE

#### WORK FLUSH NOTE

#### GRID LINE

#### DOOR NUMBER

#### ROOM IDENTIFICATION NUMBER

#### UPON

#### STAIR JOG SLOPE DIRECTION

#### CHAIN LINK FENCE

#### ELEVATION INDICATOR

#### FLOOR MATERIAL INDICATOR

#### MATERIAL DESIGNATION

- **Concrete**
- **Earthen**
- **Fill Material**
- **Concrete Floor Board / Siding (Large Scale)**
- **Continuous Blocking**
- **Non-Continuous Blocking**
- **Existing Walls to Remain**
- **Walls or Items to Be Removed (Dashed)**
- **New Stud Walls**
- **New Brick or CMU Walls**

**City of Kirkland**

**Kirkland, WA 98034**

**beiger architects**

**950 Pacific Avenue, Suite 450**

**Seattle, WA 98122**

**PNG**

**beiger architects**

**950 Pacific Avenue, Suite 450**

**Seattle, WA 98122**

**PNG**
**DOOR SCHEDULE**

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<td>PNT</td>
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<td>7'-0&quot;</td>
<td>1 3/4&quot;</td>
<td>HM</td>
<td>PNT</td>
<td>A</td>
<td>HM</td>
<td>PNT</td>
<td>A</td>
<td>HM</td>
<td>1/4&quot;101</td>
<td>1/4&quot;101</td>
<td>3/4&quot;101</td>
<td></td>
</tr>
</tbody>
</table>

**RESTROOM BUILDING DESCRIPTION:**

Construct an approximately 440 SF Restroom Building for the Totem Lake Park. There shall be 1 individual, unisex restroom and a utility/storage room. The core building is cmu with transom glazing with a large overhanging roof supported by steel columns. The building is heated.

**TOTAL FLOOR AREA:** 440 SF, 1-STORY (500 PERMITTED)

**BUILDING OCCUPANCY:** U

**CONSTRUCTION TYPE:** U-0

**WEBC REQUIREMENTS:**

- Submit air barrier test report to jurisdiction. One test is complete.
- P1 test results to exceed 0.1 grains at 0.1 in. Hg, then visually inspect air barrier and seal noted sources of leakage.
- Submit a follow-up report to jurisdiction noting corrective measures taken.
- Include air barrier test report in compliance documentation provided to building official.
- Provide a close-out documentation is required, including applicable WeBC envelope compliance forms and calculations, and presentation WeBC rating certificates.

**ABBREVIATIONS**

- FD: FACTORY FINISH
- PD: PRE-ASSEMBLED
- PNT: PINT
- MFR: MANUFACTURER
- SST: STAINLESS STEEL

---

**TYP. EXTERIOR WALL CONSTRUCTION**

- ANCHORING PER MANUFACTURE
- CMU UNIT AL AT ALL OPENING, TYP.
- SEE DETAIL, STAIRS AND WALLS

**DOOR HEAD JAMB SILL**

- 3'-10"
- 5/8"
- A0185

**DOOR SILL**

- 3'-6"
- 5/8"
- A0186

---

**NOTES:**

- 100% Design Submittal

---

**PROJECT:** Totem Lake Phase 1

**SCHEDULES:** DOOR S & FRAME TYPES

---

**DRAWN:** E. O. Carrier

---

**CHECKED:** 12/31/19
GENERAL NOTES:
- THIS PLAN DEPICTS THE 8' HEIGHT CONCRETE WALLS. THE INTENT IS TO CREATE A UNIFORM BASE AT ALL THE WALLS WITH A COVERED TRANSITION TO THE FLOOR OF WET AREAS FOR SANITARY PURPOSES.
- SLOPE ALL FLOORS 1/4" PER FOOT MIN, 10% FLOOR GRAY.
ELECTRICAL PERMIT
Electrical Permit

Permit Number: ENR19-01119
Type: Electrical Non Residential - ENR
Work Class: New Structure

City of Kirkland
123 Fifth Avenue
Kirkland WA 98033
425-587-3600

Permit Information

Job Address: 12031 NE TOTEM LAKE WAY
Kirkland, WA 98034

Project: TOTEM LAKE PARK
Parcel: 6928400032
Valuation: $196,000.00
Dwelling Units:

Application Date: 02/19/2019
Issue Date: 09/04/2019
Expiration Date: 09/04/2020
Code Edition: 2017 NEC

Scope of Work

Totem Lake Park Electrical: New 200 AMP service, pedestrian lighting, conduit and power for mechanical/electrical equipment.

Contacts

<table>
<thead>
<tr>
<th>Type</th>
<th>Name</th>
<th>Address</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>CITY OF KIRKLAND</td>
<td>123 5TH AVE KIRKLAND, WA 98033</td>
<td>B:</td>
</tr>
<tr>
<td>Project Contact</td>
<td>BRIAN BAKER</td>
<td>123 FIFTH AVE KIRKLAND, WA 98033</td>
<td>B: 4255873874</td>
</tr>
<tr>
<td>Applicant</td>
<td>BRIAN BAKER</td>
<td>123 FIFTH AVE KIRKLAND, WA 98033</td>
<td>B: 4255873874</td>
</tr>
</tbody>
</table>

Request an inspection before 6 p.m. for next business day. Requests made after 6 p.m. will be scheduled on the second business day following the request.

How to request an inspection:

1) Go to http://mybuildingpermit.com
2) Select Kirkland as the Jurisdiction.
3) Locate the permit using the permit # or property address
4) Follow the on-screen instructions to complete the inspection request.

REQUIRED INSPECTIONS

<table>
<thead>
<tr>
<th>ID</th>
<th>Date</th>
<th>Inspector</th>
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<tbody>
<tr>
<td>1.</td>
<td>ELE - Pre-con</td>
<td>400</td>
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<tr>
<td>2.</td>
<td>ELE - Other</td>
<td>401</td>
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<tr>
<td>3.</td>
<td>ELE - Temporary Power</td>
<td>402</td>
</tr>
<tr>
<td>4.</td>
<td>ELE - Feeder</td>
<td>403</td>
</tr>
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<td>5.</td>
<td>ELE - Slab (Cover)</td>
<td>404</td>
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<tr>
<td>6.</td>
<td>ELE - Ditch</td>
<td>406</td>
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<td>7.</td>
<td>ELE - Bonding/Grounding</td>
<td>408</td>
</tr>
<tr>
<td>8.</td>
<td>ELE - Service</td>
<td>414</td>
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<td>9.</td>
<td>ELE - Wall Cover</td>
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<td>ELE - Ceiling Cover</td>
<td>418</td>
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<td>11.</td>
<td>ELE - Rough In</td>
<td>432</td>
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<tr>
<td>12.</td>
<td>ELE - Final</td>
<td>495</td>
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</table>

Signature

See conditions on the back of this permit.

This permit and any accompanying plans must remain on the job site for use by City inspection personnel.
Any sales tax reported to the State in association with this project should be coded to the City of Kirkland tax location code 1716.
I certify that the information furnished by me is true and correct to the best of my knowledge and the applicable City of Kirkland requirements will be met.

☐ Owner  or  ☐ Agent  
(Check one)

(Print Name)  Date

(Signature)
General Conditions

1. The issuance of this permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of any other ordinances of the jurisdiction.
2. The approved plans shall not be changed, modified, or altered without authorization from the building official.
3. This permit, inspection record and approved plans are required to be on the job site at all times.
4. All development activity and heavy equipment operation is restricted to 7:00 a.m. to 8:00 p.m., Monday through Friday, and 9:00 a.m. to 6:00 on Saturdays. No development activity or heavy equipment operation may occur on Sundays or holidays observed by the City.
5. All work is subject to field inspection. Do not cover any work until approved by a City inspector.
6. Inspection(s) required - Go to http://mybuildingpermit.com Select Kirkland as the Jurisdiction and Locate the permit by selecting Permit # or Property Address. Follow the on-screen instructions to complete the inspection request.
7. Contact the Building Division at 425-587-3600 with any questions.

Inspector's Comments
SPECIFIC PERMIT CONDITIONS

BUILDING ADDRESS
12031 NE TOTEM LAKE WAY

PERMIT NUMBER
ENR19-01119

PERMIT TYPE
Electrical Non Residential - EN

WORK CLASS
New Structure

DATE PRINTED
3/20/2019

DESCRIPTION OF WORK:
Totem Lake Park Electrical: New 200 AMP service, pedestrian lighting, conduit and power for mechanical/electrical equipment.

Building Department Conditions:

BUILDING DEPARTMENT CONDITIONS - Plan reviewer James Tumelson at 425-587-3617

This condition sheet is part of the approved plans and shall remain attached. The approval of plans and specifications does not permit the violation of any section of the International Residential Code, or other ordinances or state law. Conditions as indicated below, along with the unchanged information shown on the drawings must be complied with.

THE PLANS FOR THIS PROJECT WERE REVIEWED ELECTRONICALLY. Applicant must print a full set of the City stamped EPlans using ink that is resistant to water damage. This copy of the City stamped plans must be kept on the job site at all times, protected and maintained in good condition. The construction of buildings and structures shall result in a system that provides a complete load path capable of transferring all loads from their point of origin through the load-resisting elements to the foundation. R301.1

CONDITIONS OF APPROVAL - This condition sheet is part of the approved plans and shall remain attached. The approval of plans and specifications does not permit the violation of any section of the NFPA 70 or other ordinances or state law. Conditions as indicated below, along with the unchanged information shown on the drawings must be complied with.

HOURS OF WORK: 7AM TO 8PM MON-FRI, 9AM TO 6PM SAT; NO WORK SUNDAYS AND HOLIDAYS (PER KZC SEC 115.25). Exceptions must be approved in writing by Planning Official.

SEE APPROVED PLANS - The approved plans shall not be changed, modified, or altered without authorization from the building official. The approved plans are required to be on the job site. Section 21.06 K.M.C.

INSPECTIONS REQUIRED; WHEN TO COVER - See permit for how to schedule inspections. All electrical elements and each phase of construction must be inspected prior to cover. Photos are not a substitute for inspections. It is possible that un-needed inspections are listed on your permit. Please call only for the inspections you need and ask your inspector which apply if you are not sure.

SCOPE OF WORK - Changes to the scope of work, design, materials or method of construction will require revised plans to be submitted. The plans must be reviewed and approved by City of Kirkland review staff prior to being implemented in the field. Additional review fees will be charges as applicable.

ADDRESS NUMBERS - New and existing buildings shall have approved address numbers placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Address number shall be Arabic numerals or alphabet letters. Numbers shall be a minimum of 4 inches (4") high with a minimum stroke width of 0.5 inches (1/2").

RECESSED FIXTURES (CAN LIGHTS) AND SIMILAR PENETRATIONS - Floor/ceiling assemblies separating dwelling units in the same building shall be of not less than one-hour fire resistive construction. Roof/ceiling assemblies may also be rated assemblies. Recessed fixtures shall be installed such that the required fire resistive rating will not be reduced. Unless the fixtures are rated, membrane penetrations for recessed downlights and similar shall be "tented" with GWB of the same fire resistive rating as the ceiling.

CONCRETE GROUNDING ELECTRODE - All electrical services for new buildings or structures shall have a concrete encased electrode installed complying with current NEC. The grounding electrode system inspection shall be conducted with the footing inspection before the placement of concrete.
Building Department Conditions:

OVERHEAD ELECTRICAL SERVICES – Other than a panel change in the exact same location, new overhead electrical services not allowed. Exceptions must be approved in writing by Public Works Official.

SEALED EXTERIOR BOXES - Electrical and low-voltage box on exterior walls shall have air barrier behind or sealed boxes shall be installed.
**ENERGY RECOVERY VENTILATOR SCHEDULE**

<table>
<thead>
<tr>
<th>BRAND</th>
<th>MODEL</th>
<th>YEAR</th>
<th>SERIAL NUMBER</th>
<th>TYPE</th>
<th>AIRFLOW RATE</th>
<th>TEMPERATURE</th>
<th>HUMIDITY</th>
<th>PRESSURE</th>
<th>ENERGY RECOVERY</th>
<th>ELECTRICAL</th>
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**PLUMBING FIXTURE SCHEDULE**

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<tr>
<th>FIXTURE</th>
<th>LOCATION</th>
<th>WATER TYPE</th>
<th>WATER PRESSURE</th>
<th>DRAIN</th>
<th>CODE</th>
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**WEATHERPROOF LOUVER SCHEDULE**

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<th>SIZE</th>
<th>MATERIAL</th>
<th>WIND SPEED</th>
<th>PRESSURE</th>
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**PIPE INSULATION SCHEDULE**

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<th>RATING</th>
<th>LENGTH</th>
<th>MATERIAL</th>
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**AIR INLET & OUTLET SCHEDULE**

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<th>OUTLET</th>
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**PLUMBING UNIT HEATER SCHEDULE**

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<th>MAKE</th>
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**ELECTRIC WATER HEATER SCHEDULE**

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<th>CAPACITY</th>
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**EXPANSION TANK SCHEDULE**

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<th>LOCATION</th>
<th>PRESSURE</th>
<th>TEMPERATURE</th>
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**BACKFLOW PREVENTER SCHEDULE**

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<th>WATER</th>
<th>PRESSURE</th>
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**PUMP SCHEDULE**

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<th>MODEL</th>
<th>LOCATION</th>
<th>WATER</th>
<th>PRESSURE</th>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTES**

1. **WEATHERPROOF LOUVERS** are required for all external louvers. (Add column E. H.V.A.C. requirements)
2. **PLUMBING UNIT HEATERS** must be installed as specified in the plumbing schedule. (Add column E. H.V.A.C. requirements)
3. **AIR INLET & OUTLET SCHEDULE** must be coordinated with the plumbing schedule. (Add column E. H.V.A.C. requirements)
4. **ELECTRIC WATER HEATERS** must be installed as specified in the electrical schedule. (Add column E. H.V.A.C. requirements)

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**FOR REFERENCE ONLY**

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**FOR REFERENCE ONLY**

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**FOR REFERENCE ONLY**

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**FOR REFERENCE ONLY**
FOR REFERENCE ONLY
FOR REFERENCE ONLY
<table>
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<th>Section</th>
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<th>Compliance Note</th>
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<td>12.1.1</td>
<td>Grounding</td>
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<td>12.1.2</td>
<td>Splicing</td>
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<td>12.1.3</td>
<td>Termination</td>
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</tr>
<tr>
<td>12.1.4</td>
<td>Insulation</td>
<td>Insulation must be maintained.</td>
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<tr>
<td>12.1.5</td>
<td>Marking</td>
<td>Marking must be visible.</td>
</tr>
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The following information is common to both sections provided for compliance with the lighting codes and standards applicable in the Washington State Area.
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Notes</th>
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<tbody>
<tr>
<td>1.0</td>
<td>Site Survey</td>
<td>Conducted to determine site conditions and utilities.</td>
</tr>
<tr>
<td>2.0</td>
<td>Lighting Design</td>
<td>Providing illumination for safety and visibility.</td>
</tr>
<tr>
<td>3.0</td>
<td>Electrical Plan</td>
<td>Ensuring compliance with electrical codes.</td>
</tr>
<tr>
<td>4.0</td>
<td>Electrical Panel</td>
<td>Reviewing the wiring and safety elements.</td>
</tr>
<tr>
<td>5.0</td>
<td>Conduit and Wire</td>
<td>Checking for proper installation and routing.</td>
</tr>
<tr>
<td>6.0</td>
<td>Lighting Fixtures</td>
<td>Ensuring fixtures meet design specifications.</td>
</tr>
<tr>
<td>7.0</td>
<td>Electrical Switches</td>
<td>Testing for proper operation.</td>
</tr>
<tr>
<td>8.0</td>
<td>Emergency Lighting</td>
<td>Ensuring proper functioning in case of power failure.</td>
</tr>
<tr>
<td>9.0</td>
<td>Lighting Control</td>
<td>Programming and testing of control systems.</td>
</tr>
<tr>
<td>10.0</td>
<td>Grounding</td>
<td>Ensuring safety and compliance with regulations.</td>
</tr>
</tbody>
</table>

**Lighting, Water, and Electrical Permit Checklist, pg. 5**
SUPERSEDED
MECHANICAL PERMIT
Mechanical Permit

Permit Number: MNR19-01208
Type: Mechanical Non Residential - MNR
Work Class: New Structure

City of Kirkland
123 Fifth Avenue
Kirkland WA 98033
425-587-3600

Permit Information

Job Address: 12031 NE TOTEM LAKE WAY
Kirkland, WA 98034
Project: TOTEM LAKE PARK
Parcel: 6928400032
Valuation: $19,000.00
Dwelling Units: 
Application Date: 02/20/2019
Issue Date: 09/04/2019
Expiration Date: 09/04/2020
Code Edition: 2015 IMC

Scope of Work

Totem Lake Park Restroom: Install mechanical equipment related to new restroom (BNR19-01207).

Contacts

<table>
<thead>
<tr>
<th>Type</th>
<th>Name</th>
<th>Address</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>CITY OF KIRKLAND</td>
<td>123 5TH AVE KIRKLAND, WA 98033</td>
<td></td>
</tr>
<tr>
<td>Project Contact</td>
<td>BRIAN BAKER</td>
<td>123 FIFTH AVE KIRKLAND, WA 98033</td>
<td>B: 4255873874</td>
</tr>
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<td>Applicant</td>
<td>BRIAN BAKER</td>
<td>123 FIFTH AVE KIRKLAND, WA 98033</td>
<td>B: 4255873874</td>
</tr>
<tr>
<td>Owner is Contractor</td>
<td>OWNER IS CONTRACTOR</td>
<td>12031 NE TOTEM LAKE WAY</td>
<td></td>
</tr>
</tbody>
</table>

Request an inspection before 6 p.m. for next business day. Requests made after 6 p.m. will be scheduled on the second business day following the request.

How to request an inspection:
1) Go to http://mybuildingpermit.com
2) Select Kirkland as the Jurisdiction.
3) Locate the permit using the permit # or property address
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REQUIRED INSPECTIONS

<table>
<thead>
<tr>
<th>ID</th>
<th>Date</th>
<th>Inspector</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>MEC - Other</td>
<td>301</td>
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<tr>
<td>2.</td>
<td>MEC - Fuel Gas Piping</td>
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</tr>
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<td>MEC - Ceiling Cover</td>
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<tr>
<td>4.</td>
<td>MEC - Wall Cover</td>
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<tr>
<td>5.</td>
<td>MEC - HVAC Piping (Hydronic/Chilled/Refrigerant)</td>
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<td>6.</td>
<td>MEC - Hydronic Tubing</td>
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<td>MEC - Rough Mechanical</td>
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<td>8.</td>
<td>MEC - Fire/Smoke Dampers</td>
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<td>9.</td>
<td>MEC - Duct Seal</td>
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<td>10.</td>
<td>MEC - Duct Insulation</td>
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<td>11.</td>
<td>MEC - Final</td>
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</tr>
</tbody>
</table>

Signature

See conditions on the back of this permit.

This permit and any accompanying plans must remain on the job site for use by City inspection personnel. Any sales tax reported to the State in association with this project should be coded to the City of Kirkland tax location code 1716. I certify that the information furnished by me is true and correct to the best of my knowledge and the applicable City of Kirkland requirements will be met.

☐ Owner  or  ☐ Agent
(Check one)
(Please print)
(Date)
(Signature)
General Conditions

1. The issuance of this permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of any other ordinances of the jurisdiction.
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3. This permit, inspection record and approved plans are required to be on the job site at all times.
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5. All work is subject to field inspection. Do not cover any work until approved by a City inspector.
6. Inspection(s) required - Go to [http://mybuildingpermit.com](http://mybuildingpermit.com) Select Kirkland as the Jurisdiction and Locate the permit by selecting Permit # or Property Address. Follow the on-screen instructions to complete the inspection request.
7. Contact the Building Division at 425-587-3600 with any questions.

Inspector's Comments

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<table>
<thead>
<tr>
<th>BUILDING ADDRESS</th>
<th>PERMIT NUMBER</th>
<th>PERMIT TYPE</th>
<th>WORK CLASS</th>
<th>DATE PRINTED</th>
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<tbody>
<tr>
<td>12031 NE TOTEM LAKE WAY</td>
<td>MNR19-01208</td>
<td>Mechanical Non Residential - MNR</td>
<td>New Structure</td>
<td>5/31/2019</td>
</tr>
</tbody>
</table>

DESCRIPTION OF WORK:
Totem Lake Park Restroom: Install mechanical equipment related to new restroom (BNR19-01207).

Building Department Conditions:
Inspections Required:
1. Rough Mechanical
2. Final Mechanical and Balancing Report
SITE PLAN - PARK

Legend:
- **Concrete Paving**
- **Concrete Paving on Structure**
- **Graveled Rock Paving**
- **Synthetic Turf**
- **Synthetic Turf on Structure**
- **Asphalt Paving (Refer to Plan)**
- **Gravel Seawall**
- **Beach Seawall**
- **Steel Bar Grating/Boardwalk**

**Project Notes:**
- Refer to the supporting slab referenced at each section.
- **Play Equipment Post to Equipment Post Connection (Refer to Structure).**
- **Concrete Paving Where Necessary.**
- **Wood (Grate Rail Fence)**
- **Wood Fencing**
- **Bike Path**
- **Lift (Recreational)**
- **Soda Dispenser**
- **Soda Vending**
- **Soda Vending (Refer to Map)**
- **Smokers Area**
- **Smokers Area (Refer to Map)**
- **Flowering Shrubs**
- **Rockery Wall, Boulders Material**
- **Rockery Wall**
- **Walking Boundary**

Alignment Schedule:

<table>
<thead>
<tr>
<th>Name</th>
<th>Alignment Description</th>
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<tbody>
<tr>
<td>SL</td>
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<tr>
<td>PL</td>
<td>Parking Path Location</td>
</tr>
<tr>
<td>ST</td>
<td>Street Centerline</td>
</tr>
<tr>
<td>TR</td>
<td>Trail Centerline</td>
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**Notice:**
This plan is for mechanical work only for the proposed building.
This Sheet For Reference Only
### Exterior Lighting - Space-by-Space Method

#### Lighting Summary

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Lighting System</th>
<th>Total Luminaire</th>
<th>Total Wattage</th>
<th>Total Lumen</th>
<th>Total Wall Area</th>
<th>Compliance Status</th>
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<tr>
<td>Totem Lake Park Phase 1</td>
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#### Table of Hazards - Allowed Lighting Configurations

<table>
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<th>Hazard</th>
<th>Hazard Type</th>
<th>Hazard Level</th>
<th>Hazard Zone</th>
<th>Hazard Description</th>
<th>Hazard Size</th>
<th>Hazard Duration</th>
<th>Hazard Weight</th>
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#### Table of Hazards - Proposed Lighting Configurations

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<th>Hazard Duration</th>
<th>Hazard Weight</th>
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<tbody>
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#### Table of Hazards - Existing Lighting Configurations

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<th>Hazard Description</th>
<th>Hazard Size</th>
<th>Hazard Duration</th>
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### Lighting Calculation

- **Lighting Calculation Details**
  - **Base Case**
  - **Assumptions**
  - **Design Criteria**

#### Lighting Datasheet

- **Equipment Specification**
  - **Model Number**
  - **Recommended Features**

---

This Sheet For Reference Only
<table>
<thead>
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<tr>
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<td>1.9.</td>
<td>Lighting caption ( p.x )</td>
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This Sheet For Reference Only
PLUMBING PERMIT
Permit Information

Job Address: 12031 NE TOTEM LAKE WAY, Kirkland, WA 98034

Project: TOTEM LAKE PARK

Parcel: 6928400032

Valuation: $90,000.00

Dwelling Units: 

Application Date: 02/20/2019

Issue Date: 09/04/2019

Expiration Date: 09/04/2020

Code Edition: 2015 UPC

Scope of Work

Totem Lake Park Plumbing (Re: BNR19-01207): Plumbing work related to construction of new restroom. (Includes new meter hook ups: (1) new irrigation meter & (1) new building meter)

Contacts

<table>
<thead>
<tr>
<th>Type</th>
<th>Name</th>
<th>Address</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
<td>CITY OF KIRKLAND</td>
<td>123 5TH AVE KIRKLAND, WA 98033</td>
<td>B:</td>
</tr>
<tr>
<td>Project Contact</td>
<td>BRIAN BAKER</td>
<td>123 FIFTH AVE KIRKLAND, WA 98033</td>
<td>B: 4255873874 C:</td>
</tr>
<tr>
<td>Applicant</td>
<td>BRIAN BAKER</td>
<td>123 FIFTH AVE KIRKLAND, WA 98033</td>
<td>B: 4255873874 C:</td>
</tr>
<tr>
<td>Owner is</td>
<td>OWNER IS CONTRACTOR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contractor</td>
<td></td>
<td></td>
<td></td>
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</table>

Request an inspection before 6 p.m. for next business day. Requests made after 6 p.m. will be scheduled on the second business day following the request.

How to request an inspection:

1) Go to http://mybuildingpermit.com
2) Select Kirkland as the Jurisdiction.
3) Locate the permit using the permit # or property address
4) Follow the on-screen instructions to complete the inspection request.

REQUIRED INSPECTIONS

<table>
<thead>
<tr>
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<th>Inspector</th>
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<tr>
<td>595</td>
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</table>

Signature

See conditions on the back of this permit.

This permit and any accompanying plans must remain on the job site for use by City inspection personnel.

Any sales tax reported to the State in association with this project should be coded to the City of Kirkland tax location code 1716.

I certify that the information furnished by me is true and correct to the best of my knowledge and the applicable City of Kirkland requirements will be met.

☐ Owner  or  ☐ Agent

(Check one)

(Print Name)  Date

(Signature)
General Conditions

1. The issuance of this permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of any other ordinances of the jurisdiction.
2. The approved plans shall not be changed, modified, or altered without authorization from the building official.
3. This permit, inspection record and approved plans are required to be on the job site at all times.
4. All development activity and heavy equipment operation is restricted to 7:00 a.m. to 8:00 p.m., Monday through Friday, and 9:00 a.m. to 6:00 on Saturdays. No development activity or heavy equipment operation may occur on Sundays or holidays observed by the City.
5. All work is subject to field inspection. Do not cover any work until approved by a City inspector.
6. Inspection(s) required - Go to [http://mybuildingpermit.com](http://mybuildingpermit.com) Select Kirkland as the Jurisdiction and Locate the permit by selecting Permit # or Property Address. Follow the on-screen instructions to complete the inspection request.
7. Contact the Building Division at 425-587-3600 with any questions.

Inspector's Comments

________________________________________

________________________________________

________________________________________

________________________________________

________________________________________

________________________________________
**SPECIFIC PERMIT CONDITIONS**

<table>
<thead>
<tr>
<th>BUILDING ADDRESS</th>
<th>PERMIT NUMBER</th>
<th>PERMIT TYPE</th>
<th>WORK CLASS</th>
<th>DATE PRINTED</th>
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</thead>
<tbody>
<tr>
<td>12031 NE TOTEM LAKE WAY</td>
<td>PNR19-01209</td>
<td>Plumbing Non Residential - PNR</td>
<td>New Structure</td>
<td>7/9/2019</td>
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**DESCRIPTION OF WORK:**
Totem Lake Park Plumbing (Re: BNR19-01207): Plumbing work related to construction of new restroom. (Includes new meter hook ups: (1) new irrigation meter & (1) new building meter)

**Building Department Conditions:**
- Inspections Required:
  1. Underground Plumbing
  2. Rough Plumbing (Filtration NIC)
  3. Final Plumbing and Backflow Test reports

---

07/09/2019 Page 1 of 1
City of Kirkland
Totem Lake Park Phase 1
PKC1390200
JOB NO. 00-00-PW
100% DESIGN SUBMITTAL
February 08, 2019

MUST REMAIN ON JOB SITE

NOTICE
HOURS OF WORK: 7AM TO 8PM MON-FRI
9AM TO 6PM SAT. NO WORK SUNDAYS & HOLIDAYS
Exceptions must be approved in writing by Planning Official

Team Contact Info
Field Consultant
Bryan Hanson
bryan.hanson@ci.kirkland.wa.us

Civil Engineer
Trent Finney
trent.finney@ci.kirkland.wa.us

General Contact
Planning
jacques.pulos@ci.kirkland.wa.us

Vicinity Map

Drawing Set Printing and Reproduction Notes/Req's:

City/Owner Contact Info
City/Owner Contact Info

Applicable Codes:

Compliance with the following codes shall be verified:

Building Code 2014
Parking Code 2014
Landscape Code 2014

AASHTO Standard Specifications for Highway Construction

Page 1 of 23
Page 19 of 23
Printed on 02/08/2019
Printed on 02/08/2019

G000
1. WESTERN BIORETENTION SECTION

2. EASTERN BIORETENTION SECTION
IRRIGATION SCHEDULE

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<th>SYMBOL</th>
<th>MANUFACTURER/MODEL/DESCRIPTION</th>
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<tr>
<td>⚡</td>
<td>HUNTER MP CORNER PROS-12-P-PRG#0-CV</td>
</tr>
<tr>
<td>⚡</td>
<td>SHURFLO 100, 1/2&quot; (10.48 cm) POP-UP WITH CHECK VALVE, PRESSURE REGULATED TO 40 PSI (2.76 BAR)</td>
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<tr>
<td>⚡</td>
<td>HUNTER MP STRIP PROS-12-P-PRG#0-CV</td>
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<table>
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<th>SYMBOL</th>
<th>MANUFACTURER/MODEL/DESCRIPTION</th>
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<td>WEATHERMATIC 8200CR-XPR</td>
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<td>BRAZED REMOTE CONTROL VALVE WITH PRESSURE REGULATOR</td>
</tr>
<tr>
<td>⚡</td>
<td>HUNTER HD-844ALC</td>
</tr>
<tr>
<td>⚡</td>
<td>QUICK COUPLER VALVE, YELLOW RUBBER LOCKING COVER, RED BRASS AND STAINLESS STEEL, WITH 1&quot; NPT INLET, 2-PIECE BODY</td>
</tr>
<tr>
<td>⚡</td>
<td>MATCH-HOPE 750</td>
</tr>
<tr>
<td>⚡</td>
<td>BRASS CHECK BALL VALVE, 1/2&quot; TO 4&quot;, TWO PIECE BALL, BLOW-OUT PROOF METAL CHROME PLATED SOLID BRASS BALL, THREADED WITH PTFE SEATS. SMALL SIZE AS MAINLINE PIPE</td>
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<tr>
<td>⚡</td>
<td>WEATHERMATIC 8200CR-XPR</td>
</tr>
<tr>
<td>⚡</td>
<td>BRAZED REMOTE CONTROL VALVE WITH PRESSURE REGULATOR</td>
</tr>
<tr>
<td>⚡</td>
<td>1&quot; MILLIKEN 800 SERIES PRESSURE REDUCING VALVE PRESSURE REGULATED TO 90 PSI (6.2 BAR) WITH ACCU-ADJ. 30-210, G-GREEN ADJ. ARC 210-270, R-RED ADJ. ARC ON PREGO BODY</td>
</tr>
<tr>
<td>⚡</td>
<td>FERCO 2050 1&quot;</td>
</tr>
<tr>
<td>⚡</td>
<td>DOUBLE CHECK BLOWDOWN PREVENTION WITH UNION END BALL VALVE, 1/2&quot; TO 3&quot;</td>
</tr>
<tr>
<td>⚡</td>
<td>CALGIENX 800 SERIES CONTROLLER</td>
</tr>
<tr>
<td>⚡</td>
<td>CONTROLLER SHALL BE 16 STATION CALGIENX 800 SERIES WITH LR (INTERNAL/EXTERNAL RADIO MODUL) AND RRE (ENHANCED RADIO RECEIVER BOARD) COMPONENTS. THE CONTROLLER SHALL BE MOUNTED IN A FACTORY PRE-ASSEMBLED STEEL ENCLOSURE (BY CALGIENX) SUITABLE FOR WALL MOUNTING (SEE FIG).</td>
</tr>
<tr>
<td>⚡</td>
<td>CALGIENX FLOW SENSOR FB-18</td>
</tr>
<tr>
<td>⚡</td>
<td>WATER METER 3/4</td>
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</table>

IRRIGATION NOTES

1. PROVIDE AND INSTALL ALLIRRIGATION IN CONFORMANCE WITH THE CITY OF KIRKLAND STANDARDS. IN THE EVENT OF CONFLICT BETWEEN NOTES OR DETAILS AND THESE DOCUMENTS, THE STANDARDS SHALL TAKE PRECEDENCE.

2. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES AND APPROPRIATE SAFETY REGULATIONS.

3. DRAWING IS SCHEMATIC, ACTUAL LOCATIONS MAY VARY DUE TO UTILITIES OR EXISTING CONDITIONS. CONTRACTOR IS RESPONSIBLE FOR LOCATING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.

4. EXISTING STATIC P.S.I. AT INJECTION WATER IS 108 P.S.I. PRIOR TO INSTALLATION OF IRRIGATION SYSTEM, CONTRACTOR SHALL FIELD VERIFY EXISTING P.S.I. NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES BETWEEN THE DESIGN P.S.I. PRIOR TO PROCEEDING WITH WORK.

5. LOCATE QUICK COUPLING VALVE & AUTOMATIC CONTROL VALVES AT POINT OF EASY ACCESS. OWNER'S REPRESENTATIVE TO REVIEW & APPROVE FINAL LOCATION OF ALL QUICK COUPLER & AUTOMATIC CONTROL VALVES PRIOR TO INSTALLATION.

6. HEAD LOCATION MUST BE ADJUSTED IN THE FIELD TO COMPLY WITH EXISTING SITE CONDITIONS AND PLANT MATERIALS. ADJUST SPRAY PATTERN TO MAXIMUM COVERAGE AND MINIMUM OVERSPRAY.

7. ALL SHRUB AREA POP-UP SPRAY HEADS TO BE 6" DIAMETER. ALL TURF AREA POP-UPS TO BE 4" IN DIAMETER (UNLESS OTHERWISE SPECIFIED ON PLANS).

8. CONTRACTOR SHALL COORDINATE IRRIGATION SLEEVING MY PIPING WORK AS REQUIRED.

9. ALL IRRIGATION SLEEVES SHALL BE TWICE THE DIAMETER OF THE INSIDE PIPING (PIPED). SLEEVES SHALL NOT EXCEED 6" DIAMETER.

10. IRRIGATION CONTRACTORS TO PROVIDE AND INSTALL ALL REQUIRED PLUMBING SLEEVES WHERE NECESSARY. ALL IRRIGATION SLEEVING TO BE STATED IN THE FIELD AND LOCATED ON DIMENSIONED "AS-BUILT" DRAWING TO ALLOW FUTURE LOCATION & USE.

11. AIR BLOW IRRIGATION SYSTEM THROUGH QUICK COUPLERS TO DEHYDRATE IRRIGATION SYSTEM.

12. PIPES TO SHARE TRENCHES WHERE POSSIBLE. SEPARATE COMMON PIPING BY 8" M.H.

13. WHERE PIPE SIZES ARE NOT SHOWN ON THE PLAN, PIPE SHALL BE SIZED TO THE NEXT LARGEST PIPE SIZE SHOWN ON PLAN.

14. WHEN TRENCHING OCCURS AROUND TREES TO REMAIN, THE TREE ROOTS SHALL NOT BE CUT BUT THE PIPE SHALL BE TUNNELED UNDER OR AROUND THE ROOTS BY CAREFUL HAND-DIGGING & TO AVOID INJURY TO THE ROOTS.

15. GENERAL CONTRACTOR TO PROVIDE AND INSTALL ALL CONDUIT TO CLOSET BOXES.

16. CONTRACTOR TO PROVIDE POWER SOURCE FOR CLOCK. (VERIFY LOCATION PRIOR TO BEGINNING WORK)
BUILDING PERMIT: BOARDWALK
City of Kirkland
123 Fifth Avenue
Kirkland WA 98033
425-587-3600

Permit Number: BNO19-01213
Type: Building Not Occupied - BNO
Work Class: New

Scope of Work
Totem Lake Park Boardwalk: Construct 700 linear foot wetland boardwalk and landing on the CKC and resurface boardwalk.

Contacts

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<tr>
<th>Type</th>
<th>Name</th>
<th>Address</th>
<th>Phone</th>
</tr>
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<tbody>
<tr>
<td>Owner</td>
<td>CITY OF KIRKLAND</td>
<td>123 5TH AVE KIRKLAND, WA 98033</td>
<td>B:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C:</td>
</tr>
<tr>
<td>Project Contact</td>
<td>BRIAN BAKER</td>
<td>123 FIFTH AVE KIRKLAND, WA 98033</td>
<td>B: 4255873874</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>C:</td>
</tr>
<tr>
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<td>123 FIFTH AVE KIRKLAND, WA 98033</td>
<td>B: 4255873874</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>C:</td>
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<tr>
<td>Owner is Contractor</td>
<td>OWNER IS CONTRACTOR</td>
<td>123 FIFTH AVE KIRKLAND, WA 98033</td>
<td>B:</td>
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<tr>
<td></td>
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<td>C:</td>
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</tbody>
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General Conditions
1. The issuance of this permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of any other ordinances of the jurisdiction.
2. The approved plans shall not be changed, modified, or altered without authorization from the building official.
3. This permit, inspection record and approved plans are required to be on the job site at all times.
4. All development activity and heavy equipment operation is restricted to 7:00 a.m. to 8:00 p.m., Monday through Friday, and 9:00 a.m. to 6:00 on Saturdays. No development activity or heavy equipment operation may occur on Sundays or holidays observed by the City.
5. All work is subject to field inspection. Do not cover any work until approved by a City inspector.
6. Inspection(s) required - Schedule on http://MyBuildingPermit.com
7. Contact the Building Division at 425-587-3600 with any questions.

SEE ATTACHED SHEET FOR SPECIFIC CONDITIONS

The City approved plans, permit and inspection record must remain on the job site for use by City inspection personnel.
Any sales tax reported to the State in association with this project should be coded to the City of Kirkland tax location code 1716.
I certify that the information furnished by me is true and correct to the best of my knowledge and the applicable City of Kirkland requirements will be met.

☐ Owner or ☐ Agent

(Print Name)

Date

(Signature)
### SPECIFIC PERMIT CONDITIONS

**BUILDING ADDRESS**
12207 NE TOTEM LAKE WAY

**PERMIT NUMBER**
BNO19-01213

**PERMIT TYPE**
Building Not Occupied - BNO

**WORK CLASS**
New

**DATE PRINTED**
7/5/2019

#### DESCRIPTION OF WORK:
Totem Lake Park Boardwalk: Construct 700 linear foot wetland boardwalk and landing on the CKC and resurface boardwalk.

---

### Building Department Conditions:

**BUILDING DEPARTMENT CONDITIONS**
You may contact Tanya Elder at 425-587-3614 for Building Department questions related to this permit.

1. The approved plans shall not be changed, modified, or altered without authorization from the building official. The approved plans are required to be on the job site.

2. No excavation or fill is authorized to encroach upon a neighboring property without explicit agreement by the adjoining property owner.

3. Structural Special Inspections are be required (to comply with Section 1704 IBC) as applicable. See Sheet SS003.

Submit field inspection reports, test lab reports, and final reports to Kirkland Building Department.

---

### Planning Department Conditions:

**Planning Department Conditions**
Contact Christian Geitz at 425.587.3246

- **PCD 1.** PLN TO PERFORM FINAL PRIOR TO BLD - BUILDING PERMIT INSPECTION CARD MUST BE SIGNED OFF BY PLANNING PRIOR TO ANY REQUEST FOR FINAL BUILDING INSPECTION. PLEASE CALL 425-587-3235 TO REQUEST INSPECTION. 24 HOUR ADVANCE NOTICE REQUIRED FOR INSPECTION.

- **PCD 2.** SENSITIVE AREA DECISION CONDITIONS – All conditions of approval and mitigation standards established under file SAR18-00519 shall be followed.

- **PCD 3.** REVISED SITE PLAN - Any proposed changes to the approved site plan must be submitted as a revision to the building permit for review and approval prior to implementation.

- **PCD 4.** ALL - PROHIBITED VEGETATION - Plants listed as prohibited in the Kirkland Plant List (available from the Planning Department) shall not be planted in the City. These plants include Blackberry, Fragrant water lily, Ivy, Herb Robert, Knotweed, Old man's beard, Poison hemlock, Reed canary grass, Scotch broom, Spurge laurel, Yellow archangel, and Yellow flag iris. Other plants, while not prohibited, are discouraged, including Butterfly bush, English holly, and English laurel.

- **PCD 5.** NON-NATIVE INVASIVE AND NOXIOUS PLANTS (KZC 95.51.5) - It is the responsibility of the property owner to remove non-native invasive plants and noxious plants from the vicinity of any tree or other vegetation that the City has required to be planted or protected. Removal must be performed in a manner that will not harm the tree or other vegetation that the City has required to be planted or protected. Prior to calling for a final inspection remove ivy from all trees from the ground up 5 feet above grade and from the trunk out 1 foot.

- **PCD 6.** ALL - HOURS OF CONSTRUCTION - All development activity and heavy equipment operation is restricted to 7:00 a.m. to 8:00 p.m. Monday through Friday, and 9:00 a.m. to 6:00 p.m. Saturday. Other restrictions on Saturday include: no working in the right-of-way, no work requiring inspection, and no trucking into or out of the site; however, light grading work on-site on Saturday is allowed. NO development activity or heavy equipment operation may occur on Sundays or the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.

- **PCD 7.** WETLAND/STREAM BUFFER PROTECTION – Prior to beginning development activities, the applicant shall install a 6-foot-high construction-phase chain link fence or equivalent fence, as approved by the Planning Official along the upland boundary of the entire wetland buffer with silt screen fabric installed per City standard, in a manner approved by the Planning Official. The construction-phase fence shall remain upright in the approved location for the duration of development activities.
Planning Department Conditions:

PCD 8. SPLIT RAIL FENCE: Prior to Final Inspection, the applicant shall install between the upland boundary of all wetland buffers and the developed portion of the site, either (1) a permanent 3- to 4-foot-tall split rail fence; or (2) permanent planting of equal barrier value; or (3) equivalent barrier, as approved by the Planning Official. Installation of the permanent fence or planted barrier must be done by hand where necessary to prevent machinery from entering the wetland or its buffer.

Public Works Department Conditions:

PUBLIC WORKS CONDITIONS

1. Refer to the Contract Documents for construction of the subject project, including but not limited to all terms, conditions, provisions, agreements, construction plans, specifications, addenda, and all applicable standards, codes, laws, and regulations.

2. The CIP Division of Public Works will manage the construction process and provide inspections for right-of-way /street /public utilities improvements, for land surface modifications, and for construction stormwater pollution prevention /erosion and sediment control. Inspections may be provided by consultant(s) working on behalf of the CIP Division and/or by in-house staff, unless otherwise specified by the Contract Documents.
How to request an inspection:
1) Go to [http://www.MyBuildingPermit.com](http://www.MyBuildingPermit.com)
2) Select Kirkland as the Jurisdiction.
3) Select Permit Number or Address.
4) Follow the on-screen instructions.

<table>
<thead>
<tr>
<th>BUILDING ADDRESS</th>
<th>PARCEL NUMBER</th>
<th>DATE PRINTED</th>
<th>PERMIT TYPE</th>
<th>WORKCLASS</th>
<th>SQ FT</th>
<th>VALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>12207 NE TOTEM LAKE WAY</td>
<td>8663270060</td>
<td>7/5/19</td>
<td>Building Not Occupied - BNO</td>
<td>New</td>
<td>7000</td>
<td>$1,500,000.00</td>
</tr>
</tbody>
</table>

**REQUIRED INSPECTIONS - DO NOT COVER ANY WORK PRIOR TO INSPECTION**

<table>
<thead>
<tr>
<th>Inspection</th>
<th>IVR</th>
<th>Date</th>
<th>Insp</th>
<th>Inspection</th>
<th>IVR</th>
<th>Date</th>
<th>Insp</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 BLD - Pre-con</td>
<td>200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 BLD - Piles</td>
<td>202</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>3 BLD - Footings/Setback/UFER</td>
<td>210</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>4 BLD - Framing</td>
<td>250</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>5 BLD - Other</td>
<td>201</td>
<td></td>
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<td></td>
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<tr>
<td>6 BLD - Final</td>
<td>295</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

*Note: 1st erosion control inspection is required prior to any excavation.*

*2nd erosion control inspection is required after foundation backfill.

(These erosion control inspections only apply if they are listed on the above checklist)

Departmental staff: BLD is Building Dept, PW is Public Works Dept, PCD is Planning Dept, and FIR is Fire Dept

NOTE: THIS INSPECTION RECORD IS THE CERTIFICATE OF OCCUPANCY WHEN THE BUILDING FINAL INSPECTION HAS BEEN APPROVED
# City of Kirkland

## Totem Lake Park Phase 1

**PKC1390200**  
**JOB NO. 00-00-PW**  
**100% DESIGN SUBMITAL**  
**February 08, 2019**

### Applicable Codes:

- [A111] Building Code Requirements
- [A112] Site Development
- [A113] Public Works
- [A114] Public Works Design Standards
- [A115] Sustainable Design
- [A116] Parking Design
- [A117] Signage Design
- [A118] Stormwater Management
- [A119] Landscape Architecture

### Drawing Set Printing and Reproduction Notes/Req's:

- [A11] Printing set for Construction Documents
- [A112] Sheet Set (Master Plan) and Detail
dimensioning for construction documents
- [A113] Scheduling of Standard Sheet Dimensions
- [A114] Identification of Sheet Dimensions
- [A115] Standard Sheet Dimensioning
- [A116] Standard Sheet Dimensioning
- [A117] Standard Sheet Dimensioning
- [A118] Standard Sheet Dimensioning
- [A119] Standard Sheet Dimensioning

### Notation:

**NOTES**

- [N101] HOURS OF WORK: TO BE AGREED UPON
- [N102] JOB SITE MEETINGS & MILESTONES (PER PKC Sec. 115.20)

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### Notable:

1. All guard panels and related framing, including artwork used as panels, regardless of material, shall comply with strength and attachment requirements of IBC 1607.8, height requirements of IBC 1015.3, and opening requirements of IBC 1015.4.

### Special Inspections Required:

- See Sheet SS003.
STORM DRAINAGE - PLAN NOTES

1. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MAY BE RESPONSIBLE FOR SECURING ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.

2. BEFORE ANY CONSTRUCTION BEGINS, THE CONTRACTOR SHALL HAVE PLANS WHICH HAVE BEEN REVIEWED AND APPROVED BY THE CITY OF MILWAUKIE PUBLIC WORKS DEPARTMENT AND THE CITY OF MILWAUKIE, STATE, FEDERAL, AND OTHER REQUIRED PERMITS, AND HAVE ACQUIRED ALL REQUIRED BONDS.


4. ANY MODIFICATION TO THE APPROVED PLANS WILL REQUIRE WRITTEN APPROVAL. ALL CHANGES SHALL BE SUBMITTED TO THE CITY.

5. THE APPROVED STORMWATER WATER MAPPING SHEETS MUST BE ON THE JOB SITE WHEN CONSTRUCTION IS IN PROGRESS.

6. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED OR SIMILARLY STABILIZED TO SATISFY THE INSTRUCTIONS OF THE CITY OF MILWAUKIE DEPARTMENT OF FORESTRY FOR THE PREVENTION OF ON-SITE EROSION AFTER THE COMPLETION OF CONSTRUCTION.

7. MINIMUM COVER OVER STORM DRAINAGE PIPES IN ROW OR VEGETATION PATH SHALL BE 18 INCHES, UNLESS OTHER DESIGN IS APPROVED.

8. STEEL PIPE SHALL HAVE AUSBURG TREATMENT OR BE OUTSIDE IN BEETLE AND OUTSIDE.

9. ALL CATCH BINS SHALL BE TYPE I LINE (LINES) OTHERWISE NOTED. CATCH BINS WITH A DIAMETER OF OVER 18 INCHES OR 4 FT. OR MORE SHALL HAVE A MINIMUM INSIDE DIAMETER SHALL HAVE A STANDARD CATCH BINS AND ARE REQUIRED TO MEET THE MILWAUKIE STANDARD PLAN SHEET 01-01A.

10. ALL STORM DRAINAGE MAJOR EXTENSIONS WITHIN THE PUBLIC RIGHT-OF-WAY OR IN LANEWAYS MUST BE SUBMITTED FOR LINE AND GRADE PRIOR TO STARTING CONSTRUCTION.

11. ALL PIPE, MAHOGANY CATCH BINS, AND APPURTENANCES SHALL BE LAYED ON A PROPERLY PREPARED FOUNDATION IN ACCORDANCE WITH THE CURRENT STATE OF WISCONSIN STANDARD SPECIFICATIONS FOR ROAD AND RAILROAD WORKS (WISCONSIN SPECIFICATION FOR ROAD AND RAILROAD WORKS). THIS SHALL INCLUDE NECESSARY LEVELING OF THE TRENCH BOTTOM ON THE PRELIMINARY SURVEY, FOUNDATION MATERIALS, AS PLACEMENT OF THE CONTRACTED MATERIALS, EMBANKMENT MATERIALS, SUBSTITUTE MATERIALS REQUIRED, EMBANKMENT MATERIALS, AND SUBSTITUTE MATERIALS REQUIRED, AND EMBANKMENT MATERIALS.

12. CONSTRUCTION OF DEWATERING DEVICES SHALL BE CONDUCTED IN ACCORDANCE WITH THE CITY OF MILWAUKIE PUBLIC WORKS STANDARDS, MINIMUM 5 FEET AREA OF DRAINAGE TO EMBANKMENT MATERIALS, AND SUBSTITUTE MATERIALS REQUIRED.

13. ALL CATCH BINS SHALL BE TYPE I LINE (LINES) OTHERWISE NOTED. CATCH BINS WITH A DIAMETER OF OVER 18 INCHES OR 4 FT. OR MORE SHALL HAVE A MINIMUM INSIDE DIAMETER OF 18 INCHES, UNLESS OTHER DESIGN IS APPROVED. ALL CATCH BINS SHALL BE AS PLANNED BY THE CONTRACTOR, AS DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE CITY OF MILWAUKIE PUBLIC WORKS STANDARDS, MINIMUM 5 FEET AREA OF DRAINAGE TO EMBANKMENT MATERIALS, AND SUBSTITUTE MATERIALS REQUIRED.

14. CONSTRUCTION OF DEWATERING DEVICES SHALL BE CONDUCTED IN ACCORDANCE WITH THE CITY OF MILWAUKIE PUBLIC WORKS STANDARDS, MINIMUM 5 FEET AREA OF DRAINAGE TO EMBANKMENT MATERIALS, AND SUBSTITUTE MATERIALS REQUIRED.

15. ALL TRENCH DRAINAGE SHALL BE CONFIRMED AND SPRING IN PERCENTAGE DENSITY IN GRADE CONTROL. CONSTRUCTION SHOULD BE PROGRESS CHECKED TO ENSURE THE PERCENTAGE DENSITY IN GRADE CONTROL. CONSTRUCTION SHOULD BE PROGRESS CHECKED TO ENSURE THE PERCENTAGE DENSITY IN GRADE CONTROL.

16. CONSTRUCTION OF DEWATERING DEVICES SHALL BE CONDUCTED IN ACCORDANCE WITH THE CITY OF MILWAUKIE PUBLIC WORKS STANDARDS, MINIMUM 5 FEET AREA OF DRAINAGE TO EMBANKMENT MATERIALS, AND SUBSTITUTE MATERIALS REQUIRED.

17. APPROXIMATE LOCATIONS OF EXISTING UTILITIES HAVE BEEN OBTAINED FROM AVAILABLE RECORDS AND ARE SHOWN FOR CONVENIENCE PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING EXISTING UTILITY LOCATIONS WHETHER OR NOT THESE UTILITIES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL EXERCISE ALL CARES TO AVOID DAMAGE TO ANY UTILITY. IF CONFLICTS WITH EXISTING UTILITIES OCCUR DURING CONSTRUCTION, THE CONTRACTOR SHALL NOT BE LIABLE FOR THE COST OF RECONSTRUCTION OR ANY OTHER DAMAGES.

18. STORM DRAINAGE LOCATION SERVICES SHALL BE CONTACTED FOR FIELD LOCATION OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION WORK. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING EXISTING UTILITY LOCATIONS WHETHER OR NOT THESE UTILITIES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL EXERCISE ALL CARES TO AVOID DAMAGE TO ANY UTILITY. IF CONFLICTS WITH EXISTING UTILITIES OCCUR DURING CONSTRUCTION, THE CONTRACTOR SHALL NOT BE LIABLE FOR THE COST OF RECONSTRUCTION OR ANY OTHER DAMAGES.

19. THE UNDERGROUND UTILITIES LOCATION SERVICES SHALL BE CONTACTED FOR FIELD LOCATION OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION WORK. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING EXISTING UTILITY LOCATIONS WHETHER OR NOT THESE UTILITIES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL EXERCISE ALL CARES TO AVOID DAMAGE TO ANY UTILITY. IF CONFLICTS WITH EXISTING UTILITIES OCCUR DURING CONSTRUCTION, THE CONTRACTOR SHALL NOT BE LIABLE FOR THE COST OF RECONSTRUCTION OR ANY OTHER DAMAGES.
NOTES:
1. INTENT OF LANDSCAPE GRADING IS TO PRODUCE CROSS-SLOPE BETWEEN 1% AND 1.5% AND CONDITIONAL SLOPES BETWEEN 0% AND 4%. COMPLIANCE WITH THIS SECTION IS REQUIRED BEFORE PAVING CONCRETE OR PLACING HMA. NOTIFY PROJECT REPRESENTATIVE OF ANY DISCREPANCY.
2. GRADING IN PLANTED AREAS SHALL BE SMOOTH. ANCHOR POINTS ARE PROVIDED TO ALLOW EASE OF STANZOR WITH SMOOTH TRANSITIONS.
3. REFER TO LA PLANS FOR Top OF WALL ELEVATION.
4. BOTTOM OF WALL ELEVATION IS FASHEDGRADE AT FACE OF WALL AND DOES NOT INCLUDE ADDITIONAL WALL CONSTRUCTED BELOW FASHEDGRADE.

NOTES TO REVIEWER:
1. THIS REPORTED TO STRUCTURE TO AT-GRACE PAYMENT SETTLEMENT OF POOLMENT IS ANTIQUATED TO OCCUR OVER TIME IN THESE AREAS AND REPAIR OR REPLACEMENT OF POOLMENT WILL BE REQUIRED TO AVOID HAZARDS AND/OR STEEP SLOPES.
2. ROCKBERRY WALLS ARE GRADING TO PRODUCE A HEIGHT AT LEAST 1' LESS THAN THE 2' WALL HEIGHT THAT WOULD REQUIRE WALL TO BE EXTENDED TO THE PRESENT HEIGHT ALONG A WALL THAT WOULD REQUIRE STRUCTURAL REVERSE.
3. SOME PORTIONS OF THE WORK SHOWN ARE ON PRIVATE PROPERTY. CITY STAFF ARE REVIEWING ACCESS EASEMENTS AND CONFIRMING ACCESS.
4. TOP OF WALL ELEVATIONS ARE SHOWN FOR THE 80% SEIT FOR COORDINATION AND WILL BE REMOVED FOR THE 100%.

NOTE: REFER TO LANDSCAPE ARCHITECT FOR BOARDWALK GRADING.
SETL MESH SYSTEM REQUIREMENTS

1. MESH SYSTEM ASSEMBLY SHALL BE CAPABLE OF WITHSTANDING THE EFFECTS OF GRAVITY LOADS AND CONCENTRATED LOADS OF 200 LBS/FT² (8 KPA) APPLIED PERIODICALLY TO THE MESH CASING AT ANY POINT IN THE SYSTEM.

2. MESH SYSTEM ASSEMBLY SHALL COMPLY WITH ALL ASB AND OSHA REGULATIONS AND SHALL BE MANUFACTURED AND INSTALLED TO COMPLY WITH APPLICABLE CODES AND REGULATIONS.

3. MESH SYSTEM ASSEMBLY SHALL BE CAPABLE OF WITHSTANDING THE EFFECTS OF GRAVITY LOADS AND CONCENTRATED LOADS OF 200 LBS/FT² (8 KPA) APPLIED PERIODICALLY TO THE MESH CASING AT ANY POINT IN THE SYSTEM.

4. MESH SYSTEM ASSEMBLY SHALL BE MANUFACTURED FROM A MATERIAL THAT WILL NOT PENETRATE THE PASSAGE OF A 4" SPHERE ANYWHERE WITHIN THE MESH SYSTEM OR THE POSTURAL RAILING.

5. MESH SYSTEM ASSEMBLY SHALL BE MANUFACTURED AND INSTALLED TO ACCOMMODATE EXPANSION AND CONTRACTION OF METAL COMPONENTS WITHOUT CAUSING UNIQUENESS, BLOCKING, SHIFTING, OR JAMMING OF JOINTS, AND DISTORTION.

6. MESH SYSTEM ASSEMBLY SHALL BE MANUFACTURED FROM A MATERIAL THAT WILL NOT PENETRATE THE PASSAGE OF A 4" SPHERE ANYWHERE WITHIN THE MESH SYSTEM OR THE POSTURAL RAILING.

GENERAL RAILING NOTES

1. RAILING MECHANIC - ATTACHMENTS SHALL UTILIZE LOCKING NUTS.

2. PROVIDE INSCRIPTION ART CONNECTION BRACKETS (REFERS TO STRUCTURAL DETAILS). ARTWORK IS SEPARATE PROJECT - NOT INCLUDED. CONNECTOR BRACKETS ARE TO BE INCLUDED IN THIS PROJECT. REFER TO PROJECT FOR CONNECTOR BRACKETS AND DETAILS.

3. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR METAL RAILING SHOP DRAWINGS SHALL INCLUDE ALL MATERIALS, FINISHES, AND FASTENERS, SPBASE CDA 606. ALL ART CONNECTOR BRACKETS AND DETAILS TO BE PROVIDED.

4. POSTS SHALL BE PLUMB.

5. POSTS SHALL BE LOCATED FOR PLUMB.

6. TOP RAIL AND POSTS SHALL BE PARALLEL TO BOARDWALK FINISH GRADE.

7. ALL MATERIALS, FASTENERS AND ATTACHMENT HARDWARE SHALL BE GALVANIZED STEEL UNLESS NOTED OTHERWISE.

8. POSTS AND INSERTS FOR TOP RAIL SHALL OCCUR CENTERED ON A POST SUCH THAT EACH END IS PLUMB TO ANGLES TEE.

9. FINISHED RAILING MUST BE SEALED TO A MAXIMUM OF 6 CM2/CM2.

10. FINISHED RAILING SHALL NOT PENETRATE THE PASSAGE OF A 4" SPHERE.

11. SPLICE PLATES FOR TOP AND BOTTOM POSTS SHALL BE SPACED AT MINIMUM 1" O.C.

12. INSET METAL PANELS SHALL BE POWDER COATED TO MATCH MANUFACTURER'S RECOMMENDATIONS. COLOR SHALL BE YELLOW (T6 CARDINAL).

13. PRECAST METAL PANEL LENGTH SHALL BE FIELD MEASURED.

14. INSTALLATION MECHANIC - ATTACHMENTS SHALL UTILIZE LOCKING NUTS.

15. PROVIDE INSCRIPTION ART CONNECTION BRACKETS (REFERS TO STRUCTURAL DETAILS). ARTWORK IS SEPARATE PROJECT. CONNECTOR BRACKETS ARE TO BE INCLUDED IN THIS PROJECT. REFER TO PROJECT FOR CONNECTOR BRACKETS AND DETAILS.

16. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR METAL RAILING SHOP DRAWINGS SHALL INCLUDE ALL MATERIALS, FINISHES, AND FASTENERS, SPBASE CDA 606. ALL ART CONNECTOR BRACKETS AND DETAILS TO BE PROVIDED.
General Structural Notes

The following apply unless otherwise noted on the drawings.


2. Section title: General criteria

PH abs. and/or
DRAINAGE CALCULATIONS PER CONSTRUCTION SN
BINGHAMton

DESIGN

PLUMBING

1.00 F.P.D.
2.00 F.P.D.
3.00 F.P.D.
4.00 F.P.D.
6.00 F.P.D.
9.00 F.P.D.
12.00 F.P.D.
15.00 F.P.D.
20.00 F.P.D.

0.50 F.P.D.
1.00 F.P.D.
1.50 F.P.D.
2.00 F.P.D.
3.00 F.P.D.
4.00 F.P.D.
5.00 F.P.D.
6.00 F.P.D.
7.00 F.P.D.

3. Sinkage diagrams shall be used in conjunction with architectural drawings for design configurations, structural framing, and the plumbing requirements. Any inconsistencies found shall be brought to the attention of the architect, builder, and contractor. Small correct observations shall be made in writing, and when noted on the drawings, the contractor shall be in possession of such corrections before being used in the construction, and conflicting conditions noted.

4. Drainage calculations are consistent with the structural plans and details shall be subject to the architectural plans, details, and structural drawings. All diagrams provided with related calculations in the drawings. Drainage changes shown on shop drawings shall not be used as the basis for construction.

5. Drainage details are consistent with the structural plans and details shall be subject to the architectural plans, details, and structural drawings. All diagrams provided with related calculations in the drawings. Drainage changes shown on shop drawings shall not be used as the basis for construction.

6. Type of materials and stability of details by construction. Wherever possible and practical, all materials and details shall be consistent with the structural plans and details. All diagrams provided with related calculations in the drawings. Drainage changes shown on shop drawings shall not be used as the basis for construction.

7. CONSTRUCTION SN shall be subject to the architectural plans, details, and structural drawings. All diagrams provided with related calculations in the drawings. Drainage changes shown on shop drawings shall not be used as the basis for construction.

8. SHOP DRAWING SHEET 10 shall be subject to the architectural plans, details, and structural drawings. All diagrams provided with related calculations in the drawings. Drainage changes shown on shop drawings shall not be used as the basis for construction.

9. Drawings conforming to the Architect and Contractor, and are subject to the architectural plans, details, and structural drawings. All diagrams provided with related calculations in the drawings. Drainage changes shown on shop drawings shall not be used as the basis for construction.

10. Construction shall be subject to the architectural plans, details, and structural drawings. All diagrams provided with related calculations in the drawings. Drainage changes shown on shop drawings shall not be used as the basis for construction.

11. Construction shall be subject to the architectural plans, details, and structural drawings. All diagrams provided with related calculations in the drawings. Drainage changes shown on shop drawings shall not be used as the basis for construction.

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17. Construction shall be subject to the architectural plans, details, and structural drawings. All diagrams provided with related calculations in the drawings. Drainage changes shown on shop drawings shall not be used as the basis for construction.

18. Construction shall be subject to the architectural plans, details, and structural drawings. All diagrams provided with related calculations in the drawings. Drainage changes shown on shop drawings shall not be used as the basis for construction.
WOOD

31. TIMBER LAMINATED shall be杉, AS, AS NC-3G, AND BOARD, AND WOOD IN accordance with the standard "Timber Lumber for Exterior Use" No. 12, as published by the American Wood Council (AWC), as modified or revised from time to time.

32. JOISTS车 (min 30 MORTICE) AND BEAMS
   Width \( W \) \( = \) length \( L \)
   Depth \( D \) \( = \) length \( L \)
   Height \( H \) \( = \) length \( L \) - 20 in

33. BEAMS (ENG. UN. LAMINATED) AND PLANKS: LAMINATED \( W \) \( = \) length \( L \) - 20 in

34. POSTS (ENG. UN. LAMINATED) AND PLANKS: LAMINATED \( W \) \( = \) length \( L \) - 20 in

35. STEEL, PLATED AND SEAMED:
   Width \( W \) \( = \) length \( L \)
   Width \( W \) \( = \) length \( L \)

36. ALL WOOD IN DIRECT CONTACT WITH CONCRETE OR MASONRY SHALL be pressure-treated with an approved preservative or 2 (2) layers of asphalt-impregnated siding paper is preferred. Member exposed wood shall be treated under the same conditions.

37. PRESSURE TREATED WOOD MUST BE TREATED PER AWWA P208 APPRAISALS TO THE USE CATEGORY. WOOD SUITABLE FOR USE IN WET AREAS, SUCH AS DECKS, MUST BE TREATED TO WET AREA USE. WOOD SUITABLE FOR USE IN WET AREAS, SUCH AS DECKS, MUST BE TREATED TO WET AREA USE. WOOD SUITABLE FOR USE IN WET AREAS, SUCH AS DECKS, MUST BE TREATED TO WET AREA USE. WOOD SUITABLE FOR USE IN WET AREAS, SUCH AS DECKS, MUST BE TREATED TO WET AREA USE. WOOD SUITABLE FOR USE IN WET AREAS, SUCH AS DECKS, MUST BE TREATED TO WET AREA USE.

38. NAIL HEADS FOR EXTERIOR USE SHALL BE RESISTED AT A MINIMUM OF 2" IN LENGTH AND A MINIMUM OF 0.125" IN DIAMETER. NAIL HEADS FOR EXTERIOR USE SHALL BE RESISTED AT A MINIMUM OF 2" IN LENGTH AND A MINIMUM OF 0.125" IN DIAMETER. NAIL HEADS FOR EXTERIOR USE SHALL BE RESISTED AT A MINIMUM OF 2" IN LENGTH AND A MINIMUM OF 0.125" IN DIAMETER. NAIL HEADS FOR EXTERIOR USE SHALL BE RESISTED AT A MINIMUM OF 2" IN LENGTH AND A MINIMUM OF 0.125" IN DIAMETER. NAIL HEADS FOR EXTERIOR USE SHALL BE RESISTED AT A MINIMUM OF 2" IN LENGTH AND A MINIMUM OF 0.125" IN DIAMETER.

39. FASTENERS AND TIMBER CONNECTORS USED WITH TREATED WOOD SHALL HAVE ENGINEERED RESISTANCE AND BEIBED IN THE FOLLOWING ORDER: UNLESS OTHERWISE SPECIFIED:

- NAIL
- SCREW
- WOOD BEAD
- CONCRETE BOLT
- CONCRETE BEAD
- TIMBER STRAP
- TIMBER PLATE
- TIMBER CONNECTOR

40. CONSTRUCTION OF ALTERNATE WALLS, THEY SHALL BE 3.2 INCHES IN DIAMETER FOR THE STRUCTURAL ENGINEER TO CONSTRUCT THE WALL AND APPROVE.

41. ALL JOISTS IN WOOD MEMBERS SHALL BE TREATED TO WET AREA USE, EXCEPT FOR WOOD MEMBERS IN EXTERIOR USE, SUCH AS DECKS, WHICH ARE TREATED TO WET AREA USE.

42. CONSTRUCTION OF ALTERNATE WALLS, THEY SHALL BE 3.2 INCHES IN DIAMETER FOR THE STRUCTURAL ENGINEER TO CONSTRUCT THE WALL AND APPROVE.

43. ALL WOOD IN WOOD MEMBERS SHALL BE TREATED TO WET AREA USE, EXCEPT FOR WOOD MEMBERS IN EXTERIOR USE, SUCH AS DECKS, WHICH ARE TREATED TO WET AREA USE.
Statement of Special Inspections

Special inspections shall be provided per the requirements of IBC section 1705 and as noted herein.

**DRIVEN DEEP FOUNDATION ELEMENTS**

<table>
<thead>
<tr>
<th>Inspections and Tests</th>
<th>Condition</th>
<th>Purpose</th>
<th>Comments</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Verify design, materials, size and locations comply with the requirements</td>
<td>X</td>
<td></td>
<td></td>
<td>[IBC 1705.7]</td>
</tr>
<tr>
<td>2. Complete driving operations and maintain complete, accurate records for each element</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Use steel construction inspection requirements for steel pile columns</td>
<td></td>
<td></td>
<td></td>
<td>[IBC 1705.2]</td>
</tr>
</tbody>
</table>

**STRUCTURAL STEEL**

<table>
<thead>
<tr>
<th>Inspection and Test</th>
<th>Condition</th>
<th>Purpose</th>
<th>Comments</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fabricated and erected steel</td>
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<td></td>
</tr>
<tr>
<td>a. Compliance with details shown on construction documents</td>
<td>X</td>
<td></td>
<td></td>
<td>[ASCE 360, Section 4.2.7]</td>
</tr>
<tr>
<td>b. Application of weld details at shop connection</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Material verification of weld filler materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Identification of welders</td>
<td>X</td>
<td></td>
<td></td>
<td>[ASCE 360, Section 4.2.7]</td>
</tr>
<tr>
<td>b. Verification of compliance with manufacturer's certificate of compliance with welder identification</td>
<td>X</td>
<td></td>
<td></td>
<td>[ASCE 360, Section 4.2.7]</td>
</tr>
<tr>
<td>3. Inspection of welding</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>a. Complete and partial joint penetration groove welds</td>
<td>X</td>
<td></td>
<td></td>
<td>[AISC 360.2]</td>
</tr>
<tr>
<td>b. Single pass fillet welds 4 7/8&quot;</td>
<td>X</td>
<td></td>
<td></td>
<td>[AISC 360.3]</td>
</tr>
</tbody>
</table>

**CONCRETE AND CONCRETE REINFORCING**

<table>
<thead>
<tr>
<th>Inspection and Test</th>
<th>Condition</th>
<th>Purpose</th>
<th>Comments</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Inspection of reinforcing steel, including</td>
<td></td>
<td></td>
<td></td>
<td>[ASCE 360, Clause 6.2, 6.3, 6.4]</td>
</tr>
<tr>
<td>a. Placing</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Embedment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Inspection of anchors cast in concrete</td>
<td></td>
<td></td>
<td></td>
<td>[ASCE 360, 6.6.2]</td>
</tr>
<tr>
<td>3. Inspection of post-tensioned anchors in hardened concrete members</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Anchor embedment</td>
<td>X</td>
<td></td>
<td></td>
<td>[ASCE 360, Section 8.2, for member of additional requirements]</td>
</tr>
<tr>
<td>b. Corrosion protection of anchor bolts</td>
<td>X</td>
<td></td>
<td></td>
<td>[ASCE 360, Section 8.3]</td>
</tr>
<tr>
<td>4. Reinforcing steel should be in accordance with the ASTM A706, A615, or an equivalent approved by the architect and engineer</td>
<td>X</td>
<td></td>
<td></td>
<td>[ASCE 360, Section 8.4]</td>
</tr>
<tr>
<td>5. Inspect common for central concrete to aggregate plans for size, type, location and dimensions of the concrete member being used</td>
<td>X</td>
<td></td>
<td></td>
<td>[ASCE 360, Section 8.4]</td>
</tr>
</tbody>
</table>

**NOTES**

1. Reports and special inspection reports shall be prepared for each inspection item and submitted to the inspector in a timely manner, in writing, immediately following each inspection. The special inspections shall be performed by the licensed contractor who shall maintain all records of the inspections and results thereof.

2. "Confirming Steel" refers to steel construction defined by ASCE 360, "Code for Masonry Practice for Steel Reinforcement and Design."
LSM PERMIT
**Permit Number:** LSM19-01212

**Type:** Land Surface Modification

**Work Class:** Site Development

---

### Permit Information

**Job Address:** 12031 NE TOTEM LAKE WAY

**Project:** TOTEM LAKE PARK

**Parcel:** 6928400032

**Application Date:** 02/20/2019

**Issue Date:** 09/04/2019

**Expiration Date:** 09/04/2022

---

### Scope of Work

Totem Lake Park Grading: Clearing and grading for the Former Yuppie Pawn site, including grading in front of the Totem lake hotel (widened path), and widened grading in front of apartment building, construction wetland boardwalk landing on the CKC, and minor grading near cafe veloce to allow a temp construction access out of their property during construction, widened asphalt walkways, ADA accessible parking lot.

---

### Contacts

<table>
<thead>
<tr>
<th>Type</th>
<th>Contact Name</th>
<th>Address</th>
<th>Phone</th>
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</thead>
<tbody>
<tr>
<td>Applicant</td>
<td>MBP Contact 2018</td>
<td>123 5TH AVE</td>
<td>MBP.com</td>
</tr>
<tr>
<td>Owner</td>
<td>City of Kirkland</td>
<td>123 5TH AVE</td>
<td>KIRKLAND, WA 98033</td>
</tr>
<tr>
<td>Owner is Contractor</td>
<td>Owner is Contractor</td>
<td>123 5TH AVE</td>
<td>KIRKLAND, WA 98033</td>
</tr>
<tr>
<td>Primary Contact</td>
<td>Brian Baker</td>
<td>123 5TH AVE</td>
<td>425 587-3874</td>
</tr>
<tr>
<td></td>
<td>City of Kirkland</td>
<td>KIRKLAND, WA 98033</td>
<td></td>
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</tbody>
</table>

---

### Water and Sewer Districts

**Water:** Northshore Utility District: 425-398-4400

**Sewer:** Northshore Utility District: 425-398-4400

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### Permit Type of Work

- [ ] Water
- [ ] Storm Drainage
- [ ] Sewer
- [ ] ROW

---

### Conditions

The City approved plans, permit, conditions, and inspection record must remain on the job site for use by City inspection personnel. Any sales tax reported to the State in association with this project should be coded to the City of Kirkland tax location code 1716. I certify that the information furnished by me is true and correct to the best of my knowledge and the applicable City of Kirkland requirements will be met.

[ ] Owner  or  [ ] Agent

(Check one)

(Date)

(Print Name)

(Signature)
DETAILED DESCRIPTION OF WORK:
Totem Lake Park Grading: Clearing and grading for the Former Yuppie Pawn site, including grading in front of the Totem lake hotel (widened path), and widened grading in front of apartment building, construction wetland boardwalk landing on the CKC, and minor grading near cafe veloce to allow a temp construction access out of their property during construction, widened asphalt walkways, ADA accessible parking lot.

Building Department Conditions:

BUILDING CONDITIONS:

- THE PLANS FOR THIS PROJECT WERE REVIEWED ELECTRONICALLY. Applicant must print a fullsized set of the City stamped EPlans using ink that is resistant to water damage. This copy of the City stamped plans must be kept on the job site at all times, protected and maintained in good condition.

- These conditions are part of the approved plans and shall remain attached. The approval of plans and specifications does not permit the violation of any section of the International Building/Residential Code, Uniform Plumbing Code or other ordinances or state law. Conditions as indicated below, along with the unchanged information shown on the drawings must be complied with.

- The approved plans shall not be changed, modified, or altered without authorization from the building official. The approved plans are required to be on the job site. Section 21.06 K.M.C.

Planning Department Conditions:

Planning Department Conditions** Contact Christian Geitz at 425.587.3246

PCD 1. PLN TO PERFORM FINAL PRIOR TO BLD - BUILDING PERMIT INSPECTION CARD MUST BE SIGNED OFF BY PLANNING PRIOR TO ANY REQUEST FOR FINAL BUILDING INSPECTION. PLEASE CALL 425-587-3235 TO REQUEST INSPECTION. 24 HOUR ADVANCE NOTICE REQUIRED FOR INSPECTION.

PCD 2. SENSITIVE AREA DECISION CONDITIONS – All conditions of approval and mitigation standards established under file SAR18-00519 shall be followed.

PCD 3. REVISED SITE PLAN - Any proposed changes to the approved site plan must be submitted as a revision to the building permit for review and approval prior to implementation.

PCD 4. ALL - PROHIBITED VEGETATION - Plants listed as prohibited in the Kirkland Plant List (available from the Planning Department) shall not be planted in the City. These plants include Blackberry, Fragrant water lily, Ivy, Herb Robert, Knotweed, Old man's beard, Poison hemlock, Reed canary grass, Scotch broom, Spurge laurel, Yellow archangel, and Yellow flag iris. Other plants, while not prohibited, are discouraged, including Butterfly bush, English holly, and English laurel.

PCD 5. NON-NATIVE INVASIVE AND NOXIOUS PLANTS (KZC 95.51.5) - It is the responsibility of the property owner to remove non-native invasive plants and noxious plants from the vicinity of any tree or other vegetation that the City has required to be planted or protected. Removal must be performed in a manner that will not harm the tree or other vegetation that the City has required to be planted or protected. Prior to calling for a final inspection remove ivy from all trees from the ground up 5 feet above grade and from the trunk out 1 foot.

PCD 6. ALL - HOURS OF CONSTRUCTION - All development activity and heavy equipment operation is restricted to 7:00 a.m. to 8:00 p.m. Monday through Friday, and 9:00 a.m. to 6:00 p.m. Saturday. Other restrictions on Saturday include: no working in the right-of-way, no work requiring inspection, and no trucking into or out of the site; however, light grading work on-site on Saturday is allowed. NO development activity or heavy equipment operation may occur on Sundays or the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.

PCD 7. WETLAND/STREAM BUFFER PROTECTION – Prior to beginning development activities, the applicant shall install a 6-foot-high construction-phase chain link fence or equivalent fence, as approved by the Planning Official along the upland boundary of the entire wetland buffer with silt screen fabric installed per City standard, in a manner approved by the
Planning Department Conditions:
Planning Official. The construction-phase fence shall remain upright in the approved location for the duration of development activities.

PCD 8. SPLIT RAIL FENCE: Prior to Final Inspection, the applicant shall install between the upland boundary of all wetland buffers and the developed portion of the site, either (1) a permanent 3- to 4-foot-tall split rail fence; or (2) permanent planting of equal barrier value; or (3) equivalent barrier, as approved by the Planning Official. Installation of the permanent fence or planted barrier must be done by hand where necessary to prevent machinery from entering the wetland or its buffer.

Public Works Department Conditions:
PUBLIC WORKS CONDITIONS
1. Refer to the Contract Documents for construction of the subject project, including but not limited to all terms, conditions, provisions, agreements, construction plans, specifications, addenda, and all applicable standards, codes, laws, and regulations.

2. The CIP Division of Public Works will manage the construction process and provide inspections for right-of-way /street /public utilities improvements, for land surface modifications, and for construction stormwater pollution prevention /erosion and sediment control. Inspections may be provided by consultant(s) working on behalf of the CIP Division and/or by in-house staff, unless otherwise specified by the Contract Documents.
**How to request an inspection:**
1) Go to [http://www.MyBuildingPermit.com](http://www.MyBuildingPermit.com)
2) Select Kirkland as the Jurisdiction.
3) Select Permit Number or Address.
4) Follow the on-screen instructions.

**REQUIRED INSPECTIONS - DO NOT COVER ANY WORK PRIOR TO INSPECTION**

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<tr>
<th>Inspection</th>
<th>IVR</th>
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<th>Insp</th>
<th>Inspection</th>
<th>IVR</th>
<th>Date</th>
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* Note: 1st erosion control inspection is required prior to any excavation.  
* 2nd erosion control inspection is required after foundation backfill.  
(These erosion control inspections only apply if they are listed on the above checklist)

Departmental staff: BLD is Building Dept, PW is Public Works Dept, PCD is Planning Dept, and FIR is Fire Dept

NOTE: THIS INSPECTION RECORD IS THE CERTIFICATE OF OCCUPANCY WHEN THE BUILDING FINAL INSPECTION HAS BEEN APPROVED
'TRAIL' SHEET AREA

'PARK' SHEET AREA

WETLAND ENHANCEMENT AREA (REFER TO CRITICAL AREA REPORT, INCL. AS SPEC. APPENDIX 'H')

'BOARDWALK' SHEET AREA

BUFFER ENHANCEMENT AREA (REFER TO CRITICAL AREA REPORT, INCL. AS SPEC. APPENDIX 'H')

OVERALL PROJECT LIMITS (0.5 MB-2)
TREE REMOVAL GENERAL NOTES

1. FOR ALL TREES REMOVED ON PARK SITE (EXCEPT TOTEM LAKE) ALL MATERIAL SHALL BE COMPLETELY REMOVED FROM SITE.
2. FOR ALL TREES REMOVED ON TRAIL SITE (EXCEPT TOTEM LAKE) ALL MATERIAL SHALL BE COMPLETELY REMOVED FROM SITE.
3. FOR ALL TREES REMOVED ON TRAIL AND BOARDWALK SITE ANY PORTION OF TREES REMOVED FROM THE BUFFER THAT OVERLAPS THE WETLANDS SHALL BE REMOVED FROM THE WETLANDS.
4. FOR ALL TREES REMOVED ON TRAIL SITE (EXCEPT TOTEM LAKE) ALL MATERIAL SHALL BE COMPLETELY REMOVED FROM SITE.
5. FOR ALL TREES REMOVED ON TRAIL AND BOARDWALK SITE ANY PORTION OF TREES REMOVED FROM THE BUFFER THAT OVERLAPS THE WETLANDS SHALL BE REMOVED FROM THE WETLANDS.
6. FOR ALL TREES REMOVED ON TRAIL SITE (EXCEPT TOTEM LAKE) ALL MATERIAL SHALL BE COMPLETELY REMOVED FROM SITE.
7. FOR ALL TREES REMOVED ON TRAIL AND BOARDWALK SITE ANY PORTION OF TREES REMOVED FROM THE BUFFER THAT OVERLAPS THE WETLANDS SHALL BE REMOVED FROM THE WETLANDS.
8. FOR ALL TREES REMOVED ON TRAIL SITE (EXCEPT TOTEM LAKE) ALL MATERIAL SHALL BE COMPLETELY REMOVED FROM SITE.
9. FOR ALL TREES REMOVED ON TRAIL AND BOARDWALK SITE ANY PORTION OF TREES REMOVED FROM THE BUFFER THAT OVERLAPS THE WETLANDS SHALL BE REMOVED FROM THE WETLANDS.
10. FOR ALL TREES REMOVED ON TRAIL SITE (EXCEPT TOTEM LAKE) ALL MATERIAL SHALL BE COMPLETELY REMOVED FROM SITE.

Existing Tree Legend

- **Existing Trees to be Removed:** These trees will be removed as part of the project.
- **Existing Trees to be Retained:** These trees will remain after project completion.
- **Existing Trees to be Transplanted:** These trees will be moved to another location as part of the project.
- **Trees to be Staked:** These trees will be supported with stakes.
- **Tree Protection:** Measures will be taken to protect these trees during the project.

**Note:** The diagram includes a detailed map of the park and its surrounding areas, with specific locations marked for tree removal, retention, and protection. The map also indicates the existing tree locations and the buffer zones around them. The city of Kirkland, Washington, is the jurisdiction responsible for the park's design and construction. The project is managed by Berger, an engineering firm, and is monitored by Inland Northwest, a consulting firm. The project is in compliance with the city's urban forest management policies and guidelines.
### Existing Tree Legend
- **CIRCLES:** TREES 10” CAL OR GREATER TO BE REMOVED
- **CROSSED OUT:** TREES UNDER 10” CAL OR GREATER TO BE REMOVED
- **THREE BOWLS:** TREES 4’ CAL OR GREATER TO BE REMOVED
- **EGG:** TREES UNDER 4’ CAL OR GREATER TO BE REMOVED
- **X:** TREES UNDER 4’ CAL TO BE REMOVED
- **LINE:** TREES UNDER 4’ CAL TO BE REMOVED
- **TRIANGLE:** PROJECT LIMIT/TYP.
- **WETLAND DELINEATION LINE**

### TREE REMOVAL GENERAL NOTES

<table>
<thead>
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<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>FOR ALL TREES REMOVED ON PARK SITE (SHEET ET102) ALL MATERIAL SHALL BE COMPLETELY REMOVED FROM SITE.</td>
</tr>
<tr>
<td>2.</td>
<td>FOR ALL TREES REMOVED ON TRAIL SITE (SHEET ET102) FELL TREES DIRECTIONALLY SOUTH OF THE TRAIL SUCH THAT THE MAJORITY OF THE TREE LANDS SOUTH OF THE TRAIL IN THE BUFFER.</td>
</tr>
<tr>
<td>3.</td>
<td>FOR ALL TREES REMOVED ON TRAIL AND BOARDWALK SITE ANY PORTION OF TREES FELLING THE BUFFER THAT LAND IN THE WETLAND SHALL BE REMOVED FROM THE WETLAND.</td>
</tr>
<tr>
<td>4.</td>
<td>FOR ALL TREES REMOVED ON TRAIL SITE (SHEET ET102) THAT OCCUR AT WITHIN BUFFER, FALL INTO BUFFER AND LEAVE. RELOCATE ANY PORTIONS OF THE TREE WHICH CONFLICT WITH PROPOSED HARDSCAPE ELEMENTS.</td>
</tr>
<tr>
<td>5.</td>
<td>FOR ALL TREES REMOVED IN WETLAND AREAS, FELL TREE IN WETLAND AND LEAVE AS-IS. REMOVE/RELOCATE ANY PORTIONS WHICH CONFLICT WITH PROPOSED BOARDWALK.</td>
</tr>
<tr>
<td>6.</td>
<td>FOR ALL TREES FELLED IN WETLAND AND BUFFER AREAS (ON TRAIL) AND BOARDWALK SITE (SHEET ET102 &amp; ET103), TREES MAY BE RANAGED AT A MAXIMUM HEIGHT IF THEY ARE LOCATED 30’ OR GREATER FROM PROPOSED TRAILS.</td>
</tr>
<tr>
<td>7.</td>
<td>FOR ALL TREES REMOVED ON TRAIL AND BOARDWALK SITE (SHEET ET102 &amp; ET103) LOCATED 15’ ON AGES FROM PROPOSED PATHWAYS, TRAILS, AND BOARDWALKS, CUT FROM 981’ + 0’ TO 981’ + 3’ OF FENCING SPACE.</td>
</tr>
<tr>
<td>8.</td>
<td>FOR ALL SMOKE TREES, JAGGED, BAYONET-STYLE CUTS PROPOSED TO HAY CUTS FOR FELLING TREES THAT WILL BE LEFT IN THE BUFFER AREA. BAYONET-STYLE CUTS MIMIC A NATURALLY-BROKEN TRUNK AND BENEFIT HABITAT CONDITIONS.</td>
</tr>
<tr>
<td>9.</td>
<td>NO TREES OR SHRUBS OUTSIDE LIMIT OF WORK SHALL BE REMOVED</td>
</tr>
<tr>
<td>10.</td>
<td>TAG ALL TREES TO BE REMOVED PRIOR TO REMOVAL. CONFIRM WITH LANDSCAPE ARCHITECT. CONFIRM REMOVAL/KEEP TAN STATUS. FILLING/REMOVAL STATUS AND TREATMENT.</td>
</tr>
</tbody>
</table>
NOTES:
1. REMOVE ALL SURFACE FEATURES, PAVEMENTS, AND ABANDON ALL UTILITIES WITHIN THE LIMITS OF CLEARING UNLESS OTHERWISE NOTED.
2. PROTECT ALL SURFACE FEATURES, PAVEMENTS, AND UTILITIES IN PLACE OUTSIDE THE LIMITS OF CLEARING UNLESS OTHERWISE NOTED.
3. PROTECTION OR REMOVAL OF VEGETATION NOT SHOWN ON THIS PLAN, REFER TO LANDSCAPE PLANS ETAL, ET13, AND ET9.
4. COORDINATE WITH UTILITY PROVIDERS TO ABANDON UTILITY SERVICES TO THE EXISTING BUILDING.
5. REFER TO SEPARATE TESC PLAN FOR EROSION AND SEDIMENT CONTROL MEASURES TO BE IMPLEMENTED DURING CONSTRUCTION. CESC/SPMP WILL BE TRANSFERRED TO THE CONTRACTOR.
6. WHILE CONSTRUCTING THE EASTERN PORTION OF THE NEW BOARDWALK, THE CROSS COUNTRY CORRIDOR (XCC) TRAIL MAY BE PARTIALLY CLOSED FOR CONSTRUCTION ACCESS. CLOSURES SHALL NOT EXCEED 15 DAYS TOTAL IN THE CONSTRUCTION PERIOD AND CLOSURES OF 12 HOURS PER DAY WILL NOT OCCUR MORE THAN 2 DAYS PER WEEK. PROVIDE ADVANCE NOTICE PRIOR TO ANY CLOSURES, AND SIGNAGE SHALL BE LOCATED ACROSS THE CXC AT TOTEM LAKE BOULEVARD AND 120TH LANE NE. PROVIDE MARRIAGE ALTERNATIVE ACCESS ON THE SOUTH SIDE OF THE TRAIL AT ALL OTHER TIMES.

SITE PREPARATION PLAN - TRAIL
NOTES:
1. REMOVE ALL SURFACE FEATURES, PAVEMENTS, AND ABANDON ALL UTILITY STRUCTURES OUTSIDE THE LIMITS OF CLEARING UNLESS OTHERWISE NOTED.
2. PROTECT ALL SURFACE FEATURES, PAVEMENTS, AND UTILITY IN PLACE OUTSIDE THE LIMITS OF CLEARING UNLESS OTHERWISE NOTED.
3. PROTECTION OR REMOVAL OF VEGETATION NOT SHOWN ON THIS PLAN REFER TO LANDSCAPE PLANS RT101, RT102, AND 86111.
4. COORDINATE WITH UTILITY PROVIDERS TO ABANDON UTILITY SERVICES TO THE EXISTING BUILDING.
5. REFER TO SEPARATE TESC PLAN FOR EROSION AND SEDIMENT CONTROL MEASURES TO BE IMPLEMENTED DURING CONSTRUCTION. CONSTRUCTION PERIODS WILL BE TRANSFERRED TO THE CONTRACTOR.
6. WHILE CONSTRUCTING THE EASTERN PORTION OF THE NEW BOARDWALK, THE CROSSING AND CORRIDOR (C2) TRAIL MAY BE FULLY CLOSED FOR CONSTRUCTION ACCESS. CLOSURES SHALL NOT EXCEED 10 DAYS TOTAL IN THE CONSTRUCTION PERIOD AND CLOSURES OF 1-2 HOURS PER DAY WILL NOT OCCUR MORE THAN 2 DAYS PER WEEK. PROVIDE ADVANCE NOTICE PRIOR TO ANY CLOSURE AND ENGAGE IN PEDESTRIAN ACCESS ON THE SOUTH SIDE OF THE TRAIL AT ALL OTHER TIMES.

SITE PREPARATION PLAN - BOARDWALK
1. **PARKING LOT PAVING SECTION**

2. **HMA TRAIL DETAIL**

3. **HMA PARK PATH DETAIL**

4. **TRAIL EDGE DETAIL**

5. **SLOPE ROUNding DETAIL**

**NOTES:**

1. HMA ASPHALT CLASS 3 or 5 may be used in lieu of AAS.

2. ALL PLANS MUST BE APPROVED BY THE CITY PRIOR TO CONSTRUCTION OF THE TRAIL. TRAIL CENTERLINE TO BE ESTABLISHED IN FIELD BY CONTRACTOR AND APPROVED BY THE APPROPRIATE CITY INSPECTOR.

3. SEE PATH DETAIL 4.

**THICKENED ASPHALT EDGE MINIMUM 8" THICK X 9" WIDE 2" HMA ASPHALT AT SPECIFIED"n

**SLOPE ROUNding**

- 1" MAX. 2.5% MAX.

**CONCRETE PATHWAY OR OTHER PAVING**

**TOE OF SLOPE**

*PER CONTINUOUS*
1. WESTERN BIORETENTION SECTION

2. EASTERN BIORETENTION SECTION
NOTES:
1. REFER TO STRUCTURAL PLANS FOR HORIZONTAL AND VERTICAL LOCATIONS OF STRUCTURE.
2. HARDSCAPE GROUNGING IS TO PRODUCE CROSS-SLOPE BETWEEN 0.5% AND 1% AND LONGITUDINAL SLOPE BETWEEN 0% AND 4%. CONFIRM FINISHING WILL PRODUCE SLOPES IN THIS RANGE AT LEAST 2 BUSINESS DAYS BEFORE POURING CONCRETE OR PLACING FMI. NOTIFY PROJECT REPRESENTATIVE OF ANY DISCREPANCY.
3. GRADING IN PLANTED AREAS SHALL BE SMOOTH, ANGLE POINTS ARE PROVIDED IN CONTOURS FOR EASE OF STAKING. CONSTRUCT WITH SMOOTH TRANSITIONS.
4. REFER TO LA PLANS FOR TOP OF WALL ELEVATION.
5. BOTTOM OF WALL ELEVATION IS FINISHED GRADE AT FACE OF WALL AND DOES NOT INCLUDE ADDITIONAL WALL CONSTRUCTED MILLION FEET GRADE.

NOTES TO REVIEWER:
1. FROM SUPPORTED STRUCTURE TO AT-GRADE PAVEMENT SETTLEMENT OF PAVEMENT IS INTENDED TO OCCUR OVER TIME IN THESE AREAS AND REPAIR OR REPLACEMENT OF PAVER WILL BE REQUIRED TO AVOID HAZARDS AND/OR STEEP SLOPES.
2. FULL ROCKERY WALLS ARE INTENDED TO BE GRADED TO PRODUCE A HEIGHT AT LEAST 3' LESS THAN THE 2 FT WALL HEIGHT THAT WOULD REQUIRE A PAVER. CUT ROCKERY WALLS ARE INTENDED TO BE GRADED TO PRODUCE A HEIGHT AT LEAST 3' LESS THAN THE 4 FT WALL HEIGHT THAT WOULD REQUIRE STRUCTURAL REVIEW.
3. SOME PORTIONS OF THE WORK SHOWN ARE ON PRIVATE PROPERTY. CITY EASEMENT IS REQUIRING ACCESS EASEMENTS AND CONFIRMING ACCESS.
4. TOP OF WALL ELEVATIONS ARE SHOWN FOR THE 10% SET FOR COORDINATION, AND WILL BE REMOVED FOR THE 100%.
NOTES:
1. INTENT OF LANDSCAPE GRADING IS TO PRODUCE CROSS-SLOPE BETWEEN 0.3% AND 1.5% AND LONGITUDINAL SLOPES BETWEEN 0% AND 4%. DRAINAGE DESIGNER WILL PROVIDE SLOPES IN THIS RANGE AT LEAST 2 BUSINESS DAYS BEFORE POURING CONCRETE OR PLACING HMA. NOTIFY PROJECT REPRESENTATIVE OF ANY DISCREPANCY.
2. GRADING IN PLANTED AREAS SHALL BE SMOOTH. ANGLE POINTS ARE PROVIDED TO CONTROL FOR EASE OF MOWING, CONSTRUCT WITH SMOOTH TRANSITIONS.
3. REFER TO A PLANS FOR TOP OF WALL ELEVATION.
4. BOTTOM OF WALL ELEVATION IS FINISHED GRADE AT FACE OF WALL AND DOES NOT INCLUDE ADDITIONAL WALL CONSTRUCTED BELOW FINISHED GRADE.

NOTES TO REVIEWER:
1. PROPOSED SUPPORT STRUCTURE TO AT-GRADE PAVEMENT SETTLEMENT OF PAVEMENT IS ANTICIPATED TO OCCUR OVER TIME IN THESE AREAS AND REPAIR OR REPLACEMENT OF PAVEMENT WILL BE REQUIRED TO AVOID HAZARDOUS ANALOG STEEP SLOPES.
2. PROJECT DESIGNER IS REQUIRED TO PROVIDE A WIDTH AT LEAST 1" LESS THAN THE 2.5 WALL HEIGHT THAT WOULD REQUIRE A RAILING. CUT RICKER WALL IS INTENDED TO BE PROVIDED TO PRODUCE A HEIGHT AT LEAST 3" LESS THAN THE 2.5 WALL HEIGHT THAT WOULD REQUIRE STRUCTURAL REVIEW.
3. SOME PORTIONS OF THE WORK SHOWN ARE ON PRIVATE PROPERTY. CITY STAFF IS REQUIRING ACCESS EASEMENTS AND CONFINING ACCESS.
4. PROVIDE DECORATION FOR THE SOIL SET FOR COORDINATION, AND WILL BE REMOVED FOR THE 100%.

GRADING & PAVING PLAN - BOARDWALK
NOTES:
1. ORIGINAL STRIPING LAYOUT (WIDTH, SPACING, ETC.) PER WSDOT STANDARD PLAN M-17-10-G.
2. MANUFACTURED WHEEL STOP SHALL BE PRECAST RENFORCED CONCRETE, 9" HIGH AND AT LEAST 6" LONG AND SECURED IN A MINIMUM OF 2 LOCATIONS.
3. TOP OF CURB ELEVATION IS 3 SF ABOVE BOTTOM OF CURB GRADE, UNLESS NOTED OTHERWISE.

PARKING LOT ENLARGED PLAN

GRADING & PAVING ENLARGED PLAN
FINISH NOTES

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<td>1</td>
<td>LIGHT BROOM FINISH PERPENDICULAR TO DIRECTION OF TRAVEL</td>
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TRAIL TYPICAL SECTION
1 1/2" = 1'-0"
### IRRIGATION SCHEDULE

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<td>HUNTER MP DRIED PRESS-12-PIS40-C</td>
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<td>SHRUB ROTATOR, 1.0&quot; (25.4 cm) POP-UP WITH FACTORY INSTALLED CHECK VALVE, PRESSURE REGULATED TO 40 PSI (2.8 bar), MP ROTATOR NOZZLE, 75° TRIM NOSE, ADJ ARC 45° TO 105° ON PRESS BODY.</td>
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<td>SHRUB ROTATOR, 1.25&quot; POP-UP WITH CHECK VALVE, PRESSURE REGULATED TO 40 PSI (2.8 bar), MP ROTATOR NOZZLE, 75° TRIM NOSE, ADJ ARC 45° TO 105° ON PRESS BODY.</td>
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<tr>
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<td>SHRUB ROTATOR, 1.5&quot; POP-UP WITH CHECK VALVE, PRESSURE REGULATED TO 40 PSI (2.8 bar), MP ROTATOR NOZZLE, 75° TRIM NOSE, ADJ ARC 45° TO 105° ON PRESS BODY.</td>
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### VALVE SCHEDULE

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<th>PSI</th>
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### IRRIGATION NOTES

1. PROVIDE AND INSTALL ALL IRRIGATION IN CONFORMANCE WITH THE CITY OF KIRKLAND STANDARDS, IN THE EVENT OF CONFLICT BETWEEN NOTES OR DETAILS AND THESE DOCUMENTS, THE STANDARDS SHALL TAKE PRECEDENCE.
2. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES AND APPROPRIATE SAFETY REGULATIONS.
3. DRAINING IS SCHEMATIC ACTUAL LOCATIONS MAY VARY DUE TO UTILITIES OR EXISTING CONDITIONS. CONTRACTOR IS RESPONSIBLE FOR LOCATING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
4. EXISTING SODIC, P.S.I. AT IRRIGATION METER IS 108 F.S.I. PRIOR TO INSTALLATION OF IRRIGATION SYSTEM, CONTRACTOR SHALL FILL DOWTIF DRIVE EXISTING P.S.I. NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES BETWEEN THE DESIGN P.S.I. PRIOR TO PROCEEDING W/ WORK.
5. LOCATE QUICK COUPLING VALVE & AUTOMATIC CONTROL VALVES AT POINT OF EASY ACCESS.
6. INSTALL ADJUSTABLE BOLT TO FINAL LOCATION OF ALL QUICK COUPLERS & AUTOMATIC CONTROL VALVES PRIOR TO INSTALLATION.
7. HEAD LOCATION MUST BE ADJUSTED IN THE FIELD TO COMPLY W/ EXISTING SITE CONDITIONS AND PLANT MATERIALS. ADJUST SPRAY PATTERN FOR MAXIMUM COVERAGE AND MINIMUM OVERSPRAY.
8. ALL SHRUB AREA POP-UP SPRAY HEADS TO BE 6" HEIGHT, ALL TURF AREA POP-UPS TO BE 4" IN HEIGHT. (UNLESS OTHERWISE SPECIFIED ON PLAN).
9. CONTRACTOR SHALL COORDINATE IRRIGATION SLEEPING W/ PAVING WORK AS REQUIRED.
10. ALL IRRIGATION SLEEVES SHALL BE 2" IN DIAMETER. SIGNS AND GRAY ARC 60° TO 90°, LIGHT BLUE AND GRAY 110° TO 120°, LIGHT BLUE, WHITE 90° TO 120°.
11. AIR BLOW IRRIGATION SYSTEM THROUGH QUICK COUPLERS TO REMOVE IRREGULARITIES.
12. PIPES TO SHARE TRENCHES WHERE POSSIBLE, SEPARATE COMMON PIPING BY 8" MIN.
13. WHERE PIPE SIZES ARE NOT SHOWN ON THE PLANS, PIPE SHALL BE SIZED TO THE NEXT LARGEST PIPE SIZE SHOWN UPSTREAM ON THE PLAN.
14. WHEN TRENCHING OCCURS AROUND TREES TO REMAIN, THE TREE ROOTS SHALL NOT BE CUT, BUT THE TREE SHALL BE TUNNELED UNDER OR AROUND THE ROOTS BY CAREFUL HAND-DIGGING TO AVOID INJURY TO THE ROOTS.
15. GENERAL CONTRACTOR TO PROVIDE ALL PLUMBING AND ELECTRICAL WORK.
16. GENERAL CONTRACTOR TO PROVIDE POWER SOURCE FOR CLOCK (VERIFY LOCATION PRIOR TO BEGINNING WORK).
APPENDIX C

BUILDING AS-BUILTTS
APPENDIX D

TREE RISK REPORTS
Matt Martenson  
Berger Partnership  
1721 8th Avenue N  
Seattle, WA 98109

February 15, 2019

Dear Mr. Martenson,

Plans call for a new significant pedestrian corridor which will connect to the Cross-Kirkland Corridor. Mature trees are part of landscaping north of the existing corridor. The planned corridor is composed of two sections:

- Property at 12031 NE Totem Lake Way in Kirkland Washington (KC Parcel #692840-0032) is north of Totem Lake and contains a retail store, and vehicle parking (Figure-1)
- King County (KC) Conservation District (KC Parcel #866372-0060) surrounds Totem Lake and connects to a forested wetland north of the Cross-Kirkland Corridor (Figure-2)

The pathway begins adjacent to a wetland near the southeast corner of 12031-property and travels eastward. Once reaching a location south of property at 12411 NE Totem Lake Way the new trail will cross a wetland devoid of trees and joins the existing corridor.

A previous report provided information on tree species and condition assessments.

In February of 2019 Kurt Fickeisen from Symbiosis Tree Care returned to properties outlined in Figure-1 and Figure-2 to mark trees with visible tags and perform a visual tree risk assessment on many trees within the Cross-Kirkland Corridor that is infrequently used at this time.

This letter contains a report that describes tree identification procedures and provides visual tree risk assessments on within the planned corridor. Please see Assumptions and Limitations for this report (Assumptions and Limitations).

**Summary**

14 trees within the planned trail route represent high risks based on planned use of the corridor. Removal of these high-risk trees is recommended. Retained trees will require monitoring since many represent moderate risks.

**Observations**

Trees were originally identified by the order of inspection and numbered from 1 to 120.

Subsequently metal tree tags were placed on trees at approximately 5-feet above grade in a manor where tags could be viewed while walking on existing trails or pathways

- Trees are numbered from 201 to 300 and 463 to 482
Tree Risk

Using an International Society of Arboriculture Basic Tree Risk Assessment protocol XX trees were evaluated for risk based on visual observations.

Evaluated trees begin southwest of the office building at 12031 Totem Lake Way and travel eastward until reaching a wetland and lake south of 12233 Totem Lake Way. The planned corridor crosses the wetland and lake and encounters a grove of trees close to the existing Cross-Kirkland Corridor (Figure-1, Figure-2)

Pedestrians and bicyclists will be frequently present along the corridor based on future use plans.

56 individual tree risk assessments forms for inspected trees are provided in four spreadsheets (Figure-3A to Figure-3D)

The following trees represent high risks

- No. 280, black cottonwood (*Populus trichocarpa*)
- No. 289, black cottonwood
- No. 295, red alder (*Alnus rubra*)
- No. 464, black cottonwood
- No. 467 to No. 469, black cottonwoods
- No. 471 to No. 473, black cottonwoods
- No. 475, red alder
- No. 476, willow (*Salix Sp.*)
- No. 480 to 481, red alders

The largest group of high-risk trees are numbered 467 to 469 and are in close proximity to the elevated pathway crossing the wetland and creek.

Conclusion

Those trees that represent high risks should be removed prior to completion of the planned trail route. While other moderate risk trees may be retained, these trees will require periodic inspection since future tree or tree trunk failures could disrupt use of the corridor.

If you have questions about the contents of this report contact Symbiosis Tree Care.

Sincerely

Kurt Fickeisen
International Society of Arboriculture™ (ISA) Certified Arborist # RM-451A
ISA Tree Risk Assessment Qualified
American Society of Consulting Arborists Registered Consulting Arborists© # 472
Figure-1

King County iMAP Aerial Image
Figure-2

King County iMAP Aerial Image
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Assumptions and Limitations

ASSUMPTIONS AND LIMITING CONDITIONS

Kurt Fickeisen
International Society of Arboriculture (ISA) Certified Arborist #RM 451A
ISA Tree Risk Assessment Qualification
American Society of Consulting Arborists Registered Consulting Arborist #472
Owner Symbiosis Tree Care LLC

1. Any legal description provided to the consultant is assumed to be correct. Any titles and
   ownerships to any property are assumed to be good and marketable. No responsibility is assumed
   for matters legal in character.

2. All existing liens, encumbrances, and assessments, if any, have been disregarded (unless
   otherwise noted), and the trees are evaluated as though free and clear, under responsible
   ownership and competent management. It is assumed that no violations of applicable
   governmental regulations have occurred.

3. Care has been taken to obtain all information from reliable sources. All data has been verified
   insofar as possible, however, Symbiosis Tree Care can neither guarantee nor be responsible for
   the accuracy of information.

4. Symbiosis Tree Care shall not be required to give testimony or to attend court by reason of this
   report unless subsequent contractual arrangements are made, including payment of an additional
   fee for such services as described in our fee schedule and contract of engagement.

5. Loss or alteration of any part of this report invalidates the entire report.

6. This report shall be used for its intended purpose only and by the parties to whom it is addressed.
   Possession of this report does not include the right of publication.

7. Neither all or any part of the contents of this report, nor any thereof, shall be conveyed by
   anyone, including the client, to the public through advertising, public relations, news, sales, or
   other media, without the prior expressed written or verbal consent of Symbiosis Tree Care.

8. This report and any values expressed herein represent the opinion of Symbiosis Tree Care. Our
   fee is in no way contingent upon any specified value, a result or occurrence of a subsequent
   event, nor upon any finding to be reported.

9. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not
   necessarily to scale and should not be construed as engineering or architectural reports or surveys.

10. Unless expressed otherwise: 1) information contained in this report covers only those items that
    were examined and reflects the condition of those items at the time of inspection, and 2) the
    inspection is limited to visual examination of accessible items without dissection, excavation,
    probing, or coring.

11. There is no warranty or guarantee, expressed or implied that problems or deficiencies of the tree
    or other plant or property in question may not arise in the future.

12. The right is reserved to adjust tree valuations, if additional relevant information is made available.
March 14, 2019

Dear Mr. Martenson,

This report has been revised to reflect tree identification numbers installed on February 6, 2019.

Plans call for rerouting the Cross-Kirkland Corridor. Mature trees are part of landscaping north of the existing corridor. The planned corridor is composed of two sections:

- Property at 12031 NE Totem Lake Way in Kirkland Washington (KC Parcel #692840-0032) is north of Totem Lake and contains a retail store, and vehicle parking (Figure-1).
- King County (KC) Conservation District (KC Parcel #866372-0060) surrounds Totem Lake and connects to a forested wetland north of the Cross-Kirkland Corridor (Figure-2).

The pathway begins adjacent to a wetland near the southeast corner of 12031-property and travels eastward. Once reaching a location south of property at 12411 NE Totem Lake Way the new trail will cross a wetland devoid of trees and joins the existing corridor.

Since trees are present in these locations, Kurt Fickeisen from Symbiosis Tree Care came to the property and evaluated 120 trees on and around the property between December 4th and 6th of 2017 (Figure-1, Figure-2).

Based on comments from the City of Kirkland provided in 2018, the report was revised and includes all trees within the corridor. Please see Assumptions Limiting Conditions for this report on the last page.

**Summary**

Plans call for rerouting the Cross-Kirkland Corridor through an area where mature trees are present. The area includes trees adjacent to 12031 NE Totem Lake Way and King County Parcel #866372-0060. 119 trees with diameters over 6-inches grow within this area.

At least one tree located on Totem Lake Way and north of the current building should be removed. Other trees in this area may be preserved if tree protection is possible.

On the eastern side of the building, trees within the KC Conservation District should be considered for preservation, but those near the building or where new pathway placement is required should be considered for removal.
Trees Along Totem Lake Way

Tree inspection starts on the northwest corner of the property and travels eastward along Totem Lake Way. Once reaching the KC Conservation District inspection travels southward and then westward along the 12031-property border. The last tree grouping inspected is those adjacent to the existing parking lot. 

Figure-1A provides a map of these trees (Figure-1A).

A file with information on all trees over 6-inches diameter is provided in a spreadsheet (Figure-3A to Figure-3C). This spreadsheet provides information on tree: species, size, vigor, condition, and comments. Photos of trees are also provided (Photo-1 to Photo-10).

Fifteen trees are located parallel to Totem Lake Way. The majority are red maples (Acer rubrum), but a black cottonwood (Populus trichocarpa) is planted adjacent to the street. In addition, ornamental plum/cherries (Prunus Sp.) are present along with small diameter Douglas firs (Pseudotsuga menziesii).

Most trees have been pruned to provide street and sidewalk clearance, however the red maple numbered 8 has been pruned to provide building clearance

- Tree-208 may not classify as a street tree due to sidewalk setback
- Tree-215 is east of a paved trail on KC Conservation District property

Tree roots may conflict with the existing sidewalk and curb since the canopy overhangs the sidewalk. In addition, tree 205 and 212 are near utility boxes.

Three additional trees numbered 216 to 218 are north of the building but are set back from the street and sidewalk. One is a pacific madrone (Arbutus menziesii). The remaining two are red pines (Pinus resinosa).

- A minor amount of pruning has been performed on pine trees to provide building clearance

Trees North of the 12031 Building

Some trees north of the 12031 building are on the property, but others are within the KC Conservation District or on property containing a motel. Information on tree characteristics is provided in two spreadsheets (Figure-3A, Figure-3B). Additional information is provided below by tree number.

Numbers 219 to 221 consist of two red pines and one Deodar cedar (Cedrus deodar). The trees are on the 12031 property and located on or adjacent to a deck attached to the building. While both pines show signs of good vigor and condition. The Deodar is shaded by adjacent trees (Photo-3)

- All three trees are near building structures

Numbers 222 to 229 consist of Lombardy poplars (Populus nigra) and are marked in Photo-3. All eight poplars are near the 12031 building

Numbers 230 to 234 are north of a paved walkway on the KC Conservation District. Trees consist of black cottonwoods and a columnar variety of beach tree (Fagus sylvatica).

Numbers 235 to 240 are red pines south of the Lombardy poplar group and adjacent to the 12031 building (Photo-4). All are near the 12031 building.
Numbers 241 to 250 are adjacent to the KC Conservation District property and two paved and connected trails. Trees in this group consist of red alders (*Alnus rubra*), black cottonwoods, Douglas firs (*Pseudotsuga menziesii*), and a red maple.

All trees are in fair condition currently however

- Tree 243 leans northward towards the trail
- Trees numbered 248 to 250 are at the edge of an area with visible wetlands

The black cottonwood, number 247, is marked in Photo-5 along with a tree east of inspected trees in this report (Photo-5).

Site conditions may impact long term health and stability of tree 248 and 249 since Douglas fir trees prefer well drained soils (Photo-6).

**Trees South and Southwest of 12031 Pavement**

Trees in this set form a grouping south and west of paved parking and act as a buffer between the wetland and an adjacent property (Photo-7 to Photo-9). Tree characteristics are provided in Figure-3C (Figure-3C). Additional information is provided below by tree number.

Number 251 is a mature red maple growing in a peninsula of soil. Pavement surrounded the soil bed and tree root growth has fractured pavement under the canopy.

Numbers 252 to 255 are young red alders located between a wetland and pavement. The trees appear in fair condition

- Small diameter western red cedars (*Thuja plicata*) grow under alder canopies

Numbers 256 to 259 are mature red maples located between the wetland and pavement. All trees have codominant growth patterns and northern sections of tree canopies overhang paved parking. While there are no visible signs of root growth under pavement, the area is a likely location for significant tree root growth.

- Small diameter western red cedars grow under the canopy of red maples 56 to 58

Numbers 260 to 263 are primarily black cottonwoods, but one red maple is part of this group. All trees are mature and near pavement. While the maple contains a single trunk at grade level, cottonwoods consists of individual trunks joined at root crown level

- Based on proximity of structural roots to pavement, root-pavement conflicts are likely to be present

**Planting Strip Trees**

Planting strip trees are directly west of the structure on the 12031 property. All are mature trees with small statures and are surrounded by pavement under at least 50-percent of the canopy.

Numbers 264 to 266 consist of two flowering cherry trees and one Alaska red cedar (*Chamaecyparis nootkatensis*). All are directly west of the property building and surrounded by pavement.
Numbers 267 to 268 consist of one flowering cherry and one red maple. Both trunks are near the northern edge of the parking lot.

Numbers 269 to 279 consist primarily of crabapple trees, but three flowering cherries are part of the group. All trees are in a planting bed between parking spaces (Photo-10)

- Three members of this group contain numerous stump sprouts

Trees Within King County Conservation District

Trees along the conservation pathway starts adjacent to a wetland near the southeast corner of the 12031 property. The pathway travels eastward and eventually reaching a location south of 12411 NE Totem Lake Way.

Plans call for a new pathway to cross a wetland devoid of trees and joins the Cross Kirkland Corridor in a treed segment of land. 41 trees were evaluated in this section (Figure-2 to Figure-2C).

Trees North of the Wetland

Figure-3D and Figure-3E lists trees north of the wetland in a spreadsheet (Figure-3D, Figure-3E). 34 trees have diameters greater than 6-inches.

Trees 280 to 293 are west of overhead community power lines (Photo-11, Photo-12). Tree species present consist of black cottonwoods (*Populus trichocarpa*), big leaf maples (*Acer macrophyllum*), Douglas firs (*Pseudotsuga menziesii*) and native willows (*Salix Sp.*).

All trees show signs of fair vigor. While tree structure is fair in many trees the following trees show signs of poor structure

- Willow: 284, 85
- Black cottonwood: 287, 288, 290

Most large diameter roots do not appear to interfere with the existing trail.

Trees 294 to 297 are under or near overhead community power lines. All trees show signs of fair vigor. While tree vigor is fair, the following trees show signs of poor structure

- Willow: 294
- Red alder: 296

Most large diameter roots do not appear to interfere with the existing trail.

Trees 298 to 463 are east of overhead community power lines. All trees show signs of fair vigor (Photo-13).

While tree structure is fair in some trees, the following show signs of poor structure

- Willow: 298, 103
- Red alder: 299, 300

Most large diameter roots do not appear to interfere with the existing trail.
Trees 464 to 473 primarily consist of mature black cottonwoods with heights near or over 100-feet (Photo-14). In this case tree information is provided in two spreadsheets (Figure-3D, Figure-3E).

While tree vigor and structure is fair, the following trees show signs of poor structure

- Black cottonwoods 106, 111
  - As an example, trunk decay is present near grade level on the northern side of Tree-111 (Photo-15)

  In this case the current pathway travels within 5-feet of most trees and significant structural roots are present.

Trees South of the Wetland

Figure-3E lists trees south of the wetland in a spreadsheet (Figure-3E). Seven trees have diameters greater than 6-inches.

Trees 475 to 482 consist of red alders, willows, and one black hawthorn (*Crataegus douglasii*) previously tagged with marker number 305 (Photo-16).

All show signs of fair vigor and structure except for one willow (Tree-115). The willow shows signs of poor structure due to decay at grade level

- In many cases new red alder sprouts are emerging from new fill soil

Discussion

Trees along Totem Lake Way

Most trees in this group are near the sidewalk and street. While most are acceptable in parking strip locations, the black cottonwood (Tree-1) is not approved by most municipalities for planting strip location

- If road, sidewalk, utility box, and soil excavation work is not part of upcoming development, tree protection is possible

Remaining trees in this group are set back from the street and building. These include

- Tree-208
- Tree-216 to Tree-218

All have been pruned for building clearance and roots do not appear in close proximity to the building.

These trees can be protected during construction if the future building footprint construction does not come within 5-feet of trunks and root pruning is performed if conflicts are present.

Trees North of the 12031 Building

A significant number of these trees are near the existing building, but other trees are east or south of the walkway traveling through the KC Conservation District.
Based on proximity to existing structures **retention of the following trees is not recommended**

- Red pines numbered 219-220 and 35-40
- Deodar cedar numbered 221
- Lombardy poplar numbered 222 -229

If no construction or construction related impact takes place east or south of the conservation district walkway and within 18-feet of the trunk of the red maple (#50) then trees can be retained, however additional monitoring is recommended.

**Trees South and Southeast of 12031 Pavement**

Most trees in this group are near existing pavement. Based on root buckling observed adjacent to the red maple numbered 251, retention should not be considered unless no pavement excavation is planned during construction.

On the other hand, preservation of red alders numbered 252 to 255 along with small diameter western red cedars south of paved surfaces and under alder and maple canopies should be considered.

**Planting Strip Trees**

All trees in this group are near infrastructure that will be impacted by future construction. Based on space requirements for common construction equipment and material storage, trees in the planting strip should not be retained.

**Trees Within King County Conservation District**

Currently trail use is occasional, however use will increase once development on 12031 property take place and the trail connects to the existing Cross Kirkland Corridor.

**Trees North of the Wetland**

A risk assessment of trees showing signs of poor structure should be considered. While removal of poor structure trees is an option, tree removal will reduce shade provided by trees and the woodland environment that trail users may desire.

Between Tree-280 and Tree-465 conflicts between structural roots and the existing trail are present but minor

- In most cases root pruning should be considered as opposed to tree removal prior to trail surface improvements.

East of Tree-465 the trail enters a tree grove primarily consisting of mature cottonwoods until reaching the wetland. Due to the presence of a mature tree groves with signs of fair vigor and structure, **root pruning is not recommended**.

Options for trail improvement/installation include

- Establishing an elevated trail supported by post and pier anchors
- Installation of a gravel or cobble base layer at grade and use of permeable asphalt for human travel
Trees South of the Wetland

Except for willow numbered 476, all trees evaluated in this group have diameters of 10-inches or less

- Both willows and red alders are short lived trees and are known to regenerate from undamaged stumps

Design plans for future trail in this location are unknown, but soil addition is likely to be required based on construction techniques employed on the adjacent Cross Kirkland Corridor.

While a trail supported by a post and pier system is an option, trunks and canopies of most trees in this group conflict with a future pedestrian trail. In this case tree removal and root sprout regeneration is an option to consider.

Conclusion

Trees Along NE Totem Lake Way

Preservation of the following trees should be considered if protection during construction is possible

- Street trees along Totem Lake Way, and or north of the existing building
- The grove of alders numbered 252 to 255 and adjacent small diameter western red cedars

Removal of other inspected trees is recommended.

Trees Within King County Conservation District

Trees north of the wetland and showing signs of poor structure should be considered for either removal or additional assessment. In areas where trees grow in individual clusters root pruning is recommended. Once the trail enters the mature grove of trees alternatives should be considered prior to trail installation.

Trees south of the wetland appear to conflict with new trail establishment. Based on species most can be cut to grade level and allowed to regenerate from stump sprouts.

Tree Risk

A Level-1 Tree Risk Assessment is provided in a separate report titled

- 11-26-2018 BP Totem Lake 12031 Property Letter

Recommendations

If existing sidewalks will be retained and tree protection fencing is installed during construction, then street trees preservation is possible.

Preservation of the red maple (#208), the pacific madrone (#216) and red pines (#217-218) should be considered if tree canopies do not conflict with construction plans and protection fencing is installed during construction.

All trees east of the trail and on KC Conservation District Property should be retained and monitored.
Preservation of red alders (#252 to #255) and small diameter western red cedars is possible if protection fencing is installed during construction

- Small diameter western red cedars should receive additional protection during removal of adjacent red maples

**Tree Protection Fencing**

When installing protection fencing the material should be located at distance from the trunk equivalent to the radial spread listed in Figure-3A to Figure-3F

If distances for protection fencing are not possible an International Society of Arboriculture Certified Arborist can evaluate root growth patterns and provide protection fencing alternatives.

- Retained sidewalk can be used to mark protection fencing locations
- General diagrams for tree protection fencing are provided (Figure-4A, Figure-4B)

Removal of the following trees should be considered

- Black cottonwood: 287, 288, 290, 466, 471
- Red alder: 296, 299, 100
- Willows: 284, 285, 294, 298, 463
- All species south of the wetland

The City of Kirkland or King County may require additional assessment prior to removal. As an alternative, retention and monitoring should be considered.

**Root Pruning**

Between Tree-80 and Tree-105 tree roots over 2-inches diameter conflicting with the trail should be exposed and cut with reciprocating saws such as a, “sawzall”.

**Root Bridging**

Between Tree-106 and Tree-113 new trails should avoid damage to existing roots over 2-inches diameter. This may require placing the trail on a post and pier support or use of gravel and permeable asphalt

- While two options are provided in this report, there are additional strategies for infrastructure installation that mitigate root damage

If you have questions about the contents of this report contact Symbiosis Tree Care.

Sincerely

Kurt Fickeisen
International Society of Arboriculture™ (ISA) Certified Arborist # RM-451A
ISA Tree Risk Assessment Qualified
American Society of Consulting Arborists Registered Consulting Arborists© # 472
Figure-2

Trees Evaluated

Totem Lake
THIS AREA NOT SURVEYED OR INCLUDED IN ARBORIST TREE INVENTORY. ADDITIONAL TREE REMOVAL IS REQUIRED TO ACCOMMODATE BOARDWALK CONSTRUCTION.
<table>
<thead>
<tr>
<th>Tree #</th>
<th>Species</th>
<th>dbh  (in.)</th>
<th>Height (ft.)</th>
<th>Radial Spread (ft.)</th>
<th>Vigor</th>
<th>Structure</th>
<th>Comments / Defects</th>
</tr>
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<tbody>
<tr>
<td>201</td>
<td>Black Cottonwood</td>
<td>19.5</td>
<td>48</td>
<td>21</td>
<td>Fair</td>
<td>Fair/Poor</td>
<td>Street tree, declining due to asphalt over structural roots, elevated over street</td>
</tr>
<tr>
<td>202</td>
<td>Red Maple</td>
<td>13</td>
<td>35</td>
<td>16</td>
<td>Fair</td>
<td>Fair</td>
<td>Street tree, elevated over street</td>
</tr>
<tr>
<td>203</td>
<td>Red Maple</td>
<td>10</td>
<td>31</td>
<td>13</td>
<td>Fair</td>
<td>Poor</td>
<td>Street tree, codominant, elevated over street</td>
</tr>
<tr>
<td>204</td>
<td>Red Maple</td>
<td>7</td>
<td>24</td>
<td>10</td>
<td>Poor</td>
<td>Poor</td>
<td>Street tree, declining condition</td>
</tr>
<tr>
<td>205</td>
<td>Red Maple</td>
<td>14</td>
<td>36</td>
<td>16</td>
<td>Fair</td>
<td>Fair</td>
<td>Street tree, adjacent to utility box, elevated over street</td>
</tr>
<tr>
<td>206</td>
<td>Red Maple</td>
<td>11.5</td>
<td>34</td>
<td>14</td>
<td>Fair</td>
<td>Poor</td>
<td>Street tree, fracture at grade level, elevated over street</td>
</tr>
<tr>
<td>207</td>
<td>Red Maple</td>
<td>14</td>
<td>38</td>
<td>17</td>
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<td>Poor</td>
<td>Street tree, adjacent to stairway, elevated over street</td>
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<td>208</td>
<td>Red Maple</td>
<td>15.5</td>
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<td>Fair</td>
<td>Street tree, epicormic growth, elevated over street</td>
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<td>209</td>
<td>Plum/Cherry</td>
<td>7.8</td>
<td>15</td>
<td>10</td>
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<td>Fair</td>
<td>Pruned for building clearance</td>
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<td>210</td>
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<td>8.8</td>
<td>36</td>
<td>11</td>
<td>Fair</td>
<td>Poor</td>
<td>Street tree, fracture in trunk, elevated over street</td>
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<td>Plum/Cherry</td>
<td>7.5</td>
<td>15</td>
<td>7</td>
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<td>Fair</td>
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<td>15</td>
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<td>Fair</td>
<td>Street tree, adjacent to utility box, elevated over street</td>
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<tr>
<td>213</td>
<td>Plum/Cherry</td>
<td>6.2</td>
<td>10</td>
<td>14</td>
<td>Good</td>
<td>Fair</td>
<td>Street tree, codominant, shaded by adjacent trees</td>
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<td>214</td>
<td>Red Maple</td>
<td>9.25</td>
<td>25</td>
<td>10</td>
<td>Fair</td>
<td>Poor</td>
<td>Street tree, adjacent to NE property corner</td>
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<td>215</td>
<td>Red Maple</td>
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<td>25</td>
<td>10</td>
<td>Fair</td>
<td>Poor</td>
<td>Street tree, near property border and sidewalk</td>
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<tr>
<td>216</td>
<td>Pacific Madrone</td>
<td>7.8</td>
<td>29</td>
<td>10</td>
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<td>Fair</td>
<td>Two trunks (5-in and 6-in)</td>
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<td>217</td>
<td>Red pine</td>
<td>11.5</td>
<td>49</td>
<td>10</td>
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<td>Good</td>
<td>Building clearance required</td>
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<tr>
<td>218</td>
<td>Red pine</td>
<td>10.5</td>
<td>49</td>
<td>10</td>
<td>Good</td>
<td>Good</td>
<td>Building clearance required</td>
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<tr>
<td>219</td>
<td>Red pine</td>
<td>11.5</td>
<td>49</td>
<td>10</td>
<td>Good</td>
<td>Good</td>
<td>Building clearance required</td>
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<tr>
<td>220</td>
<td>Red pine</td>
<td>13.5</td>
<td>49</td>
<td>10</td>
<td>Good</td>
<td>Good</td>
<td>Building clearance required</td>
</tr>
<tr>
<td>221</td>
<td>Deodar Cedar</td>
<td>10.25</td>
<td>45</td>
<td>6</td>
<td>Fair</td>
<td>Poor</td>
<td>Blocks deck gateway, leans to west</td>
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<td>222</td>
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<td>18.75</td>
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<td>Fair</td>
<td>North end of 8 poplar group, 5-feet from building</td>
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<td>223</td>
<td>Lombardy Poplar</td>
<td>12</td>
<td>65</td>
<td>7</td>
<td>Fair</td>
<td>Fair</td>
<td>5-feet from building</td>
</tr>
<tr>
<td>224</td>
<td>Lombardy Poplar</td>
<td>8</td>
<td>65</td>
<td>6</td>
<td>Fair</td>
<td>Poor</td>
<td>5-feet from building</td>
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<td>9.5</td>
<td>65</td>
<td>5</td>
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<td>Poor</td>
<td>5-feet from building</td>
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<td>5</td>
<td>Fair</td>
<td>Poor</td>
<td>5-feet from building</td>
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<tr>
<td>227</td>
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<td>8.5</td>
<td>65</td>
<td>6</td>
<td>Fair</td>
<td>Poor</td>
<td>5-feet from building</td>
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<tr>
<td>228</td>
<td>Lombardy Poplar</td>
<td>12</td>
<td>70</td>
<td>9</td>
<td>Fair</td>
<td>Poor</td>
<td>5-feet from building</td>
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<tr>
<td>229</td>
<td>Lombardy Poplar</td>
<td>29.5</td>
<td>70</td>
<td>13</td>
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<td>Fair</td>
<td>South end of 8 poplar group, 5-feet from building</td>
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<tr>
<td>230</td>
<td>Columnar Beech</td>
<td>12</td>
<td>40</td>
<td>8</td>
<td>Good</td>
<td>Fair</td>
<td>Elevation pruning near grade</td>
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<td>231</td>
<td>Black Cottonwood</td>
<td>14.3</td>
<td>75</td>
<td>18</td>
<td>Fair</td>
<td>Fair-Poor</td>
<td>Codominant at grade</td>
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<tr>
<td>232</td>
<td>Columnar Beech</td>
<td>9.5</td>
<td>33</td>
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<td>Fair</td>
<td>Elevation pruning near grade</td>
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<tr>
<td>233</td>
<td>Black Cottonwood</td>
<td>11.5</td>
<td>70</td>
<td>16</td>
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<td>16</td>
<td>50</td>
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<td>Fair-Poor</td>
<td>Elevation pruning near grade, Codominant at 5-feet</td>
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<tr>
<td>235</td>
<td>Red pine</td>
<td>10.25</td>
<td>40</td>
<td>8</td>
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<td>Fair</td>
<td>North end of 6 pine group</td>
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<tr>
<td>236</td>
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<td>8</td>
<td>35</td>
<td>8</td>
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## Figure-3B

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<th>dbh (in.)</th>
<th>Height (ft.)</th>
<th>Radial Spread (ft.)</th>
<th>Vigor</th>
<th>Structure</th>
<th>Comments / Defects</th>
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<td>Plum/Cherry</td>
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Assumptions and Limitations

ASSUMPTIONS AND LIMITING CONDITIONS

Kurt Fickeisen
International Society of Arboriculture (ISA) Certified Arborist #RM 451A
ISA Tree Risk Assessment Qualification
American Society of Consulting Arborists Registered Consulting Arborist #472
Owner Symbiosis Tree Care LLC

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ownerships to any property are assumed to be good and marketable. No responsibility is assumed
for matters legal in character.
2. All existing liens, encumbrances, and assessments, if any, have been disregarded (unless
otherwise noted), and the trees are evaluated as though free and clear, under responsible
ownership and competent management. It is assumed that no violations of applicable
governmental regulations have occurred.
3. Care has been taken to obtain all information from reliable sources. All data has been verified
insofar as possible, however, Symbiosis Tree Care can neither guarantee nor be responsible for
the accuracy of information.
4. Symbiosis Tree Care shall not be required to give testimony or to attend court by reason of this
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other media, without the prior expressed written or verbal consent of Symbiosis Tree Care.
8. This report and any values expressed herein represent the opinion of Symbiosis Tree Care. Our
fee is in no way contingent upon any specified value, a result or occurrence of a subsequent
event, nor upon any finding to be reported.
9. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not
necessarily to scale and should not be construed as engineering or architectural reports or surveys.
10. Unless expressed otherwise: 1) information contained in this report covers only those items that
were examined and reflects the condition of those items at the time of inspection, and 2) the
inspection is limited to visual examination of accessible items without dissection, excavation,
probing, or coring.
11. There is no warranty or guarantee, expressed or implied that problems or deficiencies of the tree
or other plant or property in question may not arise in the future.
12. The right is reserved to adjust tree valuations, if additional relevant information is made available.
APPENDIX E

GEOTECHNICAL REPORTS
Subsurface Exploration, Geologic Hazard, and Geotechnical Engineering Report

TOTEM LAKE PARK
Kirkland, Washington

Prepared For:
BERGER PARTNERSHIP PS

Project No. 170126E001
September 28, 2017
September 28, 2017
Project No. 170126E001

Berger Partnership PS
1721 8th Avenue North
Seattle, Washington 98109

Attention: Mr. Andy Mitton

Subject: Subsurface Exploration, Geologic Hazard, and Geotechnical Engineering Report
Totem Lake Park
Kirkland, Washington

Dear Mr. Mitton:

We are pleased to present the enclosed copies of the above-referenced report. This report summarizes the results of our subsurface exploration, geologic hazard, and geotechnical engineering studies, and offers recommendations for the design and development of the proposed project. Our recommendations are preliminary in that definite site improvement locations and construction details have not been finalized at the time of this report.

We have enjoyed working with you on this study and are confident that the recommendations presented in this report will aid in the successful completion of your project. If you should have any questions, or if we can be of additional help to you, please do not hesitate to call.

Sincerely,
ASSOCIATED EARTH SCIENCES, INC.
Kirkland, Washington

Bruce L. Blyton, P.E.
Senior Principal Engineer
I. PROJECT AND SITE CONDITIONS

1.0 INTRODUCTION

This report presents the results of our subsurface exploration, geologic hazard, and geotechnical engineering study for the subject project. Our recommendations are preliminary in that construction details have not been finalized at the time of this report. The location of the subject site is shown on the “Vicinity Map,” Figure 1. The approximate locations of the explorations accomplished for this study are presented on the “Site and Exploration Plan,” Figure 2, and on the “Partial Site and Exploration Plan,” Figure 3. In the event that any changes in the nature or design of the proposed project are planned, the conclusions and recommendations contained in this report should be reviewed and modified, or verified, as necessary.

1.1 Purpose and Scope

The purpose of this study was to provide subsurface data to be used in the design and development of the subject project. Our study included a review of available geologic literature, including previous explorations completed by others, drilling five exploration borings, the completion of a series of hand probes, and performing geologic studies to assess the type, thickness, distribution, and physical properties of the subsurface sediments and shallow ground water conditions. Geotechnical engineering studies were also conducted to assess the type of suitable foundation, allowable foundation soil bearing pressures, anticipated foundation settlements, basement/retaining wall lateral pressures, floor support recommendations, and drainage considerations. This report summarizes our current fieldwork and development recommendations based on our present understanding of the project.

1.2 Authorization

Authorization to proceed with this study was granted by Mr. Andy Mitton of Berger Partnership PS. Our study was accomplished in general accordance with our scope of work letter dated March 27, 2017. This report has been prepared for the exclusive use of Berger Partnership PS and its agents for specific application to this project. Within the limitations of scope, schedule, and budget, our services have been performed in accordance with generally accepted geotechnical engineering and engineering geology practices in effect in this area at the time our report was prepared. No other warranty, express or implied, is made. Our observations, findings, and opinions are a means to identify and reduce the inherent risks to the owner.
2.0 PROJECT AND SITE DESCRIPTION

The subject site encompasses 12307 and 12031 NE Totem Lake Way in Kirkland, Washington (King County Parcel Nos. 8663270060 and 6928400032), and consists of a largely undeveloped parcel with an approximate area of 17 acres, and an existing commercial parcel of roughly 1½ acres. The commercial parcel is currently occupied by an existing structure and parking areas, and the largely undeveloped parcel includes Totem Lake, surrounding wetland areas (delineated by others), and existing paved pathways and wooden boardwalks.

It our understanding that current plans include the construction of a new wooden boardwalk across wetland areas at the northeastern portion of the site to connect the existing pathway system to the nearby Cross Kirkland Corridor, and that foundation support for this boardwalk is currently planned to be derived by Diamond Piers®. Site improvements at the existing commercial parcel, after the demolition of existing structures and pavements, include cast-in-place concrete retaining walls, concrete and asphalt pavement, a pre-manufactured restroom building, play equipment, and safety surfacing.

3.0 SITE EXPLORATION

The site exploration was conducted on June 2, 2017 and July 7, 2017, and consisted of five exploration borings and a geologic and geologic hazard reconnaissance to gain information about the site. A series of hand probes were subsequently completed to provide supplemental information to the exploration borings. The various types of materials and sediments encountered in the explorations, as well as the depths where characteristics of these materials changed, are indicated on the exploration boring logs presented in the Appendix. The depths indicated on the logs where conditions changed may represent gradational variations between sediment types in the field. If changes occurred between sample intervals in our borings, they were interpreted. The locations of the exploration borings are shown on the “Site and Exploration Plan,” Figure 2. The conclusions and recommendations presented in this report are based on the exploration borings completed for this study. The number, locations, and depths of the explorations were completed within site and budgetary constraints. Because of the nature of exploratory work below ground, interpolation of subsurface conditions between field explorations is necessary. It should be noted that differing subsurface conditions may sometimes be present due to the random nature of deposition and the alteration of topography by past grading and/or filling. The nature and extent of any variations between the field explorations may not become fully evident until construction. If variations are observed at that time, it may be necessary to re-evaluate specific recommendations in this report and make appropriate changes.
3.1 Exploration Borings

The borings were completed on the subject site using trailer-mounted or hand-portable drilling equipment, each advancing a hollow-stem auger. During the drilling process, samples were obtained at generally 2.5- or 5-foot intervals. The borings were continuously observed and logged by representatives from our firm. The exploration logs presented in the Appendix are based on the field logs, drilling action, and inspection of the samples secured.

Disturbed but representative samples were obtained by using the Standard Penetration Test (SPT) procedure in accordance with American Society for Testing and Materials (ASTM) D-1586. This test and sampling method consists of driving a standard, 2-inch outside-diameter, split-barrel sampler a distance of 18 inches into the soil with a 140-pound hammer free-falling a distance of 30 inches. The number of blows for each 6-inch interval is recorded, and the number of blows required to drive the sampler the final 12 inches is known as the Standard Penetration Resistance (“N”) or blow count. If a total of 50 blows are recorded at or before the end of one 6-inch interval, the blow count is recorded as the number of blows for the corresponding number of inches of penetration. The resistance, or N-value, provides a measure of the relative density of granular soils or the relative consistency of cohesive soils. These values are plotted on the attached boring logs.

The samples obtained from the split-barrel sampler were classified in the field and representative portions placed in watertight containers. The samples were then transported to our laboratory for further visual classification and geotechnical laboratory testing, as necessary.

The various types of soil and ground water elevations, as well as the depths where soil and ground water characteristics changed, are indicated on the exploration boring logs presented in the Appendix of this report. Our explorations and reconnaissance were approximately located by measuring from known site features.

3.2 Monitoring Well

Exploration boring EB-1W was completed as a 2-inch-diameter monitoring well with 10 feet of machine-slotted Schedule 40 polyvinyl chloride (PVC) well screen and a flush-mount monument. The sand pack materials consisted of 10/20 Colorado Silica Sand. The well was sealed with a combination of bentonite chips and concrete. Well construction details are presented on the boring log in the Appendix. Hand-water-level data was collected after well development was completed, on July 31, 2017.
4.0 SUBSURFACE CONDITIONS

Subsurface conditions at the project site were inferred from the field explorations accomplished for this study, visual reconnaissance of the site, and review of applicable geologic literature. As shown on the field logs, the exploration borings generally encountered fill overlying wetland/peat deposits and older in-place sediments. The following section presents more detailed subsurface information organized from the youngest to the oldest sediment types.

4.1 Stratigraphy

Fill

Exploration borings EB-1W and EB-2 through EB-5, encountered fill material that extended to roughly 5 to 12 feet below the ground surface. The fill encountered generally consisted of loose to medium dense, silty fine to medium sand with a variable amount of organic material and gravel. Fill is also expected in unexplored areas of the site, such as the area surrounding and under the existing structure foundations, in existing utility trenches, and at previously graded or landscaped areas. Due to their variable density and content, the existing fill soils are not suitable for foundation support.

Wetland Deposits/Peat

Underlying the fill, exploration borings EB-1W and EB-2 through EB-5, encountered soils generally consisting of peat or organic silt or silty fine sand with occasional rootlets. We interpret these sediments to be representative of recent wetland deposits. These deposits were generally very loose to loose/soft and extended beyond the depth explored of 18 feet below the ground surface at exploration boring EB-5, and to approximately 9.5 to 24.5 feet below the ground surface at the locations of EB-1W and EB-2 through EB-4. Due to the organic soils encountered in this deposit, including peat and organic silt, we expect that this deposit is subject to continued settlement due to decomposition and consolidation in response to surface (fill) loads and is not considered suitable for direct support of foundations or hardscape surfaces without remedial preparation.

Vashon Recessional Outwash

Below the existing peat, exploration boring EB-4 encountered medium dense to dense medium to coarse sand, with varying amounts of silt and gravel, extending below the depth explored of 21.5 feet below the ground surface. These native sediments are interpreted to likely represent Vashon recessional outwash deposits. Recessional outwash sediments were deposited by meltwater streams flowing from the receding Vashon glacier approximately
10,000 years ago. This unit is generally suitable for support of light to moderately loaded foundations and for pavement subbase when properly compacted as discussed in this report.

**Pre-Fraser Non-Glacial Deposits**

Below the existing wetland deposits/peat, exploration borings EB-1W, EB-2 and EB-3 encountered very stiff to hard sandy silt or very dense gravelly sand which extended below the maximum depths explored of 31.5 to 41.5 feet below the ground surface. This soil was interpreted to represent non-glacial deposits placed prior to the Vashon Stade of the Fraser Glaciation and subsequently compacted by the weight of the overlying glacial ice. The very stiff to hard/very dense material is generally considered suitable for support of light to heavily loaded foundations when in an intact, undisturbed condition.

### 4.2 Geologic Mapping/Previous Explorations

Review of the regional geologic map titled *Geologic Map of the City of Kirkland Washington*, by K.A. Troost and A.P. Wisher (2010) indicates that the area of the subject site is underlain by peat deposits (Qp) with Vashon recessional Lake Bretz deposits (Qvrlb), Vashon recessional outwash (Qvr), and pre-Fraser-age deposits (Qpf) mapped nearby. An overprint of modified land (fill) is indicated across the subject site and immediate vicinity. Our interpretation of the sediments described in the referenced exploration logs is in general agreement with the published geologic mapping of the site and vicinity.

Also, the logs of explorations previously completed in 1978 by Earth Consultants at the subject site suggest conditions similar to that encountered in our explorations. The locations of the Earth Consultants borings are shown on the “Site and Exploration Plan,” Figure 2, and the Earth Consultants exploration logs are included in the Appendix.

### 4.3 Hydrology

Ground water was encountered within exploration borings EB-1W and EB-2 through EB-5, between 8 and 18 feet below the ground surface. The measurement taken in EB-1W on July 31, 2017 indicated a piezometric water level of 7.5 feet below the ground surface. We expect ground water across much of the site to lie within the underlying wetland/peat deposits and recessional outwash, and roughly corresponds to the water level in Totem Lake. It should be noted that the occurrence and level of ground water seepage at the site may vary in response to such factors as changes in season, amount of precipitation, and site use.

### 4.4 Hand Probes

Where accessible, a series of hand probes were completed using an 8-foot-long, ½-inch-diameter steel probe to supplement the information collected from exploration borings.
EB-4 and EB-5. In summary, probe depths ranged up to the length of the 8-foot steel probe near the limits of accessibility, and were shallower near to the area of EB-4 or the Cross Kirkland Corridor. The locations and depths of the probes are shown on Figure 3.

Although probe depths less than 2 feet were observed in the relative upland area surrounding the location of exploration boring EB-4, these probes should not be construed as indicators of shallow, dense native soil. Based on the subsurface conditions encountered in exploration borings EB-4 and EB-5, the deeper probes observed in close proximity to the shallow probes, the “modified land” (fill) mapped across the site, and the topography surrounding EB-4, we interpret the shallower probes to likely indicate the presence of medium dense fill material, like that encountered in EB-4, overlying loose/soft, wetland/peat deposits.
II. GEOLOGIC HAZARDS AND MITIGATIONS

The following discussion of potential geologic hazards is based on the geologic, slope, and shallow ground water conditions, as observed and discussed herein.

5.0 SEISMIC HAZARDS AND MITIGATION

Earthquakes occur in the Puget Lowland with great regularity. The vast majority of these events are small, and are usually not felt by people. However, large earthquakes do occur, as evidenced by the 1949, 7.2-magnitude event; the 1965, 6.5-magnitude event; and the 2001, 6.8-magnitude event. The 1949 earthquake appears to have been the largest in this region during recorded history and was centered in the Olympia area. Evaluation of earthquake return rates indicates that an earthquake of the magnitude between 5.5 and 6.0 is likely within a given 20- to 40-year period.

Generally, there are four types of potential geologic hazards associated with large seismic events: 1) surficial ground rupture, 2) seismically induced landslides, 3) liquefaction, and 4) ground motion. The potential for each of these hazards to adversely impact the proposed project is discussed below.

5.1 Surficial Ground Rupture

The nearest known fault trace to the project site is splay of the South Whidbey Island Fault Zone (SWIFZ), located approximately 1 mile to the northeast of the subject site. A recent study by the U.S. Geological Survey (USGS) (Sherrod et al., 2005, Holocene Fault Scarps and Shallow Magnetic Anomalies Along the Southern Whidbey Island Fault Zone Near Woodinville, Washington, Open-File Report 2005-1136, March 2005) indicates that “strong” evidence of prehistoric earthquake activity has been observed along associated fault strands thought to be part of the SWIFZ. The study suggests as many as nine earthquake events along the SWIFZ may have occurred within the last 16,400 years. The recognition of this fault splay is relatively new, and data pertaining to it are limited, with the studies still ongoing. The recurrence interval of movement along this fault system is still unknown, although it is hypothesized to be in excess of 1,000 years. Due to the suspected long recurrence interval, it is our opinion that the potential for damage to the proposed structure by surficial ground rupture is considered to be low. No mitigations other than complying with appropriate codes and standards are recommended.

5.2 Seismically Induced Landslides

The on-site, natural sediments are not sensitive to landsliding given the topographic conditions at the site. No evidence of landslide activity causing distress to existing structures was
observed. Given the subsurface and topographic conditions within and adjacent to the proposed development area and the apparent lack of historical landslide activity, it is our opinion that the risk of damage to the proposed project by landsliding under either static or seismic conditions is low. This opinion is dependent upon site grading and construction practices being completed in accordance with the geotechnical recommendations presented in this report.

5.3 Liquefaction

Liquefaction is a condition where loose, saturated, typically sandy soils lose shear strength when subjected to high-intensity cyclic loads, such as occur during earthquakes. The resulting reduction in strength can cause differential foundation settlements and slope failures. Loose, saturated, fine-grained sands that cannot dissipate the buildup of pore water pressure are the predominant type of sediments subject to liquefaction.

The saturated portions of the fill or silt/sand portions of the wetland deposits encountered in our explorations have the potential to liquefy during a seismic event. However, the underlying Vashon recessional outwash or pre-Fraser-age sediments are not likely to liquefy due to their dense condition.

As discussed in Section 10.0, “Foundations,” a deep foundation system is recommended to transmit the foundation loads into the deeper, non-liquefiable bearing sediments. This will mitigate liquefaction-induced vertical settlement risks to the proposed structures.

Based on our field observations and document review, it is our opinion that the area surrounding the property is likely underlain by liquefiable soils, and that areas of soil may be displaced laterally during a seismic event. The recommended pipe pile foundations embedded into dense, non-liquefiable material will provide some lateral resistance and mitigation to liquefaction damage. However, there is no economically feasible mitigation, in our opinion, for these relatively small structures supported on relatively deep piling to fully resist all movement. The owner must accept the potential risk of ground deformation/lateral spread and associated deflection/damage to the proposed structures.

5.4 Ground Motion

Structural design should follow 2015 *International Building Code* (IBC) standards using Site Class “F” as defined in Table 20.3-1 of *American Society of Civil Engineers (ASCE) 7 – Minimum Design Loads for Buildings and Other Structures.*
6.0 EROSION HAZARDS AND MITIGATION

A properly developed, constructed, and maintained erosion control plan consistent with local standards and best management erosion control practices will be required for this project. It will be necessary to make adjustments and provide additional measures to the Temporary Erosion and Sedimentation Control (TESC) plan in order to improve its effectiveness. Ultimately, the success of the TESC plan depends on a proactive approach to project planning and contractor implementation and maintenance.

The erosion hazard of the site soils is low to moderate, depending primarily on slope and runoff velocity. Maintaining cover measures atop disturbed ground provides significant reduction to the potential generation of turbid runoff and sediment transport. During the local wet season (October 1st through March 31st), exposed soil should not remain uncovered for more than 2 days, unless it is actively being worked. Ground-cover measures can include erosion control matting, plastic sheeting, straw mulch, crushed rock, recycled concrete, or mature hydroseed.

6.1 Erosion Hazard Mitigation

To mitigate the erosion hazards and potential for off-site sediment transport, we recommend the following:

1. All TESC measures for the work area should be installed prior to any activity.

2. During the wetter months of the year, or when large storm events are predicted during the summer months, the work area should be stabilized so that if showers occur, the work area can receive the rainfall without excessive erosion or sediment transport.

3. All disturbed areas should be revegetated as soon as possible. If it is outside of the growing season, the disturbed areas should be covered with mulch.

4. Under no circumstances should concentrated discharges be allowed to flow over the top of steep slopes.

5. Soils that are to be reused around the site should be stored in such a manner as to reduce erosion from the stockpile. Protective measures may include, but are not limited to, covering with plastic sheeting, the use of low stockpiles in flat areas, or the use of straw bales/silt fences around pile perimeters.
III. DESIGN RECOMMENDATIONS

7.0 INTRODUCTION

Our exploration indicates that, from a geotechnical standpoint, the parcel is suitable for the proposed project provided the risks discussed are accepted and the recommendations contained herein are properly followed. The foundation-bearing stratum is generally moderately deep, ranging from roughly 10 to 23 feet or more below present surface grade. Due to the depth of the bearing soils, a driven pipe pile-supported foundation is recommended for the structures to mitigate the risk of post-construction settlement, under both static and dynamic (seismic liquefaction) conditions.

Due to the continued decomposition and consolidation of the peat deposits encountered in our exploration borings, we recommend that accommodations be made to allow for differential settlement between the pile-supported areas and non-pile-supported areas. The degree of long-term settlement due to this decomposition and consolidation of the underlying peat may vary considerably; however, our recent experience at another site adjacent to Totem Lake Park suggests approximate long-term settlement of 6 to 9 inches over a 36-year period. The above-mentioned accommodations allowing for differential settlement between pile-supported and non-pile-supported areas may include extending deep foundation elements out beyond the perimeter of the structures to include surrounding improvements or hardscapes, or flexible connections of the utilities. Also, the use of Diamond Piers® for foundation support of the boardwalk is not recommended due to the continued decomposition and consolidation of the underlying peat deposits.

According to Section 5.2 of the 2016 King County Surface Water Design Manual (adopted by the City of Kirkland), the bottom surface of infiltration facilities “must be in native soil” and “be at least 3 feet above the seasonal high groundwater level and have at least 3 feet of permeable soil beneath”. Due to the shallow ground water seepage observed in the exploration borings (7.5 feet in EB-1W on July 31, 2017) and the presence of existing fill (7 to 12 feet in depth at exploration borings EB-1W, EB-2 and EB-3), along with low-permeability wetland deposits, including peat and silt, it is the opinion of Associated Earth Sciences, Inc. (AESI) that shallow on-site storm water infiltration is not feasible due to existing fill, lateral flow, high fines content, and shallow hydraulic restrictive layers. Storm water infiltration facilities are not recommended at the project site.

We recommend that fills to raise grades be limited to less than one foot in thickness. Should significant fills (greater than one foot) be planned, we anticipate that additional post-construction consolidation of the underlying peat and associated surface settlement is likely under the load of the fill. Should fills be planned under settlement-sensitive structures, we are available to provide situation-specific recommendations to mitigate settlement risk,
such as the preload or surcharging of structural fills, or the use of lightweight fill materials, if needed.

8.0 SITE PREPARATION

Site preparation for the proposed improvements should include removal of all trees, brush, debris, and any other deleterious material from the area of the planned building footprint. Excavation for much of the foundation is anticipated to be minimal. We recommend that any organic topsoil should be stripped from the entire planned building footprint. The sediments encountered in the exploration borings contained a variable percentage of fine-grained material, which makes them moisture-sensitive and subject to disturbance when wet. The contractor must use care during site preparation and excavation operations so that the underlying soils are not softened. If disturbance occurs, the softened soils should be removed and the area brought to grade with structural fill. Due to potential wet subgrade conditions, we recommend that the building footprint area be graded smooth and sloped to drain. The building footprint should then be blanketed with a minimum of 6 inches of clean, crushed, 2-inch rock (railroad ballast). Following placement of the crushed rock, a pipe pile foundation may be installed. AESI can provide field design recommendations for these areas, if needed.

8.1 Temporary Cut Slopes

In our opinion, stable, temporary construction slopes should be the responsibility of the contractor and should be determined during construction. For planning purposes, we anticipate that temporary, unsupported cut slopes in unsaturated (dewatered) existing fill, where encountered, or loose wetland deposits, can be planned at a maximum slope of 1.5H:1V (Horizontal:Vertical). Flatter, temporary cut slopes will be needed if drainage is not installed prior to excavation and ground water seepage is encountered. As is typical with earthwork operations, some sloughing and raveling may occur, and cut slopes may have to be adjusted in the field. In addition, WISHA/OSHA regulations should be followed at all times. Permanent, unsupported cut or structural fill slopes should not exceed a gradient of 2H:1V.

9.0 STRUCTURAL FILL

Structural fill may be necessary to establish desired grades or to backfill around foundations and utilities. All references to structural fill in this report refer to subgrade preparation, fill type, placement, and compaction of materials, as discussed in this section. If a percentage of compaction is specified under another section of this report, the value given in that section should be used. As stated above, should significant fills (greater than 1 foot) be planned, we anticipate that additional post-construction consolidation of the underlying peat and associated
surface settlement is likely under the load of the fill. Should fills be planned under settlement-sensitive structures, we are available to provide situation-specific recommendations to mitigate settlement risk, such as the preload or surcharging of structural fills, or the use of lightweight fill materials, if needed.

After overexcavation/stripping has been performed to the satisfaction of the geotechnical engineer/engineering geologist, the upper 12 inches of exposed ground should be recompacted to a firm and unyielding condition. If the subgrade contains too much moisture, adequate recompaction may be difficult or impossible to obtain and should probably not be attempted. In lieu of recompaction, the area to receive fill should be blanketeted with washed rock or quarry spalls to act as a capillary break between the new fill and the wet subgrade. Where the exposed ground remains soft and further overexcavation is impractical, placement of an engineering stabilization fabric may be necessary to prevent contamination of the free-draining layer by silt migration from below.

After stripping and subgrade preparation of the exposed ground is approved, or a free-draining rock course is laid, structural fill may be placed to attain desired grades. Structural fill is defined as non-organic soil, acceptable to the geotechnical engineer, placed in maximum 8-inch loose lifts, with each lift being compacted to 95 percent of the modified Proctor maximum density using ASTM D-1557 as the standard.

The contractor should note that any proposed fill soils must be evaluated by AESI prior to their use in fills. This would require that we have a sample of the material at least 3 business days in advance to perform a Proctor test and determine its field compaction standard. Soils in which the amount of fine-grained material (smaller than the No. 200 sieve) is greater than approximately 5 percent (measured on the minus No. 4 sieve size) should be considered moisture-sensitive. Use of moisture-sensitive soils in structural fills should be limited to favorable dry weather conditions. The on-site soils contained variable amounts of silt and are considered moisture-sensitive, and we expect that this material may be difficult to compact to structural fill specifications, particularly during and following wet weather. Therefore, we recommend that a select, import material consisting of a clean, free-draining gravel and/or sand be used. Free-draining fill consists of non-organic soil with the amount of fine-grained material limited to 5 percent by weight when measured on the minus No. 4 sieve fraction.

A representative from our firm should inspect the stripped subgrade and be present during placement of structural fill to observe the work and perform a representative number of in-place density tests. In this way, the adequacy of the earthwork may be evaluated as filling progresses and any problem areas may be corrected at that time. It is important to understand that taking random compaction tests on a part-time basis will not assure uniformity or acceptable performance of a fill. As such, we are available to aid the owner in developing a suitable monitoring and testing frequency.
10.0 FOUNDATIONS

We recommend the use of steel pipe piles for the planned structures. Recommendations for pipe pile foundations are included in this section. For preliminary estimating purposes, pile lengths in the 15- to 30-foot range may be assumed. Actual pile lengths may differ significantly from the estimated range depending on local variations in soil conditions, pile size, and driving equipment used. Pile lengths can best be determined by driving a series of test piles.

10.1 Pipe Pile Foundations

Pipe piles should consist of 3-, 4-, or 6-inch-diameter pipe, depending on the required structural loads. Two-inch-diameter piles may be considered for accessory structures, such as retaining walls, or where the installation of larger piles is precluded due to access constraints, such as for the proposed boardwalk. The piles should be galvanized steel pipe, driven with a suitable hammer to the refusal criteria shown in Table 1. The following table provides required minimum hammer weights, refusal criteria, and allowable loads for pipe piles.

<table>
<thead>
<tr>
<th>Pipe Diameter (inches)</th>
<th>Wall Thickness</th>
<th>Minimum Hammer Size (pounds)</th>
<th>Refusal Criterion* (seconds)</th>
<th>Allowable Axial Compressive Load** (kips)</th>
</tr>
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<tbody>
<tr>
<td>2</td>
<td>Schedule 80</td>
<td>90</td>
<td>60</td>
<td>4</td>
</tr>
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<td>10</td>
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<td>4</td>
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<td>650</td>
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</tr>
<tr>
<td>6</td>
<td>Schedule 40</td>
<td>1,500</td>
<td>15</td>
<td>30</td>
</tr>
</tbody>
</table>

* Refusal is defined as less than 1 inch of penetration in "X" seconds under constant driving.
** Allowable load to be verified by load tests in accordance with ASTM D-1143 “quick load test.”

Anticipated settlement of pile-supported foundations should be less than ½ inch. Pile installation must be observed by AESI to verify that the design bearing capacity of the piles has been attained and that construction conforms to the recommendations contained herein. The City of Kirkland may also require such inspections.

Lateral resistance can be derived from passive soil resistance against the buried portion of the foundation (i.e., the grade beam) or from the installation of batter piles. A passive equivalent fluid of 200 pounds per cubic foot (pcf) can be used to account for lateral resistance. Lateral resistance for batter piles should be taken as the horizontal component of the axial pile load. Batter piles are typically installed at 1H:4V inclination.
Pile Inspections

The actual total length of each pile may be adjusted in the field based on required capacity and conditions encountered during driving. Since completion of the pile takes place below ground, the judgment and experience of the geotechnical engineer or their field representative must be used as a basis for determining the required penetration and acceptability of each pile. Consequently, use of the presented pile capacities in the design requires that the installation of all piles be observed by a qualified geotechnical engineer or engineering geologist from our firm, who can interpret and collect the installation data and examine the contractor's operations. AESI, acting as the owner’s field representative, would determine the required lengths of the piles and keep records of pertinent installation data. A final summary report would then be distributed following completion of pile installation.

Load testing should be performed to verify that the design bearing capacity of the piles has been attained. Because of the variation in the soil types and their densities, we recommend that AESI monitor the load-testing program. A common pile load-testing program would consist of one or more 200-percent verification tests of the design bearing capacity of the pile in the soil. Verification test piles are usually loaded in 25-percent increments that are held for 2 minutes up to the final load of 200-percent design load. The 200-percent load is commonly held for 20 minutes and creep-measured. The load is then reduced by 25-percent increments to evaluate the effect of elasticity in the pile to overall displacement.

11.0 LATERAL WALL PRESSURES

All backfill behind retaining walls or around foundation units should be placed as per our recommendations for structural fill and as described in this section of the report. Horizontally backfilled retaining walls that are free to yield laterally at least 0.1 percent of their height may be designed using an equivalent fluid equal to 35 pcf. Fully restrained, horizontally backfilled, rigid walls that cannot yield should be designed for an equivalent fluid of 50 pcf. If roadways, parking areas, or other areas subject to vehicular traffic are adjacent to retaining walls, a surcharge equivalent to 2 feet of soil should be added to the wall height in determining lateral design forces. Retaining walls that retain sloping backfill at a maximum angle of 2H:1V should be designed using an equivalent fluid pressure of 55 pcf for yielding conditions or 75 pcf for fully restrained conditions.

In accordance with the 2015 IBC, retaining wall design should include seismic design parameters. Based on the site soils and assumed wall backfill materials, we recommend a seismic surcharge pressure in addition to the equivalent fluid pressures presented above. A rectangular pressure distribution of 5H and 10H pounds per square foot (psf) (where H is the height of the wall in feet) should be included in design for “active” and “at-rest” loading.
conditions, respectively. The resultant of the rectangular seismic surcharge should be applied at the midpoint of the walls.

The lateral pressures presented above are based on the conditions of a uniform horizontal backfill consisting of the on-site, natural, glacial sediments or imported sand and gravel compacted to 90 percent of ASTM D-1557. A higher degree of compaction is not recommended, as this will increase the pressure acting on the wall.

Footing drains must be provided for all retaining walls, as discussed under the “Drainage Considerations” section of this report. It is imperative that proper drainage be provided so that hydrostatic pressures do not develop against the walls. This would involve installation of a minimum, 1-foot-wide blanket drain to within 1 foot of the ground surface using imported, washed gravel against the walls placed to be continuous with the footing drain.

11.1 Passive Resistance and Friction Factors

Retaining wall grade beams/keyways cast directly against undisturbed dense soils in a trench may be designed for passive resistance against lateral translation using an allowable equivalent fluid equal to 200 pcf. The passive equivalent fluid pressure diagram begins at the top of the grade beam; however, total lateral resistance should be summed only over the depth of the actual key. Since the structure will be pile-supported, we do not recommend using base friction for resistance to lateral loads.

12.0 PAVEMENT/FLOOR SUPPORT

As discussed earlier in this report, existing site soils are considered to be settlement-prone, and floor slabs should be designed as structural slabs and supported on pile foundations to mitigate slab settlement. Where potential post-construction settlement can be tolerated, site soils can be used to support slabs-on-grade, sidewalks, or other similar structures contingent upon remedial preparation and understanding of uncertainties in settlement performance. Slabs, pavement, or segmented paving stones to be supported on grade should be supported on a 2-foot-thick structural fill mat. All fill beneath slabs, paving stones or pavement must be compacted to at least 95 percent of ASTM D-1557. A geotextile separation fabric, such as Mirafi 500X or approved equivalent, should be used between the structural fill and the underlying soil subgrade. A pavement section consisting of 2½ inches of asphaltic concrete pavement (ACP) underlain by 4 inches of 1¼-inch crushed surfacing base course is the recommended minimum in areas of planned passenger car driving and parking.

Interior slabs where control of moisture migration through the slab is needed should be cast atop a minimum of 4 inches of clean washed crushed rock or pea gravel to act as a capillary break. Areas of subgrade that are disturbed (loosened) during construction should be
compacted to a non-yielding condition prior to placement of capillary break material. It should also be protected from dampness by an impervious moisture barrier at least 10 mils thick. The impervious barrier should be placed between the capillary break material and the concrete slab.

13.0 DRAINAGE CONSIDERATIONS

All retaining and perimeter foundation walls should be provided with a drain at the base of the footing elevation. Drains should consist of rigid, perforated, PVC pipe surrounded by washed pea gravel. The level of the perforations in the pipe should be set at or slightly below the bottom of the footing grade beam, and the drains should be constructed with sufficient gradient to allow gravity discharge away from the building. In addition, all retaining walls should be lined with a minimum, 12-inch-thick, washed gravel blanket that extends to within 1 foot of the surface and is continuous with the foundation drain. Roof and surface runoff should not discharge into the foundation drain system, but should be handled by a separate, rigid, tightline drain. In planning, exterior grades adjacent to walls should be sloped downward away from the structure to achieve surface drainage. All collected runoff must be tightlined to a City-approved location.

14.0 PROJECT DESIGN AND CONSTRUCTION MONITORING

Our recommendations are preliminary in that definite structure locations and construction details have not been finalized at the time of this report. We are available to provide additional geotechnical consultation as the project design develops and possibly changes from that upon which this report is based. If significant changes in grading are made, we recommend that AESI perform a geotechnical review of the plans prior to final design completion. In this way, our earthwork and foundation recommendations may be properly interpreted and implemented in the design.

We are also available to provide geotechnical engineering and monitoring services during construction. The integrity of the foundations depends on proper site preparation and construction procedures. In addition, engineering decisions may have to be made in the field in the event that variations in subsurface conditions become apparent. Construction monitoring services are not part of this current scope of work. If these services are desired, please let us know, and we will prepare a proposal.
We have enjoyed working with you on this study and are confident that these recommendations will aid in the successful completion of your project. If you should have any questions or require further assistance, please do not hesitate to call.

Sincerely,
ASSOCIATED EARTH SCIENCES, INC.
Kirkland, Washington

Jeffrey P. Laub, L.G., L.E.G.
Senior Project Engineering Geologist

Bruce L. Blyton, P.E.
Senior Principal Engineer

Attachments:  Figure 1:  Vicinity Map
Figure 2:  Site and Exploration Plan
Figure 3:  Partial Site and Exploration Plan
Appendix:  Exploration Logs (AESI and Earth Consultants)
### Terms Describing Relative Density and Consistency

<table>
<thead>
<tr>
<th>Density</th>
<th>SPT&lt;sup&gt;(2)&lt;/sup&gt; blows/foot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Loose</td>
<td>0 to 4</td>
</tr>
<tr>
<td>Loose</td>
<td>4 to 10</td>
</tr>
<tr>
<td>Medium Dense</td>
<td>10 to 30</td>
</tr>
<tr>
<td>Dense</td>
<td>30 to 50</td>
</tr>
<tr>
<td>Very Dense</td>
<td>&gt;50</td>
</tr>
</tbody>
</table>

**Test Symbols**

- G = Grain Size
- M = Moisture Content
- A = Atterberg Limits
- C = Chemical
- DD = Dry Density
- K = Permeability

### Component Definitions

#### Descriptive Term

<table>
<thead>
<tr>
<th>Size Range and Sieve Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boulders</td>
</tr>
<tr>
<td>Cobble</td>
</tr>
<tr>
<td>Gravel</td>
</tr>
<tr>
<td>Coarse Gravel</td>
</tr>
<tr>
<td>Fine Gravel</td>
</tr>
<tr>
<td>Sand</td>
</tr>
<tr>
<td>Coarse Sand</td>
</tr>
<tr>
<td>Medium Sand</td>
</tr>
<tr>
<td>Fine Sand</td>
</tr>
<tr>
<td>Silt and Clay</td>
</tr>
</tbody>
</table>

### Moisture Content

- Dry - Absence of moisture, dusty, dry to the touch
- Slightly Moist - Perceivable moisture
- Moist - Damp but no visible water
- Very Moist - Water visible but not free draining
- Wet - Visible free water, usually from below water table

### Estimated Percentage

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trace</td>
<td>&lt;5</td>
</tr>
<tr>
<td>Some</td>
<td>5 to &lt;12</td>
</tr>
<tr>
<td>Modifier (silty, sandy)</td>
<td>12 to &lt;30</td>
</tr>
<tr>
<td>Very modifier (silty, sandy)</td>
<td>30 to &lt;50</td>
</tr>
</tbody>
</table>

### Symbols

- **Cement grout**
- **Bentonite seal**
- **Filter pack with blank casing section**
- **Screened casing or Hydrometer with filter pack**
- **End cap**

### Note

Classifications of soils in this report are based on visual field and/or laboratory observations, which include density/consistency, moisture condition, grain size, and plasticity estimates and should not be construed to imply field or laboratory testing unless presented herein. Visual-manual and/or laboratory classification methods of ASTM D-2487 and D-2488 were used as an identification guide for the Unified Soil Classification System.
**Geologic & Monitoring Well Construction Log**

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Totem Lake Park</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Kirkland, WA</td>
</tr>
<tr>
<td>Elevation</td>
<td>N/A</td>
</tr>
<tr>
<td>Date Start/Finish</td>
<td>6/2/17/6/2/17</td>
</tr>
<tr>
<td>Hole Diameter (in)</td>
<td>6 inches</td>
</tr>
<tr>
<td>Well Number</td>
<td>EB-1W</td>
</tr>
<tr>
<td>Sheet</td>
<td>1 of 1</td>
</tr>
<tr>
<td>Project Name</td>
<td>170126E001</td>
</tr>
</tbody>
</table>

**WELL CONSTRUCTION**

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Water Level</th>
<th>WELL CONSTRUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td>Boretec / Trailer-Rig</td>
</tr>
<tr>
<td>0.125</td>
<td></td>
<td>22* / 70#</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>140# / 30&quot;</td>
</tr>
<tr>
<td>1.5</td>
<td></td>
<td>2-inch I.D. PVC casing with threaded connectors and o-rings: 0 to 20 feet</td>
</tr>
<tr>
<td>2.5</td>
<td></td>
<td>10/20 sand 17 to 31.5 feet</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>2-inch I.D. PVC well screen: 0.010-inch slot width, 20 to 30 feet</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>End cap</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>Well tag # BJZ663</td>
</tr>
<tr>
<td>30</td>
<td></td>
<td>Boring terminated at 31.5 feet. Well completed at 30 feet on 6/2/17.</td>
</tr>
</tbody>
</table>

**DESCRIPTION**

- **Asphalt - 2 inches**
- **Crushed Rock**
- **Fill**
  - Drill cuttings observed contain abundant cobbles.
  - Moist, brown and gray, silty, fine to medium SAND, some gravel (SM)
  - Poor recovery.
  - Moist, light gray and brown, very silty, fine SAND, trace gravel, trace organics (SM).

- **Wetland Deposits**
  - Moist, light gray and blue, SILT, some fine sand (ML).

- **Pre-Fraser Nonglacial Sediments**
  - Moist, light gray and blue, SILT, some fine sand (ML).
  - As above.
  - Very moist and wet, light gray, silty, fine to medium SAND; massive (SM).
  - Water on drill rods; driller noted heaving sands.
  - Very moist and wet, gray, fine to medium SAND, trace silt, trace gravel (SP).
  - Wet, light gray, fine to medium SAND, trace silt, trace gravel (SP).
  - Wet, light gray, gravelly, fine to coarse SAND, trace to some silt; massive (SW).
  - Wet, light gray, gravelly, fine to coarse SAND, some silt; massive (SM).
  - Driller noted heaving sands and could not advance drill.

**Sampler Type (ST):**
- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample

**Logged by:** TG
**Approved by:** JHS
**Asphalt - 3.5 inches**
Crushed Rock Fill

Moist, gray and brown, silty, fine SAND, trace gravel, trace organics (SM).

As above.

Wetland Deposits

Very moist, light gray, very silty, fine SAND (SM).
Low recovery.

Peat

Wet, dark brown and gray, very silty, fine SAND, some organics (PT/SM).

Very moist, dark brown, highly organic (PT).

As above.

Wetland Deposits

Very moist, gray and brown, silty, fine SAND, trace organics (SM).

Wet, light gray, very silty, fine SAND, some organics, trace gravel (SM/PT).
Driller noted harder drilling.

Pre-Fraser Nonglacial Sediments

Wet, light gray, silty, fine to coarse SAND, some gravel (SM).
Gravelly drill action.

As above.

Wet, light gray, gravelly, fine to coarse SAND, trace silt (SW).
Driller noted heaving sands, could not advance drill.
Bottom of exploration boring at 35.5 feet
### Asphalt - 3.5 inches

**Crushed Rock Fill**

Moist, gray and brown, silty, fine SAND, trace gravel, trace organics (SM).

Low recovery.

Moist and very moist, dark brown and gray, very silty, fine SAND, some organics, trace gravel; organic-rich (SM).

Low recovery.

Moist, light to dark brown, silty, fine SAND, some organics, trace gravel; organic-rich (SM).

Low recovery.

Moist and very moist, gray, very silty, fine SAND, trace organics, trace gravel (SM).

Low recovery.

### Peat

Moist, dark brown, very silty, fine SAND, some organics, trace gravel (PT/SM).

As above.

As above.

Very moist, light gray, sandy, SILT, some organics; zones of peat (PT/ML).

Water on drill rods at 18 feet.

Moist, light gray, sandy, SILT, some organics; massive (PT/ML).

### Pre-Fraser Nonglacial Sediments

Wet, gray, gravelly, fine to coarse SAND, some silt; silt layers (~3" thick) (SM).

Wet, gray, gravelly, fine to coarse SAND, some silt (SM).

Hard drilling.

As above.

As above.

---

**Sampling**: 6/2/17, 6/2/17  
**Hammer Weight/Drop**: 140#/30'  
**Depth (ft)**:

- S-1: 6 inches  
- S-2: 5  
- S-3: 10  
- S-4: 15  
- S-5: 20  
- S-6: 25  
- S-7: 30  
- S-8: 35  

**Other Tests**:

- Blows/Foot: 10, 20, 30, 40
- Water on drill rods at 18 feet
- Water Level at time of drilling (ATD)

---

**Project Details**:  
**Project Name**: Totem Lake Park  
**Location**: Kirkland, WA  
**Driller/Equipment**: Boretec / Trailer-Rig  
**Hammer Weight/Drop**: 140#/30'

---

**Logging Symbols**:

- 2" OD Split Spoon Sampler (SPT)  
- 3" OD Split Spoon Sampler (D & M)  
- Grab Sample  
- No Recovery  
- M - Moisture  
- Ring Sample  
- Water Level ()  
- Shelby Tube Sample  
- Water Level at time of drilling (ATD)

---

**Logged by**: TG  
**Approved by**: JHS
### Wet, gray, SILT, some fine sand, trace gravel (SM/ML).

Bottom of exploration boring at 41.5 feet

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Samples</th>
<th>Graphic Symbol</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>41.5</td>
<td>S-13</td>
<td></td>
<td>Wet, gray, SILT, some fine sand, trace gravel (SM/ML).</td>
</tr>
</tbody>
</table>

**Exploration Log**

**Project Number**: 170126E001

**Location**: Totem Lake Park, Kirkland, WA

**Driller/Equipment**: Boretect / Trailer-Rig

**Hammer Weight/Drop**: 140# / 30*

**Datum**: N/A

**Date Start/Finish**: 6/2/17, 6/2/17

**No Recovery**

**Logged by**: TG

**Approved by**: JHS

**Sampler Type (ST):**

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- Ring Sample
- Shelby Tube Sample

**Water Level at time of drilling (ATD)**
**Exploration Log**

**Project Number**: 170126E001  
**Exploration Number**: EB-4

**Project Name**: Totem Lake Park  
**Location**: Kirkland, WA  
**Driller/Equipment**: CN Drilling / Hand Acker  
**Hammer Weight/Drop**: 140#/ 30°

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Samples</th>
<th>Graphic Symbol</th>
<th>DESCRIPTION</th>
<th>Well Completion</th>
<th>Blows/Foot</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fill</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-10</td>
<td>S-1</td>
<td></td>
<td>Dry, tan to brown, silty, fine to medium SAND, some gravel (SM). Organics and rootlets at 0.5 feet</td>
<td>7 8 9 20</td>
<td>▲28</td>
</tr>
<tr>
<td>11-15</td>
<td>S-2</td>
<td></td>
<td>Dry to slightly moist, brown and gray, silty, SAND (well graded), some gravel (SM).</td>
<td>12 13 14 15</td>
<td>▲28</td>
</tr>
<tr>
<td>16-20</td>
<td>S-3</td>
<td></td>
<td>Moist, brown to gray, SILT, some gravel, trace fine sand (ML).</td>
<td>2 1</td>
<td></td>
</tr>
<tr>
<td>21-25</td>
<td>S-4</td>
<td></td>
<td>Peat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26-30</td>
<td>S-5</td>
<td></td>
<td>Vashon Recessional Outwash</td>
<td>6 12</td>
<td>▲23</td>
</tr>
<tr>
<td>31-35</td>
<td>S-6</td>
<td></td>
<td>Wet, gray, medium to coarse SAND, some gravel, trace silt; roughly stratified K(SM). No recovery; driller notes heaving sands in auger.</td>
<td>4 11 12</td>
<td>▲23</td>
</tr>
<tr>
<td>36-40</td>
<td>S-7</td>
<td></td>
<td>Wet, gray and tan, medium to coarse SAND, some gravel, trace to some silt (SM).</td>
<td>15 16 17</td>
<td>▲33</td>
</tr>
</tbody>
</table>

Bottom of exploration boring at 21.5 feet  
Caving at 15 feet.

**Sampler Type (ST):**

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- M - Moisture
- Ring Sample
- Water Level (
- Shelby Tube Sample
- Water Level at time of drilling (ATD)

**Logged by:** BCY  
**Approved by:** JHS
### Exploration Log

**Project Name:** Totem Lake Park  
**Location:** Kirkland, WA  
**Driller/Equipment:** CN Drilling / Hand Acker  
**Hammer Weight/Drop:** 140# / 30°  

#### Description

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Samples</th>
<th>Graphic Symbol</th>
<th>Well Completion</th>
<th>Blows/Foot</th>
<th>Other Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>S-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.6</td>
<td>S-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.0</td>
<td>S-3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.5</td>
<td>S-4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.0</td>
<td>S-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.0</td>
<td>S-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.0</td>
<td>S-7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Fill**
- Dry, brown and tan, silty, fine to medium SAND, some gravel (SM). Organics and rootlets at 0.5 feet.

**Wetland Deposits**
- Moist, gray and brown, SILT, some fine sand, contains rootlets (ML).
- Wet, gray, mottled brown, SILT, trace to some medium sand, contains rootlets (ML).
- As above; driller notes heave in auger.

**Peat**
- Moist, dark brown, highly organic soil (PT).
- No recovery; driller notes heave.

**Peat**
- Moist, dark brown, highly organic soil (PT).
- Driller notes full refusal due to heave.

- Bottom of exploration boring at 18 feet, caving at 10 feet.

---

**Sampler Type (ST):**
- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level
- Water Level at time of drilling (ATD)

**Logged by:** BCY  
**Approved by:** JHS
# BORING NO. 1

<table>
<thead>
<tr>
<th>Graph</th>
<th>US CS</th>
<th>Soil Description</th>
<th>Depth (ft.)</th>
<th>Sample</th>
<th>Blow/ Ft.</th>
<th>Wn (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ML</td>
<td></td>
<td>Brown to tan-gray, gravelly sandy SILT to silty gravelly SAND with scattered organics, moist, dense.</td>
<td>5</td>
<td></td>
<td>33</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SM</td>
<td></td>
<td>9/22</td>
<td></td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Pt</td>
<td></td>
<td>Brown PEAT, wet, soft.</td>
<td>10</td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SP</td>
<td>Blue SAND, wet, dense becoming very dense.</td>
<td>15</td>
<td></td>
<td>31</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50/6&quot;</td>
<td></td>
</tr>
</tbody>
</table>

Boring terminated at 20 feet on 9/22/78.

Driving Energy: 140 lb. Weight Dropping 30 inches

W. O. No. E-742
## Boring No. 2

### Soil Description

<table>
<thead>
<tr>
<th>Depth (ft.)</th>
<th>Sample</th>
<th>Blows/Ft.</th>
<th>Wn (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>I</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>II</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>II</td>
<td>20/6&quot;</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>II</td>
<td>36</td>
<td></td>
</tr>
</tbody>
</table>

- **SM**: Brown to gray-brown, gravelly silty SAND, moist, medium dense becoming loose beneath 6 feet.
- **Pt**: Brown PEAT, soft, wet.
- **SM ML**: Blue, silty fine SAND to sandy SILT with a layer of brown organic silt at 14 feet, moist, dense to hard.

Boring terminated at 20.5 feet on 9/25/78. No groundwater observed at time of drilling.

Driving Energy: 140 lb. Weight Dropping 30 inches

W. O. No. E-742
# Boring No. 3

**Elevation:** 138±

<table>
<thead>
<tr>
<th>Graph</th>
<th>US CS</th>
<th>Soil Description</th>
<th>Depth (ft.)</th>
<th>Sample</th>
<th>(N) Blows/Ft.</th>
<th>Wn (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM</td>
<td></td>
<td>Brown to blue, very dense silty SAND with some gravel and organics, moist, becoming loose and wet below 6 feet.</td>
<td>5</td>
<td></td>
<td>60</td>
<td></td>
</tr>
<tr>
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<td>Brown PEAT, soft, wet.</td>
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<td>SM SP</td>
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<td>Blue, medium dense to dense silty SAND with some thin layers of peat above 25 feet and some gravelly lenses, wet. (5 feet heave at 33.5 feet)</td>
<td>25</td>
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Boring terminated at 33.5 feet on 9/25/78.

Driving Energy: 140 lb. Weight Dropping 30 inches

W. O. No. E-742

*Earth Consultants*

**Plate 5**
Technical Memorandum

Date: November 20, 2017

To: Berger Partnership P5
1721 8th Avenue North
Seattle, Washington 98109

Attn: Mr. Andy Milton
Address: andym@bergerpartnership.com
Subject: Seismic Site Class

Project Manager: Jeffrey P. Laub, L.G., L.E.G.
Principal in Charge: Bruce L. Blyton, P.E.
Project Name: Totem Lake Park
Project No: 170126E001

We are pleased to present the following supplemental geotechnical information for the Totem Lake Park project in Kirkland, Washington. We are familiar with the project through our participation to date, which includes subsurface exploration; the issuance of our “Subsurface Exploration, Geologic Hazard, and Geotechnical Engineering Report” for the project, dated September 28, 2017; and subsequent design-phase consultation. Recommendations in this memo are based on subsurface data from our September 28, 2017 report and are supplemental to the recommendations contained therein.

In our September 28, 2017 report, we recommended that structural design follow 2015 International Building Code (IBC) standards using seismic Site Class “F” as defined in Table 20.3.1 of American Society of Civil Engineers (ASCE) 7 – Minimum Design Loads for Buildings and Other Structures. This recommendation is based on the peat deposits encountered in the explorations documented in our report. We understand that a designation of Site Class “F” prompts a “site-specific ground motion evaluation” requirement for the project.

We understand that structures proposed as part of the Totem Lake Park improvements project include low site walls and a one-story restroom structure. For these relatively small structures, it is our opinion that a reasonable design approach would be to use parameters for Site Class “E” in lieu of the site-specific seismic study, with the understanding that peat deposits underlie the site. As described in our report, a driven pipe pile-supported foundation is recommended for the structures to mitigate the risk of post-construction settlement, under both static and dynamic (seismic-liquefaction) conditions. This includes the proposed restroom and would be the recommended foundation approach whether the Site Class is “E” or “F.”

We trust that this memorandum will meet your current project needs. If you should have any questions or if we can be of additional help to you, please do not hesitate to call.
December 6, 2018
Project No. 170126E001

Berger Partnership PS
1721 8th Avenue North
Seattle, Washington 98109

Attention: Mr. Andy Mitton

Subject: Geotechnical Addendum
Existing Foundation Observations and Dewatering Considerations
Totem Lake Park
Kirkland, Washington

Dear Mr. Mitton:

As requested, Associated Earth Sciences, Inc. (AESI) presents additional information regarding the proposed demolition of the existing “Yuppie Pawn” building as well as dewatering considerations for utility excavations at the project site. We have previously prepared a “Subsurface Exploration, Geologic Hazard, and Geotechnical Engineering Report,” dated September 28, 2017, for the subject project.

In our September 28, 2017 report, we documented subsurface conditions and groundwater conditions encountered in our explorations. To supplement our previous work and provide information that the contractor can utilize during the demolition of the existing Yuppie Pawn building onsite, we were requested to observe the foundations along the outside of the building by way of exploration pits completed by a mini-track excavator subcontracted to our firm. The explorations were completed on November 19, 2018. We have also been requested to provide recommendations for dewatering (if necessary) for a proposed utility excavation onsite.
The following paragraphs document our observations and provide an update to the recommendations presented in our September 28, 2017 report.

**Building Foundation Observations and Considerations**

Existing foundation observations for our study were based on one large exploration pit dug on November 19, 2018, along the southwest margin of the existing Yuppie Pawn building. The exploration pit was advanced to a total depth of 4 feet by Northwest Excavating and Trucking (NWET), using a rubber-tracked mini trackhoe with an approximately 2-foot-wide toothed bucket. Soils encountered in the excavation consisted of fill soils (soils not naturally placed) to an approximate depth of 3.75 feet below the ground surface. This fill consisted of loose to medium dense sand with varying amounts of silt, gravel, and cobbles. Sediments encountered below the fill consisted of organic-rich peat soils. These conditions are similar to that encountered in our previous explorations at the subject site.

The exploration pit permitted observation of the bottom of the existing building’s foundation, which we observed to be supported by an approximately 12-inch-diameter creosote-treated timber pile (see Photo 1). Additional digging along the southwest margin of the building exposed a second timber pile inward of the building’s outer foundation. We measured a distance of approximately 10 feet between the timber piles.

It should be noted that our observations were limited in nature due to utilities, construction trailers, and other physical and budgetary constraints, and our recommendations are based upon these limited observations. We anticipate that timber piles are also present at each corner of the existing building’s foundation and beneath grade beams which support load bearing walls. Based on our previous exploration onsite and our experience with timber pile installation, we anticipate that the depth of the timber piles to be on the order of 15 to 30 feet, depending on their respective locations around the building.

After demolition of the building and grade beams, the timber piling can either be extracted or cut off and abandoned. For the removal option, a hydraulic vibratory extractor mounted to a large trackhoe is normally used. The remaining holes may experience some collapse/caving as the piles are extracted and should be backfilled immediately with pea gravel or controlled density fill. Backfilling the holes in a timely manner is crucial to the removal process as excess collapse/caving of soft sediments into the holes can produce areas of soft subgrade which can lead to settlement over time.
Alternatively, the existing timber piles can be cut off (usually 2 to 3 feet below final grade) in place and filled over the top of them. This approach is recommended where new structures/utilities will not conflict with the remaining portions of the pile shafts and where differential settlement of soil surrounding the abandoned piles will not be a concern.

**Dewatering Considerations**

In preparation of this report, we were provided with a site plan titled, “Utility Plan - Park” prepared by CH2M. Project plans call for the removal of an existing manhole and replacement with a new precast manhole, which will require an excavation of approximately 10 feet below existing grade. Our previous exploration included installation and development of a groundwater monitoring well (EB-1W) near to the existing manhole. Groundwater seepage was encountered within exploration boring EB-1W at 15 feet below the ground surface at the time of drilling on June 2, 2017. The measurement taken in EB-1W on July 31, 2017, indicated a piezometric water level of 7.5 feet below the ground surface. We expect groundwater across much of the site to lie within the underlying wetland/peat deposits and recessional outwash, and roughly corresponds to the water level in Totem Lake. It should be noted that the occurrence and level of groundwater seepage at the site may vary in response to such factors as changes in season, amount of precipitation, and site use. Our June 2017 explorations were completed during the dry season and groundwater elevations are likely to be higher (closer to existing grade) during the wet season. Based on previous explorations and groundwater level monitoring, it is our opinion that the proposed excavation for the manhole removal and replacement will encounter groundwater seepage and that dewatering system may be needed.

The quantity and duration of flow from an excavation that encounters groundwater depends on a number of factors including topography, size and depth of the excavation, proximity to surface water features, soil grain size, lateral extent of the water-bearing zone or aquifer, and season. Water levels inside the excavation for manhole removal and replacement should be drawn down to at least 2 feet below the base of the excavation. This drawdown is intended, in part, to avoid heaving or flowing soils during construction. It should be noted that dewatering the wetland sediments and/or peat sediments as encountered near the proposed manhole replacement has the potential to cause localized settlement of surrounding features as the water is extracted. An excavation dewatering plan was beyond the scope of this current study and is typically contractor-designed to align with their means and methods of construction. AESI is available to provide review or consultation services in support of a proposed dewatering plan.
If you should have any questions concerning this letter, please do not hesitate to call our office.

Sincerely,
ASSOCIATED EARTH SCIENCES, INC.
Kirkland, Washington

Tyler Gilsdorf, G.I.T., CESCL
Senior Staff Geologist

Jeffrey P. Laub, L.G., L.E.G.
Senior Project Engineering Geologist

Bruce L. Blyton, P.E.
Senior Principal Engineer

Attachments: Photo 1: Foundations Observed
Photo 1: Creosote treated timber pile observed in excavation near building foundation
March 11, 2019
Project No. 170126E001

Berger Partnership PS
1721 8th Avenue North
Seattle, Washington 98109

Attention: Mr. Andy Mitton

Subject: Geotechnical Addendum
Pavement Subgrade Improvement
and Updated Groundwater Information
Totem Lake Park
Kirkland, Washington

Dear Mr. Mitton:

As requested, Associated Earth Sciences, Inc. (AESI) presents additional information regarding the proposed Totem Lake Park project. We have previously prepared a “Subsurface Exploration, Geologic Hazard, and Geotechnical Engineering Report,” dated September 28, 2017, and a “Geotechnical Addendum - Existing Foundation Observations and Dewatering Considerations,” dated December 6, 2018, and have provided ongoing design-phase consultation for the subject project.

In our September 28, 2017 report, we documented subsurface conditions and groundwater conditions encountered in our explorations. To supplement our previous work and provide information that the contractor can utilize during construction, we completed a recent, wet-season groundwater measurement in our previously installed monitoring well. We have also been requested to provide recommendations for the improvement of subgrade conditions for proposed surfacing, such as concrete and asphalt pavements, and playground turf areas.

The following paragraphs document our observations and provide an update to the recommendations presented in our September 28, 2017 report.
Pavement Subgrade Improvement

In our September 28, 2017 report, we stated that, where potential post-construction settlement can be tolerated, site soils can be used to support slabs-on-grade, sidewalks, or other similar structures contingent upon remedial preparation and understanding of uncertainties in settlement performance. We recommended that slabs, pavement, or segmented paving stones to be supported on grade be supported on a 2-foot-thick structural fill mat compacted to at least 95 percent of ASTM D-1557, and that a geotextile separation fabric, such as Mirafi 500X or approved equivalent, be used between the structural fill and the underlying soil subgrade.

During discussions with the project design team, we were requested to provide recommendations for subgrade improvement which would reduce the thickness of the structural fill mat below proposed surfacing, such as concrete and asphalt pavements, and playground turf areas. With the addition of triaxial geogrid, such as Tensar TriAx TX130S or approved equivalent, between the structural fill and the underlying soil subgrade, the previously recommended 24 inches of structural fill below these surfaces may be reduced to 16 inches.

Updated Groundwater Information

Our previous exploration included installation and development of a groundwater monitoring well (EB-1W). Groundwater seepage was encountered within exploration boring EB-1W at 15 feet below the ground surface at the time of drilling on June 2, 2017. The measurement taken in EB-1W on July 31, 2017, indicated a piezometric water level of 7.5 feet below the ground surface. In our September 28, 2017 report, we stated that the occurrence and level of groundwater seepage at the site may vary in response to such factors as changes in season, amount of precipitation, and site use. Our June 2017 explorations were completed during the dry season and groundwater elevations are likely to be higher (closer to existing grade) during the wet season. We returned to the subject site on February 7, 2019, to measure a wet-season groundwater level in EB-1W. The measurement taken in EB-1W on February 7, 2019, indicated a piezometric water level of 5.8 feet below the ground surface, approximately 1.7 feet higher than that measured on July 31, 2017. We recommend that proposed excavations for the subject project, including for utilities, be completed during the dry season to reduce the degree of dewatering which may be needed.

Based on review of their topographic survey, the surface elevation at EB-1W is approximately 130 to 131 feet. We recommend that the elevation of EB-1W be surveyed to provide discrete elevation data associated with the above-mentioned measured groundwater depths. Based on our recent groundwater measurement, we anticipate that the proposed underdrains for the proposed bioretention cells, currently planned with a pipe invert elevation of 124.75 feet, may
collect minor groundwater seepage flows during the wet season. Given the silty soils encountered during our previous explorations, we anticipate the discharge associated with collected groundwater to be low, as compared with that associated with collected and routed stormwater flows.

If you should have any questions concerning this letter, please do not hesitate to call our office.

Sincerely,

ASSOCIATED EARTH SCIENCES, INC.
Kirkland, Washington

Jeffrey P. Laub, L.G., L.E.G.
Senior Engineering Geologist

Bruce L. Blyton, P.E.
Senior Principal Engineer
APPENDIX F

STORMWATER TIR
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F    Conveyance Calculations
G    Operations and Maintenance Recommended Procedures, from KCSWDM
## Abbreviations

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<td>AESI</td>
<td>Associated Earth Sciences, Inc.</td>
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<tr>
<td>BMP</td>
<td>best management practice</td>
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<tr>
<td>CKC</td>
<td>Cross Kirkland Corridor</td>
</tr>
<tr>
<td>CSWPPP</td>
<td>Construction Stormwater Pollution Prevention Plan</td>
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<td>Ecology</td>
<td>Washington State Department of Ecology</td>
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<td>ESC</td>
<td>erosion and sedimentation control</td>
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<td>EvC</td>
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<td>GIS</td>
<td>geographic information system</td>
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<td>horizontal/vertical</td>
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<td>I-405</td>
<td>Interstate 405</td>
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<td>KCSWDM</td>
<td>King County Surface Water Design Manual</td>
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<tr>
<td>NRCS</td>
<td>Natural Resources Conservation Service</td>
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<td>PGIS</td>
<td>pollution generating impervious surface</td>
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<td>Seattle Muck</td>
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<td>Stormwater Management Manual for Western Washington</td>
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<td>Stormwater Pollution Prevention Plan</td>
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<td>TIR</td>
<td>Technical Information Report</td>
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<td>WWHM</td>
<td>Western Washington Hydrology Model</td>
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SECTION 1

Project Overview

Totem Lake is an open water and wetland complex near the intersection of Totem Lake Boulevard and 120th Ave NE in Kirkland, Washington. The lake is within the Juanita Creek Basin and adjacent to the Totem Lake (Category II) wetland. Due to its proximity to the Cross Kirkland Corridor (CKC), Totem Lake Mall, and the Evergreen Hospital, Totem Lake represents a prime opportunity to maintain environmental resources and provide a park facility that offers recreational opportunities, access to nature, and nonmotorized transportation connections. Redevelopment of the Totem Lake area is a top priority of the Kirkland City Council.

This TIR has been developed for the project’s 100-percent design phase and is intended to establish the layout for a park on the existing commercial site, and advance design concepts for boardwalk connections around Totem Lake to the CKC. Additionally, a draft Technical Information Report (TIR) worksheet is included as Figure 1-1 and will continue to be updated as the design of the project progress.

The proposed project improvements represent the first phase of implementation of the Totem Lake Park Master Plan (City of Kirkland 2013), which was adopted by the City of Kirkland in December 2013. The proposed project includes redeveloping an existing commercial parcel with a new park, as well as improving an existing paved trail and constructing a new boardwalk to connect the trail to the nearby CKC. The project vicinity and extent of improvements around Totem Lake are shown on Figure 1-2.

1.1 Existing Site Conditions

The project is located on two separate parcels. One parcel is approximately 18 acres and comprises Totem Lake, surrounding wetland areas, and existing paved pathways and wooden boardwalks. The other parcel is approximately 1.5 acres and comprises a portion of Totem Lake Way and an existing commercial development. The project site is divided into two separate areas or basins within these two parcels, as described below and as shown on Figure 1-3; total area of the project site is approximately 1.53 acres:

- **Park**—The project site includes approximately 1.21 acres of the existing commercial parcel that will be redeveloped as a park. This portion of the project site is bordered by Totem Lake Way to the north, Totem Lake to the south, and adjacent developments to the east and west. The site slopes down from Totem Lake Way to the building and parking lot at approximately 30-percent, then slopes south toward the lake at approximately 5-percent. Stormwater runoff on the commercial parcel is collected in a private drainage system that discharges through an outfall to Totem Lake at the south of the site.

- **Trail and boardwalk**—The project site also includes an existing asphalt paved trail of approximately 0.08 acre and an additional area of 0.24 acre of wetland and buffer of proposed boardwalk and additional trail area. The trail extends east from the commercial site bordering the north of the lake. Its width varies but is approximately on average 6 feet. The longitudinal slope of the trail also varies with slopes up to 5-percent. The area south of the trail slopes down to the lake at approximately 40 percent. Runoff from the existing trail sheet flows down the slope to the lake. The proposed boardwalk will connect the trail to the CKC; most of this area consists of wetland within the ordinary high-water elevation of the lake.
**TECHNICAL INFORMATION REPORT (TIR) WORKSHEET**

**Part 1   PROJECT OWNER AND PROJECT ENGINEER**

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<th>City of Kirkland Parks &amp; Recreation</th>
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<tr>
<td>Phone</td>
<td>425.587.3300</td>
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<tr>
<td>Address</td>
<td>123 5th Ave Kirkland, WA 98033</td>
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| Project Engineer       | Jesse Williams                      |
| Company                | CH2M                                |
| Phone                  | (425) 454-8744                      |

**Part 2   PROJECT LOCATION AND DESCRIPTION**

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<td>Location</td>
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<td>Range R05E</td>
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<tr>
<td>Site Address</td>
<td>12307 and 12031 NE Totem Lake Way, Kirkland, WA</td>
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**Part 3   TYPE OF PERMIT APPLICATION**

- [ ] Landuse (e.g., Subdivision / Short Subd. / UPD)
- [ ] Building (e.g., M/F / Commercial / SFR)
- [ ] Clearing and Grading
- [ ] Right-of-Way Use
- [X] Other COK Permits

**Part 4   OTHER REVIEWS AND PERMITS**

- [ ] DFW HPA
- [ ] COE 404
- [ ] DOE Dam Safety
- [ ] FEMA Floodplain
- [X] COE Wetlands
- [ ] Other
- [ ] Shoreline Management
- [X] Structural Rockery/Vault/
- [ ] ESA Section 7

**Part 5   PLAN AND REPORT INFORMATION**

**Technical Information Report**

- [X] Full
- [ ] Targeted
- [ ] Simplified
- [ ] Directed
- [ ] Large Project

Type of Drainage Review (check one):

- [X] Full
- [ ] Targeted
- [ ] Simplified
- [ ] Large Project

Date (include revision dates):

Date of Final:

**Site Improvement Plan (Engr. Plans)**

- [X] Full
- [ ] Modified
- [ ] Simplified

Plan Type (check one):

- [X] Full
- [ ] Modified
- [ ] Simplified

Date (include revision dates):

Date of Final:

**Part 6   SWDM ADJUSTMENT APPROVALS**

- Type (circle one): Standard / Experimental / Blanket
- [ ] Standard
- [ ] Experimental
- [ ] Blanket

Description: (include conditions in TIR Section 2)

N/A

Approved Adjustment No. __________________________ Date of Approval: _________________________

**Figure 1-1. TIR Worksheet**
## Monitoring Requirements

Monitoring Required: **Yes** / **No**  
Start Date:  
Completion Date:  
Describe:  
Re: KCSWDM Adjustment No. **___________**

## Site Community and Drainage Basin

Community Plan:  
Special District Overlays:  
Drainage Basin: **Juanita Creek Basin**  
Stormwater Requirements:  

## Onsite and AdjacentSensitive Areas

- River/Stream  
- Lake  
- Wetlands  
- Closed Depression  
- Floodplain  
- Other  
- Steep Slope  
- Erosion Hazard  
- Landslide Hazard  
- Coal Mine Hazard  
- Seismic Hazard  
- Habitat Protection  

## Soils

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<tr>
<td>Pavement</td>
<td>0-5%</td>
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<tr>
<td>Water - Lake</td>
<td>0%</td>
<td><strong>None</strong></td>
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<tr>
<td>Seattle Muck</td>
<td>0-5%</td>
<td><strong>Low</strong></td>
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<tr>
<td>Everett very gravelly sandy loam</td>
<td>5-15%</td>
<td><strong>Low</strong></td>
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- High Groundwater Table (within 5 feet)  
- Other  
- Sole Source Aquifer  
- Seeps/Springs  

Additional Sheets Attached
## TECHNICAL INFORMATION REPORT (TIR) WORKSHEET

### Part 11 DRAINAGE DESIGN LIMITATIONS

**REFERENCE**

- Core 2 – Offsite Analysis
- Sensitive/Critical Areas
- SEPA
- LID Infeasibility
- Other

**LIMITATION / SITE CONSTRAINT**

| Core 2 – Offsite Analysis | ____________________________ |
|---------------------------|______________________________|
| Sensitive/Critical Areas  | ____________________________ |
| SEPA                      | ____________________________ |
| LID Infeasibility         | ____________________________ |
| Other                     | ____________________________ |

- Additional Sheets Attached

### Part 12 TIR SUMMARY SHEET

(Provide one TIR Summary Sheet per Threshold Discharge Area)

**Threshold Discharge Area:**

Park, Trail and Boardwalk

**Core Requirements (all 8 apply):**

- **Discharge at Natural Location**
  - Number of Natural Discharge Locations: 1

- **Offsite Analysis**
  - Level: 1 / 2 / 3 dated: August 16, 2017

- **Flow Control (include facility summary sheet)**
  - Level: 1 / 2 / 3 or Exemption Number
  - Flow Control BMPs: Bioretention Cells (2)

- **Conveyance System**
  - Spill containment located at: Flow control structure

- **Erosion and Sediment Control / Construction Stormwater Pollution Prevention**
  - CSWPP/CESCL/ESC Site Supervisor: TBD (Contractor)
  - Contact Phone: TBD (Contractor)
  - After Hours Phone: TBD (Contractor)

- **Maintenance and Operation**
  - Responsibility (circle one): Private / Public
  - If Private, Maintenance Log Required: Yes / No

- **Financial Guarantees and Liability**
  - Provided: Yes / No

- **Water Quality (include facility summary sheet)**
  - Type (circle one): Basic / Sens. Lake / Enhanced Basic / Bog
  - or Exemption No.
  - Landscape Management Plan: Yes / No

**Special Requirements (as applicable):**

- **Area Specific Drainage Requirements**
  - Type: CDA / SDO / MDP / BP / LMP / Shared Fac. / None
  - Name: ______________________

- **Floodplain/Floodway Delineation**
  - Type (circle one): Major / Minor / Exemption / None
  - 100-year Base Flood Elevation (or range): ________________
  - Datum:

- **Flood Protection Facilities**
  - Describe:

---

*Figure 1-1. TIR Worksheet*
### TECHNICAL INFORMATION REPORT (TIR) WORKSHEET

#### Part 12 TIR SUMMARY SHEET

<table>
<thead>
<tr>
<th>Source Control</th>
<th>Describe land use: (commercial / industrial land use)</th>
<th>Describe any structural controls:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Oil Control</th>
<th>High-use Site: Yes / No</th>
<th>Treatment BMP: ________________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Maintenance Agreement: Yes / No with whom? ____________________________</td>
</tr>
</tbody>
</table>

#### Other Drainage Structures

Describe:

#### Part 13 EROSION AND SEDIMENT CONTROL REQUIREMENTS

<table>
<thead>
<tr>
<th>MINIMUM ESC REQUIREMENTS DURING CONSTRUCTION</th>
<th>MINIMUM ESC REQUIREMENTS AFTER CONSTRUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔ Clearing Limits</td>
<td>✔ Stabilize exposed surfaces</td>
</tr>
<tr>
<td>✔ Cover Measures</td>
<td>✔ Remove and restore Temporary ESC Facilities</td>
</tr>
<tr>
<td>✔ Perimeter Protection</td>
<td>✔ Clean and remove all silt and debris, ensure operation of Permanent Facilities, restore operation of Flow Control BMP Facilities as necessary</td>
</tr>
<tr>
<td>✔ Traffic Area Stabilization</td>
<td>✔ Flag limits of SAO and open space preservation areas</td>
</tr>
<tr>
<td>✔ Sediment Retention</td>
<td>❑ Other ____________________________</td>
</tr>
<tr>
<td>✔ Surface Water Collection</td>
<td>❑ Other ____________________________</td>
</tr>
<tr>
<td>✔ Dewatering Control</td>
<td>❑ Other ____________________________</td>
</tr>
<tr>
<td>✔ Dust Control</td>
<td>❑ Other ____________________________</td>
</tr>
<tr>
<td>✔ Flow Control</td>
<td>❑ Other ____________________________</td>
</tr>
<tr>
<td>✔ Protection of Flow Control BMP Facilities (existing and proposed)</td>
<td>❑ Other ____________________________</td>
</tr>
<tr>
<td>✔ Maintain BMPs / Manage Project</td>
<td>❑ Other ____________________________</td>
</tr>
</tbody>
</table>

#### Part 14 STORMWATER FACILITY DESCRIPTIONS

<table>
<thead>
<tr>
<th>Flow Control</th>
<th>Type/Description</th>
<th>Water Quality</th>
<th>Type/Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>❑ Detention</td>
<td>________________</td>
<td>❑ Vegetated Flowpath</td>
<td>________________</td>
</tr>
<tr>
<td>❑ Infiltration</td>
<td>________________</td>
<td>❑ Wetpool</td>
<td>________________</td>
</tr>
<tr>
<td>❑ Regional Facility</td>
<td>________________</td>
<td>❑ Filtration</td>
<td>________________</td>
</tr>
<tr>
<td>❑ Shared Facility</td>
<td>________________</td>
<td>❑ Oil Control</td>
<td>________________</td>
</tr>
<tr>
<td>✔ Flow Control BMPs</td>
<td>Bioretention Cells (2)</td>
<td>❑ Spill Control</td>
<td>________________</td>
</tr>
<tr>
<td>❑ Other</td>
<td>________________</td>
<td>✔ Flow Control BMPs</td>
<td>Bioretention Cells (2)</td>
</tr>
</tbody>
</table>

Figure 1-1. TIR Worksheet
### TECHNICAL INFORMATION REPORT (TIR) WORKSHEET

<table>
<thead>
<tr>
<th>Part 15   EASEMENTS/TRACTS</th>
<th>Part 16   STRUCTURAL ANALYSIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Drainage Easement</td>
<td>☐ Cast in Place Vault</td>
</tr>
<tr>
<td>☐ Covenant</td>
<td>☐ Retaining Wall</td>
</tr>
<tr>
<td>☐ Native Growth Protection Covenant</td>
<td>☐ Rockery &gt; 4’ High</td>
</tr>
<tr>
<td>☐ Tract</td>
<td>☐ Structural on Steep Slope</td>
</tr>
<tr>
<td>☐ Other __________________</td>
<td>☐ Other ____________________</td>
</tr>
</tbody>
</table>

### Part 17 SIGNATURE OF PROFESSIONAL ENGINEER

I, or a civil engineer under my supervision, have visited the site. Actual site conditions as observed were incorporated into this worksheet and the attached Technical Information Report. To the best of my knowledge the information provided here is accurate.

---

Signed/Date
Figure 1-3. Drainage Basins, Subbasins, and Site Characteristics
The parcels that contain the project site are located within the larger Totem Lake Basin. The Totem Lake Basin is a major tributary of Juanita Creek, originating from Totem Lake and flowing through culverts under main roads, including Interstate 405 (I-405), through a series of wetlands and commercial and residential areas, before flowing down a steep drainage system to Juanita Creek. Additional information of downstream conditions is provided in Section 3, Offsite Analysis.

The Totem Lake wetland is approximately 18 acres and its tributary area is approximately 665 acres. The wetland receives water from 80 percent of the drainage basin above I-405, making it a critical natural component of the watershed (City of Kirkland, 2015). The CKC collects and transports most of the basin’s runoff to Totem Lake.

### 1.2 Existing Utilities

Following are existing utilities along Totem Lake Way, bordering the north side of commercial site:

- Sanitary sewer, owned by Northshore Utility District
- Potable water main, owned by Northshore Utility District
- Underground power, owned by Puget Sound Energy
- Underground gas, owned by Puget Sound Energy
- Underground communication lines, ownership unknown at this time
- Storm sewer, owned by City of Kirkland

The existing utilities under adjacent roadway and existing sidewalk within Totem Lake Way will be protected so that they can remain in place. Utility services to the existing building on the commercial site will be abandoned within the project limits. The existing water and sewer service connections will be reused as described in Section 5.3. Totem Lake Way drains to an outfall located at the southwest corner of the commercial site. The outfall will be protected to remain in the current location.

### 1.3 Soils

A Natural Resources Conservation Service soil survey was printed of the site and one-quarter mile downstream area. This is shown on Figure 1-4; the legends and land cover summary of this survey are attached in Appendix B. The soil map shows that most of the site is in SK (Seattle Muck), while the eastern portion is with soil Everett (EvC). Seattle Muck is a hydrological group D soil and Everett is a hydrological group A soil.

A geotechnical investigation was conducted by Associated Earth Sciences, Inc. (AESI) during June and July 2017 to determine the soil composition and feasibility of constructing and adding stormwater facilities at the site. Exploration borings contained fill material extending to approximately 5 to 12 feet below the ground surface. Beneath the fill, the soil generally comprises peat and wetland soils, then glacially deposited sand, and very dense and stiff gravelly sand.

Due to the soil composition, including presence of fill, permeability of wetland deposits, and groundwater level, AESI (2017) concluded that onsite stormwater infiltration is infeasible. Section 5.2 of the *King County Surface Water Design Manual* (KCSWDM; King County, 2016) instructs that the bottom surface of infiltration facilities “must be in native soil” and “be at least 3 feet above the seasonal high groundwater level and have at least 3 feet of permeable soil beneath”, leading AESI to draw the above conclusion.
Figure 1-4. Soils

Soil Map—King County Area, Washington (Totem Lake Park and 1/4-Mile Downstream)

One-quarter mile downstream from Totem Lake outfall

Project Site

Totem Lake outfall

Map Scale: 1:5,120 if printed on A landscape (11" x 17") sheet.

Map projections: Web Mercator  
Corner coordinates: WGS84  
Edge zone: UTM Zone 10N WGS84

USDA
Natural Resources Conservation Service
Web Soil Survey
National Cooperative Soil Survey

7/25/2013
Page 1 of 3
1.4 Proposed Conditions

The proposed improvements are summarized below and shown in detail on the design drawings in Appendix A; area calculations of existing and proposed conditions are provided in Table 1-1. Additionally, Figure 1-5 shows the proposed land cover in comparison to existing.

- **Park**—The existing commercial development described in Section 1.1, including the building and asphalt parking lot, will be removed and replaced with a new park. The 1.21 acre park will include new paved pathways, a restroom facility, play areas, an updated parking lot, and native vegetation restoration for the remainder of landscape areas. New water service connections and meters will be provided for irrigation and the restroom. The existing sewer service will be capped, abandoned, and replaced with a new service for the park restroom facilities. Stormwater runoff will be collected in a new conveyance system, treated in two newly constructed bioretention cells, and discharged through an existing storm drainage system to outfall to Totem Lake. The proposed stormwater system will include facilities to satisfy the KCSWDM core requirements as discussed in Section 2 of this report.

- **Trail and boardwalk**—The project site also includes an approximately 0.32-acre area of improvements to the existing paved trail and proposed boardwalk. Improvements to the trail include removing, replacing, and widening the existing trail. This new 10-foot-wide trail will account for 0.13 acre of impervious surface. Collecting runoff from this new and existing asphalt pavement is infeasible and instead will sheet-flow down to the lake. Approximately 0.16 acre of wetland and buffer will be overlaid with an open-grated boardwalk. Most of this proposed pervious area (0.13 acre) is within the ordinary high-water elevation of the lake. Runoff from the boardwalk will pass through open space in the decking and drain down to the water and soil below. An additional 0.03 acre of asphalt-paved trail will be added at the end of the proposed boardwalk to connect to the CKC. Runoff from this area will also sheet flow to Totem Lake. The stormwater from the 0.19 acres of area that are sheet flowing to Totem Lake will be substituted (per KCSWDM 1.2.3.2.E, Mitigation of Target Surfaces that Bypass Facility) by runoff from an equivalent area of Totem Lake Way, which will be collected and conveyed to the bioretention cells.

- **Totem Lake Way** – In addition to the 0.19 acres of Totem Lake Way that will be collected as a swap of the trail and boardwalk area, 0.36 acres will be collected from Totem Lake Way and conveyed to the bioretention cells. City of Kirkland staff determined that 0.55 acres from Totem Lake Way can be conveyed to this facility. Of this additional 0.36 acres, 0.14 acres will be detained and treated while the remaining 0.22 acres will be treated for water quality only; this is the maximum amount feasible for flow control given site and sizing constraints. Refer to Section 4 for more information on the modeling used to determine the amount of additional area that could be detained and treated.

<table>
<thead>
<tr>
<th>Land Cover</th>
<th>Park (acres)</th>
<th>Trail and Boardwalk (acres)</th>
<th>Totem Lake Way (acres)</th>
<th>Total (acres)</th>
</tr>
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<tbody>
<tr>
<td>Existing Conditions</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Impervious (non-PGIS)</td>
<td>0.25</td>
<td>0.08</td>
<td>--</td>
<td>0.33</td>
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<tr>
<td>Pervious</td>
<td>0.44</td>
<td>0.24</td>
<td>--</td>
<td>0.68</td>
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<tr>
<td>Impervious (PGIS)</td>
<td>0.52</td>
<td>--</td>
<td>0.55</td>
<td>1.07</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1.21</td>
<td>0.32</td>
<td>0.55</td>
<td>2.08</td>
</tr>
</tbody>
</table>
### Proposed Conditions

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>New and replaced impervious (non-PGIS)</td>
<td>0.50</td>
<td>0.32</td>
<td>--</td>
<td>0.82</td>
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<tr>
<td>Pervious (lawn or landscaping)</td>
<td>0.65</td>
<td>--</td>
<td>--</td>
<td>0.65</td>
</tr>
<tr>
<td>New and replaced impervious (PGIS)</td>
<td>0.06</td>
<td>--</td>
<td>0.55</td>
<td>0.61</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>1.21</td>
<td>0.32</td>
<td>0.55</td>
<td>2.08</td>
</tr>
</tbody>
</table>
Conditions and Requirements Summary

This TIR is intended to fulfill the requirement of a full drainage review by demonstrating compliance with all nine core requirements and all five special requirements as specified in the 2016 KCSWDM as well as City of Kirkland’s Policy D-10 Addendum to the 2016 KCSWDM. The stormwater design will adhere to the requirements in the following codes and standards:

- City of Kirkland Municipal Code, Chapter 90
- 2016 KCSWDM core requirements:
  - Core Requirement 1: Discharge at the Natural Location—There are no exemptions to this requirement; therefore, it will apply to this project. All stormwater runoff from the project under proposed conditions will be discharged through existing infrastructure to an existing outlet location (Totem Lake) and not diverted to or away from any other downstream areas.
  - Core Requirement 2: Offsite Analysis—A Level 1 downstream analysis was performed. Further detail may be found in Section 3 of this TIR.
  - Core Requirement 3: Flow Control—The proposed bioretention cells will mitigate the flow quantity impacts of stormwater runoff from the site as detailed in Section 4 of this report.
  - Core Requirement 4: Conveyance System—A new conveyance system was designed as part of the Totem Lake Park project. The conveyance system will be designed to meet the 25-year conveyance standard with backwater analysis. The new catch basins and storm drains will convey runoff to the proposed bioretention cells, which will then tie into existing outflows into Totem Lake on the south of the project site.
  - Core Requirement 5: Erosion and Sediment Control—There are no exemptions for this requirement; therefore, it will apply to this project. Erosion and sedimentation control (ESC) plans will be included with construction plans, and a Construction Stormwater Pollution Prevention Plan (CSWPPP) will be prepared for the project.
  - Core Requirement 6: Maintenance and Operations—There are no exemptions for this requirement; therefore, it will apply to this project. Maintenance and operations for the site stormwater conveyance and bioretention cells used on this project will be entirely owned, operated, and maintained by the City of Kirkland. Maintenance will follow City of Kirkland Standard Operating Procedures. Sample operations and maintenance information is provided for permitting purposes.
  - Core Requirement 7: Financial Guarantees and Liability—Financial Guarantees and Liability are the responsibility of the City of Kirkland.
  - Core Requirement 8: Water Quality—The project will be exempt from enhanced water quality treatment requirements because there will be less than 5,000 square feet of new plus replaced impervious surface area. The project was evaluated to the basic water quality treatment standard. Water quality measures in the form of two bioretention cells were provided to collect stormwater runoff from the new parking lot onsite as well as from Totem Lake Way.
  - Core Requirement 9: Flow Control Best Management Practices—The new park will have two bioretention cells and a pervious boardwalk designed to meet the standards of KCSWDM Appendix C and subsequent sections of this report.
• 2016 KCSWDM special requirements:

  — **Special Requirement 1: Other Adopted Requirements**—Because the proposed project is located in Kirkland, the following City of Kirkland Storm Drainage Policies apply:

    o **Policy D-3: Targeted and Full Drainage Review Requirements**—The project will create more than 2,000 square feet of new plus replaced impervious surface and is, therefore, subject to a full drainage review by the City of Kirkland Development Services.

    o **Policy D-8: Soil Information for Stormwater Development Requirements**—A soil report has been completed for this site to demonstrate the infeasibility of full dispersion and the feasibility of the selected best management practice (BMP)—bioretention cells and a pervious surfaced boardwalk (AESI 2017).

    o **Policy D-10: Addendum to the 2016 KCSWDM**—The project will follow the design criteria in the KCSWDM.

    o **Policy D-12: Construction Stormwater Pollution Prevention Plan**—A draft CSWPPP will be completed and submitted to the City of Kirkland for this project. The contractor will finalize and modify the plan.

    o **Policy D-13: Wetland Hydrology Study Guidelines**—Part of the project is located within the Totem Lake wetland and its buffer. Mitigation will be considered per Kirkland City Code, Chapter 90.

  — **Special Requirement 2: Flood Hazard Area Delineation**—Type 3 Severe Flooding Problem is not applicable to this project because other projects (past and future) have addressed Totem Lake’s drainage issues.

  — **Special Requirement 3: Flood Protection Facilities**—This project does not rely on or modify any flood protection facilities and will be exempt from this requirement.

  — **Special Requirement 4: Source Control**—This project is a public park development within City-owned property and does not require a commercial building or commercial site development permit; therefore, it is exempt from this requirement.

  — **Special Requirement 5: Oil Control**—This project does not include any high-use site characteristics and is therefore exempt from this requirement.
A Level 1 downstream analysis was performed in accordance with KCSWDM Core Requirement 2 (King County, 2016) to identify and evaluate any potential offsite flooding, erosion, and water quality problems that could be aggravated by the proposed project. The Level 1 downstream analysis is composed of four tasks, defined below. A fifth task addressing mitigation of existing and potential flooding hazards may be added for Level 2 and 3 analyses. Since no existing or potential drainage or water quality problems were identified in the study area that would require mitigation, a Level 1 analysis was completed for this project and is described in this section of the report.

### 3.1 Task 1: Study Area Definition and Maps

According to KCSWDM Section 2.3.1.1 and City of Kirkland Policy D-10, the extent of the full downstream analysis will be completed up to a point where the project site constitutes less than 15 percent of the total tributary drainage area and no less than 0.25 mile downstream of the project site, except for informational review under Task 2, which will extend to a point 1 mile downstream. The study area also will extend upstream as necessary to encompass the offsite drainage area tributary to the project site and to a distance sufficient to preclude any backwater effects from the proposed project.

For this project, the project site is defined as the areas and locations within the larger Totem Lake site that are subject to proposed development. As described in Section 1 of this TIR, the proposed development includes the existing commercial development, trail, and new boardwalk connections around Totem Lake. No offsite drainage areas serve as tributary to these areas constituting the project site that would be subject to backwater effects from the proposed project. The project site also consists of less than 15 percent of the total area tributary to the larger Totem Lake site, and therefore, the full downstream analysis is completed to a point 0.25 mile downstream of the project site. The larger Totem Lake site and associated wetlands and critical areas are analyzed separately in critical areas reports and wetland hydrology studies associated with this project and are not included in the study area.

The beginning point of the downstream study area is the outfall from the southwest corner of the larger Totem Lake site, which is understood to be the confluence of runoff from the project site described above. Stormwater drains from the site outfall through a series of culverts on the north side of Totem Lake Boulevard. The culvert system crosses under Totem Lake Boulevard approximately 1,000 feet downstream and discharges to an unnamed drainage channel between Totem Lake Boulevard and I-405. The channel drains to the northwest to a point 0.25 mile downstream, which defines the endpoint of the full downstream analysis.

From the point 0.25 mile downstream, the channel continues to drain to the northwest between Totem Lake Boulevard and I-405. The channel drains through culverts under I-405 and discharges to a tributary of Juanita Creek. Water flows west in the tributary to a point 1 mile downstream approximately at the east property boundary of Juanita High School, which defines the endpoint of the informational review required for Task 2. The drainage tributary continues to flow west past the 1 mile downstream point and drains into Juanita Creek, which flows southwest and ultimately discharges to Lake Washington. A map of the study area was prepared using a U.S. Geological Survey topographic base map (Appendix C). Task 2: Resource Review

Per KCSWDM Section 2.3.1.1 and City of Kirkland Policy D-10, an informational review will be conducted and extend 1 mile downstream of the project site. The following information was reviewed as part of the analysis:
• **Basin plans**—No adopted basin plans have been developed for the larger Juanita Creek Basin as of the date of this TIR. The following documents were reviewed for general information about the Juanita Creek Basin.

  — *Stormwater Retrofit Analysis and Recommendations for Juanita Creek Basin in the Lake Washington Watershed* (King County, 2012)—This study identifies recommended actions to improve water quality and hydrologic conditions in the Juanita Creek Basin. However, no adopted recommendations or actions within the study area are noted.

  — *Juanita Creek Watershed Report* (City of Kirkland, 2017)—The City of Kirkland summarizes the current conditions of the watershed and recently completed restoration projects. No future restoration activities within the study area are noted.

• **FEMA maps**—FEMA Flood Insurance Rate Maps were reviewed to determine whether parts of the study area exist within a floodplain. No parts of the study area as defined in Task 1 are noted as being mapped within a floodplain. The surrounding area of Totem Lake, including the project site, lies within a Special Flood Hazard Area Zone A, with no base flood elevation determined.

• **Offsite analysis reports**—Other offsite analysis reports were not available for review at the time of this study.

• **Sensitive areas**—The study area was reviewed for sensitive areas on the King County iMap and City of Kirkland geographic information system (GIS) maps. The drainage tributary downstream of I-405 notably flows through a wetland area, beyond the point 0.25 mile downstream of the project site. Sensitive areas around Totem Lake are analyzed under separate reports associated with this project.

• **Drainage complaints**—The following drainage complaints were noted, as provided by City of Kirkland Public Works Department. Further discussion of drainage complaints is provided in Task 4 and Appendix C presents the map depicting the locations of the drainage complaints relative to the study area. These complaints were recorded prior to a culvert improvement project constructed in 2013, which addressed drainage issues associated with capacity constraints and flooding.

  — **SW-05-13 (12636 Totem Lake Boulevard)**—“Standing water in parking lot when it rains — system not draining properly.” (02-24-2005)

  — **SW-06-129 (11217 NE 128th Street)**—“They were worried about the creek flooding the out down at the lower units during the record wet November we had in 2006. The water came within inches of the units. We advised them to use sandbags.” (11-09-2006)

  — **SW-07-62 (11313 NE 128th Street)**—“Beaver dam causing problem for flow.” (07-06-2007)

• **Drainage problems**—No existing drainage problems are noted within the study area. The City of Kirkland’s available engineering records were reviewed to identify any recent projects or improvements in the downstream flow path related to past drainage issues. The following project is noted as a recent improvements:

  — **Record drawing 3592, CIP CSD-0075, JOB NO. 02-13-PW, Totem Lake Twin 42-Inch Culvert Replacement (February 2013)**—This project improved sections of the culvert system along Totem Lake Boulevard with a box culvert between points approximately 0 to 360 feet downstream and 630 to 1,000 feet downstream. The culvert improvements are expected to have addressed previously reported drainage issues at the time of the project. The ordinary high-water mark indicated on the plans is well below the indicated adjacent roadway elevations.

• **Soils survey**—The Natural Resources Conservation Service (NRCS) Web Soil Survey tool (NRCS, 2017) was used to identify soil conditions within the study area. Most of the area between the site outfall to the point 0.25 mile downstream consists of Sk soils (Seattle Muck, Type D), and the majority of
the remaining study area to the point 1 mile downstream consists of EvC soils (Everett Gravelly Sandy Loam, Type A/B).

- **Wetlands inventory**—As noted in review of sensitive areas information, the drainage tributary downstream of I-405 flows through a wetland area, beyond the point 0.25 mile downstream of the project site. No other wetlands are noted in the study area. Totem Lake wetlands, including areas within the project site, are addressed in separate critical areas studies performed as part of this project.

- **Migrating river studies**—No migrating rivers or streams were noted in the study area.

- **Washington State Department of Ecology (Ecology) 303(d) listings**—The Ecology 303(d) list was reviewed to identify any water quality issues within the extents of the downstream analysis. No water quality issues in the study area were noted in 303(d) listings.

- **Designated water-quality problems**—No designated water-quality problems were identified within the study area at the time of this review. The City of Kirkland has rated water quality, streamside vegetation and erosion, and stream flows for Juanita Creek as poor to moderate. However, no specific issues or adopted mitigation plans were identified within the study area. The City of Kirkland addresses water-quality problems through educational programs and source control as described in Policy D-10 Section 1.2.2.1.

- **Adopted stormwater compliance plans**—Apart from the requirements of the 2016 KCSWDM and Policy D-10, no adopted stormwater compliance plans were noted in the study area or larger Juanita Creek Basin.

### 3.2 Task 3: Field Inspection

A field visit was conducted on August 16, 2017, to observe project site surface conditions and downstream drainage features within the study area up to the 0.25-mile downstream point. The weather at the time was partly cloudy, and the most recent recorded rainfall before the field visit occurred on August 13, 2017. The following field observations were noted:

- No reported problems were identified under Task 2 to investigate up to 0.25 mile downstream of the site.
- No observed existing and/or potential issues of flooding, erosion, or water quality issues were identified within the study area at the time of the field visit.
- The drainage culverts and channels, improved in 2013 per record drawing 3592 reviewed in Task 2, appeared to be functioning as designed, and no constrictions or capacity issues were observed.
- The study area topography is relatively flat. Surface conditions above the drainage culverts were largely impervious, and the surface condition of the drainage channel was observed to include tall grass and native vegetation.
- Some culvert outfalls and/or inlets on the north side of Totem Lake Boulevard were located within a construction site and not available for inspection at the time of the field visit.

Photographs from the field visit are included in Appendix C.
3.3 Task 4: Drainage System Description and Problem Descriptions

A general description of the drainage system in the study area is provided in Task 1. Following are the drainage system components from the site outfall to the point 0.25 mile downstream (refer to the study area map and drainage system table in Appendix C):

- **Totem Lake Boulevard drainage culverts**—Several culverts were recently constructed between the project site and a point 1,000 feet downstream of it. These approximately comprise the following:
  - 360 feet of a 3-foot by 8-foot box culvert sloped at 0.2 percent
  - 270 feet of a 5-foot-diameter corrugated metal pipe culvert sloped at 0.5 percent
  - 370 feet of a 3-foot by 8-foot box culvert sloped at 0.2 percent

The 3-foot by 8-foot box culverts were installed in 2013 Kirkland’s record drawing 3592 to address drainage problems with the prior culvert system. The system was observed to be functioning as designed during the field visit, and there were no observed constrictions, capacity issues, or erosion associated with the culverts.

- **Totem Lake Boulevard drainage channel**—The culverts described above discharge to a drainage channel on the south side of the roadway. The channel drains to a point 0.25 mile downstream from the project site. The channel was improved in 2013 to address drainage problems associated with the prior channel as indicated in Kirkland’s record drawing 3592. The improved portions of the channel include a 4-foot-wide bottom area with 2:1 side slopes. The channel was observed to be covered with grass vegetation. The channel was observed to be functioning as designed during the field visit, and no constrictions, capacity issues, or signs of erosion were observed in the channel.

Three drainage complaints were noted in Task 2. These drainage complaints were located beyond the 0.25-mile downstream point but within 1 mile downstream. The following drainage complaints do not indicate problems that could potentially be aggravated by the proposed development:

- **SW-05-13**—The complaint reported standing water in the parking lot of a private development adjacent to the study area in 2005. The parking lot conveyance system appears to connect to the culvert system within the 0.25-mile downstream flow path from the project site per GIS information available on the City of Kirkland’s website. Since the complaint was filed in 2005 and the culvert system was improved in 2013, the backwater issues associated with the culvert system are expected to have been resolved. This complaint does not indicate an existing or potential drainage issue that would require mitigation from this project.

- **SW-06-129**—The complaint reported flooding concerns adjacent to the drainage tributary to Juanita Creek in 2006. The flooding concern appears to be the result of a one-time severe weather event since it was filed only once. The proposed development is anticipated to reduce stormwater volumes through required implementation of low-impact development BMPs per Core Requirement 8, as well as peak-flow reduction through required flow control per Core Requirement 3. Therefore, the project is not anticipated to aggravate potential flooding concerns in the downstream tributary to Juanita Creek.

- **SW-07-62**—The complaint reported flow issues associated with a beaver dam in 2007. The complaint appears to have been a one-time and does not appear to be a consistently reported issue, and the complaint did not indicate any issues associated with flooding. This complaint does not indicate a drainage issue that would be aggravated by the project.
Task 2 indicates that runoff from the drainage area tributary to Juanita Creek flows through a wetland area. This wetland area is beyond the point 0.25 mile, but within 1 mile downstream. Since the project site is within the larger Totem Lake site including associated wetland areas, the project is expected to address potential impacts to wetland hydrology at the project site, and additional mitigation will not be required for downstream wetland areas.
4.1 Existing Site Hydrology

Surface water runoff from the commercial site generally drains from north to south and is collected in an existing storm drain catch basin near the southwest corner of the site. The existing catch basin connects to an existing 24-inch storm drain, which discharges to Totem Lake. Runoff from the existing trail sheet flows down to Totem Lake. Surface runoff from Totem Lake Way, adjacent to the commercial site, drains to a separate storm system that also outfalls to Totem Lake via a separate outlet west of the existing catch basin. The outfall for the roadway is located within the project site and will be protected to remain during construction activities.

According to the geotechnical investigation performed by AESI (2017) as described in Section 1, groundwater was found in multiple exploration borings between 8 and 18 feet below the ground surface, with perched groundwater conditions present above wetland/peat deposits. The level and occurrence of groundwater seepage is expected to change due to factors including changes in season, precipitation, and site use.

4.2 Developed Site Hydrology

The proposed development will include a new conveyance system to collect runoff from the parking lot and other impervious surfaces in the northern portion of the commercial site. Two catch basins will also be added along Totem Lake Way to collect runoff from approximately 0.19 acres of road as a substitute for the 0.19 acres of trail and boardwalk target surfaces that will sheet flow into Totem Lake per KCSWDM 1.2.3.2.E, Mitigation of Target Surfaces that Bypass Facility. Additional catch basins will be added to convey the additional 0.36 acres of Totem Lake Way. These have not yet been designed. This stormwater will be conveyed to the two bioretention cells on the south side of the park site. The treated and overflow runoff will then discharge to Totem Lake via the existing site outfall in a manner that satisfies the conditions and requirements described in Section 2 of this report. Stormwater that falls on the trail and boardwalk is infeasible to collect for mitigation and will generally sheet flow down to Totem Lake. Table 1-1 in Section 1 summarizes proposed project site landcover conditions, and Figure 4-1 shows the proposed land cover conditions and modeling assumptions. Predeveloped conditions, which were also used in modeling, may be found in Figure 4-2. Also, Figure 1-3 in Section 1 depicts the basins within the project site, and Drawing C401 in Appendix A presents proposed stormwater facilities in the park.

4.3 Performance Standards

The following subsections describe the performance standards to be used for flow control, water quality, and conveyance.

4.3.1 Flow Control Facilities

The following performance standards will be met to satisfy Core Requirement 3 per the KCSWDM (2016) according to calculations provided in Appendix D:
Proposed Area Summary Table (Acres)

<table>
<thead>
<tr>
<th>Area</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Park - Impervious Area</td>
<td>0.56</td>
</tr>
<tr>
<td>Park - Pervious Area (Nonnative Planting)</td>
<td>0.13</td>
</tr>
<tr>
<td>Park - Pervious Area (Buffer Mitigation Planting)</td>
<td>0.52</td>
</tr>
<tr>
<td>Boardwalk - Over Totem Lake Wetlands High Water Mark</td>
<td>0.13</td>
</tr>
<tr>
<td>Boardwalk - Over Totem Lake Wetlands Buffer Zone</td>
<td>0.08</td>
</tr>
<tr>
<td>Trail</td>
<td>0.19</td>
</tr>
<tr>
<td>Totem Lake Way</td>
<td>0.19</td>
</tr>
</tbody>
</table>

Notes:
1. Modeled as 50% impervious and 50% grass per KCSWDM Table 1.2.9.A (Open grid decking over pervious area credit)
2. KCSWM Section 1.2.3.2.E (Mitigation of Target Surfaces that Bypass Facility)
3. KCSWM Section 1.2.9.1.A (Target Surfaces)
**Predeveloped Land Cover Summary**

### Predeveloped Area Summary Table (Acres)

<table>
<thead>
<tr>
<th>Area</th>
<th>Acres</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Park - Pervious Area</td>
<td>1.21</td>
<td>All of the Park, Trail and Boardwalk areas are modeled as SAT Forest in the Predeveloped condition</td>
</tr>
<tr>
<td>Trail and Boardwalk - Pervious Areas to become trail and boardwalk</td>
<td>0.19</td>
<td>This area is a target surface but is infeasible to collect in bioretention cells. It will sheet flow to Totem Lake, and an equivalent area of Totem Lake Way will be collected in bioretention cells as a substitution¹.</td>
</tr>
<tr>
<td>Boardwalk - Over Totem Lake Wetlands High Water Mark</td>
<td>0.13</td>
<td>This area is not a target surface and is not included in modeling².</td>
</tr>
</tbody>
</table>

**Notes**

¹ KCSWM Section 1.2.3.2.E (Mitigation of Target Surfaces that Bypass Facility)

² KCSWM Section 1.2.9.1.A (Target Surfaces)
The project will meet the standards of conservation flow control areas as described in Section 1.2.3 of the KCSWDM, per the 2017 City of Kirkland Flow Control Map. Criteria and modeling assumptions used to demonstrate compliance include the following:

- Developed project hydrology will match discharge durations to predeveloped conditions for the range of predeveloped discharge rates from 50 percent of the 2-year peak flow up to the full 50-year peak flow.
- Developed project hydrology will also match peak discharge rates to predeveloped peak discharge rates for the 2- and 10-year return periods.
- The predeveloped condition will be modeled as forested land cover, consistent with historical site conditions.
- The predeveloped soil condition will be modeled as saturated wetland soils, consistent with wetland deposits found in geotechnical borings and NRCS soil mapping as discussed in Section 1.

The runoff from the trail and boardwalk will drain directly to Totem Lake via sheet flow; it is infeasible to collect in the proposed drainage system. Rather, KCSWDM Section 1.2.3.2.E was followed for Mitigation of Target Surfaces that Bypass Facility:

1. The point of convergence for runoff discharged from the trail and boardwalk areas and from the bioretention cells are Totem Lake, which is well within a quarter mile of the project site discharge.
2. The increase in existing site conditions 100-year peak discharge from the bypassed area is less than 0.1 cubic feet per second. This was determined with a WWHM 2012 Model of 0.19 acres of impervious surface, modeled with 15-minute timesteps.
3. The target bypassed areas are entirely non-pollution generating impervious surfaces. As such, their drainage will not create a significant adverse impact to downstream drainage systems, salmonid habitat, or properties. See also the Wetland Report (Jacobs, 2018) and number 5 below.
4. There are no water quality requirements applicable to the bypassed target areas. However, the compensatory mitigation area described below will be conveyed to the bioretention cells and therefore will be treated.
5. An equivalent area of Totem Lake Way, which currently drains to Totem Lake, will be substituted for the trail and boardwalk area as compensatory mitigation. Stormwater from this area of Totem Lake Way is currently not mitigated. It will be captured and conveyed to the proposed onsite bioretention cells, which have been designed to accommodate this flow. This has the additional benefit of treating more pollution-generating impervious surface, thus increasing overall water quality to Totem Lake.

The project will evaluate potential impacts to wetland hydrology caused by changes in rate, duration, and quantity of stormwater discharged from the project site to the wetland areas around Totem Lake. The evaluation will be conducted in accordance to Reference 5 of the KCSWDM. An additional Wetland Report will be completed detailing this wetland hydrology study and results; the existing conditions used in this Wetland Study may be found in Figure 4-3.

4.3.2 Flow Control Best Management Practices

Per Core Requirement 9 described in Section 1.2.9 of the KCSWDM, the project will use flow control BMPs to the maximum extent feasible. The proposed park contains two bioretention cells, as seen in design drawings in Appendix A.
Existing Land Cover Summary

Figure 4-3

Existing Area Summary Table (Acres)

<table>
<thead>
<tr>
<th>Category</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Park - Impervious Area</td>
<td>0.77</td>
</tr>
<tr>
<td>Park - Pervious Area</td>
<td>0.45</td>
</tr>
<tr>
<td>Trail and Boardwalk - Pervious Areas and existing trail to become trail and boardwalk</td>
<td>0.32</td>
</tr>
</tbody>
</table>
Because the site is larger than 22,000 square feet and smaller than 5 acres, Large Lot BMP requirements were met per KCSWDM 1.2.9.2.2. Full dispersion, full infiltration, and limited infiltration are all infeasible at the site. Therefore, the two proposed bioretention cells were used to meet this criterion. The overall park, boardwalk, and trail area is 1.53 acres, of which 0.89 acres (or 58%) is impervious. Per KCSWDM, the Flow Control BMPs are required to be applied to 30% of the impervious site area, or 0.27 acres. As the site is inside the UGA (Rainfall region SeaTac 1.0 and less) with till soils, bioretention volume must be provided based on 0.6 inches of equivalent storage depth, or 590 cubic feet for the 0.27 acres of impervious area. As the bioretention cells have a bottom area of more than 3,200 square feet and a storage depth of 1 foot, they exceed this requirement.

In addition to treating the stormwater runoff, these cells will slow the rate of water flow to Totem Lake. The contributory area to the bioretention cell can be modeled according to Table 1.2.9.A in the KCSWDM. Additionally, the proposed boardwalk will be open-grated, allowing rainfall through to the wetland and buffer area below; this strategy is considered a flow control BMP: “open grid decking over pervious area” and has been modeled as such per Table 1.2.9.A as described in Section 4.4 of this report.

Reduced impervious surface credit and native growth retention credit are not required to be evaluated per Policy D-10.

4.4 Flow Control System

Modeling has been performed for the site using the 2012 Western Washington Hydrology Model (Appendix E includes additional information). Land cover assumptions for modeling are displayed below in Table 4-1 and are consistent with subbasins shown on Figure 1-3. The following assumptions were made regarding modeling:

- Targeted predeveloped site conditions are modeled as historical forested land cover with saturated wetland soils, consistent with wetland soil layers encountered in geotechnical investigations and NRCS soil mapping.
- Proposed site conditions are modeled as saturated wetland soils, which is considered the best representation of hydrologic conditions of the site due to composition of soils (fill over saturated wetland soils) and hydrologic proximity to Totem Lake.
- The Park Basin is assumed to be collected and conveyed to a bioretention cell sized to meet performance standards of Core Requirement 3.
- The Trail & Boardwalk Basin is modeled as an equivalent area of Totem Lake Way as described in section 4.3.1 of this report. Therefore, it is modeled as discharging into the bioretention cells with the same point of compliance as the Park Basin. The modeling credit from the proposed decking over pervious area was maintained in the basin.
- The Trail & Boardwalk Basin also includes the additional 0.36 acres of Totem Lake Way that will be conveyed to the bioretention cells. 0.14 of these additional acres are modeled as C, Forest, MOD in the predeveloped condition, as they will be mitigated by the bioretention cells. The extra 0.22 acres is shown as ROADS MOD in the predeveloped condition. The bioretention cells are not sized to mitigate these 0.22 acres, though they will be conveyed to the existing storm drain with the rest of the onsite stormwater.
- The dimensions used for modeling of the bioretention cell are shown in Table 4-2.
- The two connected bioretention cells are assumed to be modeled as one rectangular cell. The width of this cell was approximated by taking averages shown on design drawings based on bottom area contours.
• The length of the bioretention cell was calculated by taking the combined available bottom area of the cells divided by the approximate width described above.

• The grading slope of the cells varies between 2.5 and 3.0 horizontal/vertical (H/V) around the bioretention cells. The bioretention facilities have the preferred 3:1 slope per COK pre-approved plan for the long slope adjacent to the parking lot but have a modified 2.5:1 slope for the shorter slopes to maximize ponding area. The slopes are planted with a high density of plants, and an erosion control blanket will be added to the 2.5:1 slopes to reduce the chance of erosion of sloughing during plant establishment. Therefore, three sides of the bioretention cell were modeled with a 2.5:1 H/V slope, and a one side was modeled as 2.75:1 slope.

• The depths of the sand and soil layers were determined based on KCSWDM Appendix C guidelines for bioretention cells.

• The gravel depth was determined based on available existing soil depth above groundwater.

• Proposed boardwalk within ordinary high-water mark is excluded from modeling.

• Proposed boardwalk surfaces not over the high-water area is open grid decking over pervious area. This is considered as a flow control BMP used to meet the performance standards of Core Requirement 9 and was modeled as 50-percent impervious and 50-percent lawn per KCSWDM Table 1.2.9.A. Since this area in infeasible to collect, it will drain to Totem Lake. As a substitute, runoff from an equivalent area of Totem Lake Way will be collected and conveyed to the proposed onsite bioretention cells per KCSWDM Section 1.2.3.2.E, Mitigation of Target Surfaces that Bypass Facility.
### Table 4-1. Modeling Area Summary

<table>
<thead>
<tr>
<th>Model Landcover Type</th>
<th>Description</th>
<th>Included in Model (acre)</th>
<th>Excluded from Model (acre)</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Predeveloped Condition</strong></td>
<td><strong>SAT Forest</strong></td>
<td>Park, Boardwalk, and Trail - Pervious Area</td>
<td>1.40</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>--</td>
<td>Boardwalk - Area to become Boardwalk Above Totem Lake Wetlands High Water Mark</td>
<td>--</td>
<td>0.13</td>
</tr>
<tr>
<td></td>
<td><strong>C Forest MOD</strong></td>
<td>Totem Lake Way - Additional Area</td>
<td>0.14</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>Roads MOD</td>
<td>Boardwalk - Above Totem Lake Wetlands High Water Mark</td>
<td>0.13</td>
<td>--</td>
</tr>
<tr>
<td><strong>Predeveloped Total Area Modeled</strong></td>
<td></td>
<td></td>
<td>1.76</td>
<td></td>
</tr>
</tbody>
</table>

| **Proposed/Mitigated Condition** | | | |
| Roads MOD | Park - Pervious Area (PGIS) | 0.06 | -- | This area will be collected and conveyed to the bioretention cells |
| Sidewalks MOD | Park - Pervious Area (NPGIS) | 0.50 | -- | This area is the footprint of the combined bioretention cells (at top of water storage elevation). It is included in the modeling as the bioretention cells themselves, but not as contributing area |
| SAT Lawn | Park - Pervious Area | 0.54 | -- | This area is a target surface, but is infeasible to collect in onsite bioretention cells. It will flow to Totem Lake, and an equivalent area of Totem Lake way will be collected in bioretention cells as a substitution² |
| Bioretention Cells | Park – Combined Bioretention Area | 0.11 | -- | |
| | -- | Boardwalk - Above Totem Lake Wetlands High Water Mark | -- | 0.13 | This area is not a target surface and is not included in modeling³ |
| Sidewalks MOD | Trail | -- | 0.16 | This area is a target surface, but is infeasible to collect in onsite bioretention cells. It will flow to Totem Lake, and an equivalent area of Totem Lake way will be collected in bioretention cells as a substitution² |
| 50% Sidewalks MOD and 50% SAT Lawn¹ | Boardwalk - Above Totem Lake Wetlands Buffer Zone | -- | 0.03 | |
| Combination of SAT Lawn and Sidewalks MOD, based on Trail and Basin (highlighted above) | Totem Lake Way - Area Swap | 0.19 | -- | This area will be captured and conveyed in bioretention cells in place of "Trail" and "Boardwalk - Above Totem Lake Wetlands Buffer Zone"² |
| Roads MOD | Totem Lake Way - Additional Area | 0.36 | -- | This area will be captured and conveyed to onsite bioretention cells in addition to all onsite stormwater |
| **Proposed/Mitigated Total Area Modeled** | | | 1.76 | |

¹ KCSWDM Table 1.2.9.A (Open grid decking over pervious area credit)  
² KCSWM Section 1.2.3.2.E (Mitigation of Target Surfaces that Bypass Facility)  
³ KCSWM Section 1.2.9.1.A (Target Surfaces)

KCSWM King County Storm Water Design Manual
4-8  AX0730181340SEA

### Table 4-2. Modeling: Bioretention Cell Sizing Summary

<table>
<thead>
<tr>
<th>Dimension Label</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioretention width (feet)</td>
<td>14.0</td>
</tr>
<tr>
<td>Bioretention length (feet)</td>
<td>236.7</td>
</tr>
<tr>
<td>Freeboard (feet)</td>
<td>0.5</td>
</tr>
<tr>
<td>Front and back side slope (H/V)</td>
<td>2.5</td>
</tr>
<tr>
<td>Left side slope (H/V)</td>
<td>2.75</td>
</tr>
<tr>
<td>Right side slope (H/V)</td>
<td>2.5</td>
</tr>
<tr>
<td>Mulch layer depth (feet)</td>
<td>0.25</td>
</tr>
<tr>
<td>SMMWW 12 in/hr bioretention soil depth (feet)</td>
<td>1.50</td>
</tr>
<tr>
<td>Soil infiltration safety factor (Ksat)</td>
<td>4</td>
</tr>
<tr>
<td>Gravel layer depth (feet)</td>
<td>1.75</td>
</tr>
<tr>
<td>Underdrain diameter (feet)</td>
<td>0.5</td>
</tr>
<tr>
<td>Underdrain Offset (inches)</td>
<td>3</td>
</tr>
<tr>
<td>Orifice diameter (inches)</td>
<td>1-7/16</td>
</tr>
</tbody>
</table>

H/V horizontal/vertical  
SMMWW Stormwater Management Manual for Western Washington

### 4.5 Water Quality System

The proposed project contains less than 5,000 square feet of new plus replaced pollution-generating impervious surface and, thus, will not be required to provide water quality treatment per Core Requirement 8 as described in Section 1.2.8 of the KCSWDM. However, the stormwater runoff from the parking lot and from Totem Lake Way will discharge to the bioretention facilities before discharging to Totem Lake and will be treated. The bioretention facilities treat 0.55 acres of Totem Lake Way; of this area, 0.19 acres are an area swap for the trail and boardwalk. Of the remaining 0.36 acres, 0.22 will simply be treated for water quality, while 0.14 will also be detained for flow control.
CONVEYANCE SYSTEM ANALYSIS AND DESIGN

This section describes assumptions and site conditions to justify the conveyance design.

5.1 Existing Storm Drains

The existing stormwater facilities collect and convey water from Totem Lake Park into Totem Lake via a catch basin on the southwest side of the park site. This catch basin will be replaced. Currently, no stormwater facilities are located on the trail or boardwalk sections of the site, because this runoff sheet flows into Totem Lake, the natural discharge location for this site.

5.2 Proposed Storm Drains

The project’s stormwater conveyance facilities will consist primarily of catch basins, underdrain, storm drains, and stormwater facilities used to meet performance requirements listed in Section 4 of this report. The capacity of the new and existing storm drains will be analyzed using uniform flow methods according to KCSWDM Section 4.2.1.2.

Per Core Requirement 4 described in Section 1.2.4 of the KCSWDM, the new storm drain system proposed in Totem Lake Park will collect and convey the full 25-year peak flow from the site, including any conveyance system overflows above the 25-year peak flow. Stormwater from the site and from a portion of Totem Lake Way will be conveyed into the proposed bioretention cells and ultimately to an existing storm drain on the southwest side of the park, which discharges to the natural location for the project site, Totem Lake. The new storm drain system will include new catch basins, 8-inch and 12-inch storm drain pipes, and 6-inch underdrain pipes, as seen on drawing C401 in Appendix A. These pipes have been designed with the capacity to convey, at minimum, the 25-year peak flow, assuming developed conditions for onsite tributary areas and existing conditions for any offsite contributing areas.

Uniform flow conditions will be used to initially size pipes for capacity. Final pipe sizes will be verified using simple backwater analysis. Excel spreadsheets were used in both analyses with the following assumptions:

- **Pipe material**—Smooth wall pipe (PVC and DI) with Manning’s n = 0.014 (uniform)
- **Minimum pipe diameter**—8 inches, with underdrains at 6 inches
- **Minimum cover**—2 feet; if lower cover is needed; class 5 reinforced concrete pipe or ductile iron pipe
- **Minimum velocity**—3 feet per second
- **Match crowns**—At junctions with changes in pipe diameter where possible

Conveyance Calculations and Backwater Analysis are in Appendix F. The project will be designed to use drainage structures from the City of Kirkland’s Standard Plans. In general, Type 1 catch basins will be used. The maximum pipe diameter for Type 1 catch basins is 15 inches, and a maximum of 5 vertical feet will be allowed between the finished grade and the pipe invert.
5.3 Utilities

As noted in Section 1.2 of this TIR, existing storm drains, sanitary sewer, potable water, power, gas, and telephone utilities are located in the park site. Most of these utilities will remain protected in place, with exceptions for the storm drains (noted above) and water and sanitary sewer lines (noted below).

Two new water lines will connect into existing water main under Totem Lake Way for irrigation service and domestic water service for the restrooms. A new sanitary sewer service will also connect to the park’s restroom building. These will convey to a new manhole, and the existing sewer service on the park site will be capped and abandoned, as seen on Drawing C301 in Appendix A.
SECTION 6

Special Reports and Studies

The following report has been prepared for the project at this time:


The following additional reports are currently being prepared, or will be prepared, as part of project design and permitting:

- Critical Areas Report
- Wetland Hydrology Study
7 Other Permits

The following permits or approvals are expected for this project:

- Ecology General Construction Stormwater Permit, Notice of Intent
- City of Kirkland Land Surface Modification Permit
SECTION 8

Construction Stormwater Pollution Prevention Analysis and Design

8.1 Erosion and Sedimentation Control Plan Analysis and Design

An ESC plan will be developed for the final contract plans in accordance with the City of Kirkland Amendment to the KCSWDM and KCSWDM Appendix D. ESC plans are shown on Drawings C201, C202, and C203 in Appendix A.

To avoid erosion and the transport of sediment off site, the contractor will implement temporary control measures during the project’s construction phase. During construction, stormwater runoff will be conveyed in the existing conveyance systems, which are primarily storm drains. ESC measures will be needed to prevent runoff from causing erosion and discharging sediment into the existing drainage system during and after construction. Appropriate ESC measures will be needed for construction activities on existing storm drain systems. The contractor will be responsible for phasing ESC measures so that they are coordinated with staging construction activities. Additionally, the contractor will be responsible for inspecting and maintaining temporary controls during construction, including removing accumulated sediment, and for removing the controls and remaining accumulated sediment at the end of construction.

The project will follow the requirements listed in the National Pollutant Discharge Elimination System General Construction Stormwater Permit. The contractor will prepare a CSWPPP satisfying both the KCSWDM and the City of Kirkland Policy D-12, Construction Storm Water Pollution Prevention Plan. The CSWPPP will be updated as site conditions change.

Permanent measures will be implemented where needed to stabilize disturbed soils at project completion. In accordance with Section 2.3.1.3, City of Kirkland Policies G-7, D-2, and D-3.

8.2 Erosion and Sedimentation Control Measures

The following ESC measures will be provided, as further detailed on ESC plan sheets on Drawings C201, C202 and C203 in Appendix A:

- **Clearing limits** – Clearing limits will be delineated on the construction plans. A silt fence and compost socks will be installed down slope of any fill slopes to prevent offsite sediment migration.

- **Cover measures** – The contractor will provide temporary and permanent cover measures where needed to protect disturbed areas. Mulching will be used in accordance with the KCSWDM’s Appendix D to provide immediate, temporary protection from erosion and to enhance plant growth. Nets and blankets may be used according to KCSWDM Appendix D to provide additional protection and to hold seed and mulch in place on slopes. Disturbed areas will be seeded as a permanent cover measure to reduce erosion.

- **Perimeter protection** – To reduce the transport of sediment off site, the contractor will provide catch basin filters, site fence, and street sweeping as indicated on the final construction drawings and as needed.
• **Traffic area stabilization** – Stabilized construction entrances will be installed at all construction vehicle access locations.

• **Sediment retention** – Catch basin filters (inlet protection) will provide sediment retention at the locations shown on the final construction drawings.

• **Surface water collection** – Surface water control will be provided by using the existing and new drainage conveyance systems. The surrounding area will be protected with silt fences as shown on Drawing C-201 in Appendix A.

• **Dewatering control** – Groundwater is not expected to be encountered during construction, because the site sits at the top of a steep slope, and the soils in the area have high infiltration capacity. If groundwater is encountered during construction, then it may be pumped to an onsite sediment trap or to a catchment created by sandbags with an overflow into a catch basin containing a catch basin insert.

• **Dust control** – If necessary, the contractor will use water according to KCSWDM Section 3.8 to prevent wind transport of soil. Exposed soils will be sprayed until wet and resprayed as needed. When using water for dust control, the contractor will spray exposed soils until they are wet, but runoff should not be generated by spraying. Oil will not be used for dust control. At the contractor’s option, a tackifier may be used with approval from the Engineer and the City of Kirkland.

• **Flow control** – Portable storage tanks are proposed during construction at the southwest portion of the site and will provide sediment retention and possible flow control as needed (see Drawing C-201 in Appendix A). Construction activities will remove and permanently reduce the amount of impervious surface area on the site. Excessive runoff during construction is not anticipated, because the site will be mostly pervious.

• **ESC implementation** – Site development activities relative to ESC concerns will be coordinated and appropriately timed, and protective measures will be inspected, maintained, and updated in a timely fashion. The project will be phased to consider seasonal work limits to the maximum degree practicable. BMPs will be inspected, monitored, and repaired as needed. The site will be inspected and monitored, and the contractor will maintain, update, and implement the CSWPPP in accordance with the Construction Stormwater General Permit and King County requirements. The contractor also will designate a certified ESC lead and provide give his or her name, address, and telephone number to the City of Kirkland before construction begins. The certified ESC lead will be present on site or on-call at all times.

The certified ESC lead will inspect the site at least once a month during the dry season, weekly during the wet season, and within 24 hours of each runoff-producing storm. If the City of Kirkland requires a written record of maintenance activities, a standard ESC maintenance report will be used as a written record of all maintenance. The proposed ESC measures for the project will be further detailed in the final contract plans.

### 8.3 Minimum Erosion and Sedimentation Control Requirements After Construction

Before obtaining final construction approval, the following conditions must be met:

• All disturbed site areas should be vegetated or otherwise permanently stabilized. At a minimum, disturbed areas will be seeded and mulched to provide a high likelihood that sufficient cover will develop shortly after final approval. If seeded during the dry season, then the seeded area will be irrigated as necessary to maintain the sprouted vegetation until the start of the wet season.
• Temporary ESC measures such as silt fences, pipe slope drains, construction entrances, and storm drain inlet protection will be removed.
• All permanent surface water facilities, including catch basins, manholes, pipes, ditches, and channels, will be cleaned of silt and debris.

8.4 Stormwater Pollution Prevention and Spill Control Plan

The contractor will be required to prepare a project CSWPPP in accordance with Policy D-12. Because the project involves ground disturbance of 1 acre or more, the CSWPPP will be prepared in accordance with City of Kirkland requirements.
SECTION 9

9 Bond Quantities, Facility Summaries, and Declaration of Covenant

This section is not applicable; this is a City of Kirkland Public Works Department project to be entirely owned and maintained by the City of Kirkland. As such, a bond quantities worksheet and declaration of covenant are not required for this project. Drawings of the onsite flow control and water quality facilities, the bioretention cells and open-grid decking of the boardwalk, may be found in Appendix A.
As this is a City of Kirkland Public Works Department project, the City of Kirkland will assume all systems operations and maintenance. Recommended preventative Operations and Maintenance Procedures from KCSWDM 2016 for the Bioretention Cells are below. Appendix G contains maintenance solutions based on obstructions or other problems for the control structure, catch basins and manholes, conveyance piping, and the bioretention cells. City of Kirkland Standards shall supersede these procedures where applicable.

### 10.1 Maintenance Restrictions

The size, placement, and design of the bioretention cell as depicted by the flow control BMP site plan and design details must be maintained and may not be changed without written approval either from the King County Water and Land Resources Division or through a future development permit from King County.

Plant materials may be changed to suit tastes, but chemical fertilizers and pesticides must not be used.

### 10.2 Inspection Frequency and Maintenance Guidelines

- Bioretention cells must be inspected annually for physical defects and sediment accumulation.
- After major storm events, the system should be checked to see that the overflow system is working properly, and sedimentation is not occurring at the inlet. If erosion channels or bare spots are evident, they should be stabilized with soil, plant material, mulch, or landscape rock. Sediment deposits should be carefully removed, and the sediment source eliminated.
- A supplemental watering program may be needed the first year to ensure the long-term survival of the bioretention cells' vegetation.
- Chemical fertilizers and pesticides must not be used.
- Mulch may be added, and additional compost should be worked into the soil over time.
- Plant materials may be changed to suit tastes.
- Vegetation should be maintained as follows:
  - replace all dead vegetation as soon as possible;
  - remove fallen leaves and debris as needed;
  - remove all noxious vegetation when discovered;
  - manually weed without herbicides or pesticides;
  - to protect infiltration performance, do not compact soils in the bioretention cell with heavy maintenance equipment and/or excessive foot traffic;
  - during drought conditions, use mulch to prevent excess solar damage and water loss.
10.3 Recording Requirement

These bioretention flow control BMP maintenance and operation instructions must be recorded as an attachment to the required declaration of covenant and grant of easement per Requirement 3 of Section C.1.3.4 of the King County Surface Water Design Manual. The intent of these instructions is to explain to future property owners, the purpose of the BMP and how it must be maintained and operated. These instructions are intended to be a minimum; the King County Department of Permitting and Environmental Services (DPER) may require additional instructions based on site-specific conditions. See King County’s Surface Water Design Manual website for additional information and updates.

10.4 Quantities

Below is a table of the types and quantities of facilities that will need to be maintained on the site.

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<thead>
<tr>
<th>Onsite Facility</th>
<th>Quantities</th>
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<tr>
<td>Type 1L Catch Basins</td>
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<td>Length of 6” UD Pipe</td>
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<td>Length of 6” PVC Subsurface Drain Pipe (French Drains)</td>
<td>470 LF</td>
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<td>Length of 8” SD Pipe</td>
<td>110 LF</td>
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<td>Length of 12” SD Pipe</td>
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<td>Bioretention Bottom Area (Top of BSM)</td>
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<td>6” Storm Drain Cleanouts</td>
<td>6</td>
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<tr>
<td>Control Structures</td>
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<tr>
<td>Overflow Structures</td>
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Works Cited


Appendix A
Design Drawings
Appendix B
Soil Survey Legends and Summary
## Map Unit Legend

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<tr>
<th>Map Unit Symbol</th>
<th>Map Unit Name</th>
<th>Acres in AOI</th>
<th>Percent of AOI</th>
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<td>5.0%</td>
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<td>EvC</td>
<td>Everett very gravelly sandy loam, 8 to 15 percent slopes</td>
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<td>InC</td>
<td>Indianola loamy sand, 5 to 15 percent slopes</td>
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<td>Kitsap silt loam, 2 to 8 percent slopes</td>
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<td>Seattle muck</td>
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<td>Urban land</td>
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<td>11.1%</td>
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## Off-Site Analysis Drainage System Table

### King County Surface Water Design Manual, Core Requirement #2

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<th>Symbol</th>
<th>Drainage Component Type, Name, and Size</th>
<th>Drainage Component Description</th>
<th>Slope</th>
<th>Distance from site discharge</th>
<th>Existing Problems</th>
<th>Potential Problems</th>
<th>Observations of field inspector, resource reviewer, or resident</th>
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<tr>
<td>see map</td>
<td>Type: sheet flow, swale, stream, channel, pipe, pond, flow control/wq BMP; Size: diameter, surface area</td>
<td>drainage basin, vegetation, cover, depth, type of sensitive area, volume</td>
<td>%</td>
<td>¼ ml = 1,320 ft.</td>
<td>constrictions, under capacity, ponding, overtopping, flooding, habitat or organism destruction, scouring, bank sloughing, sedimentation, incision, other erosion</td>
<td>tributary area, likelihood of problem, overflow pathways, potential impacts</td>
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<tr>
<td>SEE MAP</td>
<td>TOTEM LAKE BLVD CULVERT SYSTEM</td>
<td>SERIES OF BOX AND PIPE CULVERTS</td>
<td>APPROX 0.2% - 0.5%</td>
<td>0 - 1,000 FT</td>
<td>NONE NOTED OR OBSERVED</td>
<td>NONE NOTED OR OBSERVED</td>
<td>SYSTEM UPGRADED IN 2013, AND APPEARS TO FUNCTION AS DESIGNED</td>
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<tr>
<td>SEE MAP</td>
<td>TOTEM LAKE BLVD DRAINAGE CHANNEL</td>
<td>GRASS-LINED DRAINAGE CHANNEL</td>
<td>APPROX 0.0% - 0.1%</td>
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<td>NONE NOTED OR OBSERVED</td>
<td>SYSTEM UPGRADED IN 2013, AND APPEARS TO FUNCTION AS DESIGNED</td>
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PHOTO 1 - SITE OUTFALL TO CULVERT
PHOTO 2 - DRAINAGE CHANNEL BETWEEN TOTEM LAKE BOULEVARD AND I-405
Appendix D

Flow Control BMP Calculations
Purpose: confirm conformance to KCSWDM Minimum Requirement #9, Flow Control BMPs

1.2.9.2. C Demonstrating compliance with LID performance standard is not required (Less than 5 acres)

1.2.9.2.1 Individual Lot BMP Requirements

Site is >22,000 sf and less than 5 acres: site is a Large Lot

1.2.9.2.2 Large Lot BMP Requirements (in following order)

1. Feasibility and applicability of full dispersion must be evaluated
   Not Feasible

2. Full infiltration of roof runoff
   Not Feasible/Applicable

3. All target impervious surfaces not mitigated by 1 or 2 must by mitigated to MEF by following list
   a. Full infiltration (C.2.2 or C.5.2)
      Not Feasible
   b. Limited infiltration (Appendix C or C.2.3)
      Not Feasible
   c. Bioretention
      i. Inside UGS (rainfall SeaTac 1.0 and less) with till soils → bioretention volume based on 0.6 inches of equivalent storage depth
         Flow Control BMP requirement for areas tributary to bioretention will be met with bioretention
      d. Permeable pavement
         Not implemented: BMP requirement is met with bioretention

4. All target impervious surfaces not mitigated by 1, 2, 3, must be mitigated to MEF using basic dispersion (Appendix C, C.2.4)

   Target impervious surfaces will be mitigated by #3; see #5 below
   Additionally, basic dispersion will be employed to the Maximum Extent Feasible per KCSWDM C.2.9.5, open-grid decking over pervious surface,
   for the boardwalk, which is unable to be conveyed to the bioretention cells

5. BMPs must be implemented at minimum for impervious area amounts:

   Projects resulting in impervious surface coverage of site at 45-65% on buildable portion of the site/lot, flow control BMPs must be applied to 50% of target impervious surfaces reduced by 1.5% for each 1% of impervious surface coverage above 45%

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<th>AREA (acres)</th>
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<td>SITE impervious:</td>
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<td>SITE total:</td>
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Impervious coverage of 47% results in requirement of FCBMPs applying to 47% of target impervious surfaces

Target impervious areas to be mitigated (proposed conditions): 0.34 acres = 14,713 sf
Equivalent storage depth = 0.6 inches = 0.05 ft for bioretention inside UGS rainfall per 1.2.9.2.D.3
Minimum required bioretention storage volume: 0.05 ft depth x target impervious area = 736 cubic feet

Bioretention storage volume provided: ~3,760 cubic feet > 736 cubic feet
Appendix E
Stormwater Modeling Materials
WWHM2012

PROJECT REPORT
**General Model Information**

Project Name: BioretentionCell_FC7  
Site Name: Totem Lake Park  
Site Address: 12031 Totem Lake Way  
City: Kirkland  
Report Date: 1/14/2019  
Gage: Seatac  
Data Start: 1948/10/01  
Data End: 2009/09/30  
Timestep: 15 Minute  
Precip Scale: 0.000 (adjusted)  
Version Date: 2018/10/10  
Version: 4.2.16

**POC Thresholds**

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<td>50 Percent of the 2 Year</td>
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<td>High Flow Threshold for POC1</td>
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## Landuse Basin Data
### Predeveloped Land Use

**Basin Park**
- Bypass: No
- GroundWater: No

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<th>Pervious Total</th>
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</table>

**Basin Total** 1.21

**Element Flows To:**
- Surface
- Interflow
- Groundwater
Basin Trail and Boardwalk Area

Bypass: No

GroundWater: No

Pervious Land Use acre
SAT, Forest, Mod 0.19
C, Forest, Mod 0.14

Pervious Total 0.33

Impervious Land Use acre
ROADS MOD 0.22

Impervious Total 0.22

Basin Total 0.55

Element Flows To:
Surface Interflow Groundwater
Mitigated Land Use

Basin Park
Bypass: No
GroundWater: No

Pervious Land Use
- SAT, Lawn, Mod: 0.54 acre
- Pervious Total: 0.54 acre

Impervious Land Use
- ROADS MOD: 0.06 acre
- SIDEWALKS MOD: 0.5 acre
- Impervious Total: 0.56 acre

Basin Total: 1.1 acre

Element Flows To:
- Surface Interflow
- Groundwater
- Surface est Combined
- Surface est Combined
Basin Trail and Boardwalk - Totem Lake Way Swap

Bypass: No

GroundWater: No

Pervious Land Use acre
SAT, Lawn, Mod 0.01
Pervious Total 0.01

Impervious Land Use acre
ROADS MOD 0.36
SIDEWALKS MOD 0.18
Impervious Total 0.54

Basin Total 0.55

Element Flows To:
Surface Interflow Groundwater
Surface est Combined Surface est Combined
**Mitigated Routing**

**Bioretention - East/West Combined**

Bottom Length: 236.70 ft.
Bottom Width: 14.00 ft.
Material thickness of first layer: 0.25
Material type for first layer: Sand
Material thickness of second layer: 1.5
Material type for second layer: SMMWW 12 in/hr
Material thickness of third layer: 1.75
Material type for third layer: GRAVEL

Underdrain used
Underdrain Diameter (feet): 0.5
Orifice Diameter (in.): 1.4375
Offset (in.): 3
Flow Through Underdrain (ac-ft.): 191.25
Total Outflow (ac-ft.): 191.507
Percent Through Underdrain: 99.87

**Discharge Structure**
Riser Height: 1 ft.
Riser Diameter: 30 in.
Element Flows To:
Outlet 1 Outlet 2

**Bioretention Hydraulic Table**

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<tr>
<th>Stage (feet)</th>
<th>Area (ac)</th>
<th>Volume (ac-ft)</th>
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<th>Infilt (cfs)</th>
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Surface est Combined
Element Flows To:
Outlet 1
Outlet 2
Bioretention - East/West Combined
Analysis Results
POC 1

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 1.54
Total Impervious Area: 0.22

Mitigated Landuse Totals for POC #1
Total Pervious Area: 0.55
Total Impervious Area: 1.1

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

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Flow Frequency Return Periods for Mitigated. POC #1

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Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

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**Ranked Annual Peaks**

Ranked Annual Peaks for Predeveloped and Mitigated.  POC #1

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Water Quality
Water Quality BMP Flow and Volume for POC #1
On-line facility volume: 0 acre-feet
On-line facility target flow: 0 cfs.
Adjusted for 15 min: 0 cfs.
Off-line facility target flow: 0 cfs.
Adjusted for 15 min: 0 cfs.
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<th>Volume Through Facility (ac-ft)</th>
<th>Infiltration Volume (ac-ft)</th>
<th>Cumulative Volume Infiltrated</th>
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<th>Water Quality</th>
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Model Default Modifications

Total of 0 changes have been made.

PERLND Changes
No PERLND changes have been made.

IMPLND Changes
No IMPLND changes have been made.
Appendix

Predeveloped Schematic

Parkin Trail and Boardwalk Area
0.55 ac
Mitigated Schematic

Bioretention - East/West Combined

SI SI

Basin Trail and Boardwalk - Totem Lake Way Swap 0.55ac
Predeveloped UCI File

RUN

GLOBAL

WWHM4 model simulation
START 1948 10 01  END 2009 09 30
RUN INTERP OUTPUT LEVEL 3 0
RESUME 0 RUN 1  UNIT SYSTEM 1
END GLOBAL

FILES

.readFile <Un#> "File Name"

WDM 26 BioretentionCell_FC7.wdm
MESSU 25 PreBioretentionCell_FC7.MES
           27 PreBioretentionCell_FC7.L61
           28 PreBioretentionCell_FC7.L62
           30 POCBioretentionCell_FC71.dat

END FILES

OPN SEQUENCE

INGRP

PERLND 20
PERLND 11
IMPLND 2
COPY 501
DISPLY 1
END INGRP
END OPN SEQUENCE

DISPLY

DISPLY-INFO1

#<----------Title---------->***TRAN PIVL DIG1 FIL1 PYR DIG2 FIL2 YRND
1 Basin Park MAX 1 2 30 9
END DISPLY-INFO1
END DISPLY

COPY

TIMESERIES

#<NMN***
1 1 1
501 1 1
END TIMESERIES

END COPY

GENER

OPCODE

END OPCODE

PARM

END PARM
END GENER

PERLND

GEN-INFO

 END PLS > "NBLKS Unit-systems Printer ***
 #<User t-series Engl Metr ***
20 SAT, Forest, Mod 1 1 1 1 27 0
11 C, Forest, Mod 1 1 1 27 0

END GEN-INFO

*** Section PWATER***

ACTIVITY

 END PLS > " ************ Active Sections  *******************
 #<# ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC ***
20 0 0 1 0 0 0 0 0 0 0 0 0
11 0 0 1 0 0 0 0 0 0 0 0 0

END ACTIVITY

PRINT-INFO

 END PLS > ******** Print-flags ****************** PIVL PYR
# - #  ATMP  SNOW  PWAT  SED  PST  PWG  PQAL  MSTL  PEST  NITR  PHOS  TRAC
***********
20         0    0    4    0    0    0    0    0    0    0    0    1    9
11         0    0    4    0    0    0    0    0    0    0    0    0    1    9
END PRINT-INFO

PWAT-PARM1
<PLS > PWATER variable monthly parameter value flags ***
# - #  CSNO  RTOP  UZFG  VCS  VUZ  VNN  VIFW  VIRC  VLE  INFC  HWT ***
20         0    0    0    0    0    0    0    0    0    0    0    1    9
11         0    0    0    0    0    0    0    0    0    0    0    0    1    9
END PWAT-PARM1

PWAT-PARM2
<PLS > PWATER input info: Part 2 ***
# - #  ***FOREST  LZSN  INFILT  LSUR  SLSUR  KVARY  AGWRC
20              0         4         2       100      0.01       0.5     0.996
11              0         4.5       0.08       400       0.1       0.5     0.996
END PWAT-PARM2

PWAT-PARM3
<PLS > PWATER input info: Part 3 ***
# - #  ***PETMAX  PETMIN  INFEXP  INFILD  DEEPFR  BASETP  AGWETP
20              0         0        10         2         0         0       0.7
11              0         0        2         2         0         0         0
END PWAT-PARM3

PWAT-PARM4
<PLS > PWATER input info: Part 4 ***
# - #  CEPSC  UZSN  NSUR  INTFW  IRC  LZETP
20          0.2         3       0.5         1       0.7       0.8
11          0.2       0.5       0.35         6       0.5       0.7
END PWAT-PARM4

PWAT-STATE1
<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
# - #  CEPS  SURS  UZS  IFWS  LZS  AGWS  GWVS
20              0         0         0         0       4.2         1         0
11              0         0         0         0       2.5         1         0
END PWAT-STATE1

END PERLND

IMPLND

GEN-INFO
<PLS > <-------Name--------> Unit-systems Printer ***
# - #  User  t-series Engl Metr ***
in  out  ***
2      ROADS/MOD              1    1    1   27    0
END GEN-INFO

*** Section IWATER***

ACTIVITY
<PLS > ************* Active Sections *************
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END ACTIVITY

PRINT-INFO
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# - #  ATMP  SNOW  IWAT  SLD  IWG  IQAL  ********
2         0    0    4    0    0    0    1    9
END PRINT-INFO

IWAT-PARM1
<PLS > IWATER variable monthly parameter value flags ***
# - #  CSNO  RTOP  VRS  VNN  RTL1  ***
2         0    0    0    0    0
END IWAT-PARM1

IWAT-PARM2
IWATER input info: Part 2

# - # *** LSUR SLSUR NSUR RETSC
2  400  0.05  0.1  0.08

IWATER input info: Part 3

# - # *** PETMAX PETMIN
2  0  0

*** Initial conditions at start of simulation

# - # *** RETS SURS
2  0  0

IWATER input info: Part 3

# - # *** PETMAX PETMIN
2  0  0

*** Initial conditions at start of simulation

# - # *** RETS SURS
2  0  0

SCHEMATIC

<-Source-> <--Area--> <--Target--> MBLK ***

Basin Park***
PERLND 20 1.21 COPY 501 12
PERLND 20 1.21 COPY 501 13

Basin Trail and Boardwalk Area***
PERLND 20 0.19 COPY 501 12
PERLND 20 0.19 COPY 501 13
PERLND 11 0.14 COPY 501 12
PERLND 11 0.14 COPY 501 13
IMPLND 2 0.22 COPY 501 15

Routing

END SCHEMATIC

NETWORK

<-Volume-> <-Grp> <-Member-><-Mult-->Tran <-Target vols> <-Grp> <-Member-> ***

COPY 501 OUTPUT MEAN 1 1 48.4 DISPLY 1 INPUT TIMSER 1

END NETWORK

RCHRES

GEN-INFO

RCHRES Name Nexits Unit Systems Printer ***
# - #<------------------><---> User T-series Engl Metr LKFG ***
in out

END GEN-INFO

*** Section RCHRES***

ACTIVITY

************* Active Sections ***********

END ACTIVITY

PRINT-INFO

*********** Print-flags ***********

END PRINT-INFO

HYDR-PARM1

RCHRES Flags for each HYDR Section ***
# - # VC A1 A2 A3 ODFVFG for each *** ODGTFG for each FUNCT for each
FG FG FG FG possible exit *** possible exit possible exit

END HYDR-PARM1
HYDR-PARM2

# - # FTABNO LEN DELTH STCOR KS DB50 ***
<--------><--------><--------><--------><--------><--------><--------> ***
END HYDR-PARM2

HYDR-INIT

RCHRES Initial conditions for each HYDR section ***
# - # *** VOL Initial value of COLIND Initial value of OUTDGT
*** ac-ft for each possible exit for each possible exit
<--------><--------> <--------><--------><--------><--------><--------> *** <--------><--------><--------><--------><--------><--------> ***
END HYDR-INIT

END RCHRES

SPEC-ACTIONS

END SPEC-ACTIONS

FTABLES

END FTABLES

EXT SOURCES

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WDM 2 PREC ENGL 1 PERLND 1 999 EXTNL PREC
WDM 2 PREC ENGL 1 IMPLND 1 999 EXTNL PREC
WDM 1 EVAP ENGL 0.76 PERLND 1 999 EXTNL PETINP
WDM 1 EVAP ENGL 0.76 IMPLND 1 999 EXTNL PETINP

END EXT SOURCES

EXT TARGETS

<-Volume-> <-Grp> <-Member-><-Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name> # <Name> # #<factor->strg <Name> # <Name> tem strg strg***
COPY 501 OUTPUT MEAN 1 1 48.4 WDM 501 FLOW ENGL REPL

END EXT TARGETS

MASS-LINK

<Volume> <-Grp> <-Member-><-Mult--> <Target> <-Grp> <-Member->***
<Name> # <Name> # #<factor-> <Name> # # ***
MASS-LINK 12
PERLND PWATER SURO 0.083333 COPY INPUT MEAN
END MASS-LINK 12

MASS-LINK 13
PERLND PWATER IFWO 0.083333 COPY INPUT MEAN
END MASS-LINK 13

MASS-LINK 15
IMPLND IWATER SURO 0.083333 COPY INPUT MEAN
END MASS-LINK 15

END MASS-LINK

END RUN
**Mitigated UCI File**

**RUN**

GLOBAL

  WWHM4 model simulation
  START 1948 10 01 END 2009 09 30
  RUN INTERP OUTPUT LEVEL 3 0
  RESUME 0 RUN 1 UNIT SYSTEM 1

END GLOBAL

FILES

  <File>  <Un#>  <-----------File Name------------------------------>***
  <----ID-->  ***
  WDM 26 BioretentionCell_FC7.wdm
  MESSU 25 MitBioretentionCell_FC7.MES
        27 MitBioretentionCell_FC7.L61
        28 MitBioretentionCell_FC7.L62
        30 POCBioretentionCell_FC71.dat

END FILES

OPN SEQUENCE

  INGRP
    INDELT 00:15
    PERLND 26
    IMPLND 2
    IMPLND 9
    GENER 2
    RCHRES 1
    RCHRES 2
    COPY 1
    COPY 501
    DISPLY 1
  END INGRP

END OPN SEQUENCE

DISPLY

  DISPLY-INFO1
    # - #<----------Title----------->***TRAN PIVL DIG1 FIL1 PYR DIG2 FIL2 YRND
    1 Surface est Combined MAX 1 2 30 9
  END DISPLY-INFO1

END DISPLY

COPY

  TIMESERIES
    # - #  NPT  NMN ***
    1  1  1
    501 1 1
  END TIMESERIES

END COPY

GENER

  OPCODE
    #    # OPCD ***
    2    24
  END OPCODE

  PARM
    #    #         K ***
    2    0.
  END PARM

END GENER

PERLND

GEN-INFO

  <PLS ><--------Name-------->NBLKS Unit-systems Printer ***
  # - # User t-series Engl Metr ***
  26 SAT, Lawn, Mod 1 1 1 1 27 0

END GEN-INFO

*** Section PWATER***

ACTIVITY

  <PLS > *************** Active Sections ***************************
  # - # ATMP SNOW PWAT SED PST FWG PQAL MSTL PEST NITR PHOS TRAC ***
  26 0 0 1 0 0 0 0 0 0 0 0 0 0
END ACTIVITY

PRINT-INFO
<PLS> ****************** Print-flags ****************** PIVL PYR
# - # ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC **********
26 0 0 4 0 0 0 0 0 0 0 0 0 1 9
END PRINT-INFO

PWAT-PARM1
<PLS> PWATER variable monthly parameter value flags ***
# - # CSNO RTOP UZFG VCS VUZ VNN VIFW VIRC VLE INF C HWT ***
26 0 0 0 0 0 0 0 0 0 0 0 0 1 9
END PWAT-PARM1

PWAT-PARM2
<PLS> PWATER input info: Part 2 ***
# - # ***FOREST LZSN INFILT LSUR SLSUR KVARY AGWRC
26 0 4 1 100 0.01 0.5 0.996
END PWAT-PARM2

PWAT-PARM3
<PLS> PWATER input info: Part 3 ***
# - # ***PETMAX PETMIN INFEXP INFILD DEEPFR BASETP AGWETP
26 0 0 10 2 0 0 0.35
END PWAT-PARM3

PWAT-PARM4
<PLS> PWATER input info: Part 4 ***
# - # CEPSC UZSN NSUR INTFW IRC LZETP ***
26 0.1 3 0.5 1 0.7 0.4
END PWAT-PARM4

PWAT-STATE1
<PLS> *** Initial conditions at start of simulation
run from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
# - # *** CEPS SURS UZS IFWS LZS AGWS GWVS
26 0 0 0 0 4.2 1 0
END PWAT-STATE1

END PERLND

IMPLND

GEN-INFO
<PLS>The-------Name-------> Unit-systems Printer ***
# - # User t-series Engl Metr ***
in out ***
2 ROADS/MOD 1 1 1 27 0
9 SIDEWALKS/MOD 1 1 1 27 0
END GEN-INFO

*** Section IWATER***

ACTIVITY
<PLS> ************* Active Sections *************
# - # ATMP SNOW IWAT SLD IWG IQAL *************
2 0 0 1 0 0 0
9 0 0 1 0 0 0
END ACTIVITY

PRINT-INFO
<ILS> *********** Print-flags *********** PIVL PYR
# - # ATMP SNOW IWAT SLD IWG IQAL ***********
2 0 0 4 0 0 0 1 9
9 0 0 4 0 0 0 1 9
END PRINT-INFO

IWAT-PARM1
<PLS> IWATER variable monthly parameter value flags ***
# - # CSNO RTOP VRS VNN RTL I ***
2 0 0 0 0 0
9 0 0 0 0 0
END IWAT-PARM1
IWAT-PARM2
<PLS > IWATER input info: Part 2
# - # *** LSUR SLSUR NSUR RETSC
2 400 0.05 0.1 0.08
9 400 0.05 0.1 0.08
END IWAT-PARM2

IWAT-PARM3
<PLS > IWATER input info: Part 3
# - # ***PETMAX PETMIN
2 0 0
9 0 0
END IWAT-PARM3

IWAT-STATE1
<PLS > *** Initial conditions at start of simulation
# - # *** RETS SURS
2 0 0
9 0 0
END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source-> <-Area--> <-Target-> MBLK ***
<Name> # <-factor-> <Name> # Tbl# ***
Basin Park***
PERLND 26 0.54 RCHRES 1 2
PERLND 26 0.54 RCHRES 1 3
IMPLND 2 0.06 RCHRES 1 5
IMPLND 9 0.5 RCHRES 1 5
Basin Trail and Boardwalk - Totem Lake Way Swap***
PERLND 26 0.01 RCHRES 1 2
PERLND 26 0.01 RCHRES 1 3
IMPLND 2 0.36 RCHRES 1 5
IMPLND 9 0.18 RCHRES 1 5

*****Routing*****
PERLND 26 0.54 COPY 1 12
IMPLND 2 0.06 COPY 1 15
IMPLND 9 0.5 COPY 1 15
PERLND 26 0.54 COPY 1 13
PERLND 26 0.01 COPY 1 12
IMPLND 2 0.36 COPY 1 15
IMPLND 9 0.18 COPY 1 15
PERLND 26 0.01 COPY 1 13
RCHRES 1 1 RCHRES 2 8
RCHRES 2 1 COPY 501 16
RCHRES 1 1 COPY 501 17
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><-Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> # <Name> # <-factor->strg <Name> # # <Name> # # ***
COPY 501 OUTPUT MEAN 1 1 48.4 DISPLY 1 INPUT TIMSER 1
GENER 2 OUTPUT TIMSER .0011111 RCHRES 1 EXTNL OUTDGT 1

END NETWORK

RCHRES
GEN-INFO
RCHRES Name Nexits Unit Systems Printer ***
# - #<---------><---> User T-series Engl Metr LKFG
1 Surface est Comb-008 3 1 1 1 28 0 1
2 Bioretention - E-007 1 1 1 1 1 28 0 1
END GEN-INFO
*** Section RCHRES***

ACTIVITY
<PLS> ************* Active Sections *******************
# - # HYFG ADFG CNFG HTFG SDFG QFGQFG OXFG NUFG PKFG PHFG ***
1 1 0 0 0 0 0 0 0 0 0
2 1 0 0 0 0 0 0 0 0 0
END ACTIVITY

PRINT-INFO
<PLS> ***************** Print-flags ******************* PIVL PYR
# - # HYDR ADCA CONS HEAT SED GQL OXRX NUTR PLNK PHCB PIVL PYR **********
1 4 0 0 0 0 0 0 0 1 9
2 4 0 0 0 0 0 0 0 0 1 9
END PRINT-INFO

HYDR-PARM1
<PLS> RCHRES Flags for each HYDR Section ***
# - # VC A1 A2 A3 ODFVFG for each *** ODGTFG for each FUNCT for each
FG FG FG FG possible exit *** possible exit possible exit
* * * * * * * * * * * * * * ***
1 0 1 0 0 4 5 6 0 0 0 1 0 0 0 2 1 2 2 2
2 0 1 0 0 4 0 0 0 0 0 0 0 0 0 2 2 2 2 2
END HYDR-PARM1

HYDR-PARM2
<PLS> FTABNO LEN DELTH STCOR KS DB50 ***
<--------><--------><--------><--------><--------><--------> ***
1 1 0.01 0.0 124.25 0.0 0.0
2 2 0.04 0.0 124.25 0.5 0.0
END HYDR-PARM2

HYDR-INIT
RCHRES Initial conditions for each HYDR section ***
# - # *** VOL Initial value of COLIND Initial value of OUTDGT
*** ac-ft for each possible exit for each possible exit
<--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><--------><-------->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*** Infiltration volume
GENER 2                               v2d2            =  vpo2
END SPEC-ACTIONS
FTABLES
FTABLE      2
65    4
 Depth  Area  Volume  Outflow1  Velocity  Travel Time***
  (ft)  (acres)  (acre-ft)  (cfs)  (ft/sec)  (Minutes)***
  0.000000  0.188928  0.000000  0.000000
  0.054945  0.187608  0.001690  0.000000
  0.109890  0.185725  0.003417  0.000000
  0.164835  0.183845  0.005180  0.000000
  0.219780  0.181970  0.006980  0.000000
  0.274725  0.180097  0.009079  0.000000
  0.329670  0.178229  0.011221  0.000000
  0.384615  0.176364  0.013405  0.000000
  0.439560  0.174502  0.015631  0.000000
  0.494505  0.172645  0.017900  0.000000
  0.549451  0.170791  0.020210  0.000000
  0.604396  0.168940  0.022564  0.000000
  0.659341  0.167093  0.024960  0.000000
  0.714286  0.165250  0.027398  0.000000
  0.769231  0.163411  0.029880  0.000000
  0.824176  0.161575  0.032404  0.000000
  0.879121  0.159743  0.034971  0.000000
  0.934066  0.157914  0.037582  0.000000
  0.989011  0.156089  0.040235  0.001563
 1.043956  0.154268  0.042932  0.002345
 1.098901  0.152450  0.045672  0.006120
 1.153846  0.150636  0.048456  0.008007
 1.208791  0.148826  0.051239  0.010821
 1.263736  0.147019  0.054154  0.012228
 1.318681  0.145216  0.057068  0.014387
 1.373626  0.143416  0.060026  0.015467
 1.428571  0.141620  0.063028  0.017241
 1.483516  0.139828  0.066074  0.018129
 1.538462  0.138040  0.069165  0.019663
 1.593407  0.136255  0.072299  0.020430
 1.648352  0.134473  0.075477  0.021801
 1.703297  0.132696  0.078700  0.022487
 1.758242  0.130922  0.081665  0.023739
 1.813187  0.129151  0.084671  0.024365
 1.868132  0.127385  0.087717  0.025525
 1.923077  0.125621  0.090804  0.026105
 1.978022  0.123862  0.093931  0.027191
 2.032967  0.122106  0.097099  0.027734
 2.087912  0.120354  0.100308  0.028759
 2.142857  0.118605  0.103557  0.029271
 2.197802  0.116861  0.106848  0.030244
 2.252747  0.115119  0.110180  0.030660
 2.307692  0.113382  0.113553  0.030868
 2.362637  0.111648  0.116967  0.031660
 2.417582  0.109917  0.120423  0.032973
 2.472527  0.108191  0.123920  0.034858
 2.527473  0.106468  0.127458  0.036953
 2.582418  0.104748  0.131038  0.039087
 2.637363  0.103032  0.134660  0.041186
 2.692308  0.101320  0.138323  0.043221
 2.747253  0.099612  0.142028  0.045183
 2.802198  0.097907  0.145775  0.047071
 2.857143  0.096206  0.149564  0.048891
 2.912088  0.094508  0.153395  0.050646
 2.967033  0.092814  0.157269  0.052344
 3.01978  0.091124  0.161184  0.053989
 3.076923  0.089437  0.165142  0.055586
 3.131868  0.087754  0.169142  0.057139
 3.186813  0.086074  0.173185  0.058652
 3.241758  0.084399  0.177270  0.060129
 3.296703  0.082727  0.181398  0.061572
### FTABLE 1

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Area (acres)</th>
<th>Volume (acre-ft)</th>
<th>Outflow1 (cfs)</th>
<th>Outflow2 (cfs)</th>
<th>outflow 3 (cfs)</th>
<th>Velocity (ft/sec)</th>
<th>Travel Time (Minutes)</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
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MASS-LINK 5
IMPLND IWATER SURO 0.083333 RCHRES INFLOW IVOL
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MASS-LINK 8
RCHRES OFLOW OVOL 2 RCHRES INFLOW IVOL
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MASS-LINK 13
PERLND PWATER IFWO 0.083333 COPY INPUT MEAN
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MASS-LINK 16
RCHRES ROFLOW COPY INPUT MEAN
END MASS-LINK 16

MASS-LINK 17
RCHRES OFLOW OVOL 1 COPY INPUT MEAN
END MASS-LINK 17

END MASS-LINK

END RUN
Predeveloped HSPF Message File
Disclaimer

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Olympia, WA. 98501
Toll Free 1(866)943-0304
Local (360)943-0304

www.clearcreeksolutions.com
Appendix F
Conveyance Calculations
### Location

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>REMARKS</th>
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<td>CB A</td>
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<td>CB B</td>
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### Invert Elevations

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<th>LOCATION</th>
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### Remarks

- Calculations per King County Surface Water Design Manual Section 3.2.1, Rational Method

### Plan Data

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<td>CB F</td>
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### Local Groundwater

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### Structure Type "To"

- PVC Ext SD
- PVC

### Remarks

- Calculations per King County Surface Water Design Manual Section 3.2.1, Rational Method
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<th>To</th>
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<th>D/S</th>
<th>Inlet Elev</th>
<th>Barrel Area</th>
<th>Barrel Velocity</th>
<th>Entrance Loss</th>
<th>Friction Slope</th>
<th>Friction Loss</th>
<th>Entrance Head Loss</th>
<th>Outlet Head Loss</th>
<th>Entrance Control</th>
<th>Outlet Control</th>
<th>Approch Velocity</th>
<th>Bend Loss</th>
<th>Coef.3</th>
<th>Bend Head Loss</th>
<th>Q3</th>
<th>Q1</th>
<th>Junction Head Loss</th>
<th>HW</th>
<th>Elev</th>
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**Notes:**
Calculations per King County Surface Water Design Manual Section 3.2.1, Rational Method
Appendix G
Operations and Maintenance Recommended Procedures, from KCSWDM
<table>
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<tr>
<th>Maintenance Component</th>
<th>Defect or Problem</th>
<th>Condition When Maintenance is Needed</th>
<th>Results Expected When Maintenance is Performed</th>
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</thead>
<tbody>
<tr>
<td>Structure</td>
<td>Trash and debris</td>
<td>Trash or debris of more than ½ cubic foot which is located immediately in front of the structure opening or is blocking capacity of the structure by more than 10%.</td>
<td>No Trash or debris blocking or potentially blocking entrance to structure.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trash or debris in the structure that exceeds 1/3 the depth from the bottom of basin to invert the lowest pipe into or out of the basin.</td>
<td>No trash or debris in the structure.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Deposits of garbage exceeding 1 cubic foot in volume.</td>
<td>No condition present which would attract or support the breeding of insects or rodents.</td>
</tr>
<tr>
<td>Sediment</td>
<td>Sediment exceeds 60% of the depth from the bottom of the structure to the invert of the lowest pipe into or out of the structure or the bottom of the FROP-T section or is within 6 inches of the invert of the lowest pipe into or out of the structure or the bottom of the FROP-T section.</td>
<td></td>
<td>Sump of structure contains no sediment.</td>
</tr>
<tr>
<td>Damage to frame and/or top slab</td>
<td>Corner of frame extends more than ¾ inch past curb face into the street (if applicable).</td>
<td></td>
<td>Frame is even with curb.</td>
</tr>
<tr>
<td></td>
<td>Top slab has holes larger than 2 square inches or cracks wider than ¼ inch.</td>
<td></td>
<td>Top slab is free of holes and cracks.</td>
</tr>
<tr>
<td></td>
<td>Frame not sitting flush on top slab, i.e., separation of more than ¾ inch of the frame from the top slab.</td>
<td></td>
<td>Frame is sitting flush on top slab.</td>
</tr>
<tr>
<td>Cracks in walls or bottom</td>
<td>Cracks wider than ½ inch and longer than 3 feet, any evidence of soil particles entering structure through cracks, or maintenance person judges that structure is unsound.</td>
<td></td>
<td>Structure is sealed and structurally sound.</td>
</tr>
<tr>
<td></td>
<td>Cracks wider than ½ inch and longer than 1 foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering structure through cracks.</td>
<td></td>
<td>No cracks more than ½ inch wide at the joint of inlet/outlet pipe.</td>
</tr>
<tr>
<td>Settlement/ misalignment</td>
<td>Structure has settled more than 1 inch or has rotated more than 2 inches out of alignment.</td>
<td></td>
<td>Basin replaced or repaired to design standards.</td>
</tr>
<tr>
<td>Damaged pipe joints</td>
<td>Cracks wider than ¼-inch at the joint of the inlet/outlet pipes or any evidence of soil entering the structure at the joint of the inlet/outlet pipes.</td>
<td></td>
<td>No cracks more than ¼-inch wide at the joint of inlet/outlet pipes.</td>
</tr>
<tr>
<td>Contaminants and pollution</td>
<td>Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.</td>
<td></td>
<td>Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.</td>
</tr>
<tr>
<td>Ladder rungs missing or unsafe</td>
<td>Ladder is unsafe due to missing rungs, misalignment, rust, cracks, or sharp edges.</td>
<td></td>
<td>Ladder meets design standards and allows maintenance person safe access.</td>
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<tr>
<td>FROP-T Section</td>
<td>Damage</td>
<td>T section is not securely attached to structure wall and outlet pipe structure should support at least 1,000 lbs of up or down pressure.</td>
<td>T section securely attached to wall and outlet pipe.</td>
</tr>
<tr>
<td></td>
<td>Structure is not in upright position (allow up to 10% from plumb).</td>
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<td>Structure in correct position.</td>
</tr>
<tr>
<td></td>
<td>Connections to outlet pipe are not watertight or show signs of deteriorated grout.</td>
<td></td>
<td>Connections to outlet pipe are water tight; structure repaired or replaced and works as designed.</td>
</tr>
<tr>
<td></td>
<td>Any holes—other than designed holes—in the structure.</td>
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<td>Structure has no holes other than designed holes.</td>
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### NO. 4 – CONTROL STRUCTURE/FLOW RESTRICTOR

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<tr>
<th>Maintenance Component</th>
<th>Defect or Problem</th>
<th>Condition When Maintenance is Needed</th>
<th>Results Expected When Maintenance is Performed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleanout Gate</td>
<td>Damaged or missing</td>
<td>Cleanout gate is missing.</td>
<td>Replace cleanout gate.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cleanout gate is not watertight.</td>
<td>Gate is watertight and works as designed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gate cannot be moved up and down by one maintenance person.</td>
<td>Gate moves up and down easily and is watertight.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chain/rod leading to gate is missing or damaged.</td>
<td>Chain is in place and works as designed.</td>
</tr>
<tr>
<td>Orifice Plate</td>
<td>Damaged or missing</td>
<td>Control device is not working properly due to missing, out of place, or bent orifice plate.</td>
<td>Plate is in place and works as designed.</td>
</tr>
<tr>
<td></td>
<td>Obstructions</td>
<td>Any trash, debris, sediment, or vegetation blocking the plate.</td>
<td>Plate is free of all obstructions and works as designed.</td>
</tr>
<tr>
<td>Overflow Pipe</td>
<td>Obstructions</td>
<td>Any trash or debris blocking (or having the potential of blocking) the overflow pipe.</td>
<td>Pipe is free of all obstructions and works as designed.</td>
</tr>
<tr>
<td></td>
<td>Deformed or damaged lip</td>
<td>Lip of overflow pipe is bent or deformed.</td>
<td>Overflow pipe does not allow overflow at an elevation lower than design</td>
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<tr>
<td>Inlet/Outlet Pipe</td>
<td>Sediment accumulation</td>
<td>Sediment filling 20% or more of the pipe.</td>
<td>Inlet/outlet pipes clear of sediment.</td>
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<tr>
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<td>Trash and debris</td>
<td>Trash and debris accumulated in inlet/outlet pipes (includes floatables and non-floatables).</td>
<td>No trash or debris in pipes.</td>
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<tr>
<td></td>
<td>Damaged</td>
<td>Cracks wider than ½-inch at the joint of the inlet/outlet pipes or any evidence of soil entering at the joints of the inlet/outlet pipes.</td>
<td>No cracks more than ½-inch wide at the joint of the inlet/outlet pipe.</td>
</tr>
<tr>
<td>Metal Grates (If Applicable)</td>
<td>Unsafe grate opening</td>
<td>Grate with opening wider than 7/8 inch.</td>
<td>Grate opening meets design standards.</td>
</tr>
<tr>
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<td>Trash and debris</td>
<td>Trash and debris that is blocking more than 20% of grate surface.</td>
<td>Grate free of trash and debris, footnote to guidelines for disposal</td>
</tr>
<tr>
<td></td>
<td>Damaged or missing</td>
<td>Grate missing or broken member(s) of the grate.</td>
<td>Grate is in place and meets design standards.</td>
</tr>
<tr>
<td>Manhole Cover/Lid</td>
<td>Cover/lid not in place</td>
<td>Cover/lid is missing or only partially in place.</td>
<td>Cover/lid protects opening to structure.</td>
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<td>Locking mechanism Not Working</td>
<td>Any open structure requires urgent maintenance.</td>
<td></td>
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<tr>
<td></td>
<td>Cover/lid difficult to Remove</td>
<td>Mechanism cannot be opened by one maintenance person with proper tools. Bolts cannot be seated. Self-locking cover/lid does not work.</td>
<td>Mechanism opens with proper tools.</td>
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<td></td>
<td>One maintenance person cannot remove cover/lid after applying 80 lbs. of lift.</td>
<td>Cover/lid can be removed and reinstalled by one maintenance person.</td>
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## NO. 5 – CATCH BASINS AND MANHOLES

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<th>Maintenance Component</th>
<th>Defect or Problem</th>
<th>Condition When Maintenance is Needed</th>
<th>Results Expected When Maintenance is Performed</th>
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</thead>
<tbody>
<tr>
<td>Structure</td>
<td>Sediment</td>
<td>Sediment exceeds 60% of the depth from the bottom of the catch basin to the invert of the lowest pipe into or out of the catch basin or is within 6 inches of the invert of the lowest pipe into or out of the catch basin.</td>
<td>Sump of catch basin contains no sediment.</td>
</tr>
<tr>
<td></td>
<td>Trash and debris</td>
<td>Trash or debris of more than ½ cubic foot which is located immediately in front of the catch basin opening or is blocking capacity of the catch basin by more than 10%.</td>
<td>No Trash or debris blocking or potentially blocking entrance to catch basin.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trash or debris in the catch basin that exceeds ¼ the depth from the bottom of basin to invert the lowest pipe into or out of the basin.</td>
<td>No trash or debris in the catch basin.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dead animals or vegetation that could generate odors that could cause complaints or dangerous gases (e.g., methane).</td>
<td>No dead animals or vegetation present within catch basin.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Deposits of garbage exceeding 1 cubic foot in volume.</td>
<td>No condition present which would attract or support the breeding of insects or rodents.</td>
</tr>
<tr>
<td>Damage to frame and/or top slab</td>
<td>Corner of frame extends more than ¼ inch past curb face into the street (If applicable).</td>
<td>Frame is even with curb.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Top slab</td>
<td>Top slab has holes larger than 2 square inches or cracks wider than ¼ inch.</td>
<td>Top slab is free of holes and cracks.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Frame not sitting flush on top slab, i.e., separation of more than ¼ inch of the frame from the top slab.</td>
<td>Frame is sitting flush on top slab.</td>
</tr>
<tr>
<td>Cracks in walls or bottom</td>
<td>Cracks wider than ½ inch and longer than 3 feet, any evidence of soil particles entering catch basin through cracks, or maintenance person judges that catch basin is unsound.</td>
<td>Catch basin is sealed and is structurally sound.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cracks wider than ½ inch and longer than 1 foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering catch basin through cracks.</td>
<td>No cracks more than ¼ inch wide at the joint of inlet/outlet pipe.</td>
<td></td>
</tr>
<tr>
<td>Settlement/ misalignment</td>
<td>Catch basin has settled more than 1 inch or has rotated more than 2 inches out of alignment.</td>
<td>Basin replaced or repaired to design standards.</td>
<td></td>
</tr>
<tr>
<td>Damaged pipe joints</td>
<td>Cracks wider than ½-inch at the joint of the inlet/outlet pipes or any evidence of soil entering the catch basin at the joint of the inlet/outlet pipes.</td>
<td>No cracks more than ¼-inch wide at the joint of inlet/outlet pipes.</td>
<td></td>
</tr>
<tr>
<td>Contaminants and pollution</td>
<td>Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.</td>
<td>Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.</td>
<td></td>
</tr>
<tr>
<td>Inlet/Outlet Pipe</td>
<td>Sediment accumulation</td>
<td>Sediment filling 20% or more of the pipe.</td>
<td>Inlet/outlet pipes clear of sediment.</td>
</tr>
<tr>
<td></td>
<td>Trash and debris</td>
<td>Trash and debris accumulated in inlet/outlet pipes (includes floatables and non-floatables).</td>
<td>No trash or debris in pipes.</td>
</tr>
<tr>
<td></td>
<td>Damaged</td>
<td>Cracks wider than ¼-inch at the joint of the inlet/outlet pipes or any evidence of soil entering at the joints of the inlet/outlet pipes.</td>
<td>No cracks more than ¼-inch wide at the joint of the inlet/outlet pipe.</td>
</tr>
<tr>
<td>Maintenance Component</td>
<td>Defect or Problem</td>
<td>Condition When Maintenance is Needed</td>
<td>Results Expected When Maintenance is Performed</td>
</tr>
<tr>
<td>------------------------</td>
<td>---------------------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Metal Grates (Catch Basins)</td>
<td>Unsafe grate opening</td>
<td>Grate with opening wider than (\frac{7}{8}) inch.</td>
<td>Grate opening meets design standards.</td>
</tr>
<tr>
<td></td>
<td>Trash and debris</td>
<td>Trash and debris that is blocking more than 20% of grate surface.</td>
<td>Grate free of trash and debris. footnote to guidelines for disposal</td>
</tr>
<tr>
<td></td>
<td>Damaged or missing</td>
<td>Grate missing or broken member(s) of the grate. <em>Any open structure requires urgent maintenance.</em></td>
<td>Grate is in place and meets design standards.</td>
</tr>
<tr>
<td>Manhole Cover/Lid</td>
<td>Cover/lid not in place</td>
<td>Cover/lid is missing or only partially in place. <em>Any open structure requires urgent maintenance.</em></td>
<td>Cover/lid protects opening to structure.</td>
</tr>
<tr>
<td></td>
<td>Locking mechanism Not Working</td>
<td>Mechanism cannot be opened by one maintenance person with proper tools. Bolts cannot be seated. Self-locking cover/lid does not work.</td>
<td>Mechanism opens with proper tools.</td>
</tr>
<tr>
<td></td>
<td>Cover/lid difficult to Remove</td>
<td>One maintenance person cannot remove cover/lid after applying 80 lbs. of lift.</td>
<td>Cover/lid can be removed and reinstalled by one maintenance person.</td>
</tr>
<tr>
<td>Maintenance Component</td>
<td>Defect or Problem</td>
<td>Conditions When Maintenance is Needed</td>
<td>Results Expected When Maintenance is Performed</td>
</tr>
<tr>
<td>------------------------</td>
<td>------------------</td>
<td>---------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Pipes</td>
<td>Sediment &amp; debris accumulation</td>
<td>Accumulated sediment or debris that exceeds 20% of the diameter of the pipe.</td>
<td>Water flows freely through pipes.</td>
</tr>
<tr>
<td></td>
<td>Vegetation/roots</td>
<td>Vegetation/roots that reduce free movement of water through pipes.</td>
<td>Water flows freely through pipes.</td>
</tr>
<tr>
<td></td>
<td>Contaminants and pollution</td>
<td>Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.</td>
<td>Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.</td>
</tr>
<tr>
<td></td>
<td>Damage to protective coating or corrosion</td>
<td>Protective coating is damaged; rust or corrosion is weakening the structural integrity of any part of pipe.</td>
<td>Pipe repaired or replaced.</td>
</tr>
<tr>
<td></td>
<td>Damaged</td>
<td>Any dent that decreases the cross section area of pipe by more than 20% or is determined to have weakened structural integrity of the pipe.</td>
<td>Pipe repaired or replaced.</td>
</tr>
<tr>
<td>Ditches</td>
<td>Trash and debris</td>
<td>Trash and debris exceeds 1 cubic foot per 1,000 square feet of ditch and slopes.</td>
<td>Trash and debris cleared from ditches.</td>
</tr>
<tr>
<td></td>
<td>Sediment accumulation</td>
<td>Accumulated sediment that exceeds 20% of the design depth.</td>
<td>Ditch cleaned/flushed of all sediment and debris so that it matches design.</td>
</tr>
<tr>
<td></td>
<td>Noxious weeds</td>
<td>Any noxious or nuisance vegetation which may constitute a hazard to County personnel or the public.</td>
<td>Noxious and nuisance vegetation removed according to applicable regulations. No danger of noxious vegetation where County personnel or the public might normally be.</td>
</tr>
<tr>
<td></td>
<td>Contaminants and pollution</td>
<td>Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.</td>
<td>Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.</td>
</tr>
<tr>
<td></td>
<td>Vegetation</td>
<td>Vegetation that reduces free movement of water through ditches.</td>
<td>Water flows freely through ditches.</td>
</tr>
<tr>
<td></td>
<td>Erosion damage to slopes</td>
<td>Any erosion observed on a ditch slope.</td>
<td>Slopes are not eroding.</td>
</tr>
<tr>
<td></td>
<td>Rock lining out of place or missing (If Applicable)</td>
<td>One layer or less of rock exists above native soil area 5 square feet or more, any exposed native soil.</td>
<td>Replace rocks to design standards.</td>
</tr>
<tr>
<td>Maintenance Component</td>
<td>Defect or Problem</td>
<td>Conditions When Maintenance is Needed</td>
<td>Results Expected When Maintenance is Performed</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Preventative</td>
<td>Vegetation</td>
<td>Vegetation to be watered and pruned as needed and mulch applied to a minimum of 2 inches to maintain healthy growth.</td>
<td>Healthy vegetation growth with full coverage as designed.</td>
</tr>
<tr>
<td>Bioretention Area</td>
<td>Trash and debris</td>
<td>Trash and debris in the bioretention area; leaf drop in the fall season.</td>
<td>No trash or debris in the bioretention area.</td>
</tr>
<tr>
<td></td>
<td>Sediment accumulation</td>
<td>Sediment accumulation in the bioretention area interfering with infiltration.</td>
<td>Water in the bioretention infiltrates as designed.</td>
</tr>
<tr>
<td></td>
<td>Ponding</td>
<td>Standing water in the bioretention area for more than two days.</td>
<td>Standing water infiltrates at the desired rate.</td>
</tr>
<tr>
<td></td>
<td>Inflow</td>
<td>Inflow not getting into bioretention; debris/sediment blockage at inlet features; native soil is exposed or other signs of erosion damage is present.</td>
<td>Unobstructed and properly routed inflow into bioretention area; inlet is stabilized and appropriately armored.</td>
</tr>
<tr>
<td></td>
<td>Overflow outlet</td>
<td>Overflow water not controlled by outlet features; native soil is exposed or other signs of erosion damage is present.</td>
<td>Outlet features control overflow; overflow is stabilized and appropriately armored.</td>
</tr>
<tr>
<td></td>
<td>Underdrain</td>
<td>Underdrain is not flowing when bioretention area has been infiltrating water.</td>
<td>Underdrain flows freely when water is present.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>Plant health</td>
<td>Plants not thriving across at least 80% of the entire design vegetated area within the BMP; overly dense vegetation requiring pruning.</td>
<td>Healthy water tolerant plants in bioretention area, plants thriving across at least 80% of the entire design vegetated area within the facility.</td>
</tr>
<tr>
<td></td>
<td>Plant species</td>
<td>Plants not water tolerant species.</td>
<td>Plants are water tolerant.</td>
</tr>
<tr>
<td></td>
<td>Weeds</td>
<td>Weeds growing in bioretention area.</td>
<td>No weeds in bioretention area.</td>
</tr>
<tr>
<td></td>
<td>Watering</td>
<td>Planting schedule requires frequent watering (approx. weekly Year 1, bimonthly Years 2 and 3) for new facilities, and as needed for established plantings or dry periods</td>
<td>Plants are established and thriving</td>
</tr>
<tr>
<td></td>
<td>Pest Control</td>
<td>Signs of pests, such as wilting or chewed leaves or bark, spotting or other indicators; extended ponding period encouraging mosquitoes</td>
<td>Plant community is pest-free when following an approved Integrated Pest Management plan; bioretention functioning normally and ponding controlled as needed for pest control</td>
</tr>
<tr>
<td></td>
<td>Erosion;</td>
<td>Erosion occurring at earthen slopes or containment berm side slope.</td>
<td>Erosion on the containment berm and side slopes has been repaired and the cause of the erosion corrected.</td>
</tr>
<tr>
<td></td>
<td>Voids created by nuisance animals (e.g., rodents) or tree roots</td>
<td>Voids affecting berm integrity or creating leaky pond condition</td>
<td>Voids have been repaired; facility is free of nuisance animals following an approved Integrated Pest Management plan.</td>
</tr>
<tr>
<td></td>
<td>Settlement</td>
<td>Any part of the containment berm top has less than 6 inches of freeboard from the maximum pond level to the top of the berm.</td>
<td>A minimum of 6 inches freeboard from the maximum pond level to the top of the berm.</td>
</tr>
<tr>
<td>Amended Soil</td>
<td>Soil nutrients</td>
<td>Soil not providing plant nutrients.</td>
<td>Soil providing plant nutrients.</td>
</tr>
<tr>
<td></td>
<td>Bare spots</td>
<td>Bare spots on soil in bioretention area.</td>
<td>No bare spots, bioretention area covered with vegetation or mulch mixed into the underlying soil.</td>
</tr>
<tr>
<td></td>
<td>Compaction</td>
<td>Poor infiltration due to soil compaction in the bioretention area.</td>
<td>No soil compaction in the bioretention area.</td>
</tr>
<tr>
<td>Inspection</td>
<td>Frequency</td>
<td>Annually and after large storms, and as needed seasonally for pruning, plant maintenance, pest control and to control leaf drop, evergreen needles etc.</td>
<td>Bioretention facility is functioning normally; plant community is thriving and pest-free.</td>
</tr>
</tbody>
</table>
APPENDIX G

STORMWATER POLLUTION PREVENTION PLAN
# Project Name

<table>
<thead>
<tr>
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<th>Totem Lake Park Phase 1</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>City of Kirkland Permit #</th>
<th>Click here to enter text.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Date of Submittal</th>
<th>Click here to enter text.</th>
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<td>11. Manage the Project</td>
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## List of Appendices

- Appendix A ESC Plans (Included)
- Appendix B BMP Details (Web Links)
- Appendix C Correspondence (None)
- Appendix D Site Inspection Form (To be Included)
- Appendix E Construction Stormwater General Permit (CSWGP) (Web Links)
- Appendix F 303(d) List Waterbodies/TMDL Waterbodies Information (Included)
- Appendix G Contaminated Site Information (None)
- Appendix F Engineering Calculations (Included)

City of Kirkland, WA
CSWPPP Template – March 14, 2018
PROJECT & CSWPPP INFORMATION

Project

Project name: Totem Lake Park Phase 1
Site address: Totem Lake Boulevard and 120th Avenue NE
Parcel number: 6928400032, 8663270060, 2826059027

Applicant contact

Permittee/Owner: City of Kirkland
Developer: Click here to enter text.
Operator/Contractor: Click here to enter text.
Permit #: Click here to enter text.
Address: Click here to enter text.
Phone number: Click here to enter text.

Certified Erosion and Sediment Control Lead (CESCL)

Name: Click here to enter text.
Organization: Click here to enter text.
Contact Phone Number: Click here to enter text.

SWPPP Prepared By

Name: Mark Lee
Organization: Jacobs Engineering
Contact Phone Number: 425-233-3231

Project Construction Dates

Activity/Phase: 60% Design Level
Start Date: Click here to enter text.
End Date: Click here to enter text.

SWPPP Preparation Date – 08/02/2018

NOTE: Bring the contact information for the CSWPPP Supervisor and the contractor information to the pre-conference.
PROJECT INFORMATION

Description of Site Development:
The project involves the development of 1.53 total acres, summarized in the list below:

- New park consisting of parking lot (5 vehicles), water features, bioretention cells, and landscaped and planting area. The park includes a small building for bathroom facilities.
- Extension of asphalt trail along the north end of the wetlands.
- Boardwalk crossing over a section of wetland area.
- Small stretch of impervious trail on the south edge of the wetland area connecting to the boardwalk.

The park is located on the north side of the Totem Lake Park, outside of the wetland limits. The construction will be within the wetland buffers. Due to the saturated wetland soils, contractor should anticipate challenging conditions in and near wetland areas, where soft soils will be encountered. Part of the trail/board walk will be within the wetland. It is anticipated that wetland soils will not be walkable or drivable, and temporary floatation platform or similar temporary facilities will be needed for access.

Description of Construction Activities:
Construction activities will include site preparation; installation of temporary sedimentation and erosion control measures; clear and grubbing; placement of asphalt and subbase, excavation, pipe installation; building and water tank construction, boardwalk construction, landscaping, and revegetation of disturbed areas.

Overall construction will take place in the proposed sequence as follows:

1. Install ESC measures onsite.
2. Demolish of the existing building and asphalt parking lot.
3. Clear and Grub the existing vegetated areas.
4. General grading and excavation of the park portion.
5. Install utilities including water, sewer, storm, and power.
6. Construct concrete platform, retaining wall, and asphalt parking and trails,
7. Construct park restroom building.
8. Construct boardwalk:
   a. Construction of concrete abutment outside of wetlands at end(s) of the boardwalk.
   b. Clear vegetation by hand along path of the boardwalk, remaining within 12 feet of the boardwalk center alignment. Leave soil, roots, and emergent plants in place.
   c. Lay plywood or other sheet usable as a work surface on already installed pipe pilings.
d. Manually drive a group of 2” diameter piles using power/hand tools approximately 20 feet from the concrete abutment or previous piles whichever is closer.

e. Construct framing and decking in 20 foot segments.

f. Remove work surface from under constructed framing and decking.

g. Repeat steps b through f.


10. Stabilize and vegetate all disturbed area, and remove ESC measures. No materials may be left within the wetland.

Due to the saturated wetland soils, contractor should anticipate challenging conditions in all wetland areas which may require floatation for working surfaces and equipment. The wetland soils will not support construction equipment. If the proposed boardwalk is at or near water inundated zone, step 8c will be refer to a work surface with floatation rather than plywood.

**Critical Areas (wetlands, streams, high erosion risk, steep or difficult to stabilize slopes):** There are no known critical aquifer recharge areas, geologic hazard areas, habitat conservation areas, or other critical areas within the project site or that will be affected by stormwater from the site. Adjacent wetlands would be affected by stormwater discharge from the site.

**List of known impairments for 303(d) listed or Total Maximum Daily Load (TMDL) for the receiving waterbody:** The Water Resources Inventory Area (WRIA) catalogues Washington’s list of 303(d) impaired waters. The project site is within the WRIA Area 8. More specifically, the site lies within the Juanita Creek basin of the Cedar-Sammamish watershed. Downstream of the project site within this sub-watershed appears the following listing on the State’s 303(d) for the following components:

- Category 5, Bacteria, Listing ID 13127
- Category 5, Bacteria, Listing ID 13143
- Category 5, Bacteria, Listing ID 74352
- Category 5, Dissolved Oxygen, Listing ID 12675
- Category 5, Dissolved Oxygen, Listing ID 12686
- Category 5, Dissolved Oxygen, Listing ID 78042
- Category 5, Temperature, Listing ID 4810
- Category 5, Temperature, Listing ID 7027

This project is not anticipated to affect the watershed system related to dissolved oxygen, bacteria, or temperature in any adverse way.
PURPOSE OF THE CSWPPP

This template is a tool for use by developers with project proposals located within the City of Kirkland (COK) for complying with Core Requirement #5 of the 2016 King County Stormwater Design Manual (KCSWDM) and Drainage Policy D-12 of the COK Pre-approved Plans. These rules require the submittal of Construction Stormwater Pollution Prevention Plan (CSWPPP) for review and approval by Kirkland staff.

The CSWPPP contains two parts; the Erosion and Sediment Control (ESC) Plan (required for all projects) and the Stormwater Pollution Prevention and Spill Plan (SWPPP, required for projects of 1 acre or more). Both plans include drawings and reports.
PART A Erosion and Sediment Control (ESC) Measures

The implementation of this ESC plan and the construction, maintenance, replacement, and upgrading of these ESC facilities is the responsibility of the Permittee/Contractor until all construction is approved.

Attach the ESC plan in Appendix A.
1. CLEARING LIMITS (Reference KCSWDM D.2.1.1, p. D-11 for additional information)

Prior to any site clearing or grading, areas to remain undisturbed during project construction shall be delineated on the project's ESC plan and physically marked on the project site. The purpose of clearing limits is to prevent disturbance of those areas of the project site that are not designated for clearing or grading.

**Design & Installation**

*Use the following space to specify how clearing limits are to be delineated, and instructions on their installation.*

Prior to beginning land disturbing activities, including clearing, demolition, and grading, the contractor shall clearly mark all clearing limits and sensitive areas that are to be preserved within the construction. Natural vegetation and native topsoil shall be retained in an undisturbed state to the maximum extent possible.

Construction fence will be installed on the East, North, and West limits of the project area. This fencing will restrict clearing to approved limits and limit construction traffic to designated construction entrances and roads. Silt fence will be placed to mark work zone at the South edge of the site, between the project area and adjacent sidewalk and wetland as shown on the Site Map (Appendix A). Hi-vis fencing will be installed at the limits of clearing along the proposed boardwalk construction in wetland area. No clearing, grubbing, or any demolition activities shall take place outside marked construction limits. Disturbance of wetland areas between boardwalk pile locations should be avoided as possible. The Site Map in Appendix A illustrates the construction limits.

**Maintenance**

*Use the following space to specify maintenance requirements for the clearing limits measures.*

If the fence has been damaged or is no longer clearly visible, it shall be repaired or replaced immediately and visibility restored. Sediment must be removed when the sediment buildup behind the silt fence reaches 6 inches high. To avoid potential erosion and sediment control issues that may cause a violation of the permits, the Certified Erosion and Sediment Control Lead (CESCL) will promptly initiate the implementation of one or more of the alternative BMPs listed in the King County Surface Water Design Manual (KCSWDM) after the first sign that existing BMPs are ineffective or failing.
2. COVER MEASURES (Reference KCSWDM D.2.1.2, p. D-12 and COK Pre-Approved Plans CK-E.05, .06 & .10 for additional information)

Temporary and permanent cover measures shall be provided to protect all disturbed areas, including the faces of cut and fill slopes. The purpose of covering exposed soils is to prevent erosion, thus reducing reliance on less effective methods that remove sediment after it is entrained in runoff.

☒ Surface Roughening (D.2.1.2.1, p. D-13)
☒ Mulching (D.2.1.2.2, p. D-16)
☒ Nets and Blankets (D.2.1.2.3, p. D-18)
☒ Plastic Covering (D.2.1.2.4, p. D-20)
☒ Straw Wattles (D.2.1.2.5, p. D-21)
☒ Temporary and Permanent Seeding (D.2.1.2.6, p. D-24)
☒ Sodding (D.2.1.2.7, p. D-28)
☐ Polyacrylamide for Soil Erosion Protection (D.2.1.2.8, p. D-29)
☐ Compost Blankets (D.2.1.2.9, p. D-31)

Design & Installation

Use the following space to specify the design and installation of cover measures.

| Grading shall be accomplished in such a way that worked soils shall be exposed, graded, and hydroseeded or sodded in phases to limit the amount of time soils are exposed to weather. Additionally, major construction activities shall be scheduled in the dry season (May 1 through September 30) when the least amount of average rainfall is expected. Generally, exposed soils shall be stabilized with the application of effective BMPs to prevent erosion throughout the life of the project. |
| In general, cut and fill slopes will be stabilized as soon as possible and soil stockpiles will be temporarily covered with plastic sheeting. All stockpiled soils shall be stabilized from erosion, protected, and where possible, be located away from storm drain inlets, waterways, and drainage channels. |

Maintenance

Use the following space to specify maintenance requirements for the cover measures.
All cover measures will be inspected and maintained daily and immediately after storm events greater than 0.10 inch of rainfall occur in a 24-hour period. Any areas experiencing erosion will be re-seeded and mulched and/or protected with a net or blanket. All tears or damages must be replaced or repaired.
3. PERIMETER PROTECTION (Reference KCSWDM D.2.1.3, p. D-33 and COK Pre-Approved Plan CK-E.03 for additional information)

Perimeter protection to filter sediment from sheetwash shall be located downslope of all disturbed areas and shall be installed prior to upslope grading. The purpose of perimeter protection is to reduce the amount of sediment transported beyond the disturbed areas of the construction site.

- ☒ Silt Fence (D.2.1.3.1, p. D-33)
- ☐ Brush Barrier (D.2.1.3.2, p. D-36)
- ☐ Vegetated Strip (D.2.1.3.3, p. D-37)
- ☐ Triangular Silt Dike (D.2.1.3.4, p. D-37)
- ☐ Compost Berms (D.2.1.3.5, p. D-38)
- ☒ Compost Socks (D.2.1.3.6, p. D-40)

**Design & Installation**

*Use the following space to specify the design and installation of perimeter protection.*

Silt fence (BMP #) will be placed at the South edge of the site, reducing the transport of coarse sediment from the construction area to the adjacent sidewalk and wetland. Silt fence will also be installed between the concrete abutments at either end of the boardwalk and the adjacent wetland.

Compost socks (BMP #) will be installed between the existing parking lot/restaurant structure and Totem Lake Blvd. They will be installed parallel to the slope, perpendicular to sheet flow from the site down to Totem Lake Blvd. Compost socks will also be installed along the downstream gradient of the proposed trail and boardwalk. Silt fencing and compost socks both reduce transport of sediment by providing a temporary physical barrier to sediment-laden water. They are shown on the Site Map (Appendix A).

**Maintenance**

*Use the following space to specify maintenance requirements for the perimeter protection.*

All installations will be inspected and maintained daily and immediately after storm events greater than 0.10 inch of rainfall occur in a 24-hour period. Any damages shall be repaired immediately. Sediment build-up behind the silt fence must be removed when the sediment is 6 inches high. If filter fabric has deteriorated, it shall be replaced.

When the compost socks are no longer needed, the socks shall be cut open and the compost dispersed to be incorporated into the soil or left on top of the soil for final seeding to occur. The mesh material must be properly disposed. Sediment build-up must be removed when the sediment accumulations are within 3 inches of the top of the sock.
4. TRAFFIC AREA STABILIZATION (Reference KCSWDM D.2.1.4, p. D-41 and COK Pre-Approved Plans CK-E.01 & .02 for additional information)

Unsurfaced entrances, roads, and parking areas used by construction traffic shall be stabilized to minimize erosion and tracking of sediment off site. The purpose of traffic area stabilization is to reduce the amount of sediment transported off site by construction vehicles and to reduce the erosion of areas disturbed by vehicle traffic.

- Stabilized Construction Entrance (D.2.1.4.1, p. D-42)
- Construction Road/Parking Area Stabilization (D.2.1.4.2, p. D-44)
- Wheel Wash (D.2.1.4.3, p. D-45)

**Design & Installation**

*Use the following space to specify the design and installation of traffic area stabilization measures.*

The single construction entrance will be stabilized to reduce the amount of sediment transported onto paved roads by motor vehicles or runoff. Specifically, a geotextile shall be placed on top of the subgrade, and a 12-inch layer quarry spalls will be placed on top of the geotextile. This will be the first step in the clearing and grading process. An HMA curb will be installed on the downstream end of the construction entrance to prevent runoff from leaving the project site.

All construction roads and parking areas will be stabilized for construction traffic usage. Fencing will be installed to limit access to these roads and parking areas.

**Maintenance**

*Use the following space to specify maintenance requirements for the traffic area stabilization measures.*

Quarry spalls shall be added or replaced if the pad is no longer in accordance with the specifications. If the entrance is not preventing sediment from being tracked onto pavement, then alternative measures to keep the streets free of sediment shall be used. This may include street sweeping, an increase in the dimensions of the entrance, or the installation of a wheel wash. Any sediment that is tracked onto pavement shall be removed immediately by sweeping. Any quarry spalls that are loosened from the pad and end up on the roadway shall be removed immediately.
5. SEDIMENT RETENTION (Reference KCSWDM D.2.1.5, p. D-47 and COK Pre-Approved Plans CK-E.08, .09, .09A & .11 for additional information)

Surface water collected from disturbed areas of the site shall be routed through a sediment pond or trap prior to release from the site. The purpose of sediment retention facilities is to remove sediment from runoff generated from disturbed areas.

☐ Sediment Trap (D.2.1.5.1, p. D-48)
☐ Sediment Pond (D.2.1.5.2, p. D-50)
☒ Storm Drain Inlet Protection (D.2.1.5.3, p. D-53)

Monitoring and Sampling Requirements (4.0)

Monitoring includes visual inspection, sampling for water quality parameters of concern, and documentation of the inspection and sampling findings in a site log book. A site log book will be maintained for all on-site construction activities and will include:

- A record of the implementation of the SWPPP and other permit requirements
- Site inspections
- Stormwater sampling data

The site log book must be maintained on-site within reasonable access to the site and be made available upon request to Ecology or the local jurisdiction.

For convenience, the inspection form included in this SWPPP include the required information for the site log book. This SWPPP may function as the site log book if desired, or the forms may be separated and included in a separate site log book. However, if separated, the site log book must be maintained on-site or within reasonable access to the site and be made available upon request.

**Numeric effluent limits may be required for certain discharges to 303(d) listed waterbodies. See CSWGP Special Condition S8.**

Site Inspection (4.1)

Site inspections will be conducted at least once every calendar week and within 24 hours following any discharge from the site. For sites that are temporarily stabilized and inactive, the required frequency is reduced to once per calendar month.

The discharge point(s) are indicated on the Site Map (see Appendix A) and in accordance with the applicable requirements of the CSWGP.

Stormwater Quality Sampling (4.2)

Turbidity Sampling (4.2.1)

Requirements include calibrated turbidity meter or transparency tube to sample site discharges for compliance with the CSWGP. Sampling will be conducted at all discharge points at least once per calendar week.

Method for sampling turbidity:
Table 8 – Turbidity Sampling Method

<table>
<thead>
<tr>
<th></th>
<th>Turbidity Meter/Turbidimeter (required for disturbances 5 acres or greater in size)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Transparency Tube (option for disturbances less than 1 acre and up to 5 acres in size)</td>
</tr>
</tbody>
</table>

Turbidity sampling and monitoring will be conducted during the entire construction phase of the project. Samples will be collected daily at the downstream end of the project area. If there is no flow leaving the work area, the attempt to sample will be recorded in the site log book and reported to Clark County in the monthly Discharge Monitoring Report (DMR) as “No Discharge”. Samples will be analyzed for turbidity using the EPA 180.1 analytical method.

The benchmark for turbidity value is 25 nephelometric turbidity units (NTU). If the discharge’s turbidity is 26 to 249 NTU, the following steps will be conducted:

1. Review the SWPPP for compliance with Special Condition S9. Make appropriate revisions within 7 days of the date the discharge exceeded the benchmark.
2. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible. Address the problems within 10 days of the date the discharge exceeded the benchmark. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when the Permittee requests an extension within the initial 10-day response period.

If the turbidity exceeds 250 NTU at any time, the following steps will be conducted:

   - **Central Region** (Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima): (509) 575-2490
   - **Eastern Region** (Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman): (509) 329-3400
   - **Northwest Region** (King, Kitsap, Island, San Juan, Skagit, Snohomish, Whatcom): (425) 649-7000
   - **Southwest Region** (Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Lewis, Mason, Pacific, Pierce, Skamania, Thurston, Wahkiakum): (360) 407-6300
2. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible. Address the problems within 10 days of the date the discharge exceeded the benchmark. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when the Permittee requests an extension within the initial 10-day response period.
4. Continue to sample discharges daily until one of the following is true:
   - Turbidity is 25 NTU (or lower).
   - Transparency is 33 cm (or greater).
   - Compliance with the water quality limit for turbidity is achieved.
     - 1 - 5 NTU over background turbidity, if background is less than 50 NTU
     - 1% - 10% over background turbidity, if background is 50 NTU or greater

The discharge stops or is eliminated.

**Design & Installation**

*Use the following space to specify the design and installation of sediment retention measures. Include 2- and 10-year peak flows for the developed conditions. Paste calculations on next page under 'Sizing'.*

| Storm drain inlet protection will be installed to prevent coarse sediment from entering storm drainage systems. However, the first priority is to keep all paved surfaces clean of sediment and separate from entering storm drains until treatment can be provided. |

| Temporary sediment settling tanks will be installed in the Southwest corner of the construction site. Runoff will be directed to a low point on the site with ditches, and pumped to the tanks where sediment will settle out and the water can be discharged to the existing outfall or sanitary sewer system. |

**Maintenance**

*Use the following space to specify maintenance requirements for the clearing limits measures.*

| Inlets shall be inspected weekly at a minimum and daily during storm events. Inlet protection devices shall be cleaned or removed and replaced when sediment has filled one-third of the available storage space. |

| Water captured in the sediment settling tanks will be sampled for turbidity before discharges. Sediment buildup shall be removed from the tank and be disposed off-site when it reaches 12 inches in depth. |
Sizing

In the space below, upload an image of the report from WWHM stating the 2- and 10-year peak flows. The WWHM output is included in Appendix H.

<table>
<thead>
<tr>
<th>Return Period</th>
<th>Flow (cfs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 year</td>
<td>0.211032</td>
</tr>
<tr>
<td>5 year</td>
<td>0.271115</td>
</tr>
<tr>
<td>10 year</td>
<td>0.013927</td>
</tr>
</tbody>
</table>

In the space below, upload calculations showing the sizing requirements.

Sediment Trap sizing per KCSWDM D.2.1.5.1

The surface area of a typical sediment trap = 2 x 0.211/0.00096 = 440 SF.
6. SURFACE WATER COLLECTION (Reference KCSWDM D.2.1.6, p. D-59 and COK Pre-Approved Plan CK-E.07 for additional information)

All surface water from disturbed areas shall be intercepted, conveyed to a sediment pond or trap, and discharged downslope of any disturbed areas. The purpose of surface water control is to collect and convey surface water so that erosion is minimized, and runoff from disturbed areas is treated by a sediment pond or trap.

☐ Interceptor Dike and Swale (D.2.1.6.1, p. D-60)
☐ Subsurface Drains (D.2.1.6.3, p. D-63)
☒ Ditches (D.2.1.6.4, p. D-64)
☐ Outlet Protection (D.2.1.6.5, p. D-66)
☐ Level Spreader (D.2.1.6.6, p. D-66)

**Design & Installation**

*Use the following space to specify the design and installation of surface water collection measures.*

Ditches will be constructed on site to collect and convey surface water runoff to a low point on-site. From this low point water will be pumped to a temporary settling tank(s) or proprietary filtration system to be treated before discharge.

**Maintenance**

*Use the following space to specify maintenance requirements for the surface water collection measures.*

Any sediment deposition of more than 0.5 feet shall be removed so that the channel is restored to its design capacity. If the channel capacity is insufficient for the design flow, it must be determined whether the problem is local or the channel is under-designed. If the problem is local, the channel capacity must be increased through construction of a berm(s) or by excavation. If the problem is under-design, the design engineer shall be notified and the channel redesigned to a more conservative standard to be approved by King County. The channel shall be examined for signs of scouring and erosion of the bed and banks. If scouring or erosion has occurred, affected areas shall be protected by riprap or an erosion control blanket or net.
7. DEWATERING CONTROL (Reference KCSWDM D.2.1.7, p. D-68 for additional information)

The purpose of dewatering control is to prevent the untreated discharge of sediment-laden water from dewatering of utilities, excavated areas, foundations, etc.

☐ Infiltration (D.2.1.7.1.a, p. D-68)
☒ Vehicle transport offsite (D.2.1.7.1.b, p. D-68)
☒ Approved discharge to sanitary sewer (D.2.1.7.1.c, p. D-68)
☐ Sedimentation bags for small volumes of localized dewatering (D.2.1.7.1.d, p. D-68)

Design & Installation

Use the following space to specify the design and installation of dewatering control measures. If not applicable, include language from geotechnical report stating that no groundwater will be present on site. Note if there are contaminated soils on site.

Because the project site is adjacent to a wetland, it is expected that some dewatering may be necessary. Infiltration is not feasible due to the soil conditions and potential high groundwater level. Foundation and trench dewatering water, which have characteristics similar to stormwater runoff at the site, will be pumped from a sump to a temporary sediment settling tank(s) or filtration system prior to discharge. Clean, non-turbid dewatering water will be discharged to the existing outfall to Totem Lake. Turbid water may be discharged to existing sanitary sewer system (with Lakehaven and King County WTD approval) or treated prior to discharge to the storm drains.

Maintenance

Use the following space to specify maintenance requirements for the dewatering control measures.

All pumps used in dewatering shall be repaired immediately if needed. Temporary sediment settling tanks shall be maintained as specified in Element 5. Filtration systems, if used, must be maintained to ensure proper function.
8. DUST CONTROL (Reference KCSWDM D.2.1.8, p. D-69 for additional information)

Preventative measures to minimize the wind transport of soil shall be taken when a traffic hazard may be created or when sediment transported by wind is likely to be deposited in water resources or adjacent properties. The purpose of dust control is to prevent wind transport of dust from exposed soil surfaces onto roadways, drainage ways, and surface waters.

☒ Water
☐ Other from Table D.2.1.8.A (Specify: Click here to enter text.)

Design & Installation

Use the following space to specify the design and installation of dust control measures.

Dust control shall be implemented when exposed soils are dry to the point that wind transport is possible and roadways, drainage ways, or surface waters are likely to be impacted. Dust control measures may consist of chemical, structural, or mechanical methods. When using water for dust control, the exposed soils shall be sprayed until wet, but runoff shall not be generated by spraying.

Maintenance

Use the following space to specify maintenance requirements for the dust control measures.

N/A
9. FLOW CONTROL (Reference KCSWDM D.2.1.9, p. D-71 for additional information)

Surface water from disturbed areas must be routed through the project's onsite flow control facility or other provisions must be made to prevent increases in the existing site conditions 2-year and 10-year runoff peaks discharging from the project site during construction. The purpose of surface water flow control is to mitigate increases in runoff peaks that occur during construction as a result of clearing vegetation, compacting the soil, and adding impervious surface. Such increases can cause or aggravate downstream flooding and erosion.

**Design & Installation**

*Use the following space to specify the design and installation of flow control measures. Include 2- and 10-year peak flows for the developed conditions. Paste calculations on next page under 'Sizing'.*

Surface water flow control shall be installed or otherwise provided prior to any clearing and/or grading of the site, except that required to construct the surface water flow control facilities.

Flow control facilities could be sediment trap(s) or sediment settling tanks. Permanent flow control facilities may not be used for temporary use during construction. The discharge rate of water from the flow control facilities will be controlled to avoid erosion and flooding downstream of the discharge point. The natural hydroperiod of the project adjacent wetland is unlikely to be affected because the project site is significantly smaller than the contributory area of the wetland. Outlet flows will be controlled such that peak discharge from the project site during construction are not greater than the existing site conditions 2-year peak flow; flow frequencies for Totem Lake listed below.

Accounting for the worst case scenario, in which the entire project site is classified as impervious surface during construction, the temporary stormwater detention facilities must total 0.079 acre-ft of storage. This means that two 40ft by 10ft temporary settling tanks will be adequate storage. The WWHM run used for sizing can be found in Appendix H.

**Maintenance**

*Use the following space to specify maintenance requirements for the flow control measures.*

Sediment will be removed before the depth of sediment has accumulated more than 12 inches.

<table>
<thead>
<tr>
<th>Flow Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (cfs)</td>
</tr>
<tr>
<td>2 Year</td>
</tr>
<tr>
<td>10 Year</td>
</tr>
</tbody>
</table>

City of Kirkland, WA
CSWPPP Template – March 14, 2018
10. CONTROL OF POLLUTANTS

The requirements for this section are covered in the Stormwater Pollution Prevention and Spill (SWPPS) Plan, beginning on p. 22 of this document.
11. PROTECT EXISTING AND PROPOSED FLOW CONTROL BMPs (Reference KCSWDM D.2.1.10, p. D-71 for additional information)

Protection measures shall be applied/installed and maintained so as to prevent adverse impacts to existing flow control BMPs and areas of proposed flow control BMPs for the project. The purpose of protecting existing and proposed flow control BMP areas is to avoid sedimentation and soil compaction that would adversely affect infiltration, and also avoid contamination by other pollutants.

Design & Installation

*Use the following space to specify the design and installation of flow control BMP protection measures.*

There is no known existing flow control BMPs on the project site.

Maintenance

*Use the following space to specify maintenance requirements for the flow control BMP protection measures.*

N/A
12. MAINTAIN PROTECTIVE BMPs (Reference KCSWDM D.2.1.11, p. D-72 for additional information)

The purpose of maintaining protective BMPs is to provide continuous erosion and sediment control protection throughout the life of the project, and avoid sedimentation, soil compaction and contamination by other pollutants that would adversely affect infiltration and surface runoff.

**Maintenance**

*Use the following space to specify maintenance requirements for the protective BMPs.*

<table>
<thead>
<tr>
<th>Protection measures shall be monitored per Section D.2.4.4 of the KCSWDM at a minimum, and promptly maintained to fully functioning condition as necessary to assure continued performance of their intended function. The following measures will be used:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Maintain and repair all temporary and permanent erosion and sediment control BMPs as needed to assure continued performance of their intended function in accordance with BMP specifications.</td>
</tr>
<tr>
<td>2. Remove all temporary erosion and sediment control BMPs prior to final construction approval, or within 30 days after achieving final site stabilization or after the temporary BMPs are no longer needed.</td>
</tr>
<tr>
<td>3. Provide protection to all BMPs installed for the permanent control of stormwater from sediment and compaction. All BMPs that are to remain in place following completion of construction shall be examined and placed in full operating conditions. If sediment enters the BMPs during construction, it shall be removed and the BMP shall be returned to the conditions specified in the construction documents or as required for full BMP replacement.</td>
</tr>
<tr>
<td>4. Remove or stabilize trapped sediment on site. Permanently stabilize disturbed soil resulting from removal of BMPs or vegetation.</td>
</tr>
</tbody>
</table>
13. MANAGE THE PROJECT (Reference KCSWDM D.2.1.12, p. D-72 for additional information)

Coordination and timing of site development activities relative to ESC concerns (Section D.2.4), and timely inspection, maintenance and update of protective measures (Section D.2.3) are necessary to effectively manage the project and assure the success of protective ESC and SWPPS design and implementation.

Projects shall assign a qualified CSWPPP Supervisor (Section D.2.3.1) to be the primary contact for ESC and SWPPS issues and reporting, coordination with subcontractors and implementation of the CSWPPP as a whole.

Measures to Use:

1. Phase development projects to the maximum degree practicable and take into account seasonal work limits.
2. Inspection and monitoring – Inspect, maintain, and repair all BMPs as needed to assure continued performance of their intended function. Conduct site inspections and monitoring in accordance with the Construction Stormwater General Permit and King County requirements.
3. Maintaining an updated CSWPPP – Maintain, update, and implement the CSWPPP in accordance with the Construction Stormwater General Permit and King County requirements.
4. Projects that disturb one or more acres must have, site inspections conducted by a Certified Erosion and Sediment Control Lead (CESCL) (see Section D.2.3.1). Project sites less than one acre (not part of a larger common plan of development or sale) may have a person without CESCL certification conduct inspections. By the initiation of construction, the CSWPPP must identify the CESCL or inspector, who shall be present on-site or on-call at all times.

The CESCL or inspector (project sites less than one acre) must have the skills to assess the:

- Site conditions and construction activities that could impact the quality of stormwater.
- Effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges.
- The CESCL or inspector must examine stormwater visually for the presence of suspended sediment, turbidity, discoloration, and oil sheen. They must evaluate the effectiveness of BMPs and determine if it is necessary to install, maintain, or repair BMPs to improve the quality of stormwater discharges.

Based on the results of the inspection, construction site operators must correct the problems identified by:

- Reviewing the CSWPPP for compliance with all elements and making appropriate revisions within 7 days of the inspection.
- Immediately beginning the process of fully implementing and maintaining appropriate source control and/or treatment BMPs as soon as possible, addressing the problems not later than within 10 days of the inspection. If installation of necessary treatment BMPs is not feasible within 10 days, the construction site operator may request an extension within the initial 10-day response period.
- Documenting BMP implementation and maintenance in the site log book (applies only to sites that have coverage under the Construction Stormwater General Permit).
• The CESCL or inspector must inspect all areas disturbed by construction activities, all BMPs, and all stormwater discharge points at least once every calendar week and within 24 hours of any discharge from the site. (For purposes of this condition, individual discharge events that last more than one day do not require daily inspections. For example, if a stormwater pond discharges continuously over the course of a week, only one inspection is required that week.) The CESCL or inspector may reduce the inspection frequency for temporary stabilized, inactive sites to once every calendar month.
PART B STORMWATER POLLUTION PREVENTION AND SPILL (SWPPS) MEASURES

(Reference KCSWDM D.2.2, p. D-74 for additional information)

The purpose of stormwater pollution prevention and spill control is to prevent, reduce, or eliminate the discharge of pollutants to onsite or adjacent stormwater systems or watercourses from construction-related activities such as materials delivery and storage, onsite equipment fueling and maintenance, demolition of existing buildings and disposition of demolition materials and other waste, and concrete handling, washout and disposal.

The implementation of this SWPPS plan and the construction, maintenance, replacement, and upgrading of the SWPPS facilities is the responsibility of the Permittee/Contractor until all construction is approved.

In the following section, attach the SWPPS plan. See COK General Policy G-7 for plan submittal requirements. The level of detail should be similar to that of COK Pre-Approved Plan CK-E.04.
CONCRETE HANDLING (Reference D.2.2.1, p. D-75 for additional information)

Concrete work can generate process water and slurry that contain fine particles and high pH, both of which can violate water quality standards in the receiving water. Concrete spillage or concrete discharge to surface waters of the State is prohibited. Use this BMP to minimize and eliminate concrete, concrete process water, and concrete slurry from entering waters of the state.

Procedures

Describe the management practices to be employed to prevent concrete washwater from discharging offsite. Specifically identify where you will place unused concrete and how you will prevent washwater or slurry from discharging into storm drain.

The following measures will be used to prevent concrete washwater from discharging offsite:

Assure that washout of concrete trucks, chutes, pumps, and internals is performed at an approved offsite location. Do not wash out concrete trucks onto the ground, or into storm drains, open ditches, streets, or streams.

Return unused concrete remaining in the truck and pump to the originating batch plant for recycling. Do not dump excess concrete on site.

Wash off hand tools including, but not limited to, screeds, shovels, rakes, floats, and trowels into formed areas only. Wash equipment difficult to move, such as concrete pavers in areas that do not directly drain to natural or constructed stormwater conveyances.

If any washdown is done on-site, contain washwater and leftover product in a lined container when no formed areas are available. Dispose of contained concrete in a manner that does not violate ground water or surface water quality standards. Always use forms or solid barriers for concrete pours, such as pilings, within 15-feet of surface waters.
CONCRETE WASHOUT AREA (Reference D.2.2.2, p. D-76 for additional information)

Prevent or reduce the discharge of pollutants to stormwater from concrete waste by conducting washout off-site, or performing on-site washout in a designated area to prevent pollutants from entering surface waters or ground water.

Design and Installation Specifications

If concrete washout is performed on-site, specify the design and installation of the washout containment area(s). Specifically describe the type, size and location on site, and how you will prevent washwater or slurry from discharging into storm drain.

Perform washout of concrete trucks at an approved off-site location. Do not wash out concrete trucks onto the ground, or into storm drains, open ditches, streets, or streams. Do not allow excess concrete to be dumped on-site.

In the event that concrete washout happens on-site, use prefabricated containers resistant to damage and protect against spills and leaks. Locate washout area at least 50 feet from sensitive areas such as storm drains, open ditches, or water bodies, including wetlands.

Maintenance

Prescribe inspection and maintenance schedules and procedures to be conducted on the washout containment area(s). Specifically explain how you will ensure that containers don’t overtop or leak.

Inspect and verify that concrete washout BMPs are in place prior to the commencement of concrete work. During periods of concrete work, inspect daily to verify continued performance. Ensure that condition and capacity are acceptable, and check for leaks.
SAWCutting and surfacIng pollution prevention (Reference D.2.2.3, p. D-81 for additional information)

☐ Check this box if this section is not applicable to the project.

Sawcutting and surfacing operations generate slurry and process water that contains fine particles and high pH (concrete cutting), both of which can violate the water quality standards in the receiving water. Concrete spillage or concrete discharge to surface waters of the State is prohibited. Use this BMP to minimize and eliminate process water and slurry created through sawcutting or surfacing from entering waters of the State.

Procedures

Specify the management practices to be employed to prevent sawcutting and surfacing pollution from discharging offsite. Specifically describe how you will prevent slurry, cuttings or process water from discharging into storm drain.

The following steps will be taken to ensure that slurry, cuttings, or process water are not discharged into waters of the State:

1. Vacuum slurry and cuttings during cutting and surfacing operations. The vacuumed slurry and cuttings will be disposed offsite at an appropriate disposal site.

2. Slurry and cuttings shall not remain on permanent concrete or asphalt pavement overnight.

3. Slurry and cuttings shall not drain to any natural or constructed drainage conveyance including stormwater systems. If required, catch basins will be temporarily blocked.

4. Dispose of collected slurry and cuttings offsite in a manner that does not violate ground water or surface water quality standards.

5. Do not allow process water generated during hydro-demolition, surface roughening or similar operations to drain to any natural or constructed drainage conveyance including stormwater systems. Dispose process water offsite in a manner that does not violate ground water or surface water quality standards.

6. Handle and dispose cleaning waste material and demolition debris offsite in a manner that does not cause contamination of water. Dispose of sweeping material from a pick-up sweeper at an appropriate disposal site.
MATERIAL DELIVERY, STORAGE AND CONTAINMENT (Reference D.2.2.4, p. D-82 for additional information)

☐ Check this box if this section is not applicable to the project.

Prevent, reduce, or eliminate the discharge of pollutants to the stormwater system or watercourses from material delivery and storage. Minimize the storage of hazardous materials on-site, store materials in a designated area, and install secondary containment.

Design and Installation Specifications

Specify the design and installation of measures to protect prevent hazardous materials from discharging offsite. Specifically describe the type, size and location on site of secondary containment and/or cover measures.

Material storage will take place in the construction staging area on the North edge of the project site.

Material Safety Data Sheets (MSDS) should be supplied for all materials stored. Chemicals should be kept in their original labeled containers. Hazardous material storage on-site will be minimized, and hazardous materials will be handled as infrequently as possible.

During wet weather season, hazardous materials will be stored in a covered area.

Chemicals, drums, or bagged materials will be placed on pallets to avoid direct contact with the ground. Drums kept uncovered will be stored with a domed plastic cover to reduce ponding of rainwater on the lids to reduce corrosion.

Horse troughs will be used as secondary containment for hazardous materials being stored on-site.
CONSTRUCTION STORMWATER CHEMICAL TREATMENT (Reference D.2.2.5, p. D-84 for additional information)

☒ Check this box if this section is not applicable to the project.

This BMP applies when using stormwater chemicals in batch treatment or flow-through treatment. Chemical treatment can reliably provide exceptional reductions of turbidity and associated pollutants. Chemical treatment may be required to meet turbidity stormwater discharge requirements, especially when construction is to proceed through the wet season.

**Design and Installation Specifications**

*Specify the design and installation of the chemical treatment system(s) to be employed at the site.*

| It is not anticipated that chemical treatment of construction stormwater will be taking place on this project. |

**Maintenance**

*Prescribe inspection and maintenance schedules and procedures to be conducted on the chemical treatment systems.*

| N/A |

City of Kirkland, WA  
CSWPPP Template - 2017
**Sizing**

*In the space below, upload an image of the report from WWHM stating the 2- and 10-year peak flows.*

*N/A*

*In the space below, upload calculations showing the sizing requirements.*

*N/A*
CONSTRUCTION STORMWATER FILTRATION (Reference D.2.2.6, p. D-90 for additional information)

☐ Check this box if filtration will not be used on this project.

Filtration removes sediment from runoff originating from disturbed areas of the site.

Design and Installation Specifications

Specify the design and installation of the filtration system(s) to be employed at the site. Specifically describe the type, size and location on site of stormwater filtration

| A temporary sediment settling tank will be used to filter on-site runoff originating from disturbed areas of the site. See Element 5 of the ESC plan for details. |

Maintenance Standards

Prescribe inspection and maintenance schedules and procedures to be conducted on the filtration system(s).

See Element 5 of the ESC plan for details.
HIGH pH NEUTRALIZATION USING CO₂ (Reference D.2.2.7, p. D-93 for additional information)

☑ Check this box if CO₂ sparging will not be used on this project.

When pH levels in stormwater rise above 8.5 it is necessary to lower the pH levels to the acceptable range of 6.5 to 8.5, this process is called pH neutralization. pH neutralization involves the use of solid or compressed carbon dioxide gas in water requiring neutralization. Neutralized stormwater may be discharged to surface waters under the General Construction NPDES permit.

Design and Installation Specifications

*Specify the design and installation of the CO₂ sparging system to be employed at the site.*

*Specifically describe the type, capacity and location on-site of the sparging system.*

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Maintenance Standards

*Prescribe inspection and maintenance schedules and procedures to be conducted on the filtration system(s).*

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pH CONTROL FOR HIGH pH WATER (Reference D.2.2.8, p. D-96 for additional information)

When pH levels in stormwater rise above 8.5 it is necessary to lower the pH levels to the acceptable range of 6.5 to 8.5, this process is called pH neutralization. Stormwater with pH levels exceeding water quality standards may be treated by infiltration, dispersion in vegetation or compost, pumping to a sanitary sewer, disposal at a permitted concrete batch plant with pH neutralization capabilities, or carbon dioxide sparging (see previous page).

☐ Infiltration
☐ Dispersion
☐ Sanitary Sewer Disposal
☐ Concrete Batch Plant Disposal

Design and Installation Specifications

Specify the design and installation of the pH control system(s) to be employed at the site.

It is not anticipated that pH control for high pH water will be necessary on this project site.

Maintenance Standards

Prescribe inspection and maintenance schedules and procedures to be conducted on the pH control system(s).

N/A
USE OF HIGH pH SOIL AMENDMENTS ON CONSTRUCTION SITES (Reference D.2.2.9, p. D-97 and COK Policy D-16 for additional information)

☒ Check this box if high pH soil amendments will not be used on this site.

Soil amendments used for stability purposes (as described on page D-97) are often high pH and require approval from City of Kirkland before use. Please use the following space to describe how the project will meet the conditions of COK Policy D-16 and Section D.2.2.9.

| N/A |
MAINTAIN PROTECTIVE BMPs (Reference D.2.2.10, p. D-106 for additional information)

Pollutant protection measures shall be maintained to assure continued performance of their intended function. Reporting and documentation shall be kept current and made available to City of Kirkland as indicated.

Maintenance

Describe the procedures required to maintain all pollutant control BMPs.

| 1. Maintain and repair all pollutant control BMPs as needed to assure continued performance of their intended function in accordance with BMP specifications. |
| 2. Maintain and repair storage locations for equipment and materials associated with BMP processes. Conduct materials disposal in compliance with County regulatory requirements. |
| 3. As required, provide current reporting and performance documentation at an accessible location for the site inspector and other DPER staff. |
| 4. Remove all temporary pollutant control BMPs prior to final construction approval, or within 30 days after achieving final site stabilization or after the temporary BMPs are no longer needed. |
MANAGE THE PROJECT (Reference D.2.2.1.1, p. D-107 for additional information)

SWPPS requirements shall be implemented and managed as part of the overall CSWPPP. Concrete construction and its impacts are primary among pollutant concerns on site development projects. Fueling operations and materials containment of treatment chemicals and other project materials are also typical pollutant concerns. Operations that produce these and other pollutants are often conducted by subcontractors and their laborers, yet may require specific protective measures, documentation and reporting. Protective measures and BMPs need to be made available prior to construction and suitable oversight provided to assure inspection, monitoring and documentation requirements are met.

Projects shall assign a qualified CSWPPP Supervisor (Section D.2.3.1) to be the primary contact for SWPPS and ESC issues and reporting, coordination with subcontractors and implementation of the CSWPPP as a whole.

Measures to Use:

1. Phase development projects to the maximum degree practicable and take into account seasonal work limits.
2. Inspection and monitoring – Inspect, maintain, and repair all BMPs as needed to assure continued performance of their intended function. Conduct site inspections and monitoring in accordance with the Construction Stormwater General Permit and King County requirements. Coordinate with subcontractors and laborers to assure the CSWPPP measures are followed.
3. Documentation and reporting: – Inspect, maintain, and repair all BMPs as needed to assure continued performance of their intended function. Document site inspections and monitoring in accordance with the Construction Stormwater General Permit, specific BMP conditions and King County requirements. Log sheets provided in Reference Section 8 may be used if appropriate. Follow reporting requirements and provide documentation as requested to COK staff.
4. Maintaining an updated CSWPPP – Maintain, update, and implement the CSWPPP in accordance with the Construction Stormwater General Permit and King County requirements. Obtain approval for specific CSWPPP measures (e.g., chemical treatments of stormwater) well in advance of need. Coordinate CSWPPP updates with the site inspector (see Section D.2.4.1).
Appendixes

A. Site Map

B. BMP Detail

BMPs can be found in Appendix D of the King County Surface Water Design Manual, found on the King County stormwater documents website at:


C. Correspondence

There is no correspondence expected between Ecology, the EPA, or other governmental agencies.

D. Site Inspection Form

E. Construction Stormwater General Permit (CSWGP)

Download the CSWGP:

https://www.ecology.wa.gov/Regulations-Permits/Permits-certifications/Stormwater-general-permits/Construction-stormwater-permit

F. 303(d) List Waterbodies / TMDL Waterbodies Information

Map attached.

G. Contaminated Site Information

There are no known contaminated sites within the project area.

H. Engineering Calculations

See Attached.
Appendix A
Site Maps
NOTES:
1. REMOVE ALL TREES WITHIN CLEARING LIMIT.
2. A DRAFT SWPPP HAS BEEN PREPARED. CONTRACTOR SHALL OVERSEE THE SWPPP AND THE ESG PLAN AS NEEDED TO REFLECT THE CONSTRUCTION SEQUENCES, MEANS AND METHODS.
3. PROVIDE FINAL SWPPP CONSTRUCTION DRAINAGE AND SEQUENTIAL CONTROL, LEAD, GROUND CONTROL, SUNFLOWER TREATMENT, AND ALL OTHER MEASURES AS NEEDED TO MEET CONSTRUCTION GENERAL PERMIT AND CITY OF KIRKLAND POLICY D.I.5 REQUIREMENTS.
4. THE ESG MEASURES SHOWN ON THIS PLAN AND DESCRIBED IN THE PROJECT SPECIFICATIONS AND MINIMUM REQUIREMENTS FOR ANY PERMITS ISSUED DURING THE CONSTRUCTION PERIOD MUST COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.
5. CONTRACTOR SHALL DESIGN TEMPORARY SLOPING.
6. HIGH VISIBILITY FENCE SHALL BE PER WSDOT STANDARD PLAN P11-304.
7. SILT FENCE SHALL BE PER WSDOT STANDARD PLAN E9-104.
8. COMPOST SOCKS SHALL BE PER WSDOT STANDARD PLAN K9-303.
9. PROVIDE CREOSION CONTROL MEASURES FOR ALL UNSTABILIZED AREAS EXCLUDING STATIONS, ACCESS, AND PARKING AREAS BEYOND THE LIMITS SHOWN ON THE PLAN.
10. PLACE CATCH BASIN INSERT IN NEXT DOWNSTREAM INLET IN TREATED AREA.
11. REFER TO SHEET 1020 FOR A DESCRIPTION OF ALLOWABLE IMPACTS.
12. BUFFER AREA (PLUS 1000' HORIZONTAL) MUST INCLUDE SLOPES BELOW THE WATER STORAGE AREA IN THE DRAINAGE CELLS. SHALL BE STABILIZED PER SLOPE STABILIZATION DETAIL 1 ON SHEET C201.
Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1
Totem Lake Park Dissolved Oxygen Listing #12675

Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap
Project Name: TLP_ESC
Site Name: Totem Lake Park
Site Address:
City : 
Report Date: 8/2/2018
Gage : Seatac
Data Start : 1948/10/01
Data End : 2009/09/30
Precip Scale: 1.00
Version Date: 2018/03/02
Version : 4.2.14

Low Flow Threshold for POC 1 : 50 Percent of the 2 Year

High Flow Threshold for POC 1: 50 year

PREDEVELOPED LAND USE

Name : Basin Park
Bypass: No

GroundWater: No

Pervious Land Use acre
SAT, Lawn, Flat .69

Pervious Total 0.69

Impervious Land Use acre
ROADS FLAT 0.52

Impervious Total 0.52

Basin Total 1.21

Element Flows To:
Surface Interflow Groundwater

MITIGATED LAND USE

Name : Basin Park
Bypass: No

GroundWater: No
Pervious Land Use                  acre
SAT, Lawn, Flat                     .69
Pervious Total                      0.69

Impervious Land Use                acre
ROADS FLAT                           0.52
Impervious Total                    0.52
Basin Total                         1.21

Element Flows To:
Surface     Interflow     Groundwater

ANALYSIS RESULTS

Stream Protection Duration

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 0.69
Total Impervious Area: 0.52

Mitigated Landuse Totals for POC #1
Total Pervious Area: 0.69
Total Impervious Area: 0.52

Flow Frequency Return Periods for Predeveloped. POC #1

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Flow Frequency Return Periods for Mitigated. POC #1

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## Stream Protection Duration

**Annual Peaks for Predeveloped and Mitigated.** POC #1

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Stream Protection Duration
Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

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Water Quality BMP Flow and Volume for POC #1
On-line facility volume: 0 acre-feet
On-line facility target flow: 0 cfs.
Adjusted for 15 min: 0 cfs.
Off-line facility target flow: 0 cfs.
Adjusted for 15 min: 0 cfs.

LID Report

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Compliance with LID Standard 8
Duration Analysis Result = Passed

Perlnd and Implnd Changes
No changes have been made.

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Project Name: PondSizing
Site Name: 
Site Address: 
City: 
Report Date: 8/6/2018
Gage: Seatac
Data Start: 1948/10/01 00:00
Data End: 2009/09/30 00:00
Precip Scale: 1.00
Version Date: 2018/07/12
Version: 4.2.15

Low Flow Threshold for POC 1: 50 Percent of the 2 Year

High Flow Threshold for POC 1: 10 year

PREDEVELOPED LAND USE

Name: Basin 1
Bypass: No
GroundWater: No

Pervious Land Use

SAT, Lawn, Flat 0.44 acre

Pervious Total 0.44 acre

Impervious Land Use

ROADS MOD 0.52 acre
ROOF TOPS FLAT 0.16 acre
SIDEWALKS MOD 0.09 acre

Impervious Total 0.77 acre

Basin Total 1.21 acre

Element Flows To:
Surface Interflow Groundwater

MITIGATED LAND USE

Name: Basin 1
Bypass: No
Ground Water: No

Pervious Land Use acre
Pervious Total 0

Impervious Land Use acre
ROADS FLAT 0.69
ROADS MOD 0.1
SIDEWALKS MOD 0.42

Impervious Total 1.21
Basin Total 1.21

Element Flows To:
Surface Interflow Groundwater
Trapezoidal Pond 1 Trapezoidal Pond 1

Name: Trapezoidal Pond 1
Bottom Length: 33.76 ft.
Bottom Width: 16.88 ft.
Depth: 4 ft.
Volume at riser head: 0.0790 acre-feet.
Side slope 1: 3 To 1
Side slope 2: 3 To 1
Side slope 3: 3 To 1
Side slope 4: 3 To 1
Discharge Structure
Riser Height: 3 ft.
Riser Diameter: 18 in.
Notch Type: Rectangular
Notch Width: 0.057 ft.
Notch Height: 1.350 ft.
Orifice 1 Diameter: 2.199 in. Elevation: 0 ft.

Element Flows To:
Outlet 1 Outlet 2

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## Analysis Results

### Stream Protection Duration

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**Predeveloped Landuse Totals for POC #1**

Total Pervious Area: 0.44  
Total Impervious Area: 0.77

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**Mitigated Landuse Totals for POC #1**

Total Pervious Area: 0  
Total Impervious Area: 1.21

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**Flow Frequency Return Periods for Predeveloped. POC #1**

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**Stream Protection Duration**

POC #1

The Facility PASSED.

The Facility **PASSED**.

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LID Report

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| Compliance with LID Standard 8 Duration Analysis Result = Failed

Perlnd and Implnd Changes
No changes have been made.

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APPENDIX H

CRITICAL AREAS REPORT
WITH MITIGATION PLANS

City of Kirkland
Draft

TOTEM LAKE PARK DEVELOPMENT – PHASE 1
Critical Areas Report and Conceptual Mitigation Plan

Prepared for
City of Kirkland

June 2019
Draft

TOTEM LAKE PARK DEVELOPMENT – PHASE 1
Critical Areas Report and Conceptual Mitigation Plan

Prepared for
City of Kirkland

ESA Project Number D170506.00
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1.0 PROJECT AUTHORIZATION AND SCOPE OF WORK

At the request of the City of Kirkland (City), Environmental Science Associates, Inc. (ESA) delineated wetland boundaries and prepared this technical report for Phase I of the Totem Lake Park Development located in Kirkland, Washington. This report describes the identification and delineation of wetlands on the Phase I study area, as well as a discussion of regulatory implications associated with construction of the proposed project. A conceptual mitigation plan is also included. The purpose of the report is to provide sufficient information to the City and permit agencies about existing wetland functions and potential impacts to facilitate a determination of the permit and mitigation requirements for the proposed project. ESA’s scope of work was limited to wetlands within the project site. Other types of critical areas regulated by the City of Kirkland such as geologic hazard areas are not addressed in this report.

2.0 STUDY AREA AND PROJECT DESCRIPTION

The study area is located within Totem Lake Park, in the northeast portion of the City of Kirkland (Section 28, Township 26N, Range 5E) (Figure 1). It is located within the Juanita Creek basin on the east side of Interstate 405. Totem Lake Park is generally bordered by residential developments to the north and commercial developments to the west, south, and east. Interstate 405 lies approximately 0.2 miles to the west and the Cross Kirkland Corridor Trail (CKC Trail) extends along the southeastern perimeter of the Park.

Totem Lake Park covers 17 acres originally part of the Totem Lake Mall property. In 1973, the mall’s developer donated the land to the King Conservation District (KCD) and the site is currently co-managed by KCD and the City. The City is proposing improvements to Totem Lake Park under a Master Plan. The overall plan aims to integrate the natural setting of Totem Lake with the surrounding urban area. Master Plan elements include but are not limited to: implementation of a trail/boardwalk to form a loop with existing pathways, improved pedestrian and bicyclists connections to the surrounding commercial and residential properties, a new restroom building, limited ADA parking, play area, pedestrian seating and picnic areas, opportunities for public art, and enhancement of the storm drainage and ecological functions of the wetland and surrounding area. There will also be frontage improvements associated with development of the site. The City will implement additional elements from the Master Plan over time as funding becomes available.

This project is Phase 1 of the Master Plan and would construct an approximately 720 linear-foot boardwalk on the eastern and northern portion of the property. The boardwalk will provide a connection between the CKC Trail and the existing foot path on the north side of the park. The proposed boardwalk will have a width of 10 feet and decking will consist of open grating that will allow approximately 25% light penetration. A 43-inch high cable railing will be installed on both sides of the boardwalk. Each railing has an approximate width of 1.5 inches resulting in the boardwalk having a total width of 10.3 feet (Figure 2).
The boardwalk height above the water level will vary throughout the alignment averaging 8 feet above the water surface with the lowest elevations occurring at the boardwalk termini, where the trail transitions to pavement. Estimated elevation over the water level in these areas are 1.3 feet at the northern extent and 5.2 feet at the southern extent. Moving over the lake, inward from these transition areas, the boardwalk gently slopes upward reaching a maximum height of 9.2 feet above the water level (Figure 3). Footings for portions of the boardwalk within the wetland will be 2-inch diameter steel pipe pilings. No mechanized clearing, disturbance of wetland soils, or excavation will occur. Construction of the boardwalk will occur in a sequenced manner using built portions as construction access; all construction equipment will be kept above water levels during the entirety of construction. The boardwalk will occupy approximately 5,592 square feet of Totem Lake Park and will be constructed with open grating to minimize impacts to wetland functions. Removal of existing vegetation will be limited to the maximum extent possible.

Other improvements under Phase 1 include the creation of a play area on the north side of the park (in the former 1.2-acre Yuppie Pawn space). To accommodate the play area, the vacant Yuppie Pawn building will be demolished and replaced with a restroom. The proposed play area will be approximately 31,300 square feet and will include play features such as play structures/equipment and a turf field. Stormwater improvements will also be installed to collect and discharge all stormwater onsite.

Improvements to the existing asphalt path (Totem Lake Path) on the north side of the lake will also occur under Phase 1. The path will be widened to 10-feet and resurfaced to meet standards for accessible design (i.e., ADA standards). In addition to the widening of the path, the area will be graded and a retaining wall will be installed the length of the path. The wall will be backfilled with rocks to facilitate drainage.

Table 1-1 is a summary of elements associated with the Phase 1 park improvements.

<table>
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<th>Project Element</th>
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| Boardwalk connection between CKC Trail and existing asphalt | Length: 720 linear feet  
Width: 10 feet  
Area: 7,200 square feet  
Decking: Open grate  
Handrail: Yes; metal panel railing at 43 inches height  
Foundation: 2" Steel pipe pilings |
| Widening of existing asphalt path | Width 10 feet  
ADA access: Yes |
| Play area and restroom | Area: 31,300 square feet  
Elements: play structures, synthetic turf area, grass lawn area, native plantings |

*5,500 SF cover the wetland. The remaining 1,608 SF are in the wetland buffer. See Table 6-2 and Figures 7 & 9 for more details.
3.0 METHODS

Two levels of investigation were conducted for the analysis of wetlands in the project vicinity: a review of existing information and an on-site investigation.

3.1 Review of Existing Information

A review of existing literature, maps, and other materials was conducted to identify wetlands or site characteristics indicative of wetlands within the project area. These sources can only indicate the likelihood of the presence of wetlands; actual wetland determinations must be based upon data obtained from field investigations.

Several documents were reviewed:

- *Soil Survey of King County, Washington* (USDA Soil Conservation Service, 1973);
- Existing wetland mapping from the National Wetland Inventory (USFWS, 2018);
- *Hydric Soils of the State of Washington* (Natural Resources Conservation Service, 1995);
- *Web Soil Survey* (Natural Resources Conservation Service, 2017);
- Priority Habitats and Species data (WDFW, 2018);
- Rare plant and vegetation community mapping (WDNR, 2015);
- King County iMAP Interactive Mapping Tool (King County, 2018);
- City of Kirkland Sensitive Area Maps (City of Kirkland, 2017);
- Project information provided by the project landscape architect, The Berger Partnership; and

3.2 On-site Investigation

3.2.1 Determining the Presence of Wetlands and Delineating Wetland Boundaries

The characteristics of an area that result in its classification as “wetland” are defined by federal and state agencies, as described in Appendix A. Numerous federal, state, and local regulations govern development and other activities in or near wetlands; at each level, there are typically several agencies charged with such powers (Ecology, 1994). Specific regulatory implications concerning the subject property are summarized later in this report.
Methods defined in Regional Supplements to the U.S. Army Corps of Engineers (Corps) 1987 Wetlands Delineation Manual (Corps, 2010) were used to determine the presence and extent of wetlands in the study area. The methodology is based upon three essential characteristics of wetlands: (1) hydrophytic vegetation; (2) hydric soils; and (3) wetland hydrology. Field indicators of these three characteristics must all be present in order to determine that an area is a wetland (unless problem areas or atypical situations are encountered).

The “routine on-site determination method” was used to determine the wetland boundaries. The routine method is used for areas equal to or less than 5 acres in size, or for larger areas with relatively homogeneous vegetative, soil, and hydrologic properties.

Formal data plots were established where information regarding each of the three wetland parameters (vegetation, soils, and hydrology) was recorded. This information was used to distinguish wetlands from non-wetlands. If wetlands were determined to be present on the subject property, the wetland boundaries were delineated. Wetland boundaries were identified with sequentially numbered colored flagging imprinted with the words WETLAND DELINEATION or pink colored pin flags. Data plot locations were also marked with colored flagging.

The methods used to assess wetland characteristics are described in greater detail in Appendix A. Please note that common plant names are used throughout this text; the scientific names are presented in Appendix B.

### 3.2.2 Classifying Wetlands

Two classification systems are commonly used to describe wetlands. The hydrogeomorphic (HGM) system describes wetlands in terms of their position in the landscape and the movement of water in the wetland (Brinson, 1993). The U.S. Fish and Wildlife Service classification system (Cowardin et al., 1979) describes wetlands in terms of their vegetation communities; these include, for example, emergent, scrub-shrub, and forested community types.

### 3.2.3 Assessing Wetland Functions

Wetland and streams in the City of Kirkland are regulated under the Kirkland Zoning Code (KZC), Chapter 90 – Critical Areas. Per KZC 90.55.1, wetland functions, and required wetland buffers, are assessed based on the 2014 Department of Ecology (Ecology) Washington State Wetland Rating System for Western Washington (Hruby, 2014). Although this system is designed to rate wetlands, it is based on whether a particular wetland performs a particular function and the relative level to which the function is performed. An assessment of wetland functions is inherent in the rating system. This system was developed by Ecology to differentiate wetlands based on their sensitivity to disturbance, their significance, their rarity, our ability to replace them, and the beneficial functions they provide to society.

Appendix C provides additional information about the Department of Ecology’s rating system wetland categories and the completed rating forms for the project.
4.0 REVIEW OF EXISTING INFORMATION

4.1 Soils

The Natural Resources Conservation Service (NRCS) mapping of soils in the vicinity of Totem Lake Park is shown on Figure 4. The majority of the site is mapped as Seattle muck, a hydric organic soil. Two other hydric soil types are mapped in the vicinity of the proposed project: Kitsap silt loam 2 to 8 percent slopes and Everett very gravelly sandy loam, 8 to 15 percent slopes (NRCS, 2018).

4.2 Wetlands and Streams

The National Wetland Inventory (NWI) identifies a large wetland within Totem Lake Park (the Totem Lake Wetland). NWI maps this wetland as containing emergent, scrub-shrub, forested, and open water elements. Additionally, three small wetlands are mapped in the project vicinity; one on the southwest side of Totem Lake Blvd NE and two on the southeast side of the CKC Trail (Figure 5). These three smaller wetlands are outside of the Phase 1 project area. Other large wetland complexes are mapped approximately 0.3 miles to the west within the Juanita Creek basin.

In addition to the Totem Lake Wetland, the City of Kirkland Sensitive Areas map (2017) shows one stream exiting Totem Lake near the southwest corner, and eventually flowing into Juanita Creek. The majority of this stream is piped from the outlet at Totem Lake to the western side of Interstate 405. An additional stream is mapped as being piped into the wetland from a small wetland feature and ditch on the southern side of the CKC Trail (Figure 5).

A previous wetland reconnaissance investigation identified three wetlands and one stream (Watershed Company, 2013a). The memo also identified restoration opportunities at Totem Lake Park. Information from this memo has been incorporated into this report.

5.0 RESULTS OF FIELD INVESTIGATION

The following sections describe the results of the wetland field investigations conducted by ESA biologists Ilon Logan and Jessica Redman on January 5, 2016, and Jessica Redman and Christina Hersum on June 19, 2017. Field efforts were focused on areas of the park where improvements are proposed and did not include the southern corner of the wetland or the southeast side of the CKC Trail where the previously mentioned stream is located.

5.1 Wetland Delineation

ESA identified one wetland (Wetland A) within the study area during field investigations (Figure 6). Six data plots were established within relatively uniform areas of vegetation on the site. Data plots (DPs) 1 through 4 were established during the January 5, 2016 site visit. DPs 5 and 6 were established during the June 19, 2017 site visit. The results of the functional assessment for Wetland A are presented in Appendix
C, and data sheets for the data plots are provided in Appendix D. Wetland boundaries were flagged by ESA and subsequently surveyed by KPFF, Inc.

**Overview:** Wetland A is a depressional palustrine scrub-shrub and palustrine emergent (PSS/PEM) wetland, approximately 18 acres in size. Totem Lake, an open water feature in the center of Wetland A, is approximately 3 acres and supports a narrow aquatic bed fringe around its edge. DPs 1, 4, and 5 are representative of Wetland A, while plots 2, 3, and 6 characterize the adjacent upland.

**Vegetation:** The majority of Wetland A is a mixture of PSS and PEM plant communities. PSS communities are dominated by willow, red-osier dogwood, and Douglas spirea. PEM communities in the wetland are dominated by common cattail with slough sedge and skunk cabbage present to a lesser extent. A narrow forested area on the northern edge of the wetland is dominated by red alder with an understory of restoration plantings including Sitka spruce and western redcedar. Aquatic bed vegetation in the lake includes pond weed and yellow pond lily.

**Soils:** Soils observed at DP-1 were a very dark grayish brown (10YR 3/2) clay loam in the A (upper) horizon, zero through eight inches below the surface. No redoximorphic features were present in the A horizon. The B horizon (lower) contained a gray (10YR 6/1) sandy loam with 40 percent yellowish brown (10YR 5/8) redoximorphic concentrations in the matrix. The B horizon included soils between eight and eighteen inches below the surface. Soils in DP-1 meet hydric soil criteria F3 (depleted matrix).

Soils at DP-4 and DP-5 were inundated at the time of the site visits. However, hydric soil conditions are likely to occur due to periodic inundation during the growing season, the dominance of hydrophytic vegetation, and best professional judgment.

**Hydrology:** Sources of hydrology to Wetland A include a high groundwater table, precipitation, multiple stormwater inputs, and a seasonal stream on the southern side of the CKC Trail. The outlet of the Wetland A is a partially blocked culvert on its west side, east of 120th Avenue NE and Totem Lake Boulevard NE.

DP-1 was established in the northern portion of the site along the current pedestrian trail. Soils were moist in the lower layers of the plot and the water table was at eighteen inches. As mentioned above, the delineation occurred in early January and out of the growing season. This data plot did not meet wetland hydrology indicators but based on professional judgment, it is likely that soils would be saturated during the growing season, meeting indicator A3. Evidence of this includes the presence of surface ponding approximately ten feet south of the plot, moist soils in the lower layers of the plot, and the presence of wetland soils and hydrophytic vegetation.

DP-4 was established on the east side of the small berm at the southeast corner of the wetland. DP-4 had frozen surface water present that was approximately twelve inches deep meeting wetland hydrology indicator A1 (surface water).

DP-5 was established on the west side of the wetland, near an existing boardwalk. Soils were saturated to the surface and the water table was present at approximately eleven inches.
**Wetland Functions and Classifications:** Using Ecology’s *Washington State Wetland Rating System for Western Washington* (Hruby, 2014), Wetland A received an overall score of 22 points, which qualifies it as a Category II wetland. The wetland scored a moderate to high score (7 points) for water quality improvements. The wetland’s constricted outlet, large cover of vegetation, organic soils, and large area of seasonal ponding all aid in the trapping and filtering of sediments. Wetland A scored a high score (8 points) for hydrologic functions, primarily due to the high depth of storage and constricted outlet than can assist in slowing down and retaining flows during flooding events.

The wetland also scored a moderate to high score (7 points) for habitat function. This is largely due to the diversity in plant communities and hydroperiods. The wetland also contains several special characteristics such as downed wood, snags, structures for egg-laying amphibians, and areas for beaver denning. However, the surrounding landscape has a low potential to support these habitat functions due to the urban nature of the project vicinity.

### 5.2 Wetland Buffer Requirements

Per KZC Chapter 90, the City establishes buffer standards for wetlands based on the wetland category and habitat points. Per KZC 90.55.1, a Category II wetland with six habitat points requires a standard buffer width of 165 feet. The wetland buffer is shown on Figure 6.

The City’s consultant, The Watershed Company, also rated the onsite wetland and also scored the wetland as a Category II wetland. However, their scoring resulted in six, instead of seven habitat points. Per KZC 90.55.1, Category II wetlands with six to seven habitat points require a 165-foot buffer and therefore, the discrepancies have no effect on the buffer width. Both rating forms are included in Appendix C for reference.

### 5.3 Upland and Surrounding Area

Due to the highly developed landscape, upland habitat in the vicinity is highly degraded and buffers are limited for the majority of Wetland A (Figure 6). The north side of the wetland has a narrow upland fringe consisting of deciduous and coniferous trees. Adjacent to this narrow, forested area is a paved pedestrian path and multistory residential developments. The western and southwestern edges of the wetland extend adjacent to the hardscape leaving little buffer between the wetland and retaining walls, sidewalks, and/or roads. The southwest side of the wetland is immediately adjacent to the railroad grade CKC Trail and characterized by railroad fill and little vegetation. The northeast portion of Wetland A contains a connection to a forested corridor along a steep slope. The intact and mature forest along the slope provides some habitat function to wildlife in the area. Beside a few other parks in the vicinity (i.e., within one mile) of Totem Lake Park, the remainder of the surrounding area is developed, leaving these parks the primary resource for habitat and/or stopovers for wildlife in the project vicinity.

### 5.4 Species of Local Importance

An active heron rookery was observed near the former Yuppie Pawn site during the June 19, 2017 site visit. Several young herons were observed in a large black cottonwood tree. The great blue heron is
considered a species of local importance by the City of Kirkland under KZC 90.95(8). This designation may limit tree removal and construction in the vicinity of the rookery during times of nesting and fledging (approximately March through July). However, heron often do not return to the same nest in subsequent years and it is recommended that additional surveys of this tree and others in the study area occur prior to construction to determine the presence or absence of breeding great blue heron.

6.0 PROJECT IMPACTS, MITIGATION SEQUENCING, AND REGULATORY IMPLICATIONS

The proposed improvements at Totem Lake Park may result in direct and indirect wetland and buffer impacts. This section describes the sequence of mitigation taken during project design, the nature of the unavoidable impacts, and potential regulatory implications for the project.

6.1 Mitigation Sequencing and Analysis

The City’s critical areas regulations require the incorporation of mitigation sequencing during project development to evaluate and implementing opportunities to avoid, minimize, eliminate, or compensate for impacts to critical areas while still meeting the objectives of the project. KZC 90.145 outlines the six steps, in order of preference, that must be taken when an alteration to a critical area is proposed. The mitigation steps required by KZC 90.145.2 are listed below, followed by a discussion (in italic text) of how the project has or will meet each step.

A. Avoiding the impact altogether by not taking a certain action or parts of actions;

The project design includes the following measures to avoid impacts to wetlands and their buffers:

- The proposed boardwalk alignment is centered on an existing upland berm in the southeastern portion of the project area (where the boardwalk will connect with the CKC Trail). By taking advantage of this upland feature that extends within Wetland A, the project will reduce overall wetland impacts.

- The proposed boardwalk alignment in the northern portion of the project area (where the boardwalk will connect with the existing Totem Lake Path) was positioned to avoid the removal of large trees and snags.

B. Minimizing impacts by limiting the degree or magnitude of the action and its implementation;

Per KZC 90.40.6.c, public trails in a wetlands and wetland buffers should not exceed five feet in width. The proposed trail improvements would result in a trail with an average width of 10-feet. However, it was concluded that a 10-foot-wide trail is the minimum necessary width to meet the City’s goal of the project being part of a regional transportation improvement effort. An effort that will improve pedestrian and bicyclist connections to the surrounding residential and commercial developments as outlined in the Totem Lake Master Plan.
In 2018, to support the goals and visions of the Master Plan, the City adopted the Totem Lake Urban Center Enhancement and Multimodal Network Plan (Alta, 2018). This document includes several recommendations to “create a livable, walkable, and bikeable district that is a residential and commercial destination for Kirkland residents and visitors from across the region.” One recommendation to achieve this vision includes establishing a continuous and interconnected walking and biking network to be able to safely and conveniently reach destinations within Totem Lake. The recommended width for pedestrian and bicycle shared use trails in the Totem Lake Urban Center is 12 feet. After analyzing anticipated impacts of trail widths ranging from eight to twelve feet, the City decided that a trail width of 10-feet would minimize impacts to critical areas, while still providing a travel area sufficient enough for continuous and safe connections throughout the Totem Lake Urban Center. Trail widths less than ten feet would likely disrupt the flow of bicyclists entering the narrow boardwalk from the wider offsite trails as well as be too narrow to provide a safe route for both pedestrians and bicyclists; while trail widths larger than ten feet would result in additional and unnecessary impacts to critical areas.

To further minimize the degree or magnitude of unavoidable impacts to wetland and their buffers, the project design includes the following measures:

- Within wetland areas, the project proposes to mount the boardwalk on 2-inch diameter steel pipe pile foundations, which minimizes disturbance to sediment, hydrology, and circulation, resulting in no adverse alteration to aquatic functions.
- Construction of the boardwalk will occur in a sequenced manner using built portions as construction access and all construction equipment will be kept above water levels during the entirety of construction.
- Boardwalk framing and decking materials have been selected for the ability to be installed with small equipment (or by hand) to avoid impacts.
- The proposed decking of the boardwalk has been selected for the ability to allow light penetration, which will allow sunlight to reach existing vegetation under the boardwalk and preserve wetland functions. The grated decking will allow 25% of light to penetrate the ground surface.
- Any vegetation that requires clearing for boardwalk construction will be cut by hand and flush to the water surface and/or to the least extent possible.
- Boardwalk decking and pervious materials have been proposed for the trail alignment within the buffer to the extent feasible.
- Appropriate best management practices (BMPs) will be employed to reduce sedimentation and erosion and to minimize the chance of contaminant spills during project construction as described in Section 6.3.
C. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;

*The project design includes the following measures to rectify any proposed impacts:*

- The proposed boardwalk will consist of open decking approximately 6 feet above the water surface that will allow 25% light penetration. Because of these design features, it is anticipated that any vegetation that will need to be cut during boardwalk construction will continue to grow post-construction.
- Areas of unavoidable wetland buffer impacts caused by construction will be restored and revegetated with native plants, post-construction.
- Stormwater improvements proposed at the play area will treat stormwater runoff in bioretention cells which will reduce the peak flow and duration to the wetland as well as improve the water quality of the runoff to the wetland.

D. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;

*This project proposes mitigation for permanent indirect impacts to the wetland and permanent direct impacts to the wetland buffer through wetland and buffer enhancements as detailed in Section 7.0 and the forthcoming Final Mitigation Plan. These enhancements will be protected over time through maintenance activities and ensuring boundaries are clear to prevent human disturbance.*

E. Compensating for the impact by replacing or providing substitute resources or environments; and/or

*The project proposes mitigation for unavoidable wetland and wetland buffer impacts through buffer enhancements as detailed in Section 7.0 and the forthcoming Final Mitigation Plan. Temporary impacts due to construction will be restored and revegetated with native plants, post-construction.*

F. Monitoring the impact and the compensation projects and taking appropriate corrective measures.

*The proposed mitigation plan includes a 5-year Monitoring and Maintenance Plan for all proposed mitigation per KZC 90.160 (See Section 7.5 and 7.6).*
6.1.1 Standard Mitigation Measures

Standard mitigation measures as outlined in KZC 90.155 will be implemented onsite, as needed, to further reduce the risk of impacts to critical areas. These measures are summarized in Table 6-1.

<table>
<thead>
<tr>
<th>Disturbance</th>
<th>Measures Taken to Minimize Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lights</td>
<td>The only proposed lighting will be near the restroom and will be placed so light is downcast and directed away from the wetland and wetland buffer.</td>
</tr>
<tr>
<td>Noise</td>
<td>Noise generating activities will occur only during the day and therefore not affect species roosting or other nocturnal activities. Post-construction, the project is not expected to generate additional noise and therefore, no long-term mitigation measures are necessary.</td>
</tr>
<tr>
<td>Toxic Runoff</td>
<td>No toxic substances, outside of approved herbicides to control non-native species, will be used within 150 feet of the wetland. All runoff from the play area will be collected in the onsite stormwater bioretention facilities. No direct discharge of untreated stormwater to the wetland will occur.</td>
</tr>
<tr>
<td>Stormwater Runoff</td>
<td>All runoff from the play area will be collected in the onsite stormwater bioretention facilities. No direct discharge of untreated stormwater to the wetland will occur.</td>
</tr>
<tr>
<td>Change in Water Regime</td>
<td>The proposed project will not result in a change in water regime and therefore, no long-term mitigation measures are necessary.</td>
</tr>
<tr>
<td>Pets and Human Disturbance</td>
<td>During construction, silt fencing will be installed along the edge of the wetland to minimize any adverse impacts to the wetland. Post-construction, permanent fence and signage will be installed along the edge of the buffer, per KZC 90.190</td>
</tr>
<tr>
<td>Dust</td>
<td>Best management practices to control fugitive dust will be implemented as needed, including spraying exposed soil and storage areas with water during dry periods. Post construction, the project will result in landscaped areas and play areas that will not generate dust and therefore, no long-term mitigation measures are necessary.</td>
</tr>
</tbody>
</table>

6.1.2 Construction BMPs

Appropriate BMPs will be used for pollution, sediment, and erosion control during construction. Erosion and sediment control measures may include mulching, matting, and netting; filter fabric fencing; quarry rock entrance mats; sediment traps and ponds; and surface water interceptor swales and ditches. Significant long-term water quality impacts are not expected if erosion control BMPs, stormwater treatment facilities, and spill containment measures are properly implemented, monitored, and maintained during construction. A Temporary Erosion and Sediment Control (TESC) plan has been prepared and implemented to minimize and control pollution and erosion from stormwater. The project will adhere to a Spill Prevention Control and Countermeasure (SPCC) plan developed specifically for construction.

6.2 Wetland and Buffer Impacts

The proposed boardwalk will extend approximately 720 linear feet from the existing Totem Lake Path, south across the edge of Wetland A, and then connect with the existing CKC Trail at its southern extent. Construction of the boardwalk will result in indirect impacts to Wetland A, and direct and indirect impacts to its buffer as summarized in Table 6-2 and described in the following sections. All anticipated
impacts are shown in Figure 7. Detail of the park, trail, and boardwalk based on 100% design are shown in Figure 8.

<table>
<thead>
<tr>
<th>Project Component</th>
<th>Indirect Wetland Impact (square feet)</th>
<th>Temporary Wetland Impact (square feet)</th>
<th>Direct Buffer Impact (square feet)</th>
<th>Indirect Buffer Impact (square feet)</th>
<th>Temporary Buffer Impact (square feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boardwalk</td>
<td>5,592</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Approach ramp and boardwalk abutment (north end)</td>
<td>0</td>
<td>0</td>
<td>594</td>
<td>742</td>
<td></td>
</tr>
<tr>
<td>Approach ramp and boardwalk abutment (south end)</td>
<td>0</td>
<td>0</td>
<td>478</td>
<td>1,662</td>
<td></td>
</tr>
<tr>
<td>Paving the transition area from path to boardwalk (south end) including retaining wall and backfill</td>
<td>0</td>
<td>1,655</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widening of asphalt path (including retaining wall and backfill)*</td>
<td>0</td>
<td>11,218</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impervious surface at play area*</td>
<td>0</td>
<td>24,375</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-native plantings (grass) at play area</td>
<td>0</td>
<td>5,755</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clearing of vegetation for boardwalk construction</td>
<td>6,603</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>5,592</td>
<td>6,603</td>
<td>43,003</td>
<td>1,072</td>
<td>2,404</td>
</tr>
</tbody>
</table>

*Calculations include all impervious surface areas post-construction, including areas covered with impervious surface pre-construction.

The construction of the bioretention stormwater facilities will also occur within the former Yuppie Pawn site and in the buffer of Wetland A (Figure 8a). However, the entirety of the bioretention area will be planted with multi-structural native vegetation and will result in a functional lift to the site and therefore, will offset the impacts in this area, and be considered buffer enhancement. Details are included in Section 7.

The majority of this area is currently an asphalt parking lot and will have less impervious surface post-construction than in its current state. In total, the amount of impervious surface at the former Yuppie Pawn site pre- and post-construction will be reduced from 36,934 SF (0.9 acre) to 23,874 SF (0.6 acre), a difference of 13,060 SF (0.3 acre).

## 6.2.1 Wetland Impacts

Once complete, the park, boardwalk and trail improvements will cover approximately 49,667 SF of wetland and wetland buffer (Figure 7 and Table 6-2). As noted above in Section 6.1, the boardwalk will be mounted on pipe pile foundations and will be placed in a sequenced manner to avoid direct impacts to the wetland. This includes adverse changes in water quality, hydrologic function, or habitat function of the wetland.
The boardwalk will average approximately 8 feet above the wetland, which may result in indirect impacts to the wetland due to the shading of vegetation (Table 6-2). In areas where the boardwalk is higher, long-term shading impacts are anticipated to be minimal and vegetation is expected to return within one growing season of boardwalk construction. In addition, the proposed decking will allow 25% light penetration, which will further reduce the impact of shading overall.

One dead, deciduous tree will be removed from the wetland near the northern extent of the boardwalk, where it transitions from the wetland into the wetland buffer. The tree will be cut approximately one foot above existing grade and roots will remain. The removed trunks will be used as a habitat feature and will remain onsite within the wetland or wetland buffer.

To accommodate boardwalk construction, vegetation will be cleared in a maximum 22-foot-wide corridor along the boardwalk alignment. Vegetation will be cut by hand and flush to the water surface. Temporary impacts to wetland vegetation may occur where existing vegetation needs to be trimmed for boardwalk construction (Figure 7 and Table 6-2). These temporary impacts are limited to six feet on either side of the boardwalk. It is expected that vegetation damaged during construction would regrow in the following growing season and changes in the plant community between pre- to post-construction are not anticipated. The City will revisit the site during the next growing season and assess that these temporary impacts have returned to a healthy state. If the plantings are not returning, the City will provide recommendations on how to remediate the areas.

6.2.2 Buffer Impacts

Trail and Boardwalk Impacts

The proposed project will result in permanent wetland buffer impacts where the boardwalk will tie into the existing Totem Lake Path at its northern terminus, and where the alignment travels the upland berm and ties into the CKC Trail at its southern terminus (Figure 8b). The boardwalk alignment and footprint is designed to avoid existing vegetation in the wetland buffer to the extent possible. Installation of the approach ramps at either end of the boardwalk and the portion of the alignment along the upland berm will require some vegetation removal. Vegetation that will be impacted in these areas consists of native shrubs and trees, primarily young red alder and red-osier dogwood, and Himalayan blackberry. Larger trees in these areas will be retained.

Installation of the approach ramps at either end of the boardwalk and the boardwalk alignment along the upland berm will impact wetland buffer at the northern and southern ends (Figure 7 and Table 6-2). The approach ramps will be constructed of the same materials as the overwater portion of the boardwalk and will result in shading impacts to the wetland buffer. Additional temporary impacts will occur during construction at the northern and southern termini of the boardwalk. However, these areas will be restored, post-construction, through the planting of native trees and shrubs.

In addition to shading impacts, wetland buffer adjacent to the southern ramp will be permanently impacted by new asphalt paving and two concrete abutments associated with the transition from existing path to boardwalk. Similar to the asphalt trail to the north, a retaining wall will be installed on either side of this portion of the trail, and backfilled with rocks at the southern end. Finally, permanent buffer impacts will occur through widening and repaving the existing asphalt path to the north, as well as
installing the retaining wall and fill rocks. (Table 6-2 and Figures 7 and 8c). Similar to the area of the detention ponds, because this area will be graded to such an extent as to support the new ADA trail, this entire area is being included in buffer calculations even though portions of it are currently covered with impervious surface.

Three black cottonwood trees will be removed from the buffer near the northern portion of Wetland A. These trees are known to be prone to disease and could create hazardous situations and injuries. The City has proposed removal of these trees to prevent injuries to pedestrians and damage to the boardwalk. The City will replace these trees with species that do not grow as large, to reduce the risk of pedestrians being struck by large limbs.

**Play Area Impacts**

Development of the play area, associated parking and landscaping will also result in permanent impacts to the buffer of Wetland A. The majority of these impacts are areas of impervious surface including the play area, restroom, walking paths and parking. The remaining permanent impacts are areas of the proposed play field that will be planted with non-native grasses (Table 6-2 and Figures 7 and 8d).

The remaining area of the former Yuppie Pawn site will be planted with multi-structural native vegetation, and therefore, are not calculated as buffer impact areas, but as buffer enhancement areas. (Table 6-2 and Figure 7). More detail of the buffer enhancement area can be found in Section 7.2

**Additional Buffer Impacts**

A maximum of 96 significant trees (greater than 6-inches in diameter at breast height per KZC 5.10.855) will be removed from the buffer of Wetland A. Sixty-eight of these trees are within the former Yuppie Pawn site. The trees will be removed due to one or more of the following reasons: poor health, conflict with proposed grading, or impacts associated with the demolition of the vacant Yuppie Pawn building. The majority of the trees proposed for removal along the trail have been recommended for removal by the project’s arborist (See tree plans and arborist reports in Appendix E). Several of these include non-native red maple street trees and ornamental plum and cherry trees (STC, 2017). The boardwalk and trail improvements were designed to largely avoid significant tree removal. Other vegetation that will be impacted in these areas consists of native shrubs and small trees, primarily young red alder and red-osier dogwood.

All tree removal will follow requirements in KZC 95.30 – Tree Retention Associated with Development Activities, and KZC 90.135 – Trees in Critical Areas and Critical Area Buffer. Trees may be girdled when necessary to manage regrowth in close proximity to the trail, boardwalk, and park. Removed trees will be used as habitat features onsite to the extent possible. Trees removed from the buffer will be replaced with one to three native trees per KZC 90.135.1 as determined by the City’s Planning Official. Currently 188 trees are being proposed to replace the 96 trees that are being removed, or a replacement ratio of 1.96:1 (replacement : removal ratio).

Temporary buffer impacts may also result from construction activities and equipment staging. As mentioned above, buffers at the northern and southern termini of the boardwalk will be temporarily impacted during construction (Table 6-2, Section 7, and Figure 7). If additional temporary wetland buffer
impacts occur as the result of construction activities and equipment staging, the buffer will be returned to at least its pre-construction condition through the planting of native trees and shrubs after park construction.

6.3 Regulatory Implications

Wetlands are regulated by Corps, Ecology, and the City of Kirkland. At a federal level, the Corps regulates wetlands and streams (i.e., defined as waters of the U.S.) under the Clean Water Act, and projects that propose the excavation or fill of these features require a Section 404 permit. Wetlands are also regulated under Section 401 of the Clean Water Act, which is administered by Ecology. Ecology must issue a Water Quality Certification (WQC) for the project and ensure that the project is consistent with the Federal Coastal Zone Management Act (CZMA). The WQC and CZMA consistency determination are triggered by the Section 404 permit.

The footings for portions of the boardwalk within Wetland A will be 2-inch diameter pipe pilings. Placement of these pilings will not impair the flow and circulation of the waterbody or result in the adverse alteration of aquatic functions. No excavation, disturbance of wetland soils, or mechanized clearing will occur. Construction of the boardwalk will occur in a sequenced manner using built portions as construction access and all construction equipment will be kept above water levels during the entirety of construction. The Corps was consulted for the proposed project and concluded that the boardwalk materials are not be considered fill and thus no Section 404 permit under the Clean Water Act is required for project construction (Corps correspondence, December 2017).

The Washington Department of Fish and Wildlife (WDFW) also regulates activities in state waters such as streams and lakes. Specifically, they must review, condition, and approve or deny “any construction activity that will use, divert, obstruct, or change the bed or flow of State waters.” Any project that requires in-stream or in-lake work would require a Hydraulic Project Approval (HPA) from WDFW. Thus, construction of the proposed boardwalk will require an HPA.

At a local level, wetland and buffer impacts are regulated by the City of Kirkland and the proposed project will require review and approval according to KZC Chapter 90—Critical Areas. The proposed park and boardwalk are not an allowed use of the wetland and wetland buffer according to KZC 90.40.6. However, per the City Planning Department, the proposed impacts may be permitted under a Public Agency and Public Utility Exception (KZC 90.45). Per 90.45.3, the project must meet four specific decisional criteria for the exception to be approved. These criteria are listed below, followed by a discussion (in italic text) of how the proposed project meets each criterion. Based on the following justification, the project appears to be eligible for the Public Agency and Public Utility Exception.

a) There is no other practical alternative to the proposed project with less impact on the critical areas of buffer;

*The project has been designed to avoid critical areas to the extent possible, while still meeting the goals of the Totem Lake Master Plan. The boardwalk and trail design have applied the appropriate mitigation sequencing to ensure that long-term adverse effects to critical areas are minimized and avoided to the extent possible as discussed in Section 6.1.*
The proposed mitigation discussed in Section 7.0 will ensure that no loss of ecological functions will occur post-construction, due to unavoidable, indirect impacts to the wetland and wetland buffer.

b) Strict application of this chapter would unreasonably restrict or prohibit the ability to provide public utilities or public agency services to the public;

Strict application of KZC Chapter 90 would prohibit the construction of a trail through the onsite wetland and wetland buffer, resulting in the City’s Department of Parks and Community Service’s inability to fulfill the goals of the Totem Lake Master Plan and part of the adopted City of Kirkland’s Comprehensive Plan.

c) The proposal minimizes impacts to the critical area or buffer through mitigation sequencing, and through type and location of mitigation, pursuant to KZC 90.145 and 90.150 if applicable, including such installation measures as locating facilities in previously disturbed areas, boring rather than trenching, and using pervious or other low impact materials; and

The proposed project minimizes impacts to critical areas and buffers through mitigation sequencing and minimization measures per KZC 90.145 as discussed in Sections 6.1 and 6.2 of this report, respectively.

d) The proposal protects and/or enhances critical area and buffer functions and values, consistent with the best available science and with the objective of no net loss of critical area functions and values.

As mentioned above, the project has been designed to avoid critical areas to the extent possible, while still meeting the goals of the Totem Lake Master Plan. No direct wetland impacts are proposed. To ensure a no net loss of function, the project will mitigate for all direct and indirect buffer functions and all indirect wetland functions. Portions of the wetland and wetland buffer chosen for enhancement will be ecologically functioning at a higher level, when compared to current conditions. The conceptual mitigation plan detailed in Section 7.0 has been designed using the best available science guidance in Wetland Mitigation in Washington State Part 1: Agency Policies and Guidelines (Ecology et al., 2006).

7.0 CONCEPTUAL MITIGATION PLAN

The following section describes a conceptual mitigation approach to compensation for impacts to wetlands as required by step “E” in the City’s mitigation sequence (described previously in Section 6.1) and KZC 90.145.6 – Mitigation Plan Standards.
7.1 Compensatory Wetland Mitigation Requirements and Approach

The City Planning Department has determined that the indirect impacts to Wetland A due to shading will result in a loss of wetland function, and that compensatory mitigation would be required.

Mitigation approaches for indirect wetland impacts typically focus on improving the water quality, hydrologic, and wildlife habitat functions of a given wetland. For Wetland A, the installation of the boardwalk is not anticipated to change the water quality and hydrologic functions of the wetland. However, habitat functions of the wetland are currently compromised by the highly urbanized location and thus compensatory mitigation should focus on providing a lift to the habitat functions of the wetland.

Approaches to mitigation that will provide a habitat functional lift include:

- Removing invasive vegetation and refuse from the wetland; and
- Enhancement of wetland through the planting of native trees and shrubs, primarily in areas where invasive vegetation has been removed.

Per KMZ 90.150.2, solely enhancing a wetland to mitigate for direct impacts to a Category II wetland must occur at a 12:1 (mitigation-to-impact) ratio. However, the City’s critical areas regulations do not provide specific guidance or impact to mitigation ratios for indirect impacts to wetlands due to the shading of vegetation. Therefore, the City Planning Department has recommended that ratios be determined using guidance based on best available science in *Wetland Mitigation in Washington State Part 1: Agency Policies and Guidelines* (Ecology et al., 2006). According to the guidance, standard mitigation ratios may be reduced when impacts to wetlands are either not permanent (long-term temporary) or if the impact may convert the wetland from one vegetation class to another. The recommended ratios for the two circumstances are one-quarter and one-half of the recommended ratio for direct impacts, respectively.

**Long-Term Temporary Impacts**

Long-term temporary impacts refer to ecological functions that can be replaced in less than two years (Ecology et al., 2006). Minor temporal loss of ecological function of emergent wetland communities is anticipated due to the permanent shading of the boardwalk. However, this functional loss is not anticipated to be permanent due to the amount of light that will penetrate the boardwalk as well as the height of the boardwalk. We anticipate that wetland functions will fully return to pre-construction levels within two growing seasons and therefore propose that emergent communities being shaded by the boardwalk are mitigated at a 3:1 ratio, or one-quarter of the 12:1 recommended ratio.

**Wetland Conversion Impacts**

Wetland conversion impacts refer to the loss of functions due to the conversion of a wetland from one type of vegetation class to another (Ecology et al., 2006). In areas where the boardwalk will cover scrub-shrub communities, the cutting of existing vegetation during construction of the boardwalk, as well as the subsequent shading from the boardwalk, may convert these communities into emergent communities, and therefore may retain a lower ecological function post-construction. To mitigate for the loss of functions
due to the possible conversion of wetland areas that are PSS-dominant, to PEM-dominant communities, we propose that all scrub-shrub communities being shaded by the boardwalk are mitigated at a 6:1 ratio, or one-half of the recommended 12:1 ratio.

The indirect impacts anticipated by the project were divided into these two types of impacts based on their vegetative class, and the appropriate reduced mitigation ratio applied as summarized in Table 6-3 and Figure 9. A total of 25,713 SF of wetland enhancement is proposed for the 5,592 SF of indirect impacts to Wetland A.

<table>
<thead>
<tr>
<th>Type of Impact</th>
<th>Area of Impact (SF)</th>
<th>Proposed Mitigation Ratio</th>
<th>Proposed Mitigation (SF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporary loss of function to PEM community due to shading</td>
<td>2,613</td>
<td>3:1</td>
<td>7,839</td>
</tr>
<tr>
<td>Conversion of PSS community to PEM community due to shading</td>
<td>2,979</td>
<td>6:1</td>
<td>17,874</td>
</tr>
<tr>
<td>Totals</td>
<td>5,592</td>
<td></td>
<td>25,713</td>
</tr>
</tbody>
</table>

Wetland enhancement will occur in the western portion of Wetland A, primarily along the existing boardwalk. This area of wetland contains extensive patches of reed canarygrass and some Himalayan blackberry, mixed with native shrubs. This portion of the site (mitigation Opportunity Area “HI”) was also determined by the City to be a highly suitable site for mitigation opportunities (Watershed Company, 2018). To mitigate for the loss of functions due to boardwalk shading, 27,262 SF, or an additional 1,549 SF than required, will be enhanced through the following techniques:

- Selectively remove non-native, invasive species with a focus on selected areas of reed canarygrass;
- Enhancement of wetland through the planting of native shrubs and emergent species, primarily in areas where invasive vegetation has been removed, with a focus on species that will outcompete reed canarygrass; and
- Installation of habitat features (snags, logs, woody debris piles, bird and bat boxes, etc.) that will provide refuge for wildlife and increase species diversity.

Selected areas where reed canarygrass is dominant will be located in the field. Plants will be cut by hand, as close to the surface of the ground as possible. After plants are removed, approximately four inches of natural wood chip mulch will be placed over the surface. Mulch will be anchored by jute matting and subsequently planted with a mix of container plants and live stakes. Candidate plant species include wet-adapted, quick-growing species that will shade out or outcompete reed canarygrass. Wetland mitigation details can be found in Figure 11a.

Additionally, as mentioned above, temporary impacts to wetland vegetation may occur where existing vegetation needs to be trimmed for boardwalk construction. These temporary impacts are limited to six
feet on either side of the boardwalk, and total 6,603 SF (Table 6-2, Figure 7). It is expected that vegetation damaged during construction would regrow in the following growing season and changes in the plant community between pre- to post-construction are not anticipated. If vegetation does not re-sprout during the next growing season, the City will provide recommendations on how to remediate the areas.

### 7.2 Wetland Buffer Mitigation Requirements and Approach

A total of 44,075 SF of direct and indirect impacts to the buffer are anticipated (Table 6-2 and Figure 7). The project will result in a total of 46,772 SF of buffer mitigation, or 2,697 SF more than the 1:1 mitigation ratio required by KZC 90.150. The project will mitigate for buffer impacts, in-kind and onsite.

To mitigate for the majority of these impacts, 22,677 SF of native trees, shrubs, and woody groundcover will be installed at the proposed play area (Figure 10), in the area of temporary buffer impacts (Figure 7 and Table 6-2). The majority of this area is currently asphalt and landscaped trees. Post-construction, buffer mitigation will provide a functional lift by increasing the availability and quality of habitat in a largely urban environment.

An additional 24,094 SF of buffer mitigation will occur along the northwest side of the CKC Trail in an additional area that was determined to be suitable for mitigation opportunities by the City (Watershed Company, 2018). This area (Mitigation Opportunity Area “G”), is approximately 0.5 acre in size, and is currently dominated by a mix of reed canarygrass and Himalayan blackberry. Buffer mitigation detail can be found in Figure 11b.

To mitigate for the loss of functions due to direct and indirect impacts to wetland buffer, a minimum of 46,772 SF of the buffer will be enhanced through the following techniques:

- Removing invasive vegetation and refuse from the wetland buffer;
- Enhancement of wetland buffer through the planting of native trees and shrubs, primarily in areas where invasive vegetation has been removed; and
- Installation of habitat features (snags, logs, woody debris piles, bird and bat boxes, etc.) that will provide refuge for wildlife and increase species diversity.

Additionally, the remaining 2,404 SF of temporary buffer impacts due to the installation of the approach ramps at either end of the boardwalk will be restored using the same native plant palette as the mitigation being performed along the CKC trail. The proposed plant schedule can be found in Figure 11c.

To further ensure the project results in a lift in ecological function, all tree removal will follow requirements in KZC 90.135 – Trees in Critical Areas and Critical Area Buffer. Removed trees will be used as habitat features onsite to the extent possible. Trees removed from the buffer will be replaced with one to three native trees per KZC 90.135.1 and as determined by the City’s Planning Official. Currently 188 trees are being proposed to replace the 96 trees that are being removed, or a replacement ratio of 1.96:1 (replacement : removal ratio).
Mitigation will comply with requirements in KMZ 90.145 and will include the following:

- Per general mitigation timing requirements in KMZ 90.145.5.a(1), mitigation will be completed immediately following or concurrent with construction, and prior to use or final inspection of the project.
- Per KMZ 90.145.6.b(2), the seed source for all plants installed at the mitigation site will be as local as possible and will be nursery propagated.
- Per KMZ 90.145.6.b(3), installed plant materials may be supported only when necessary. When deemed necessary, stakes shall follow the International Society of Arboriculture standards and must be removed as soon as the plant can support itself.
- Per KZC 90.145.6.b(5), erosion control measures have been designed that comply with the City’s Public Works Pre-Approved Plans and will be included in the final bid documents.
- Per KZC 90.145.6.b(7), all planted areas will have a temporary, above ground sprinkler system, set to automatic timers, that will be removed in the final year of monitoring (See Section 7.5). The exception to this is the park area which will have a permanent sprinkler system.

Additionally, a mitigation monitoring and maintenance plan, per KZC 90.160, has been developed to ensure wetland and wetland buffer mitigation successfully replaces lost functions and area.

### 7.3 Mitigation Goals, Objectives, and Performance Standards

The overall goal of wetland and associated buffer mitigation is to replace the habitats and functions lost or altered as a result of the Project, and meet the City’s goal of no net loss of wetland function per KZC. Because the installation of the boardwalk is not anticipated to change the water quality and hydrologic functions of the wetland, mitigation goals focus on restoring lost or already limited habitat functions.

### 7.4 Mitigation Goals

Specific mitigation goals include the following:

- Enhance approximately 27,262 SF of Category II wetland (Wetland A) through the removal of invasive species, primarily reed canarygrass, and planting native trees and shrubs.
- Enhance approximately 46,772 SF of wetland buffer through the planting of native trees and shrubs. 22,678 SF of this enhancement will occur at the park site. The remaining 24,094 SF will occur along the CKC Trail.
- Ensure that the 6,603 SF of temporary wetland impacts have returned to healthy, native vegetation within one growing season of being trimmed for the boardwalk construction.
• Enhance approximately 2,404 SF of temporarily impacted buffer caused by the construction of the approach ramps at each end of the boardwalk. Enhancement will include the planting of native trees and shrubs.

7.4.1 Objectives and Performance Standards

Objective 1: Install native shrub and tree species in the wetland mitigation area to enhance habitat structure and species diversity.

Performance Standard 1a: Year 1 – A minimum of five native woody shrub species will be planted within the wetland mitigation areas.

Performance Standard 1b: Year 1 – 100 percent survival of installed native woody species within 1 year of mitigation installation in all areas.

Performance Standard 1c: Year 1 – At least 20 percent coverage of native plant species in the wetland mitigation area (installed and desirable).

Performance Standard 1d: Year 2 – 80 percent survival of installed native woody species within 1 year of mitigation installation areas.

Performance Standard 1e: Year 3 – At least 50 percent coverage of native plant species in the wetland mitigation area (installed and desirable). Cover will be estimated using sub-samples (e.g., plots, line-intercept transects) that cover a minimum of 20 percent of the planting areas.

Performance Standard 1f: Year 5 – At least 80 percent coverage of native plant species in the wetland mitigation area (installed and desirable).

Objective 2: Install native tree, shrub, and groundcover in the buffer mitigation areas to enhance habitat structure and species diversity.

Performance Standard 1a: Year 1 – 100 percent survival of installed native woody species within 1 year of mitigation installation in all areas.

Performance Standard 1b: Year 2 – 80 percent survival of installed native woody species.

Performance Standard 1c: Year 3 – At least 50 percent coverage by woody native plant species in all areas (installed and desirable volunteer). Survival will be estimated using sub-samples (e.g., plots, line-intercept transects) that cover a minimum of 20 percent of the planting areas.

Performance Standard 1d: Year 5 – At least 80 percent coverage by woody native plant species in all areas (installed and desirable volunteer).

Performance Standard 1e: Year 5 – Two out of three strata (trees, shrubs, woody groundcover) must compose at least 20 percent of aerial cover.
**Performance Standard 1f: Year 5** – At least three native species should each be making up a minimum of 10 percent coverage.

**Objective 3:** Remove non-native, invasive vegetation in wetland and wetland buffer mitigation areas.

**Performance Standard 3a: All Years** – Species on King County’s Noxious Weed List will not exceed 10 percent aerial cover in all planting areas of the wetland and wetland buffer mitigation sites throughout the 5-year monitoring period, with the exception of reed canarygrass which shall not exceed 20 percent cover where pre-existing monocultures occurred in the wetland enhancement area.

**Performance Standard 3b: All Years** – There should be no presence of knot weed in all planting areas of the wetland and wetland buffer mitigation sites throughout the 5-year monitoring period.

### 7.5 Monitoring Plan

Construction monitoring will ensure that clearing limits are maintained as described in the construction documents and plans, and that sediment control devices such as silt fences, are in working order. As mentioned above, erosion control measures have been designed that comply with the City’s Public Works Pre-Approved Plans and will be included in the final bid documents.

Mitigation monitoring will also be conducted. The main objective for mitigation monitoring is to document the level of success in meeting the Project’s performance standards. The proposed wetland and buffer enhancement mitigation will be monitored for 5 years per KZC 90.160. The following describes the monitoring approach for Years 1 through 5.

#### 7.5.1 Schedule

An initial stem count of the installed vegetation will be conducted following construction (an as-built count). Monitoring of mitigation areas will continue annually for 5-years post-construction. A qualified biologist or landscape designer will conduct the monitoring. The as-built plan will be used as the basis for monitoring of plant survival. Monitoring will begin the first full growing season after construction is complete and the plants have been installed.

#### 7.5.2 Data Collection

Shrub and tree cover will be evaluated quantitatively and qualitatively one year after construction, as well as in Years 2, 3, and 5. Two site visits (one in the spring and one in the fall) will occur during Years 1 and 2. If performance standards are met for the first two years then only one site visit will occur for the remaining 3 years of monitoring. The following information will be recorded during each of the monitoring site visits:

- Survival rates of installed vegetation during plant warranty period based on sub-sample of the mitigation area (e.g., plots, line-intercept transects).
• General plant health assessment and plant aerial coverage from established sampling points and transects (e.g., line-intercept).
• Presence of undesirable plants (weedy and/or non-native species) with estimated percent cover.
• Photo documentation of site conditions from established photo points.
• Impacts to the wetland buffer from human use (e.g., dumping of debris).
• Signs of wildlife use.

7.5.3 Reporting

Monitoring reports will be prepared by a qualified biologist or landscape designer for review and approval by regulatory agencies during monitoring Years 1, 2, 3, and 5. The reports will compare the performance standards described in the mitigation plan to the field observations during monitoring, and will recommend species replacements or other maintenance activities, if necessary (see Maintenance section below). Reports will present data collected during the site visits and document success in meeting specific performance standards. Photographs will illustrate and document site conditions. Monitoring reports will be submitted by the end of each monitoring year to the City’s Public Works Department.

7.6 Maintenance

Maintenance of the mitigation area will begin after completion of the Project and continue, as needed, for 5 years. After the initial planting acceptance by the project biologist, the landscaping contractor will be responsible for plant survival for a period of 1 year. The City will provide maintenance, as necessary. Maintenance could include, but may not be limited to, the following:

• Irrigate during dry periods.
• Remove non-native or invasive plant species.
• Add soil amendments and/or mulch.
• Install fencing around woody plants to prevent animal damage.
• Construct fencing to prevent vandalism or damage caused by humans.
• Install supplemental plantings as needed.

Based on monitoring results, the City will implement required maintenance and will determine how corrective measures will be addressed (e.g., which department[s] will provide funding) should they be necessary.

7.7 Contingency

If any portion of the mitigation is not successful, a contingency plan will be implemented. Such plans are prepared on a case-by-case basis to remedy any aspects of the mitigation that do not meet the performance standards. The plan, if required, would be developed in cooperation with the regulating
agencies. Additionally, vegetation trimmed in the wetland during boardwalk construction is expected to regrow during the following growing season. If vegetation does not re-sprout during the next growing season, the City will assess and replant as needed.

### 7.8 Site Protection

The wetland and buffer mitigation areas are under a protective covenant through the Parks and Public Works Department that precludes future use of these areas (except for the purposes of enhancing or restoring the mitigation associated with this Project).

A split rail fence will be constructed along the southern edges of the buffer enhancement area near the park’s play area to discourage access to the location. Critical area signs will be posted on the split rail fence at intervals of approximately 100 feet.

### 8.0 FINAL MITIGATION PLAN

Detailed design of the mitigation plan will not proceed until the City’s planning department has approved the initial mitigation concept. Once the mitigation concept is approved, a detailed mitigation design will be prepared along with a Final Wetland Mitigation Plan. The Final Wetland Mitigation Plan will:

- Finalize wetland and buffer impacts based on final design details for the boardwalk, trail, and park;
- Field verify and survey Mitigation Opportunity Areas G and HI, as needed;
- Identify mitigation requirements for all the affected wetlands and buffers and identify specific goals and objectives for the mitigation;
- Include detailed landscape design documents for the proposed mitigation construction.

The final mitigation plan will be completed and submitted to the City prior to the issuance of permits for the project.

### 9.0 LIMITATIONS

Within the limitations of schedule, budget, scope-of-work, and seasonal constraints, we warrant that this study was conducted in accordance with generally accepted environmental science practices, including the technical guidelines and criteria in effect at the time this study was performed, as outlined in the Methods section. The results and conclusions of this report represent the authors’ best professional judgment, based upon information provided by the project proponent in addition to that obtained during the course of this study. No other warranty, expressed or implied, is made.
10.0 REFERENCES


Gresham, D. Email communication from Doug Gresham, Wetland Specialist, Washington State Department of Ecology, with Frank Rienart and Brian Baker, City of Kirkland Public Works Department dated June 8, 2018.


Figures and Photos
Figure 1
Project Vicinity

SOURCE:
ESA 2016; OSM 2016; City of Kirkland 2015.
NOTES:
1. THIS DETAIL FOR REFERENCED ONLY.
2. REFER TO STRUCTURAL FOR BOARDWALK GRATING AND STRUCTURE DETAILS.
3. REFER TO LANDSCAPE FOR BOARDWALK GUARDRAIL DETAILS.

Figure 2
Typical Boardwalk Section
Legend
- AgC: Alderwood gravelly sandy loam
- AgD: Alderwood gravelly sandy loam
- EvC: Everett gravelly sandy loam
- InC: Indianola loamy fine sand
- KpB: Kitsap silt loam
- Sk: Seattle muck
- W: Water

Figure 4
NRCS Mapped Soils

SOURCE:
Figure 5
Existing and Mapped Features

SOURCE:
ESA 2016; City of Kirkland 2015; NAIP 2013.

Legend
- Wetlands (City & NWI)
- 100-YR Floodplain
- Waterbody (City)
- Existing Foot Paths
- Existing Boardwalks

Cross Kirkland Corridor
Former Yuppie Pawn Site
Totem Lake Path
Totem Lake

Figure 6
Wetland Delineation and Proposed Project
Figure 9

Indirect Wetland Impacts

LEGEND
- Red: Emergent Vegetation (2,613 SF)
- Green: Scrub-Shrub Vegetation (2,979 SF)

Totem Lake Path
Proposed Boardwalk
**Buffer Mitigation Planting Schedules**

<table>
<thead>
<tr>
<th>Note</th>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Buffer Mitigation planting shall be in accordance with planting plans.</td>
<td>12/14/2018</td>
</tr>
<tr>
<td>2.</td>
<td>All plant species must be approved by the landscape architect prior to planting.</td>
<td>12/14/2018</td>
</tr>
<tr>
<td>3.</td>
<td>All planting locations are subject to specifications for soil type and preparation.</td>
<td>12/14/2018</td>
</tr>
</tbody>
</table>

**Tree Inventory Number 40'**

- **Berger Partnership Project Number:** Plotted: Filename: 10/29/2018 3:26:39 PM C:\Users\mattm\Documents\Totem Lake Park-PH1_mattm@bergerpartnership.com.rvt

**Tree Planting Schedule**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Count</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUNDCOVER PLANTING SCHEDULE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E1</td>
<td>59</td>
<td>Thuja plicata Western Mitchell</td>
</tr>
</tbody>
</table>
| E2     | 5     | Quercus |}

**Shrub Planting Schedule**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Count</th>
<th>Species</th>
</tr>
</thead>
</table>
| S1     | 18    | Lonicera |}

**Note # Description**

- All newly planted and lawn areas shall be irrigated.
- Mulch all planting areas. Refer to specifications for soil type and preparation. All plant material must be reviewed in the field, and approved by the landscape architect prior to planting.
- Planting to meet spacing requirements and plant layout from on-site areas approved for disturbance.
- Tree locations are subject to specifications for soil type and preparation. All planting locations are subject to specifications for soil type and preparation.
- All plant species must be approved by the landscape architect prior to planting.
- Planting shall be only as approved or directed by the landscape architect.
WETLAND ENHANCEMENT PLANTING AREA TOTAL = 27,262 SF

MITIGATION OPPORTUNITY AREA HI

TOTAL AREA = 40,473 SF

EX BOARDWALK

PROPOSED PLAY AREA
BUFFER ENHANCEMENT PLANTING AREA TOTAL = 24,094 SF
APPROXIMATE AREA TO BE CONFIRMED IN THE FIELD BY A QUALIFIED BIOLOGIST AND PROFESSIONALLY SURVEYED

PROPOSED BOARDWALK

MITIGATION OPPORTUNITY AREA G

SPLIT RAIL FENCE WITH ATTACHED "PROTECTED CRITICAL AREA" SIGNAGE
### PLANT SCHEDULE: WETLAND ENHANCEMENT (27,262 SF)

<table>
<thead>
<tr>
<th>BOTANICAL NAME</th>
<th>COMMON NAME</th>
<th>TYPE/SIZE</th>
<th>SPACING</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORNUS SERICEA</td>
<td>REDOSIER DOGWOOD</td>
<td>1&quot; DIA. LIVE STAKES</td>
<td>5' O.C.</td>
<td>210</td>
</tr>
<tr>
<td>PHYSOCARPUS CAPITATUS</td>
<td>PACIFIC NINEBARK</td>
<td>1 GAL. CONTAINER</td>
<td>5' O.C.</td>
<td>210</td>
</tr>
<tr>
<td>RUBUS SPECTABILIS</td>
<td>SALMONBERRY</td>
<td>1 GAL. CONTAINER</td>
<td>5' O.C.</td>
<td>209</td>
</tr>
<tr>
<td>SALIX LUCIDA SPP. LASIANDRA</td>
<td>PACIFIC WILLOW</td>
<td>1&quot; DIA. LIVE STAKES</td>
<td>5' O.C.</td>
<td>210</td>
</tr>
<tr>
<td>SALIX SITCENSIS</td>
<td>SITKA WILLOW</td>
<td>1&quot; DIA. LIVE STAKES</td>
<td>5' O.C.</td>
<td>210</td>
</tr>
<tr>
<td>SCIRPUS MICROCARPUS</td>
<td>SMALL FRUITED BULRUSH</td>
<td>10&quot; PLUGS</td>
<td>2.5' O.C.</td>
<td>3778</td>
</tr>
<tr>
<td>SPIRAEA DOUGLASII</td>
<td>DOUGLAS SPIRAEA</td>
<td>1 GAL. CONTAINER</td>
<td>5' O.C.</td>
<td>210</td>
</tr>
</tbody>
</table>

### PLANT SCHEDULE: BUFFER AREAS

| BUFFER ENHANCEMENT (24,094 SF) | BUFFER RESTORATION (2,404 SF) |

<table>
<thead>
<tr>
<th>BOTANICAL NAME</th>
<th>COMMON NAME</th>
<th>TYPE/SIZE</th>
<th>SPACING</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACER CIRCINATUM</td>
<td>VINE MAPLE</td>
<td>1 GAL. CONTAINER</td>
<td>6' O.C.</td>
<td>129</td>
</tr>
<tr>
<td>GAULTHERIA SHALLON</td>
<td>SALAL</td>
<td>1 GAL. CONTAINER</td>
<td>6' O.C.</td>
<td>129</td>
</tr>
<tr>
<td>OEMLERIA CERASIFORMIS</td>
<td>INDIAN PLUM</td>
<td>1 GAL. CONTAINER</td>
<td>6' O.C.</td>
<td>128</td>
</tr>
<tr>
<td>POLYSTICHUM MUNITUM</td>
<td>SWORD FERN</td>
<td>1 GAL. CONTAINER</td>
<td>6' O.C.</td>
<td>128</td>
</tr>
<tr>
<td>ROSA NUTKANA</td>
<td>NOOTKA ROSE</td>
<td>1 GAL. CONTAINER</td>
<td>6' O.C.</td>
<td>129</td>
</tr>
<tr>
<td>SYMPHORICARPUS ALBUS</td>
<td>SNOWBERRY</td>
<td>1 GAL. CONTAINER</td>
<td>6' O.C.</td>
<td>129</td>
</tr>
</tbody>
</table>

**NOTE:** BUFFER RESTORATION PLANTING IS FOR TEMPORARY IMPACT AREAS (NOT SHOWN ON PLANS).

### BUFFER HYDROSEED

<table>
<thead>
<tr>
<th>BOTANICAL NAME</th>
<th>COMMON NAME</th>
<th>% BY WEIGHT</th>
<th>RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGROSTIS TENUIS</td>
<td>COLONIAL BENTGRASS</td>
<td>15%</td>
<td>APPLY 25 LBS. PER ACRE</td>
</tr>
<tr>
<td>FESTUCA RUBRA</td>
<td>RED FESCUE</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>LOLIUM PERNENNE</td>
<td>PERENNIAL RYE GRASS</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>LUPINUS POLYPHYLLUS</td>
<td>LARGE-LEAVED LUPINE</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>TRIFOLIUM PRATENSE</td>
<td>RED CLOVER</td>
<td>25%</td>
<td></td>
</tr>
</tbody>
</table>
1. CONTAINER PLANTING

- Remove container, gently loosen tight root mass and untangle roots.
- 3" depth wood chip mulch, keep away from stems.
- Backfill with native soil.
- Pedestal of existing soil.
- Tamper thoroughly with foot only.
- Undisturbed subgrade.

Set root crown at height of finish grade.

2. PLUG PLANTING

- Plant roots to be straight and undamaged by installation.
- Open planting hole large enough to accommodate roots.
- Cover roots with soil and lightly tap to eliminate air pockets in planting. Backfill with native soil.

3. TYPICAL PLANTING LAYOUT

- Container plant spacing, typ.
- 3"Ø mulch ring.

Notes:
1. Restoration planting layout is conceptual and intended to show groupings of similar species of plants.
2. Group each species in clusters of 3, 5, 7, or 9.
3. Plant layout and triangular spacing may be adjusted to meet field conditions with the acceptance of the project representative.
MITIGATION PLANTING NOTES

PARKING
1. CONTRACTOR SHALL KEEP ALL NEARBY WALKING PATHS CLEAR AT ALL TIMES AND SHALL NOT PARK OR STORE VEHICLES ALONG THE ‘ESPLANADE’ ADJACENT TO THE MITIGATION SITE. CONTRACTOR MAY CROSS THE ESPLANADE WITH CAUTION AND PARK ON THE DRIVEWAY WEST OF THE SITE. CLEAR OF THE ESPLANADE.

CLEARING AND TREE PROTECTION
2. USING HAND-HELD EQUIPMENT, REMOVE ALL INVASIVE SPECIES FROM THE MITIGATION AREA PRIOR TO INSTALLATION USING METHODS APPROVED BY THE STATE OF WASHINGTON NOXIOUS WEED CONTROL BOARD. SPECIFIC SPECIES TO BE REMOVED INCLUDE KNOTWEED (POLYGONUM SPP.), HIMALAYAN BLACKBERRY (Rubus armeniacus), AND REED CANARYGRASS (Phalaris arundinacea).
3. SELECTED AREAS WHERE REED CANARYGRASS IS DOMINANT WILL BE LOCATED IN THE FIELD. PLANTS WILL BE CUT BY HAND, AS CLOSE TO THE SURFACE OF THE GROUND AS POSSIBLE. AFTER PLANTS ARE REMOVED, APPROXIMATELY FOUR INCHES OF NATURAL WOOD CHIP MULCH WILL BE PLACED OVER THE SURFACE. MULCH WILL BE ANCHORED BY JUTE MATTING AND SUBSEQUENTLY PLANTED.
4. PRESERVE AND PROTECT ALL EXISTING WETLANDS, TREES AND VEGETATION NOT DESIGNATED FOR REMOVAL. PROVIDE, ERECT AND MAINTAIN TEMPORARY FENCING TO PREVENT ACCESS TO EXISTING WETLANDS OR WETLAND BUFFERS BY ANY VEHICLES.
5. DO NOT DRIVE OR PARK ANY VEHICLES OR EQUIPMENT, STORE MATERIALS, STOCKPILE SOIL OR GRAVEL, OR DISPOSE OF ANY CONSTRUCTION OR WASTE MATERIAL WITHIN EXISTING WETLANDS OR WETLAND BUFFER OR NEAR NEWLY INSTALLED PLANTS. RESTRICT FOOT TRAFFIC WITHIN PROTECTED AREAS.

PLANTING
6. SEED SOURCE MUST BE AS LOCAL AS POSSIBLE, AND PLANTS MUST BE NURSERY PROPAGATED UNLESS TRANSPLANTED FROM ON-SITE AREAS APPROVED FOR DISTURBANCE.
7. CUTTINGS ARE LIVE PLANT MATERIAL WITHOUT A PREVIOUSLY DEVELOPED ROOT SYSTEM. SOURCE PLANTS FOR CUTTINGS SHALL BE DORMANT WHEN CUTTINGS ARE TAKEN AND ALL CUTS SHALL BE MADE WITH A SHARP INSTRUMENT. CUTTINGS MAY BE COLLECTED. IF CUTTINGS ARE COLLECTED, THE REQUIREMENT TO BE NURSERY GROWN OR HELD IN NURSERY CONDITIONS DOES NOT APPLY. WRITTEN PERMISSION SHALL BE OBTAINED FROM PROPERTY OWNERS AND PROVIDED TO THE ENGINEER BEFORE CUTTINGS ARE COLLECTED. THE CONTRACTOR SHALL COLLECT CUTTINGS IN ACCORDANCE WITH APPLICABLE SENSITIVE AREA ORDINANCES.
8. LIVE STAKE CUTTINGS SHALL HAVE A STRAIGHT TOP CUT IMMEDIATELY ABOVE A BUD. THE LOWER, ROOTING END SHALL BE CUT AT AN APPROXIMATE 45-DEGREE ANGLE. LIVE STAKES ARE CUT FROM ONE TO TWO YEAR OLD WOOD. LIVE STAKE CUTTINGS SHALL BE CUT AND INSTALLED WITH THE BARK INTACT WITH NO BRANCHES OR STEMS ATTACHED, AND BE 1 INCH IN DIAMETER.
9. PLANTING AREAS SHOULD BE STAKED IN THE FIELD FOR ACCEPTANCE BY THE ENGINEER PRIOR TO INSTALLATION.
10. PRIOR TO PLANTING, PLACE ALL PLANTS AS INDICATED ON THE PLANS, OR MARK EACH LOCATION WITH WOOD STAKES OR COLOR WIRE FLAGS MARKED WITH THE FIRST TWO LETTERS OF BOTH PLANT GENUS AND SPECIES (E.G. PH CA FOR PHYSOCARPUS CAPITATUS). NO PLANTING HOLES SHALL BE DUG OR BACKFILLED WITHOUT PRIOR APPROVAL OF ENGINEER. NOTIFY ENGINEER A MINIMUM OF 72 HOURS BEFORE PLANTING TO ALLOW AMPLE TIME TO ADJUST PLANT LOCATIONS. PROVIDE EXTRA STAKES OR FLAGS SUFFICIENT TO MARK LOCATIONS OF PLANTS NOT LOCATED ON PLAN.
11. PLANT MATERIALS MAY BE SUPPORTED WITH MATERIAL (E.G. STAKES, GUY WIRES) ONLY WHEN NECESSARY. STAKING AND TIES SHALL FOLLOW THE INTERNATIONAL SOCIETY OF ARBORICULTURE STANDARDS. WHERE SUPPORT IS NECESSARY, STAKES, GUY WIRES, OR OTHER MEASURES MUST BE REMOVED AS SOON AS THE PLANT CAN SUPPORT ITSELF, USUALLY AFTER THE FIRST GROWING SEASON.
12. ALL PLANTED AREAS OF THE MITIGATION PROJECT SHALL HAVE A TEMPORARY, ABOVE GROUND SPRINKLER SYSTEM SET TO AUTOMATIC TIMERS. TEMPORARY SPRINKLER SYSTEMS SHALL BE REMOVED IN THE FINAL YEAR OF MONITORING ONCE VEGETATION IS WELL ESTABLISHED. WHEN PUBLIC OR PRIVATE WATER IS NOT AVAILABLE, A PLAN FOR RELIABLE WATERING BY TRUCK OR HAND SHALL BE INCLUDED.

FENCING AND SIGNAGE
13. INSTALL PERMANENT SPLIT RAIL FENCING ALONG THE EDGES OF CRITICAL AREAS AS SHOWN ON PLANS AND ATTACH PERMANENT SIGNS TO THE FENCE. BOTH FENCING AND SIGNAGE ARE TO BE AS SPECIFIED IN KZC 90.190.

MONITORING - PERFORMANCE STANDARDS
14. PERCENT SURVIVAL OF INSTALLED SHRUBS AND TREES:
   • 100 PERCENT SURVIVAL MEASURED BEFORE THE END OF YEAR 1 (TO DETERMINE 1 YEAR PLANT GUARANTEE)
   • AT LEAST 80 PERCENT SURVIVAL AT THE END OF YEAR 2
   • PERCENT COVER OF NATIVE TREES AND SHRUBS (INSTALLED AND VOLUNTEER) WITHIN WETLAND AND BUFFER ENHANCEMENT AREAS:
   • 20 PERCENT COVER IN YEAR 1
   • 50 PERCENT COVER IN YEAR 3
   • 80 PERCENT COVER IN YEAR 5
15. PERCENT COVER OF NON-NATIVES WITHIN WETLAND AND BUFFER ENHANCEMENT AREAS:
   SPECIES ON KING COUNTY’S NOXIOUS WEED LIST WILL NOT EXCEED 10 PERCENT AERIAL COVER IN ALL PLANTING AREAS OF THE WETLAND AND WETLAND BUFFER MITIGATION SITES THROUGHOUT THE 5-YEAR MONITORING PERIOD. WITH THE EXCEPTION OF REED CANARYGRASS WHICH SHALL NOT EXCEED 20 PERCENT COVER WHERE PRE-EXISTING MONOCULTURES OCCURRED IN THE WETLAND ENHANCEMENT AREA.
   THERE SHOULD BE NO PRESENCE OF KNOT WEED IN ALL PLANTING AREAS OF THE WETLAND AND WETLAND BUFFER MITIGATION SITES THROUGHOUT THE 5-YEAR MONITORING PERIOD.

(NOTES CONTINUED ON NEXT SHEET)
MITIGATION PLANTING NOTES - CONTINUED FROM PREVIOUS SHEET

MONITORING - SCHEDULE

16. An initial stem count of planted material will occur following installation of mitigation plantings, which will be used to determine percent survival in Years 1 and 2. An as-built report will be prepared to describe the site conditions post-enhancement, including number and kind of installed native trees and shrubs and approximate percent cover of non-native species. Preliminary data outlined in this report will be referenced for comparison in subsequent monitoring reports.

17. Monitoring of mitigation areas will occur once 30 days after planting (stem count and as-built preparation), once early in the growing season of the first full growing season following planting (Year 1), once at the end of the first full growing season (Year 1), and annually for four years thereafter (Years 2-5). Permanent sampling points and photo points will be established by the monitoring biologist during the initial site visit. A qualified biologist or landscape designer working for or contracted by the applicant will conduct all subsequent monitoring and reporting.

MONITORING - DATA COLLECTION

18. Total installed plant counts and percent survival will be conducted during Year 1 and 2. Percent cover for installed shrub and trees will be evaluated in Years 1 through 5 using appropriate monitoring methodology established during Year 0. The following information will be recorded during monitoring site visits:
   - Overall aerial coverage of trees, shrubs, and herbaceous species in monitoring plots/transects
   - Documentation of any non-native species and recommendations for control
   - Qualitative site health
   - Photo documentation of site conditions
   - Impacts to the wetland/buffer from human use; and
   - Signs of wildlife use of the area.

MONITORING - REPORTING

19. Monitoring reports will be prepared and submitted to the City of Kirkland after each monitoring year by a qualified biologist, and will contain the information mentioned above, as well as photos taken from established photo points, documentation of areas which do not meet performance standards, and recommended corrective actions.

MAINTENANCE

20. Maintenance of the mitigation area will begin after completion of the project and will continue as needed for up to five years. After the initial planting acceptance by the engineer, the landscaping contractor will be responsible for plant survival for a period of one year. After that, the city of Kirkland maintenance crew will perform maintenance. During Year 1, every failed plant must be replaced within the first year following installation and acceptance. Maintenance activities could include, but may not be limited to:
   - Installing supplemental plantings, as needed
   - Use of herbicide according to best management practices to control invasive species
   - Watering or providing irrigation during unseasonably dry periods or when the soils are unusually dry
   - Invasive species control in the mitigation area and maintaining mulch at a 1 inch depth
   - Providing fencing around ground plants or shrubs to prevent animal damage; and
   - Providing fencing to prevent vandalism or damage caused by humans.

CONTINGENCY

21. If any portion of the mitigation is not successful, a contingency plan will be implemented. Such plans are developed on a case-by-case basis to remedy aspects of mitigation that do not meet stated site goals. The contingency plan would be developed in cooperation with the city of Kirkland.

22. Apply buffer hydroseed mix only in areas where mitigation planting has not been located but has been impacted during planting work.
North side of Wetland A looking south.

Forested portion of wetland in northeast corner.
Southeast side of Wetland A; looking northwest from Cross Kirkland Corridor.

Upland berm; looking north from Cross Kirkland Corridor.
Large area of reed canarygrass along existing boardwalk; looking northeast.

Southern wetland buffer dominated by Himalayan blackberry; looking southeast.
Appendix A: Methods Used to Evaluate Wetland Characteristics
Wetland Definition

Wetlands are formally defined by the U.S. Army Corps of Engineers (Corps) (Federal Register 1982), the Environmental Protection Agency (EPA) (Federal Register 1988), the Washington Shoreline Management Act (SMA) of 1971 (Ecology, 1991) and the Washington State Growth Management Act (GMA) (Ecology, 1992) as

... those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (Federal Register, 1982, 1986).

In addition, the SMA and the GMA definitions add:

Wetlands do not include those artificial wetlands intentionally created from non-wetland site, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990 that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificially created wetlands intentionally created from non-wetland areas to mitigate the conversion of wetlands.

ESA used the methods defined in Regional Supplement to the U.S. Army Corps of Engineers 1987 Wetlands Delineation Manual (Corps, 2008) to determine the presence and extent of wetlands in the study area. The methodology is based upon three essential characteristics of wetlands: (1) hydrophytic vegetation; (2) hydric soils; and (3) wetland hydrology. Field indicators of these three characteristics must all be present in order to determine that an area is a wetland (unless problem areas or atypical situations are encountered).

The methodology outlined in the manuals is based upon three essential characteristics of wetlands: (1) hydrophytic vegetation; (2) hydric soils; and (3) wetland hydrology. Field indicators of these three characteristics must all be present in order to determine that an area is a wetland (unless problem areas or atypical situations are encountered). These characteristics are discussed below.

Vegetation

Plants must be specially adapted for life under saturated or anaerobic conditions to grow in wetlands. The U.S. Fish and Wildlife Service (USFWS) has determined the estimated probability of each plant species’ occurrence in wetlands and has accordingly assigned a “wetland indicator status” (WIS) to each species (USFWS, 1988, 1993). Plants are categorized as obligate (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), upland (UPL), not listed (NL), or no indicator status (NI). Definitions for each indicator status are listed below.
Species with an indicator status of OBL, FACW, or FAC are considered adapted for life in saturated or anaerobic soil conditions. Such species are referred to as “hydrophytic” vegetation.

Key to Wetland Indicator Status codes – Northwest Region (Source: USFWS, 1988, 1993):

- **OBL** Obligate: species that almost always occur wetlands under natural conditions (est. probability >99%).
- **FACW** Facultative wetland: species that usually occur in wetlands (est. probability 67 to 99%), but are occasionally found in non-wetlands.
- **FAC** Facultative: species that are equally likely to occur in wetlands or non-wetlands (est. probability 34 to 66%).
- **FACU** Facultative upland: species that usually occur in non-wetlands (est. probability 67 to 99%), but are occasionally found in wetlands.
- **UPL** Upland: species that almost always occur in non-wetlands under normal conditions (est. probability >99%).
- **NL** Not listed: species that are not listed by USFWS (1988, 1993) and are presumed to be upland species.
- **NI** No indicator: species for which insufficient information is available to determine status, or which were not evaluated by USFWS.

Areas of relatively homogeneous vegetative composition can be characterized by “dominant” species. The indicator status of the dominant species within each vegetative stratum is used to determine if the plant community may be characterized as hydrophytic. The vegetation of an area is considered to be hydrophytic if more than 50% of the dominant species have an indicator status of OBL, FACW, or FAC. The Regional Supplements provide additional tests for evaluating the presence of hydrophytic vegetation communities including the prevalence index, morphological adaptations, and wetland non-vascular plants. The Supplements also address difficult situations where hydrophytic vegetation indicators are not present but hydric soils and wetland hydrology are observed.

**Soils**

Hydric soils are indicative of wetlands. Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile (Federal Register, 1994). The Natural Resources Conservation Service (NRCS), in cooperation with the National Technical Committee for Hydric Soils, has compiled lists of hydric soils (NRCS, 1995). These lists identify soil series mapped by the NRCS that meet hydric soil criteria. It is common, however, for a map unit of non-wetland (non-hydric) soil to have inclusions of hydric soil, and vice versa. Therefore, field examination of soil conditions is important to determine if hydric soil conditions exist.

The NRCS has developed a guide for identifying field indicators of hydric soils (NRCS, 2010). This list of hydric soil indicators is considered to be dynamic; revisions are anticipated to occur on a regular basis as a result of ongoing studies of hydric soils. In general, anaerobic conditions create certain characteristics in hydric soils, collectively known as “redoximorphic features.”
that can be observed in the field (Vepraskas, 1999). Redoximorphic features include high organic content, accumulation of sulfidic material (rotten egg odor), greenish- or bluish-gray color (gley formation), spots or blotches of different color interspersed with the dominant or matrix color (mottling), and dark soil colors (low soil chroma) (NRCS, 2010; Vepraskas, 1999).

Soil colors are described both by common color name (for example, “dark brown”) and by a numerical description of their hue, value, and chroma (for example, 10YR 2/2) as identified on a Munsell soil color chart (Munsell Color, 2000). Soil color is determined from a moist soil sample.

The Regional Supplements provide methods for difficult situations where hydric soil indicators are not observed, but indicators of hydrophytic vegetation and wetland hydrology are present.

Hydrology

Water must be present in order for wetlands to exist; however, it need not be present throughout the entire year. Wetland hydrology is considered to be present when there is permanent or periodic inundation or soil saturation at or near the soil surface for more than 12.5% of the growing season (typically two weeks in lowland Pacific Northwest areas). Areas that are inundated or saturated for between 5% and 12.5% of the growing season in most years may or may not be wetlands. Areas inundated or saturated for less than 5% of the growing season are non-wetlands (Ecology, 1997).

Indicators of wetland hydrology include observation of ponding or soil saturation, water marks, drift lines, drainage patterns, sediment deposits, oxidized rhizospheres, water-stained leaves, and local soil survey data. Where positive indicators of wetland hydrology are observed, it is assumed that wetland hydrology occurs for a sufficient period of the growing season to meet the wetland criteria, as described by Ecology (1997). The Regional Supplements provide methods for evaluating situations in wetlands that periodically lack indicators of wetland hydrology but where hydric soils and hydrophytic vegetation are present.
Appendix B:
Common and Scientific Names of Plants and Animals Identified During Site Visit
### TABLE 1: PLANT SPECIES LIST FOR THE TOTEM LAKE PARK DEVELOPMENT – PHASE 1 IDENTIFIED ON JANUARY 5, 2016

<table>
<thead>
<tr>
<th>COMMON NAME</th>
<th>SCIENTIFIC NAME</th>
<th>WETLAND INDICATOR STATUS*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trees</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>big-leaf maple</td>
<td>Acer macrophyllum</td>
<td>FACU</td>
</tr>
<tr>
<td>black cottonwood</td>
<td>Populus trichocarpa (Populus balsamifera ssp. trichocarpa)</td>
<td>FAC</td>
</tr>
<tr>
<td>Douglas fir</td>
<td>Pseudotsuga menziesii</td>
<td>FACU</td>
</tr>
<tr>
<td>red alder</td>
<td>Alnus rubra</td>
<td>FAC</td>
</tr>
<tr>
<td>Sitka spruce</td>
<td>Picea sitchensis</td>
<td>FAC</td>
</tr>
<tr>
<td>western hemlock</td>
<td>Tsuga heterophylla</td>
<td>FACU</td>
</tr>
<tr>
<td>western red cedar</td>
<td>Thuja plicata</td>
<td>FAC</td>
</tr>
<tr>
<td>red maple</td>
<td>Acer rubrum</td>
<td>FAC</td>
</tr>
<tr>
<td>Plum/cheery species</td>
<td>Prunus sp.</td>
<td>FACU</td>
</tr>
<tr>
<td><strong>Shrubs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>clustered wild rose</td>
<td>Rosa pisocarpa</td>
<td>FAC</td>
</tr>
<tr>
<td>common snowberry</td>
<td>Symphoricarpos albus</td>
<td>FACU</td>
</tr>
<tr>
<td>Douglas' spiraea</td>
<td>Spiraea douglasii</td>
<td>FACW</td>
</tr>
<tr>
<td>Himalayan blackberry</td>
<td>Rubus discolor (Rubus armenicus)</td>
<td>FAC</td>
</tr>
<tr>
<td>Nootka rose</td>
<td>Rosa nutkana</td>
<td>FAC</td>
</tr>
<tr>
<td>Pacific willow</td>
<td>Salix lasiandra (Salix lucida ssp. lasiandra)</td>
<td>FACW</td>
</tr>
<tr>
<td>poison oak</td>
<td>Rhus diversiloba (Toxicodendron diversilobum)</td>
<td>NL</td>
</tr>
<tr>
<td>red-osier dogwood (western red osier)</td>
<td>Cornus sericea</td>
<td>FACW</td>
</tr>
<tr>
<td>salmonberry</td>
<td>Rubus spectabilis</td>
<td>FAC</td>
</tr>
<tr>
<td>Scot's broom</td>
<td>Cytisus scoparius</td>
<td>NL</td>
</tr>
<tr>
<td>Scouler willow</td>
<td>Salix scouleriana</td>
<td>FAC</td>
</tr>
<tr>
<td>vine maple</td>
<td>Acer circinatum</td>
<td>FAC</td>
</tr>
<tr>
<td><strong>Herbs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bracken fern</td>
<td>Pteridium aquilinum</td>
<td>FACU</td>
</tr>
<tr>
<td>common cattail</td>
<td>Typha latifolia</td>
<td>OBL</td>
</tr>
<tr>
<td>common dandelion</td>
<td>Taraxacum officinale</td>
<td>FACU</td>
</tr>
<tr>
<td>creeping buttercup</td>
<td>Ranunculus repens</td>
<td>FACW</td>
</tr>
<tr>
<td>curly dock</td>
<td>Rumex crispus</td>
<td>FAC</td>
</tr>
<tr>
<td>duckweed</td>
<td>Lemna minor</td>
<td>OBL</td>
</tr>
<tr>
<td>COMMON NAME</td>
<td>SCIENTIFIC NAME</td>
<td>WETLAND INDICATOR STATUS*</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>English ivy</td>
<td>Hedera helix</td>
<td>NL</td>
</tr>
<tr>
<td>field horsetail</td>
<td>Equisetum arvense</td>
<td>FAC</td>
</tr>
<tr>
<td>hardstem bulrush</td>
<td>Scirpus acutus</td>
<td>OBL</td>
</tr>
<tr>
<td>lady fern</td>
<td>Athyrium filix-femina</td>
<td>FAC</td>
</tr>
<tr>
<td>Piggyback plant</td>
<td>Tolmiea menziesii</td>
<td>FAC</td>
</tr>
<tr>
<td>pondweed</td>
<td>Potamogeton spp.</td>
<td>OBL</td>
</tr>
<tr>
<td>purple loosestrife</td>
<td>Lythrum salicaria</td>
<td>OBL</td>
</tr>
<tr>
<td>climbing nightshade</td>
<td>Solanum dulcamara</td>
<td>FACU</td>
</tr>
<tr>
<td>reed canarygrass</td>
<td>Phalaris arundinacea</td>
<td>FACW</td>
</tr>
<tr>
<td>skunk cabbage</td>
<td>Lysichitum americanum</td>
<td>OBL</td>
</tr>
<tr>
<td>slough sedge</td>
<td>Carex obnupta</td>
<td>OBL</td>
</tr>
<tr>
<td>small-fruited bulrush</td>
<td>Scirpus microcarpus</td>
<td>OBL</td>
</tr>
<tr>
<td>soft rush</td>
<td>Juncus effusus</td>
<td>FACW</td>
</tr>
</tbody>
</table>

*Key to Wetland Indicator Status codes – Northwest Region (Source: USFWS, 1988, 1993):

OBL Obligate: species that almost always occur wetlands under natural conditions (est. probability >99%).

FACW Facultative wetland: species that usually occur in wetlands (est. probability 67 to 99%), but are occasionally found in non-wetlands.

FAC Facultative: Species that are equally likely to occur in wetlands or non-wetlands (est. probability 34 to 66%).

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NL Not listed: species that are not listed by USFWS (1988, 1993) and are presumed to be upland species.

NI No indicator: species for which insufficient information is available to determine status, or which were not evaluated by USFWS.

### TABLE 2: ANIMAL SPECIES LIST FOR THE TOTEM LAKE PARK DEVELOPMENT – PHASE 1 IDENTIFIED ON JANUARY 5, 2016

<table>
<thead>
<tr>
<th>COMMON NAME</th>
<th>SCIENTIFIC NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avian Species</td>
<td></td>
</tr>
<tr>
<td>mallard duck</td>
<td>Anas platyrhynchos</td>
</tr>
<tr>
<td>Canada goose</td>
<td>Branta canadensis</td>
</tr>
<tr>
<td>common bushtit</td>
<td>Psaltriparus minimus</td>
</tr>
<tr>
<td>great blue heron</td>
<td>Ardea herodias</td>
</tr>
<tr>
<td>Red winged blackbird</td>
<td>Agelaius phoeniceus</td>
</tr>
<tr>
<td>American crow</td>
<td>Corvus brachyrhynchos</td>
</tr>
<tr>
<td>Amphibian Species</td>
<td></td>
</tr>
<tr>
<td>Northwestern salamander</td>
<td>Ambystoma gracile</td>
</tr>
</tbody>
</table>

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Totem Lake Park Development – Phase 1
Critical Areas Report and Conceptual Mitigation Plan

Preliminary – Subject to Revision
Appendix C: Washington State Wetland Rating System and Rating Forms
Washington State Wetland Rating System

The observed wetlands were rated using the Washington State Department of Ecology’s *Wetland Rating System for Western Washington* (Hruby, 2004). This system was developed by Ecology to differentiate wetlands based on their sensitivity to disturbance, their significance, their rarity, our ability to replace them, and the beneficial functions they provide to society. Wetlands are categorized using the Ecology rating system according to the following criteria:

**Category I wetlands** represent a unique or rare wetland type; or are more sensitive to disturbance; or are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime.

**Category II wetlands** are difficult, though not impossible, to replace, and provide high levels of some functions.

**Category III wetlands** have a moderate level of function. They have been disturbed in some ways, and are often less diverse or more isolated from other natural resources in the landscape than Category II wetlands.

**Category IV wetlands** have the lowest levels of functions and are often heavily disturbed.

In 2014, Ecology updated the rating system (Hruby, 2014). However, wetland ratings performed prior to January 1, 2015 using the 2004 rating system are still considered valid (Ecology, 2015).
Appendix E: Arborist Reports and Tree Plans
Wetland name or number: A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A – Totem Lake Date of site visit: 1/5/2016

Rated by: J. Redman Trained by Ecology? ☐ Yes ☐ No Date of training: Mar-15

HGM Class used for rating: Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☐ No

NOTE: Form is not complete without the figures requested (figures can be combined).
Source of base aerial photo/map: ArcGIS Aerial Basemap

OVERALL WETLAND CATEGORY II (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

<table>
<thead>
<tr>
<th>Category</th>
<th>Total score</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>23 - 27</td>
</tr>
<tr>
<td>X</td>
<td>20 - 22</td>
</tr>
<tr>
<td>III</td>
<td>16 - 19</td>
</tr>
<tr>
<td>IV</td>
<td>9 - 15</td>
</tr>
</tbody>
</table>

   Score for each function based on three ratings
   (order of ratings is not important)
   9 = H, H, H
   8 = H, H, M
   7 = H, H, L
   7 = H, M, M
   6 = H, M, L
   6 = M, M, M
   5 = H, L, L
   5 = M, M, L
   4 = M, L, L
   3 = L, L, L

   List appropriate rating (H, M, L)
   Improve Water Quality: H M L
   Hydrologic: H M L
   Habitat: H M L

   Score Based on Ratings: 7 8 7 Total: 22

2. Category based on SPECIAL CHARACTERISTICS of wetland

<table>
<thead>
<tr>
<th>CHARACTERISTIC</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estuarine</td>
<td></td>
</tr>
<tr>
<td>Wetland of High Conservation Value</td>
<td></td>
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<tr>
<td>Bog</td>
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</tr>
<tr>
<td>Mature Forest</td>
<td></td>
</tr>
<tr>
<td>Old Growth Forest</td>
<td></td>
</tr>
<tr>
<td>Coastal Lagoon</td>
<td></td>
</tr>
<tr>
<td>Interdunal</td>
<td></td>
</tr>
<tr>
<td>None of the above</td>
<td>☑ X</td>
</tr>
</tbody>
</table>
Maps and Figures required to answer questions correctly for Western Washington

### Depressional Wetlands

<table>
<thead>
<tr>
<th>Map of:</th>
<th>To answer questions:</th>
<th>Figure #</th>
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<tbody>
<tr>
<td>Cowardin plant classes</td>
<td>D 1.3, H 1.1, H 1.4</td>
<td>Figure 1</td>
</tr>
<tr>
<td>Hydroperiods</td>
<td>D 1.4, H 1.2</td>
<td>Figure 2</td>
</tr>
<tr>
<td>Location of outlet (can be added to map of hydroperiods)</td>
<td>D 1.1, D 4.1</td>
<td></td>
</tr>
<tr>
<td>Boundary of area within 150 ft of the wetland (can be added to another figure)</td>
<td>D 2.2, D 5.2</td>
<td>Figure 3</td>
</tr>
<tr>
<td>Map of the contributing basin</td>
<td>D 4.3, D 5.3</td>
<td></td>
</tr>
<tr>
<td>1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat</td>
<td>H 2.1, H 2.2, H 2.3</td>
<td>Figure 4</td>
</tr>
<tr>
<td>Screen capture of map of 303(d) listed waters in basin (from Ecology website)</td>
<td>D 3.1, D 3.2</td>
<td>Figure 5</td>
</tr>
<tr>
<td>Screen capture of list of TMDLs for WRIA in which unit is found (from web)</td>
<td>D 3.3</td>
<td></td>
</tr>
</tbody>
</table>

### Riverine Wetlands

<table>
<thead>
<tr>
<th>Map of:</th>
<th>To answer questions:</th>
<th>Figure #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cowardin plant classes</td>
<td>H 1.1, H 1.4</td>
<td></td>
</tr>
<tr>
<td>Hydroperiods</td>
<td>H 1.2</td>
<td></td>
</tr>
<tr>
<td>Ponded depressions</td>
<td>R 1.1</td>
<td></td>
</tr>
<tr>
<td>Boundary of area within 150 ft of the wetland (can be added to another figure)</td>
<td>R 2.4</td>
<td></td>
</tr>
<tr>
<td>Plant cover of trees, shrubs, and herbaceous plants</td>
<td>R 1.2, R 4.2</td>
<td></td>
</tr>
<tr>
<td>Width of unit vs. width of stream (can be added to another figure)</td>
<td>R 4.1</td>
<td></td>
</tr>
<tr>
<td>Map of the contributing basin</td>
<td>R 2.2, R 2.3, R 5.2</td>
<td></td>
</tr>
<tr>
<td>1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat</td>
<td>H 2.1, H 2.2, H 2.3</td>
<td></td>
</tr>
<tr>
<td>Screen capture of map of 303(d) listed waters in basin (from Ecology website)</td>
<td>R 3.1</td>
<td></td>
</tr>
<tr>
<td>Screen capture of list of TMDLs for WRIA in which unit is found (from web)</td>
<td>R 3.2, R 3.3</td>
<td></td>
</tr>
</tbody>
</table>

### Lake Fringe Wetlands

<table>
<thead>
<tr>
<th>Map of:</th>
<th>To answer questions:</th>
<th>Figure #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cowardin plant classes</td>
<td>L 1.1, L 4.1, H 1.1, H 1.4</td>
<td></td>
</tr>
<tr>
<td>Plant cover of trees, shrubs, and herbaceous plants</td>
<td>L 1.2</td>
<td></td>
</tr>
<tr>
<td>Boundary of area within 150 ft of the wetland (can be added to another figure)</td>
<td>L 2.2</td>
<td></td>
</tr>
<tr>
<td>1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat</td>
<td>H 2.1, H 2.2, H 2.3</td>
<td></td>
</tr>
<tr>
<td>Screen capture of map of 303(d) listed waters in basin (from Ecology website)</td>
<td>L 3.1, L 3.2</td>
<td></td>
</tr>
<tr>
<td>Screen capture of list of TMDLs for WRIA in which unit is found (from web)</td>
<td>L 3.3</td>
<td></td>
</tr>
</tbody>
</table>

### Slope Wetlands

<table>
<thead>
<tr>
<th>Map of:</th>
<th>To answer questions:</th>
<th>Figure #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cowardin plant classes</td>
<td>H 1.1, H 1.4</td>
<td></td>
</tr>
<tr>
<td>Hydroperiods</td>
<td>H 1.2</td>
<td></td>
</tr>
<tr>
<td>Plant cover of dense trees, shrubs, and herbaceous plants</td>
<td>S 1.3</td>
<td></td>
</tr>
<tr>
<td>Plant cover of dense, rigid trees, shrubs, and herbaceous plants</td>
<td>S 4.1</td>
<td></td>
</tr>
<tr>
<td>(can be added to another figure)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boundary of area within 150 ft of the wetland (can be added to another figure)</td>
<td>S 2.1, S 5.1</td>
<td></td>
</tr>
<tr>
<td>1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat</td>
<td>H 2.1, H 2.2, H 2.3</td>
<td></td>
</tr>
<tr>
<td>Screen capture of map of 303(d) listed waters in basin (from Ecology website)</td>
<td>S 3.1, S 3.2</td>
<td></td>
</tr>
<tr>
<td>Screen capture of list of TMDLs for WRIA in which unit is found (from web)</td>
<td>S 3.3</td>
<td></td>
</tr>
</tbody>
</table>
HGM Classification of Wetland in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated. If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?
   - ☑ NO - go to 2
   - ☐ YES - the wetland class is Tidal Fringe - go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   - ☑ NO - Saltwater Tidal Fringe (Estuarine)
   - ☐ YES - Freshwater Tidal Fringe

      * If your wetland can be classified as a Freshwater Tidal Fringe use the forms for Riverine wetlands.
      * If it is Saltwater Tidal Fringe it is an Estuarine wetland and is not scored. This method cannot be used to score functions for estuarine wetlands.

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   - ☑ NO - go to 3
   - ☐ YES - The wetland class is Flats

      * If your wetland can be classified as a Flats wetland, use the form for Depressional wetlands.

3. Does the entire wetland unit meet all of the following criteria?
   - ☑ NO - go to 4
   - ☐ YES - The wetland class is Lake Fringe (Lacustrine Fringe)

   * The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   * At least 30% of the open water area is deeper than 6.6 ft (2 m).

4. Does the entire wetland unit meet all of the following criteria?
   - ☑ NO - go to 5
   - ☐ YES - The wetland class is Slope

      * The water leaves the wetland without being impounded.

      * The overbank flooding occurs at least once every 2 years.

      * The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

      * The overbank flooding occurs at least once every 2 years.

   - ☑ NO - go to 6
   - ☐ YES - The wetland class is Riverine

   * The Riverine unit can contain depressions that are filled with water when the river is not flooding.

   NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.
6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7

☑ YES - The wetland class is Depressional

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8

☑ YES - The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.**

**NOTE:** Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

<table>
<thead>
<tr>
<th>HGM classes within the wetland unit being rated</th>
<th>HGM class to use in rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slope + Riverine</td>
<td>Riverine</td>
</tr>
<tr>
<td>Slope + Depressional</td>
<td>Depressional</td>
</tr>
<tr>
<td>Slope + Lake Fringe</td>
<td>Lake Fringe</td>
</tr>
<tr>
<td>Depressional + Riverine along stream within boundary of depression</td>
<td>Depressional</td>
</tr>
<tr>
<td>Depressional + Lake Fringe</td>
<td>Depressional</td>
</tr>
<tr>
<td>Riverine + Lake Fringe</td>
<td>Riverine</td>
</tr>
<tr>
<td>Salt Water Tidal Fringe and any other class of freshwater wetland</td>
<td>Treat as ESTUARINE</td>
</tr>
</tbody>
</table>

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as Depressional for the rating.*

**NOTES and FIELD OBSERVATIONS:**
### DEPRESSIONAL AND FLATS WETLANDS

**Water Quality Functions** - Indicators that the site functions to improve water quality

<table>
<thead>
<tr>
<th>D 1.0. Does the site have the potential to improve water quality?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D 1.1. Characteristics of surface water outflows from the wetland:</strong></td>
</tr>
<tr>
<td>- Wetland is a depression or flat depression (QUESTION 7 on key)</td>
</tr>
<tr>
<td>- with no surface water leaving it (no outlet). points = 3</td>
</tr>
<tr>
<td>- Wetland has an intermittently flowing stream or ditch, OR highly</td>
</tr>
<tr>
<td>- constricted permanently flowing outlet. points = 2</td>
</tr>
<tr>
<td>□ Wetland has an unconstricted, or slightly constricted, surface outlet</td>
</tr>
<tr>
<td>□ that is permanently flowing points = 1</td>
</tr>
<tr>
<td>□ Wetland is a flat depression (QUESTION 7 on key), whose outlet is</td>
</tr>
<tr>
<td>□ a permanently flowing ditch. points = 1</td>
</tr>
<tr>
<td><strong>D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic</strong></td>
</tr>
<tr>
<td>(use NRCS definitions). Yes = 4 No = 0 4</td>
</tr>
</tbody>
</table>
| **D 1.3. Characteristics and distribution of persistent plants** (Emergent, Scrub-shrub, and/or)
| Forested Cowardin classes): |
| - Wetland has persistent, ungrazed, plants > 95% of area points = 5 |
| - Wetland has persistent, ungrazed, plants > ½ of area points = 3 |
| - Wetland has persistent, ungrazed plants > ¹/₁₀ of area points = 1 |
| - Wetland has persistent, ungrazed plants < ¹/₁₀ of area points = 0 |

| D 1.4. Characteristics of seasonal ponding or inundation: |
| This is the area that is ponded for at least 2 months. See description in manual. |
| - Area seasonally ponded is > ½ total area of wetland points = 4 |
| - Area seasonally ponded is > ¼ total area of wetland points = 2 |
| - Area seasonally ponded is < ¼ total area of wetland points = 0 |

Total for D 1 Add the points in the boxes above 13

**Rating of Site Potential** If score is: □ 12 - 16 = H □ 6 - 11 = M □ 0 - 5 = L Record the rating on the first page

<table>
<thead>
<tr>
<th>D 2.0. Does the landscape have the potential to support the water quality function of the site?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D 2.1. Does the wetland unit receive stormwater discharges?</strong></td>
</tr>
<tr>
<td>Yes = 1 No = 0 1</td>
</tr>
<tr>
<td><strong>D 2.2. Is &gt; 10% of the area within 150 ft of the wetland in land uses that</strong></td>
</tr>
<tr>
<td><strong>generate pollutants?</strong></td>
</tr>
<tr>
<td>Yes = 1 No = 0 1</td>
</tr>
<tr>
<td><strong>D 2.3. Are there septic systems within 250 ft of the wetland?</strong></td>
</tr>
<tr>
<td>Yes = 1 No = 0 0</td>
</tr>
<tr>
<td><strong>D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3?</strong></td>
</tr>
<tr>
<td>Source</td>
</tr>
<tr>
<td>Yes = 1 No = 0 0</td>
</tr>
</tbody>
</table>

Total for D 2 Add the points in the boxes above 2

**Rating of Landscape Potential** If score is: □ 3 or 4 = H □ 1 or 2 = M □ 0 = L Record the rating on the first page

<table>
<thead>
<tr>
<th>D 3.0. Is the water quality improvement provided by the site valuable to society?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river,</strong></td>
</tr>
<tr>
<td><strong>lake, or marine water that is on the 303(d) list?</strong></td>
</tr>
<tr>
<td>Yes = 1 No = 0 0</td>
</tr>
<tr>
<td><strong>D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?</strong></td>
</tr>
<tr>
<td>Yes = 1 No = 0 1</td>
</tr>
<tr>
<td><strong>D 3.3. Has the site been identified in a watershed or local plan as important</strong></td>
</tr>
<tr>
<td><strong>for maintaining water quality (answer YES if there is a TMDL for the basin in</strong></td>
</tr>
<tr>
<td><strong>which the unit is found)?</strong></td>
</tr>
<tr>
<td>Yes = 2 No = 0 0</td>
</tr>
</tbody>
</table>

Total for D 3 Add the points in the boxes above 1

**Rating of Value** If score is: □ 2 - 4 = H □ 1 = M □ 0 = L Record the rating on the first page
<table>
<thead>
<tr>
<th><strong>DEPRESSIONAL AND FLATS WETLANDS</strong></th>
<th>Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D 4.0.</strong> Does the site have the potential to reduce flooding and erosion?</td>
<td></td>
</tr>
<tr>
<td><strong>D 4.1.</strong> Characteristics of surface water outflows from the wetland:</td>
<td></td>
</tr>
<tr>
<td>Wetland is a depression or flat depression with no surface water leaving it (no outlet)</td>
<td>points = 4</td>
</tr>
<tr>
<td>Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet</td>
<td>points = 2</td>
</tr>
<tr>
<td>Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch</td>
<td>points = 1</td>
</tr>
<tr>
<td>Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing</td>
<td>points = 0</td>
</tr>
<tr>
<td><strong>D 4.2.</strong> Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.</td>
<td></td>
</tr>
<tr>
<td>Marks of ponding are 3 ft or more above the surface or bottom of outlet</td>
<td>points = 7</td>
</tr>
<tr>
<td>Marks of ponding between 2 ft to &lt; 3 ft from surface or bottom of outlet</td>
<td>points = 5</td>
</tr>
<tr>
<td>Marks are at least 0.5 ft to &lt; 2 ft from surface or bottom of outlet</td>
<td>points = 3</td>
</tr>
<tr>
<td>The wetland is a “headwater” wetland</td>
<td>points = 3</td>
</tr>
<tr>
<td>Wetland is flat but has small depressions on the surface that trap water</td>
<td>points = 1</td>
</tr>
<tr>
<td>Marks of ponding less than 0.5 ft (6 in)</td>
<td>points = 0</td>
</tr>
<tr>
<td><strong>D 4.3.</strong> Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.</td>
<td></td>
</tr>
<tr>
<td>□ The area of the basin is less than 10 times the area of the unit</td>
<td>points = 5</td>
</tr>
<tr>
<td>□ The area of the basin is 10 to 100 times the area of the unit</td>
<td>points = 3</td>
</tr>
<tr>
<td>□ The area of the basin is more than 100 times the area of the unit</td>
<td>points = 0</td>
</tr>
<tr>
<td>□ Entire wetland is in the Flats class</td>
<td>points = 5</td>
</tr>
</tbody>
</table>

**Total for D 4** Add the points in the boxes above **10**

| **Rating of Site Potential** | If score is: [ ] 12 - 16 = H [ ] 6 - 11 = M [ ] 0 - 5 = L | Record the rating on the first page |

| **D 5.0.** Does the landscape have the potential to support hydrologic function of the site? |
| **D 5.1.** Does the wetland unit receive stormwater discharges? | Yes = 1 No = 0 | 1 |
| **D 5.2.** Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff? | Yes = 1 No = 0 | 1 |
| **D 5.3.** Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? | Yes = 1 No = 0 | 1 |

**Total for D 5** Add the points in the boxes above **3**

| **Rating of Landscape Potential** | If score is: [ ] 3 = H [ ] 1 or 2 = M [ ] 0 = L | Record the rating on the first page |

| **D 6.0.** Are the hydrologic functions provided by the site valuable to society? |
| **D 6.1.** The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met. |
| The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): |
| □ Flooding occurs in a sub-basin that is immediately down-gradient of unit. | points = 2 |
| □ Surface flooding problems are in a sub-basin farther down-gradient. | points = 1 |
| □ Flooding from groundwater is an issue in the sub-basin. | points = 1 |
| □ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why. | points = 0 |
| □ There are no problems with flooding downstream of the wetland. | points = 0 |
| **D 6.2.** Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? | Yes = 2 No = 0 | 0 |

**Total for D 6** Add the points in the boxes above **2**

| **Rating of Value** | If score is: [ ] 2 - 4 = H [ ] 1 = M [ ] 0 = L | Record the rating on the first page |
Habitat Functions - Indicators that site functions to provide important habitat

### H 1.0. Does the site have the potential to provide habitat?

**H 1.1. Structure of plant community:** *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. **Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.**

- [ ] Aquatic bed 4 structures or more: points = 4
- [ ] Emergent 3 structures: points = 2
- [ ] Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1
- [ ] Forested (areas where trees have > 30% cover) 1 structure: points = 0

*If the unit has a Forested class, check if:*
- [x] The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

### H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

- [ ] Permanently flooded or inundated 4 or more types present: points = 3
- [ ] Seasonally flooded or inundated 3 types present: points = 2
- [ ] Occasionally flooded or inundated 2 types present: points = 1
- [ ] Saturated only 1 types present: points = 0
- [ ] Permanently flowing stream or river in, or adjacent to, the wetland
- [ ] Seasonally flowing stream in, or adjacent to, the wetland
- [ ] Lake Fringe wetland 2 points
- [ ] Freshwater tidal wetland 2 points

### H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft². *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* **Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle**

- If you counted:  
  - > 19 species points = 2  
  - 5 - 19 species points = 1  
  - < 5 species points = 0

### H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. **If you have four or more plant classes or three classes and open water, the rating is always high.**

- None = 0 points
- Low = 1 point
- Moderate = 2 points
- All three diagrams in this row are HIGH = 3 points
H 1.5. Special habitat features:
Check the habitat features that are present in the wetland. The number of checks is the number of points.

- [ ] Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long)
- [ ] Standing snags (dbh > 4 in) within the wetland
- [ ] Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)
- [ ] Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)
- [ ] At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (structures for egg-laying by amphibians)
- [ ] Invasive plants cover less than 25% of the wetland area in every stratum of plants (see H 1.1 for list of strata)

Total for H 1  
Add the points in the boxes above 15

Rating of Site Potential

<table>
<thead>
<tr>
<th>If Score is:</th>
<th>15 - 18 = H</th>
<th>7 - 14 = M</th>
<th>0 - 6 = L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record the rating on the first page</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

H 2.0. Does the landscape have the potential to support the habitat function of the site?

H 2.1 Accessible habitat (include only habitat that directly abuts wetland unit).

Calculate:

8 % undisturbed habitat + (________ 0 % moderate & low intensity land uses / 2 ) = 8%

If total accessible habitat is:

- > 1/3 (33.3%) of 1 km Polygon: points = 3
- 20 - 33% of 1 km Polygon: points = 2
- 10 - 19% of 1 km Polygon: points = 1
- < 10 % of 1 km Polygon: points = 0

H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.

Calculate:

13 % undisturbed habitat + (________ 0 % moderate & low intensity land uses / 2 ) = 13%

- Undisturbed habitat > 50% of Polygon: points = 3
- Undisturbed habitat 10 - 50% and in 1-3 patches: points = 2
- Undisturbed habitat 10 - 50% and > 3 patches: points = 1
- Undisturbed habitat < 10% of 1 km Polygon: points = 0

H 2.3 Land use intensity in 1 km Polygon: If

- > 50% of 1 km Polygon is high intensity land use: points = (-2)
- ≤ 50% of 1 km Polygon is high intensity: points = 0

Total for H 2  
Add the points in the boxes above -1

Rating of Landscape Potential

<table>
<thead>
<tr>
<th>If Score is:</th>
<th>4 - 6 = H</th>
<th>1 - 3 = M</th>
<th>&lt; 1 = L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record the rating on the first page</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

H 3.0. Is the habitat provided by the site valuable to society?

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose only the highest score that applies to the wetland being rated.

Site meets ANY of the following criteria:

- [ ] It has 3 or more priority habitats within 100 m (see next page)
- [ ] It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
- [ ] It is mapped as a location for an individual WDFW priority species
- [ ] It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
- [ ] It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan
- [ ] Site has 1 or 2 priority habitats (listed on next page) with in 100m
- [ ] Site does not meet any of the criteria above

Rating of Value

<table>
<thead>
<tr>
<th>If Score is:</th>
<th>2 = H</th>
<th>1 = M</th>
<th>0 = L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record the rating on the first page</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
WDFW Priority Habitats


Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE**: This question is independent of the land use between the wetland unit and the priority habitat.

- **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

- **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (full descriptions in WDFW PHS report).

- **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.

- **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

- **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158 – see web link above).

- **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

- **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (full descriptions in WDFW PHS report p. 161 – see web link above).

- **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

- **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).

- **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

- **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

- **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

- **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

**Note**: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.
**Wetland Type**  
*Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*

<table>
<thead>
<tr>
<th>SC 1.0. Estuarine Wetlands</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Does the wetland meet the following criteria for Estuarine wetlands?</td>
<td></td>
</tr>
<tr>
<td>☐ The dominant water regime is tidal,</td>
<td></td>
</tr>
<tr>
<td>☐ Vegetated, and</td>
<td></td>
</tr>
<tr>
<td>☐ With a salinity greater than 0.5 ppt</td>
<td></td>
</tr>
<tr>
<td>☑ Yes - Go to SC 1.1 ☐ No = Not an estuarine wetland</td>
<td></td>
</tr>
</tbody>
</table>

**SC 1.1.** Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?  
☑ Yes = **Category I** ☐ No - Go to SC 1.2

**SC 1.2.** Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?  
☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25)  
☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.  
☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.  
☑ Yes = **Category I** ☐ No = **Category II**

**SC 2.0. Wetlands of High Conservation Value (WHCV)**

**SC 2.1.** Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?  
☐ Yes - Go to SC 2.2 ☐ No - Go to SC 2.3

**SC 2.2.** Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?  
☑ Yes = **Category I** ☐ No = Not WHCV

**SC 2.3.** Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?  
☐ Yes - Contact WNHP/WDNR and to SC 2.4 ☐ No = Not WHCV

**SC 2.4.** Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website?  
☑ Yes = **Category I** ☐ No = Not WHCV

**SC 3.0. Bogs**

Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below. If you answer YES you will still need to rate the wetland based on its functions.*

**SC 3.1.** Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile?  
☐ Yes - Go to SC 3.3 ☐ No - Go to SC 3.2

**SC 3.2.** Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?  
☐ Yes - Go to SC 3.3 ☐ No = Is not a bog

**SC 3.3.** Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4?  
☐ Yes = **Is a Category I bog** ☐ No - Go to SC 3.4

**NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.

**SC 3.4.** Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?  
☐ Yes = **Is a Category I bog** ☐ No = Is not a bog
### SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife’s forests as priority habitats? If you answer YES you will still need to rate the wetland based on its functions.

- **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.
- **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

[ ] Yes = Category I  [ ] No = Not a forested wetland for this section

### SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

- The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks.
- The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (needs to be measured near the bottom).

[ ] Yes - Go to SC 5.1  [ ] No = Not a wetland in a coastal lagoon

### SC 5.1. Does the wetland meet all of the following three conditions?

- The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).
- At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or ungrazed or un-mowed grassland.
- The wetland is larger than \( \frac{1}{10} \) ac (4350 ft²)

[ ] Yes = Category I  [ ] No - Go to SC 6.2

### SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? If you answer yes you will still need to rate the wetland based on its habitat functions.

In practical terms that means the following geographic areas:

- Long Beach Peninsula: Lands west of SR 103
- Grayland-Westport: Lands west of SR 105
- Ocean Shores-Copalis: Lands west of SR 115 and SR 109

[ ] Yes - Go to SC 6.1  [ ] No = Not an interdunal wetland for rating

### SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

[ ] Yes = Category I  [ ] No - Go to SC 6.2

### SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

[ ] Yes = Category II  [ ] No - Go to SC 6.3

### SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

[ ] Yes = Category III  [ ] No = Category IV

**Category of wetland based on Special Characteristics**

If you answered No for all types, enter “Not Applicable” on Summary Form
**Figure 1:** Cowardin Plant Classes (D 1.3, H1.1, H1.4)
Red = PFO; Blue = PSS; Green = PEM; Purple = Aquatic Bed
Figure 2: Hydroperiods (D 1.4, H 1.2)
Blue = Permanently flooded, Green = Seasonally saturated, Red = Saturated, Purple = Seasonally flowing stream
Figure 3: Area within 150 feet of buffer (D 2.2, D 5.2)
Figure 5: 1 km Polygon (H 2.1, H 2.2, H2.3)
Blue = Accessible Habitat, Orange = Undisturbed Habitat
Figure 6: Map of 303(d) listed waters in basin (D3.1, D 3.2)
Wetland name or number: Totem Lake

RATING SUMMARY – Western Washington

Name of wetland: Totem Lake  Date of site visit: 4/26/2017
Rated by: Kahlo, R  Trained by Ecology? ☒ Y ☐ N  Date of training: 09/2014

HGM Class used for rating: Depressional  Wetland has multiple HGM classes? ☒ Y ☐ N

NOTE: Form is not complete without the figures requested (figures can be combined).
Source of base aerial photo/map: King County iMAP

OVERALL WETLAND CATEGORY (based on functions ☒ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS
   ☐ Category I – Total score = 23 - 27
   ☒ Category II – Total score = 20 - 22
   ☐ Category III – Total score = 16 - 19
   ☐ Category IV – Total score = 9 - 15

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>Improving Water Quality</th>
<th>Hydrologic</th>
<th>Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Potential</td>
<td>H H L</td>
<td>H H L</td>
<td>H M L</td>
</tr>
<tr>
<td>Landscape Potential</td>
<td>H H L</td>
<td>H H L</td>
<td>H M L</td>
</tr>
<tr>
<td>Value</td>
<td>H M L</td>
<td>H M L</td>
<td>H M L</td>
</tr>
<tr>
<td>Score Based on Ratings</td>
<td>7 8 6</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

2. Category based on SPECIAL CHARACTERISTICS of wetland

<table>
<thead>
<tr>
<th>CHARACTERISTIC</th>
<th>CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estuarine</td>
<td>I II</td>
</tr>
<tr>
<td>Wetland of High Conservation Value</td>
<td>I</td>
</tr>
<tr>
<td>Bog</td>
<td>I</td>
</tr>
<tr>
<td>Mature Forest</td>
<td>I</td>
</tr>
<tr>
<td>Old Growth Forest</td>
<td>I</td>
</tr>
<tr>
<td>Coastal Lagoon</td>
<td>I II</td>
</tr>
<tr>
<td>Interdunal</td>
<td>I II III IV</td>
</tr>
<tr>
<td>None of the above</td>
<td>☒</td>
</tr>
</tbody>
</table>
Wetland name or number: Totem Lake

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

<table>
<thead>
<tr>
<th>Map of:</th>
<th>To answer questions:</th>
<th>Figure #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cowardin plant classes</td>
<td>D 1.3, H 1.1, H 1.4</td>
<td>1</td>
</tr>
<tr>
<td>Hydroperiods</td>
<td>D 1.4, H 1.2</td>
<td>2</td>
</tr>
<tr>
<td>Location of outlet (can be added to map of hydroperiods)</td>
<td>D 1.1, D 4.1</td>
<td>2</td>
</tr>
<tr>
<td>Boundary of area within 150 ft of the wetland (can be added to another figure)</td>
<td>D 2.2, D 5.2</td>
<td>2</td>
</tr>
<tr>
<td>Map of the contributing basin</td>
<td>D 4.3, D 5.3</td>
<td>3</td>
</tr>
<tr>
<td>1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat</td>
<td>H 2.1, H 2.2, H 2.3</td>
<td>4</td>
</tr>
<tr>
<td>Screen capture of map of 303(d) listed waters in basin (from Ecology website)</td>
<td>D 3.1, D 3.2</td>
<td>4</td>
</tr>
<tr>
<td>Screen capture of list of TMDLs for WRIA in which unit is found (from web)</td>
<td>D 3.3</td>
<td>6</td>
</tr>
</tbody>
</table>
Wetland name or number: Totem Lake

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?
   ☒ NO – go to 2
   ☐ YES – the wetland class is Tidal Fringe – go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   NO – Saltwater Tidal Fringe (Estuarine)  YES – Freshwater Tidal Fringe
   If your wetland can be classified as a Freshwater Tidal Fringe use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe it is an Estuarine wetland and is not scored. This method cannot be used to score functions for estuarine wetlands.

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   ☒ NO – go to 3
   ☐ YES – The wetland class is Flats
   If your wetland can be classified as a Flats wetland, use the form for Depressional wetlands.

3. Does the entire wetland unit meet all of the following criteria?
   ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ☒ At least 30% of the open water area is deeper than 6.6 ft (2 m).
   ☒ NO – go to 4
   ☐ YES – The wetland class is Lake Fringe (Lacustrine Fringe)

4. Does the entire wetland unit meet all of the following criteria?
   ☐ The wetland is on a slope (slope can be very gradual),
   ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ☐ The water leaves the wetland without being impounded.
   ☒ NO – go to 5
   ☐ YES – The wetland class is Slope
   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit meet all of the following criteria?
   ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ☐ The overbank flooding occurs at least once every 2 years.
Wetland name or number: Totem Lake

☒ NO – go to 6

☐ YES – The wetland class is Riverine

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? This means that any outlet, if present, is higher than the interior of the wetland.

☐ NO – go to 7

☒ YES – The wetland class is Depressional

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO – go to 8

☒ YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

<table>
<thead>
<tr>
<th>HGM classes within the wetland unit being rated</th>
<th>HGM class to use in rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slope + Riverine</td>
<td>Riverine</td>
</tr>
<tr>
<td>Slope + Depressional</td>
<td>Depressional</td>
</tr>
<tr>
<td>Slope + Lake Fringe</td>
<td>Lake Fringe</td>
</tr>
<tr>
<td>Depressional + Riverine along stream within boundary of depression</td>
<td>Depressional</td>
</tr>
<tr>
<td>Depressional + Lake Fringe</td>
<td>Depressional</td>
</tr>
<tr>
<td>Riverine + Lake Fringe</td>
<td>Riverine</td>
</tr>
<tr>
<td>Salt Water Tidal Fringe and any other class of freshwater wetland</td>
<td>Treat as ESTUARINE</td>
</tr>
</tbody>
</table>

If you are still unable to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as Depressional for the rating.
**DEPRESSIONAL AND FLATS WETLANDS**

**Water Quality Functions** - Indicators that the site functions to improve water quality

<table>
<thead>
<tr>
<th>D 1.0. Does the site have the potential to improve water quality?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D 1.1. Characteristics of surface water outflows from the wetland:</strong></td>
</tr>
<tr>
<td>Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet).</td>
</tr>
<tr>
<td>Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet.</td>
</tr>
<tr>
<td>Wetland has an unconfined, or slightly confined, surface outlet that is permanently flowing. Points = 1</td>
</tr>
<tr>
<td>Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.</td>
</tr>
<tr>
<td><strong>D 1.2. The soil in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). Yes = 4  No = 0</strong></td>
</tr>
<tr>
<td><strong>D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes):</strong></td>
</tr>
<tr>
<td>Wetland has persistent, ungrazed, plants &gt; 95% of area</td>
</tr>
<tr>
<td>Wetland has persistent, ungrazed, plants &gt; 1/2 of area</td>
</tr>
<tr>
<td>Wetland has persistent, ungrazed plants &gt; 1/10 of area</td>
</tr>
<tr>
<td>Wetland has persistent, ungrazed plants &lt; 1/10 of area</td>
</tr>
<tr>
<td><strong>D 1.4. Characteristics of seasonal ponding or inundation:</strong></td>
</tr>
<tr>
<td><em>This is the area that is ponded for at least 2 months. See description in manual.</em></td>
</tr>
<tr>
<td>Area seasonally ponded is &gt; ½ total area of wetland</td>
</tr>
<tr>
<td>Area seasonally ponded is &gt; ¼ total area of wetland <em>(mostly permanently ponded)</em></td>
</tr>
<tr>
<td>Area seasonally ponded is &lt; ¼ total area of wetland</td>
</tr>
<tr>
<td><strong>Total for D 1</strong></td>
</tr>
</tbody>
</table>

**Rating of Site Potential** If score is: ☐ 12-16 = H ☒ 6-11 = M ☐ 0-5 = L *Record the rating on the first page*

<table>
<thead>
<tr>
<th>D 2.0. Does the landscape have the potential to support the water quality function of the site?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D 2.1. Does the wetland unit receive stormwater discharges?</strong></td>
</tr>
<tr>
<td><strong>D 2.2. Is &gt; 10% of the area within 150 ft of the wetland in land uses that generate pollutants?</strong></td>
</tr>
<tr>
<td><strong>D 2.3. Are there septic systems within 250 ft of the wetland?</strong></td>
</tr>
<tr>
<td><strong>D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3?</strong></td>
</tr>
<tr>
<td><strong>Source: Waterfowl</strong></td>
</tr>
<tr>
<td><strong>Total for D 2</strong></td>
</tr>
</tbody>
</table>

**Rating of Landscape Potential** If score is: ☐ 3 or 4 = H ☒ 1 or 2 = M ☐ 0 = L *Record the rating on the first page*

<table>
<thead>
<tr>
<th>D 3.0. Is the water quality improvement provided by the site valuable to society?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?</strong></td>
</tr>
<tr>
<td><strong>D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?</strong></td>
</tr>
<tr>
<td><strong>D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin in which the unit is found)?</strong></td>
</tr>
<tr>
<td><strong>Total for D 3</strong></td>
</tr>
</tbody>
</table>

**Rating of Value** If score is: ☐ 2-4 = H ☒ 1 = M ☐ 0 = L *Record the rating on the first page*
**DEPRESSIONAL AND FLATS WETLANDS**

### Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

**D 4.0. Does the site have the potential to reduce flooding and erosion?**

**D 4.1. Characteristics of surface water outflows from the wetland:**
- Wetland is a depression or flat depression with no surface water leaving it (no outlet)  
  points = 4
- Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet  
  points = 2
- Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch  
  points = 1
- Wetland has an unconfined, or slightly constricted, surface outlet that is permanently flowing  
  points = 0

**D 4.2. Depth of storage during wet periods:**
- Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.
  - Marks of ponding are 3 ft or more above the surface or bottom of outlet  
    points = 7
  - Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet  
    points = 5
  - Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet  
    points = 3
  - The wetland is a “headwater” wetland  
    points = 3
  - Wetland is flat but has small depressions on the surface that trap water  
    points = 1
  - Marks of ponding less than 0.5 ft (6 in)  
    points = 0

**D 4.3. Contribution of the wetland to storage in the watershed:**
- Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.
  - The area of the basin is less than 10 times the area of the unit  
    points = 5
  - The area of the basin is 10 to 100 times the area of the unit  
    points = 3
  - The area of the basin is more than 100 times the area of the unit  
    points = 0
  - Entire wetland is in the Flats class  
    points = 5

Total for D 4: Add the points in the boxes above  10

**Rating of Site Potential**
- If score is: ☒ 12-16 = H ☒ 6-11 = M ☒ 0-5 = L
- Record the rating on the first page

**D 5.0. Does the landscape have the potential to support hydrologic functions of the site?**

**D 5.1. Does the wetland receive stormwater discharges?**
- Yes = 1  
  No = 0

**D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff?**
- Yes = 1  
  No = 0

**D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?**
- Yes = 1  
  No = 0

Total for D 5: Add the points in the boxes above  3

**Rating of Landscape Potential**
- If score is: ☒ 3 = H ☒ 1 or 2 = M ☒ 0 = L
- Record the rating on the first page

**D 6.0. Are the hydrologic functions provided by the site valuable to society?**

**D 6.1. The unit is in a landscape that has flooding problems.**
- Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.
  - The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):
    - Flooding occurs in a sub-basin that is immediately down-gradient of unit.  
      points = 2
    - Surface flooding problems are in a sub-basin farther down-gradient.  
      points = 1
    - Flooding from groundwater is an issue in the sub-basin.  
      points = 1
  - The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. *Explain why______________*  
    points = 0
  - There are no problems with flooding downstream of the wetland.  
    points = 0

**D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?**
- Yes = 2  
  No = 0

Total for D 6: Add the points in the boxes above  4

**Rating of Value**
- If score is: ☒ 2-4 = H ☒ 1 = M ☒ 0 = L
- Record the rating on the first page

---

Wetland name or number: Totem Lake
Wetland name or number: Totem Lake

### These questions apply to wetlands of all HGM classes.

#### HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

<table>
<thead>
<tr>
<th>H 1.0. Does the site have the potential to provide habitat?</th>
</tr>
</thead>
<tbody>
<tr>
<td>H 1.1. Structure of plant community: Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.</td>
</tr>
<tr>
<td>☒ Aquatic bed</td>
</tr>
<tr>
<td>☐ Emergent</td>
</tr>
<tr>
<td>☒ Scrub-shrub (areas where shrubs have &gt; 30% cover)</td>
</tr>
<tr>
<td>☒ Forested (areas where trees have &gt; 30% cover)</td>
</tr>
<tr>
<td>If the unit has a Forested class, check if:</td>
</tr>
<tr>
<td>☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon</td>
</tr>
<tr>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>H 1.2. Hydroperiods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (see text for descriptions of hydroperiods).</td>
</tr>
<tr>
<td>☒ Permanently flooded or inundated</td>
</tr>
<tr>
<td>☐ Seasonally flooded or inundated</td>
</tr>
<tr>
<td>☐ Occasionally flooded or inundated (less than 10% or 1/4-acre; steep banks)</td>
</tr>
<tr>
<td>☐ Saturated only (less than 10% or 1/4-acre; steep fill-slope banks)</td>
</tr>
<tr>
<td>☐ Permanently flowing stream or river in, or adjacent to, the wetland</td>
</tr>
<tr>
<td>☐ Seasonally flowing stream in, or adjacent to, the wetland</td>
</tr>
<tr>
<td>☐ Lake Fringe wetland (does not meet definition of a shoreline lake)</td>
</tr>
<tr>
<td>☐ Freshwater tidal wetland</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>H 1.3. Richness of plant species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count the number of plant species in the wetland that cover at least 10 ft².</td>
</tr>
<tr>
<td>Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.</td>
</tr>
<tr>
<td>If you counted: &gt; 19 species</td>
</tr>
<tr>
<td>5 - 19 species</td>
</tr>
<tr>
<td>&lt; 5 species</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>H 1.4. Interspersion of habitats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. If you have four or more plant classes or three classes and open water, the rating is always high.</td>
</tr>
<tr>
<td>All three diagrams in this row are HIGH = 3 points</td>
</tr>
</tbody>
</table>

---

Wetland Rating System for Western WA: 2014 Update
Rating Form – Effective January 1, 2015
### H 1.5. Special habitat features:

Check the habitat features that are present in the wetland. *The number of checks is the number of points.*

<table>
<thead>
<tr>
<th>Feature Description</th>
<th>Rating</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>☒ Large, downed, woody debris within the wetland (&gt; 4 in diameter and 6 ft long).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☒ Standing snags (dbh &gt; 4 in) within the wetland</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>☒ Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt; 30 degree slope) OR signs of recent beaver activity are present <em>(cut shrubs or trees that have not yet weathered where wood is exposed)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>☒ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated <em>(structures for egg-laying by amphibians)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>☒ Invasive plants cover less than 25% of the wetland area in every stratum of plants <em>(see H 1.1 for list of strata)</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total for H 1: Add the points in the boxes above 14

### H 2.0. Does the landscape have the potential to support the habitat functions of the site?

#### H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).

*Calculate:* % undisturbed habitat: \( 4 + \left( \frac{\% \text{ moderate and low intensity land uses}}{2} \right) \) : 0 = 4% If total accessible habitat is:

- > 1/3 (33.3%) of 1 km Polygon, points = 3 0
- 20-33% of 1 km Polygon, points = 2 0
- 10-19% of 1 km Polygon, points = 1 0
- < 10% of 1 km Polygon, points = 0 0

Total for H 2: Add the points in the boxes above -2

#### H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.

*Calculate:* % undisturbed habitat: \( 7 + \left( \frac{\% \text{ moderate and low intensity land uses}}{2} \right) \) : 0 = 7%

- Undisturbed habitat > 50% of Polygon, points = 3 0
- Undisturbed habitat 10-50% and in 1 to 3 patches, points = 2 0
- Undisturbed habitat 10-50% and > 3 patches, points = 1 0
- Undisturbed habitat < 10% of 1 km Polygon, points = 0 0

#### H 2.3. Land use intensity in 1 km Polygon: If

- > 50% of 1 km Polygon is high intensity land use, points = (-2) -2
- ≤ 50% of 1 km Polygon is high intensity, points = 0 0

Total for H 2: Add the points in the boxes above -2

### H 3.0. Is the habitat provided by the site valuable to society?

#### H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose only the highest score that applies to the wetland being rated.

Site meets ANY of the following criteria:

- ☒ It has 3 or more priority habitats within 100 m (see next page) points = 2
- ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) points = 2
- ☐ It is mapped as a location for an individual WDFW priority species points = 2
- ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources points = 2
- ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan points = 2
- Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1
- Site does not meet any of the criteria above points = 0

Rating of Value: If score is: ☒2 = H ☐1 = M ☐0 = L Record the rating on the first page

Wetland Rating System for Western WA: 2014 Update
Rating Form – Effective January 1, 2015
Wetland name or number: Totem Lake

**WDFW Priority Habitats**


Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** This question is independent of the land use between the wetland unit and the priority habitat.

☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (full descriptions in WDFW PHS report).

☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

☐ **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ ac (20 trees/ ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

☐ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158 – see web link above).

☒ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (full descriptions in WDFW PHS report p. 161 – see web link above).

☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).

☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

☐ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation /use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

**Note:** All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.
### Wetland name or number: Totem Lake

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Wetland Type</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SC 0. Estuarine wetlands</strong></td>
<td></td>
</tr>
<tr>
<td>Does the wetland meet the following criteria for Estuarine wetlands?</td>
<td></td>
</tr>
<tr>
<td>☐ The dominant water regime is tidal,</td>
<td></td>
</tr>
<tr>
<td>☐ Vegetated, and</td>
<td></td>
</tr>
<tr>
<td>☐ With a salinity greater than 0.5 ppt</td>
<td>☐ Yes – Go to <strong>SC 1.1</strong> ☒ No = <strong>Not an estuarine wetland</strong></td>
</tr>
<tr>
<td><strong>SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-157?</strong></td>
<td>Cat. I</td>
</tr>
<tr>
<td>☐ Yes = <strong>Category I</strong> ☒ No - Go to <strong>SC 1.2</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?</strong></td>
<td>Cat. I, Cat. II</td>
</tr>
<tr>
<td>☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are Spartina, see page 25)</td>
<td></td>
</tr>
<tr>
<td>☐ At least ½ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</td>
<td></td>
</tr>
<tr>
<td>☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.</td>
<td>☐ Yes = <strong>Category I</strong> ☒ No = <strong>Category II</strong></td>
</tr>
<tr>
<td><strong>SC 2.0. Wetlands of High Conservation Value (WHCV)</strong></td>
<td></td>
</tr>
<tr>
<td>SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?</td>
<td>☐ Yes – Go to <strong>SC 2.2</strong> ☒ No – Go to <strong>SC 2.3</strong></td>
</tr>
<tr>
<td>SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?</td>
<td>☐ Yes = <strong>Category I</strong> ☒ No = <strong>Not a WHCV</strong></td>
</tr>
<tr>
<td>SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?</td>
<td>☐ Yes – Contact WNHP/WDNR and go to <strong>SC 2.4</strong> ☒ No = <strong>Not a WHCV</strong></td>
</tr>
<tr>
<td>SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website?</td>
<td>☐ Yes = <strong>Category I</strong> ☒ No = <strong>Not a WHCV</strong></td>
</tr>
<tr>
<td><strong>SC 3.0. Bogs</strong></td>
<td></td>
</tr>
<tr>
<td>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <em>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</em></td>
<td></td>
</tr>
<tr>
<td>SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile?</td>
<td>☒ Yes – Go to <strong>SC 3.3</strong> ☐ No – Go to <strong>SC 3.2</strong></td>
</tr>
<tr>
<td>SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?</td>
<td>☐ Yes – Go to <strong>SC 3.3</strong> ☒ No = <strong>Is not a bog</strong></td>
</tr>
<tr>
<td>SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4?</td>
<td>☐ Yes = <strong>Is a Category I bog</strong> ☒ No – Go to <strong>SC 3.4</strong></td>
</tr>
<tr>
<td><strong>NOTE:</strong> If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.</td>
<td></td>
</tr>
<tr>
<td>SC 3.4. Is an area with peats or mucks forested (&gt; 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?</td>
<td>☐ Yes = <strong>Is a Category I bog</strong> ☒ No = <strong>Is not a bog</strong></td>
</tr>
</tbody>
</table>
## SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife’s forests as priority habitats? *If you answer YES you will still need to rate the wetland based on its functions.*

- Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.
- Mature forests (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

- Yes = **Category I**  □ No = **Not a forested wetland for this section**

## SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

- The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks
- The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

- Yes – Go to **SC 5.1**  □ No = **Not a wetland in a coastal lagoon**

### SC 5.1. Does the wetland meet all of the following three conditions?

- The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).
- At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.
- The wetland is larger than ¼ ac (4350 ft²)

- Yes = **Category I**  □ No = **Category II**

## SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? *If you answer yes you will still need to rate the wetland based on its habitat functions.*

In practical terms that means the following geographic areas:

- Long Beach Peninsula: Lands west of SR 103
- Grayland-Westport: Lands west of SR 105
- Ocean Shores-Copalis: Lands west of SR 115 and SR 109

- Yes – Go to **SC 6.1**  □ No = **not an interdunal wetland for rating**

### SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

- Yes = **Category I**  □ No – Go to **SC 6.2**

### SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

- Yes = **Category II**  □ No – Go to **SC 6.3**

### SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

- Yes = **Category III**  □ No = **Category IV**

## Category of wetland based on Special Characteristics

If you answered No for all types, enter “Not Applicable” on Summary Form

**NA**
Appendix [ ] — ECY 2014 Wetland Rating Form: Depressional figures

Figure 1. Cowardin plant classes - D1.3, H1.1, H1.4

Figure 2. Hydrology: hydroperiods, outlets, and 150ft buffer - D1.1, D1.4, D4.1, H1.2, D2.2, D5.2

Figure 3. Contributing upland basin to wetland area - D4.3, D5.3

Figure 4. Accessible and undisturbed habitat 1km from wetland edge - H2.1, H2.2, H2.3

Figure 5. Screen-capture of 303(d) listed waters in basin - D3.1, D3.2

Figure 6. Screen-capture of TMDL list for WRIA - D3.3

Resources and Links:

City of Kirkland GIS
King County i-Map
Google Earth
ECY 303(d) list
TMDL list
Figure 1. Cowardin plant classes - D1.3, H1.1, H1.4

Note: Boundaries depicted may not be to scale. They are sketches based on available data and best professional judgment.
Figure 2. Hydrology: hydroperiods, outlets, and 150ft buffer - D1.1, D1.4, D4.1, H1.2, D2.2, D5.2

**Note:** Boundaries depicted may not be to scale. They are sketches based on available data and best professional judgment.
Figure 3. Contributing upland basin to wetland area - D4.3, D5.3

Note: Boundaries depicted may not be to scale. They are sketches based on available data and best professional judgment.

Figure 4. Accessible and undisturbed habitat 1km from wetland edge - H2.1, H2.2, H2.3

LEGEND
- Wetland unit
- Approx. basin boundary
Note: Boundaries depicted may not be to scale. They are sketches based on available data and best professional judgment.
Figure 5. Screen-capture of 303(d) listed waters in basin - D3.1, D3.2

Wetland A
Figure 6. Screen-capture of TMDL list for WRIA in which unit is found - D3.3
Appendix D:
Wetland Determination Data Sheets
**WETLAND DETERMINATION DATA FORM** – Western Mountains, Valleys, and Coast Region

**Project/Site:**  
**City/County:**  
**State:**  
**Sampling Date:**  
**Applicant/Owner:**  
**Section, Township, Range:**  
**Landform (hillslope, terrace, etc.):**  
**Local relief (concave, convex, (none):**  
**Slope (%):**  
**Subregion (LRR):**  
**Lat:**  
**Long:**  
**Datum:**  
**Soil Map Unit Name:**  
**NWI classification:**  
**Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☐**  
**Are Vegetation, Soil, or Hydrology significantly disturbed?**  
**Are “Normal Circumstances” present? Yes ☐ No ☐**  
**Are Vegetation, Soil, or Hydrology naturally problematic?**  

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes ☐ No ☐</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes ☐ No ☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes ☐ No ☐</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes ☐ No ☐</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**

### VEGETATION – Use scientific names of plants.

#### Tree Stratum (Plot size: 5m)

<table>
<thead>
<tr>
<th>Tree</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td>Y</td>
<td>FAC</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td>Y</td>
<td>FAC</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td>Y</td>
<td>FAC</td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td>Y</td>
<td>FAC</td>
</tr>
</tbody>
</table>

Total Cover = 60

#### Sapling/Shrub Stratum (Plot size: 3m)

<table>
<thead>
<tr>
<th>Plant</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td>Y</td>
<td>FAC</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td>Y</td>
<td>FAC</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td>Y</td>
<td>FAC</td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td>Y</td>
<td>FAC</td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td>Y</td>
<td>FAC</td>
</tr>
</tbody>
</table>

Total Cover = 90

#### Herb Stratum (Plot size: 1m)

<table>
<thead>
<tr>
<th>Plant</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td>Y</td>
<td>FAC</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td>Y</td>
<td>FAC</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td>Y</td>
<td>FAC</td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td>Y</td>
<td>FAC</td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td>Y</td>
<td>FAC</td>
</tr>
</tbody>
</table>

Total Cover = 10

#### Woody Vine Stratum (Plot size:)

<table>
<thead>
<tr>
<th>Plant</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td>Y</td>
<td>FAC</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td>Y</td>
<td>FAC</td>
</tr>
</tbody>
</table>

Total Cover = 90

### Dominance Test worksheet:

- Number of Dominant Species That Are OBL, FACW, or FAC: 5
- Total Number of Dominant Species Across All Strata: 5
- Percent of Dominant Species That Are OBL, FACW, or FAC: 100

### Prevalence Index worksheet:

- Total % Cover of OBL species: $x1 = \_\_\_\_\_\_
- Total % Cover of FACW species: $x2 = \_\_\_\_\_
- Total % Cover of FAC species: $x3 = \_\_\_\_\_
- Total % Cover of FACU species: $x4 = \_\_\_\_
- Total % Cover of UPL species: $x5 = \_\_\_\_\_

Prevalence Index = $B/A = \_\_\_\_\_

### Hydrophytic Vegetation Indicators:

- Rapid Test for Hydrophytic Vegetation
- Dominance Test is >50%
- Prevalence Index is ≤3.0
- Morphological Adaptations
- Wetland Non-Vascular Plants
- Problematic Hydrophytic Vegetation

% Bare Ground in Herb Stratum

**Remarks:**
### SOIL

**Profile Description:** (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Color (moist)</th>
<th>%</th>
<th>Type</th>
<th>Loc</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-8</td>
<td>10YR 6/2</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Clay loam, roots</td>
</tr>
<tr>
<td>7-18</td>
<td>10YR 6/2</td>
<td>60</td>
<td>10YR 6/8</td>
<td>40</td>
<td>M</td>
<td></td>
<td></td>
<td>Sandy loam</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.*

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Eutric (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)

**Indicators for Problematic Hydric Soils:**

- [ ] 2 cm Muck (A10)
- [ ] Red Parent Material (TF2)
- [ ] Very Shallow Dark Surface (TF12)
- [ ] Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.*

**Restrictive Layer (if present):**

- Type: 
  - Depth (inches): 

**Remarks:**

- Hydric Soil Present? Yes ☑ No ☐

### HYDROLOGY

**Wetland Hydrology Indicators:**

Primary indicators (minimum of one required; check all that apply)

- [ ] Surface Water (A1)
- [x] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Sparcely Vegetated Concave Surface (B8)

Secondary indicators (2 or more required)

- [ ] Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- [ ] Salt Crust (B11)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Stunted or Stressed Plants (D1) (LRR A)
- [ ] Other (Explain in Remarks)

**Secondary Indicators (2 or more required):**

- [ ] Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- [ ] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Saturation Visible on Aerial Imagery (C3)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D6)
- [ ] Raised Ant Mounds (D6) (LRR A)
- [ ] Frost-Heave Hummocks (D7)

**Field Observations:**

- Surface Water Present? Yes ☑ No ☐ Depth (inches): 
- Water Table Present? Yes ☑ No ☐ Depth (inches): 18
- Saturation Present? Yes ☑ No ☐ Depth (inches): 

**Wetland Hydrology Present?** Yes ☑ No ☐

**Remarks:**

Soils noted in lower layer, likely saturated in spring season. Surface ponding present, 10' of DP.
WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site:Totem Lake Park City/County: KIRKLAND Sampling Date: 15/16
Applicant/Owner: CITY OF KIRKLAND State: WA Sampling Point: DR-2
Investigator(s): IL & JR Section, Township, Range: S28 T26N R5E
Landform (hillslope, terrace, etc.): Local relief (concave, convex, none) Slope (%):
Subregion (LRR): Lat: 47°42'39.82" Long: 122°10'33.79" Datum:
Soil Map Unit Name: SEATTLE MUCK NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☐ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☐
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes ☐ No ☐</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes ☐ No ☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes ☐ No ☐</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes ☐ No ☐</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remarks:

VEGETATION – Use scientific names of plants.

### Tree Stratum (Plot size: 5m)

<table>
<thead>
<tr>
<th>Species</th>
<th>% Cover</th>
<th>Dominant Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROBA</td>
<td>30</td>
<td>FAC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Cover</td>
</tr>
</tbody>
</table>

### Sapling/Shrub Stratum (Plot size: 3m)

<table>
<thead>
<tr>
<th>Species</th>
<th>% Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>RONU</td>
<td>5</td>
</tr>
<tr>
<td>THPL (Planted)</td>
<td>20</td>
</tr>
<tr>
<td>PISI (Planted)</td>
<td>10</td>
</tr>
<tr>
<td>RUAR</td>
<td>3</td>
</tr>
<tr>
<td>RUP</td>
<td>5</td>
</tr>
<tr>
<td>SVAL</td>
<td>15</td>
</tr>
<tr>
<td>V2L</td>
<td>92</td>
</tr>
<tr>
<td>Herb Stratum (Plot size:1m)</td>
<td>Total Cover</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

### Woody Vine Stratum (Plot size: )

<table>
<thead>
<tr>
<th>Species</th>
<th>% Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0
- ☐ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Hydrophytic Vegetation Present? Yes ☐ No ☐

Hydrophytic Vegetation Present?

Remarks:
SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Color (moist)</th>
<th>%</th>
<th>Type</th>
<th>Loc</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10</td>
<td>1NYR 24</td>
<td>10</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td></td>
<td>LOAM</td>
<td></td>
</tr>
<tr>
<td>10-15</td>
<td>1NYR 52</td>
<td>50</td>
<td>1NYR 52</td>
<td>50</td>
<td>5</td>
<td></td>
<td>CL LOAM</td>
<td></td>
</tr>
</tbody>
</table>

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histsol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

Indicators for Problematic Hydric Soils:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

Hydric Soil Present? Yes [ ] No [X]

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)

Field Observations:

- Surface Water Present? Yes [ ] No [X]
- Water Table Present? Yes [ ] No [X]
- Saturation Present? (includes capillary fringe) Yes [ ] No [X]

Wetland Hydrology Present? Yes [ ] No [X]

Remarks:

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: TOTEM LAKE PARK  City/County: KIRKLAND  Sampling Date: 1/5/112
Applicant/Owner: CITY OF KIRKLAND  State: WA  Sampling Point: NP-3
Investigator(s): JR & IL  Section, Township, Range: S28 T2N RGE
Landform (hillslope, terrace, etc.): FLAT ON BERM  Local relief (concave, convex, none): Slope (%):  
Subregion (LRR): A  Lat: 47°42'.39.72"  Long: 122°10'.33.79"  Datum:  
Soil Map Unit Name: SUNKIE NUCK  NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [ ] No [ ] (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes [ ] No [ ]
Are Vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

<table>
<thead>
<tr>
<th>Vegetation Present?</th>
<th>Yes [ ] No [ ]</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes [ ] No [ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrophytic Vegetation</td>
<td>Yes [ ] No [ ]</td>
<td>Wetland Hydrology</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes [ ] No [ ]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remarks:

VEGETATION – Use scientific names of plants.

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 5m)</th>
<th>Absolute % Cover</th>
<th>Dominant Indicator Species?</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.  ALR</td>
<td>60</td>
<td>y</td>
<td>FAC</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum (Plot size: 3m)</th>
<th>Absolute % Cover</th>
<th>Dominant Indicator Species?</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.  C</td>
<td>30</td>
<td>y</td>
<td>FAC</td>
</tr>
<tr>
<td>2.  DEO</td>
<td>5</td>
<td></td>
<td>FAC</td>
</tr>
<tr>
<td>3.  ALR</td>
<td>15</td>
<td>y</td>
<td>FAC</td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.  HEHE</td>
<td>55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.  21.5</td>
<td>11</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size: 1m)</th>
<th>Absolute % Cover</th>
<th>Dominant Indicator Species?</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.  TOMU</td>
<td>5</td>
<td>y</td>
<td>FAC</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size: )</th>
<th>Absolute % Cover</th>
<th>Dominant Indicator Species?</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Bare Ground in Herb Stratum</th>
<th></th>
</tr>
</thead>
</table>

Remarks:

Prevalence Index worksheet:

<table>
<thead>
<tr>
<th>Total % Cover of:</th>
<th>Multiply by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBL species</td>
<td>0</td>
</tr>
<tr>
<td>FACW species</td>
<td>0</td>
</tr>
<tr>
<td>FAC species</td>
<td>100</td>
</tr>
<tr>
<td>FACU species</td>
<td>20</td>
</tr>
<tr>
<td>UPL species</td>
<td>120</td>
</tr>
</tbody>
</table>

Prevalence Index = B/A = 32

Hydrophytic Vegetation Indicators:

- Rapid Test for Hydrophytic Vegetation
- Dominance Test is >50%
- Prevalence Index is ≤3.0
- Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- Wetland Non-Vascular Plants
- Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes [ ] No [ ]
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Color (moist)</th>
<th>%</th>
<th>Type</th>
<th>Loc</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>10N3F2</td>
<td>100</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td>SANDY FILL W/ GRAVELS</td>
<td></td>
</tr>
<tr>
<td>4-18</td>
<td>2.5N4F2</td>
<td>100</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td>SILT W/ ORGANICS &lt; ROOTS</td>
<td></td>
</tr>
</tbody>
</table>

1Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S6)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Restrictive Layer (if present):

- Type: 
- Depth (inches): 

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

- Surface Water Present? Yes ☐ No ☑ Depth (inches): 
- Water Table Present? Yes ☐ No ☑ Depth (inches): 
- Saturation Present? Yes ☐ No ☑ Depth (inches): (includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Totem Lake Park
City/County: Kirkland
State: WA
Sampling Date: 11/5/16
Applicant/Owner: City of Kirkland
Investigator(s): ILJR
Section, Township, Range: S24 T26N R3E
Landform (hillslope, terrace, etc.): Base of Berm
Local relief (concave, convex, none): Slope (%):
Subregion (LRR): A
Lat: 47° 42' 39.8" Long: 122° 10' 33.79" Datum:
Soil Map Unit Name: Seattle Muck
NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [ ] No [ ] (If no, explain in Remarks.)
Are Vegetation [ ], Soil [ ], or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes [ ] No [ ]
Are Vegetation [ ], Soil [ ], or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes [ ] No [ ]</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes [ ] No [ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes [ ] No [ ]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes [ ] No [ ]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remarks:

VEGETATION – Use scientific names of plants.

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 5m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<td>2.</td>
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<td>4.</td>
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</tbody>
</table>

Sapling/Shrub Stratum (Plot size: 3m)

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Absolute % Cover</th>
<th>Dominant Species</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>30</td>
<td>FACW</td>
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<tr>
<td>2.</td>
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<td>4.</td>
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<tr>
<td>Total = Total Cover</td>
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</tbody>
</table>

Herb Stratum (Plot size: 1m)

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Absolute % Cover</th>
<th>Dominant Species</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>60</td>
<td>OBL</td>
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<tr>
<td>2.</td>
<td>20</td>
<td>FACW</td>
<td></td>
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<tr>
<td>Total = Total Cover</td>
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</tbody>
</table>

Woody Vines Stratum (Plot size:____)

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Absolute % Cover</th>
<th>Dominant Species</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<td>2.</td>
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<tr>
<td>Total = Total Cover</td>
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</tbody>
</table>

% Bare Ground in Herb Stratum

Remarks:

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3
Total Number of Dominant Species Across All Strata: 3
Percent of Dominant Species That Are OBL, FACW, or FAC: 100

Prevalence Index worksheet:
Total % Cover of: Multiply by:
OBL species x 1 =
FACW species x 2 =
FAC species x 3 =
FACU species x 4 =
UPL species x 5 =
Column Totals: (A) (B)
Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
- Rapid Test for Hydrophytic Vegetation
- Dominance Test is >50%
- Prevalence Index is <3.0
- Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- Wetland Non-Vascular Plants
- Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes [ ] No [ ]
SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Color (moist)</th>
<th>%</th>
<th>Type</th>
<th>Loc</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

^Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

Hydic Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)
- Histosol (A1)
- Histic Epipedon (A2)
- Black-Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

Sandy Redox (S5)
Stripped Matrix (S6)
Loamy Mucky Mineral (F1) (except MLRA 1)
Loamy Gleyed Matrix (F2)
Depleted Matrix (F3)
Redox Dark Surface (F6)
Redox Depressions (F8)

Restrictive Layer (if present):
- Type:
  - Depth (inches):

Hydic Soil Present? Yes ☐ No ☐

Remarks:
- SURFACE WATER FROZEN AT TIME OF SITE VISIT. ASSUMING HYDRIC SOILS BASED ON VEGETATION, HYDROLOGICAL, NCRS MAPS, AND SOILS OBSERVED AT OTHER AREAS OF THE SITE

HYDROLOGY

Primary Indicators (minimum of one required; check all that apply):
- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

Secondary Indicators (2 or more required):
- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:
- Surface Water Present? Yes ☐ No ☐ Depth (inches): 12''
- Water Table Present? Yes ☐ No ☐ Depth (inches):
- Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches):

Wetland Hydrology Present? Yes ☐ No ☐

Remarks:

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Totem Lake Park  City/County: Kirkland  Sampling Date: 6/19/2017
Applicant/Owner: City of Kirkland  State: WA  Sampling Point: DP-5
Investigator(s): JR, CH  Section, Township, Range: S28/T26N/R5E
Landform (hillslope, terrace, etc.): terrace  Local relief (concave, convex, none): none  Slope (%): 0
Subregion (LRR): A  Lat: 47°42’39.82  Long: 122°10’33.79  Datum: ______
Soil Map Unit Name: Seattle Muck  NWI classification: PEM/PPSS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐  No ☐ (If no, explain in Remarks.)
Are Vegetation ☐  Soil ☐  or Hydrology ☐  significantly disturbed?  Are “Normal Circumstances” present? Yes ☐  No ☐
Are Vegetation ☐  Soil ☐  or Hydrology ☐  naturally problematic?  (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes ☐  No ☐</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes ☐  No ☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes ☐  No ☐</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes ☐  No ☐</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remarks:

VEGETATION – Use scientific names of plants

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 5m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
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<tr>
<td>2.</td>
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<td>3.</td>
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<tr>
<td>4.</td>
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</tr>
</tbody>
</table>

50% = ____  20% = ____

= Total Cover

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum (Plot size: 3m)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pouls balsamifera</td>
<td>5</td>
<td>yes FAC</td>
</tr>
<tr>
<td>2. Solanum dulcamara</td>
<td>3</td>
<td>yes FAC</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

50% = 4, 20% = 1.6

= Total Cover

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size: 1 m radius)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Phalaris arundinacea</td>
<td>85</td>
<td>yes FACW</td>
</tr>
<tr>
<td>2. Equisetum hyemale</td>
<td>trace</td>
<td></td>
</tr>
<tr>
<td>3. Galium aparine</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
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<tr>
<td>5.</td>
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<td>6.</td>
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<td>7.</td>
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<td>8.</td>
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<tr>
<td>9.</td>
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<tr>
<td>10.</td>
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<tr>
<td>11.</td>
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</tr>
</tbody>
</table>

50% = 42.5, 20% = 17.4

= Total Cover

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size: ______)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

50% = ____  20% = ______

= Total Cover

% Bare Ground in Herb Stratum 13

<table>
<thead>
<tr>
<th>Dominance Test Worksheet:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Dominant Species That Are OBL, FACW, or FAC:</td>
<td>3</td>
<td>(A)</td>
</tr>
<tr>
<td>Total Number of Dominant Species Across All Strata:</td>
<td>3</td>
<td>(B)</td>
</tr>
<tr>
<td>Percent of Dominant Species That Are OBL, FACW, or FAC:</td>
<td>100</td>
<td>(AB)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prevalence Index worksheet:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total % Cover of:</td>
<td>Multiply by:</td>
<td></td>
</tr>
<tr>
<td>OBL species</td>
<td>x1 =</td>
<td></td>
</tr>
<tr>
<td>FACW species</td>
<td>x2 =</td>
<td></td>
</tr>
<tr>
<td>FAC species</td>
<td>x3 =</td>
<td></td>
</tr>
<tr>
<td>FACU species</td>
<td>x4 =</td>
<td></td>
</tr>
<tr>
<td>UPL species</td>
<td>x5 =</td>
<td></td>
</tr>
<tr>
<td>Column Totals:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

= (A) (B)

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Indicators:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – Rapid Test for Hydrophytic Vegetation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 - Dominance Test is &gt;50%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 - Prevalence Index is &lt;3.01</td>
<td></td>
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<tr>
<td>4 - Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 - Wetland Non-Vascular Plants1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Problematic Hydrophytic Vegetation1 (Explain)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Remarks:

Hydrophytic Vegetation Present? Yes ☐  No ☐
Hydrophytic Vegetation Present? Yes ☐  No ☐
Hydrophytic Vegetation Present? Yes ☐  No ☐
**Profile Description:** (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Color (moist)</th>
<th>%</th>
<th>Type</th>
<th>Loc</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-16</td>
<td>10YR 2/1</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>sandy loam</td>
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</table>

1 Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.  
2 Location: PL=Pore Lining, M=Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted.)
- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

**Indicators for Problematic Hydric Soils:**
- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

**Restrictive Layer (if present):**
- Type: cobbles
- Depth (inches): 8

Hydric Soils Present? Yes ☒ No ☐

Remarks: redox likely present; soil are too wet and too dark

---

**HYDROLOGY**

**Wetland Hydrology Indicators:**
- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses Plants (D1) (LRR A)
- Other (Explain in Remarks)
- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

**Secondary Indicators (2 or more required):**
- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

**Field Observations:**
- Surface Water Present? Yes ☒ No ☐
- Water Table Present? Yes ☒ No ☐
- Saturation Present? Yes ☒ No ☐

Wetland Hydrology Present? Yes ☒ No ☐

Depth (inches): 11

Remarks:
WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Totem Lake Park
Applicant/Owner: City of Kirkland
Investigator(s): JR, CH
Landform (hillslope, terrace, etc.): terrace
Subregion (LRR): A
Soil Map Unit Name: Seattle Muck

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☐
Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes ☐ No ☐</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes ☐ No ☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes ☐ No ☐</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes ☐ No ☐</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remarks:

VEGETATION – Use scientific names of plants

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 5m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Indicator Status Worksheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Salix sitchensis</td>
<td>30</td>
<td>yes</td>
<td>FACW</td>
<td>Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)</td>
</tr>
<tr>
<td>2. Picea sitchensis</td>
<td>20</td>
<td>yes</td>
<td>FAC</td>
<td>Total Number of Dominant Species Across All Strata: 8 (B)</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td>Percent of Dominant Species That Are OBL, FAC, or FAC: 100 (A/B)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum (Plot size: 3m)</th>
<th>Total % Cover of:</th>
<th>Multiply by:</th>
<th>Prevalence Index = B/A =</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Salix scouleriana</td>
<td>15</td>
<td>FAC</td>
<td></td>
</tr>
<tr>
<td>2. Rubus armeniacus</td>
<td>5</td>
<td>FAC</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50% = 25, 20% = 10</td>
<td>50</td>
<td>= Total Cover</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size: 1 m radius)</th>
<th>Total % Cover of:</th>
<th>Multiply by:</th>
<th>Prevalence Index = B/A =</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Phalaris arundinacea</td>
<td>20</td>
<td>FACW</td>
<td></td>
</tr>
<tr>
<td>2. Equisetum hyemale</td>
<td>25</td>
<td>FACW</td>
<td></td>
</tr>
<tr>
<td>3. Ranunculus repens</td>
<td>2</td>
<td>FACW</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50% = 23.5, 20% = 9.4</td>
<td>47</td>
<td>= Total Cover</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size: ____)</th>
<th>Total % Cover of:</th>
<th>Multiply by:</th>
<th>Prevalence Index = B/A =</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50% = 20% =</td>
<td></td>
<td>= Total Cover</td>
<td></td>
</tr>
</tbody>
</table>

% Bare Ground in Herb Stratum 13

Remarks:
### Project Site: Totem Lake Park

#### SOIL

**Profile Description:** (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Color (moist)</th>
<th>%</th>
<th>Type¹</th>
<th>Loc²</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>duff and mulch</td>
</tr>
<tr>
<td>1-8</td>
<td>10YR 3/2</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>sandy loam</td>
<td></td>
</tr>
</tbody>
</table>

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.  
²Location: PL=Pore Lining, M=Matrix

#### Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

#### Indicators for Problematic Hydric Soils²:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

#### Restrictive Layer (if present):

- Type: cobbles/fill  
- Depth (inches): 8”

#### HYDROLOGY

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one required; check all that apply)**

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

**Secondary Indicators (2 or more required)**

- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stresses Plants (D1) (LRR A)
- Other (Explain in Remarks)

**Field Observations:**

- Surface Water Present? Yes ☐ No ☑  
- Water Table Present? Yes ☐ No ☑  
- Saturation Present? Yes ☐ No ☑  

**Wetland Hydrology Present?** Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

- Remarks: dry throughout
Appendix E:
Arborist Reports and Tree Plans
Dear Mr. Martenson,

Property at 12031 NE Totem Lake Way in Kirkland Washington (KC Parcel #692840-0032) is north of Totem Lake and contains a retail store, and vehicle parking. Mature trees are part of landscaping on the property. King County (KC) Conservation District (KC Parcel #866372-0060) that surrounds Totem Lake is both south and east of the property. In addition property containing a motel (KC Parcel #866372-0010) is to the east.

Plans call for developing the 12031 property. Since mature trees are present, a tree inventory and an analysis of trees suitable for retention was requested.

On December 4th to 6th 2017 Kurt Fickeisen from Symbiosis Tree Care came to the property and evaluated trees on and around the property (Figure-1).

This letter contains a report that provides a tree inventory, information on tree condition, and a list of trees suitable for retention. Please see Assumptions Limiting Conditions for this report on the last page.

**Summary**

Plans call for developing property at 12031 NE Totem Lake Way in Kirkland Washington. 79 trees with diameters over 6-inches grow on the property.

At least one tree located on Totem Lake Way and north of the current building should be removed. Other trees in this area may be preserved if tree protection is possible.

On the eastern side of the building trees within the KC Conservation should be considered for preservation, but trees in close proximity to the building should be removed.

South of paved parking trees with canopies extending over parking should be considered for removal if excavation under tree canopies is required.

All trees within the parking lot and south of the existing building should be removed.
Observations

Tree inspection starts on the northwest corner of the property and travels eastward along Totem Lake Way. Once reaching the KC Conservation District inspection travels southward and then westward along the 12031 property border. The last tree grouping inspected is those adjacent to the existing parking lot. Figure-2 provides a map of tree inventory (Figure-2).

Trees along Totem Lake Way

A file with information on all trees over 6-inches diameter is provided in a spreadsheet (Figure-3A). This spreadsheet provides information on tree: species, size, vigor, condition, and comments. Photos of trees are also provided (Photo-1 – Photo-3).

Fifteen trees are located parallel to Totem Lake Way. The majority are red maples (*Acer rubrum*), but a black cottonwood (*Populus trichocarpa*) is planted adjacent to the street. In addition ornamental plum/cherries (*Prunus Sp.*) are present along with small diameter Douglas firs (*Pseudotsuga menziesii*).

Most trees have been pruned to provide street and sidewalk clearance, however the red maple numbered 8 has been pruned to provide building clearance

- Tree-8 may not classify as a street tree due to sidewalk setback
- Tree-15 is east of a paved trail on KC Conservation District property

Tree roots may conflict with the existing sidewalk and curb since the canopy overhangs the sidewalk. In addition tree 5 and 12 are in close proximity to utility boxes.

Three additional trees numbered 16 to 18 are north of the building but are set back from the street and sidewalk. One is a pacific madrone (*Arbutus menziesii*). The remaining two are red pines (*Pinus resinosa*).

- A minor amount of pruning has been performed on pine trees to provide building clearance

Trees North of the 12031 Building

Some trees north of the 12031 building are on the property, but others are within the KC Conservation District or on property containing a motel. Information on tree characteristics is provided in two spreadsheets (Figure-3A, Figure-3B). Additional information is provided below by tree number.

Numbers 19 to 21 consist of two red pines and one Deodar cedar (*Cedrus deodar*). The trees are on the 12031 property and located on or adjacent to a deck attached to the building. While both pines show signs of good vigor and condition the Deodar is shaded by adjacent trees (Photo-3)

- All three trees are in close proximity to building structures
Numbers 22 to 29 consist of Lombardy poplars (*Populus nigra*) and are marked in Photo-3. All eight poplars are in close proximity to the 12031 building.

Numbers 30 to 34 are north of a paved walkway on the KC Conservation District. Trees consist of black cottonwoods and a columnar variety of beach tree (*Fagus sylvatica*).

Numbers 35 to 40 are red pines south of the Lombardy poplar group and adjacent to the 12031 building (Photo-4). All are in close proximity to the 12031 building.

Numbers 41 to 50 are adjacent to the KC Conservation District property and two paved and connected trails. Trees in this group consist of red alders (*Alnus rubra*), black cottonwoods, Douglas firs (*Pseudotsuga menziesii*), and a red maple.

All trees are in fair condition at this time however:

- Tree 43 leans northward towards the trail
- Trees numbered 48 to 50 are at the edge of an area with visible wetlands

Site conditions may impact long term health and stability of tree 48 and 49 since Douglas fir trees prefer well drained soils (Photo-6).

The black cottonwood, number 47, is marked in Photo-5 along with a tree east of inspected trees in this report (Photo-5).

Trees South and Southeast of 12031 Pavement

Trees in this set form a grouping south and west of paved parking and act as a buffer between the wetland and an adjacent property (Photo-7 to Photo-9). Tree characteristics are provided in a spreadsheet (Figure-3C). Additional information is provided below by tree number.

Number 51 is a mature red maple growing in a peninsula of soil. Pavement surrounded the soil bed and tree root growth has fractured pavement under the canopy.

Numbers 52 to 55 are young red alders located between a wetland and pavement. The trees appear in fair condition

- Small diameter western red cedars (*Thuja plicata*) grow under alder canopies

Numbers 56 to 59 are mature red maples located between the wetland and pavement. All trees have codominant growth patterns and northern sections of tree canopies overhang paved parking. While there are no visible signs of root growth under pavement, the area is a likely location for significant tree root growth.

- Small diameter western red cedars grow under the canopy of red maples 56 to 58
Numbers 60 to 63 are primarily red maples, but one black cottonwood is part of this group. All trees are mature and in close proximity to pavement. While maples contain single trunks at grade level, the cottonwood consists of five individual trunks joined at root crown level

- Based on proximity of structural roots to pavement, root-pavement conflicts are likely to be present

Planting Strip Trees

Planting strip trees are directly west of the structure on the 12031 property. All are mature trees with small statures and are surrounded by pavement under at least 50-percent of the canopy (Photo-8). All have been pruned to provide clearance for vehicles and pedestrians. Tree characteristics are provided in a spreadsheet (Figure-3C). Additional information is provided below by tree number.

Numbers 64 to 66 consist of two flowering cherry trees and one Alaska red cedar (Chamaecyparis nootkatensis). All are directly west of the property building and entirely surrounded by pavement.

Numbers 67 to 68 consist of one flowering cherry and one red maple. Both trunks are in close proximity to the northern edge of the parking lot.

Numbers 69 to 79 consist primarily of crabapple trees, but three flowering cherries are part of the group. All trees are located in a planting bed between parking spaces (Photo-9). Three members of this group contain numerous stump sprouts.

Discussion

Trees along Totem Lake Way

Most trees in this group are in close proximity to the sidewalk and street. While most are acceptable in parking strip locations, the black cottonwood (Tree-1) is not approved by most municipalities for planting strip location

- If road, sidewalk, utility box, and soil excavation work is not part of upcoming development, tree protection is possible

Remaining trees in this group are set back from the street and building. These include

- Tree-8
- Tree-16 to Tree-18

All have been pruned for building clearance and roots do not appear in close proximity to the building.
These trees can be protected during construction if the future building footprint construction does not come within 5-feet of trunks and root pruning is performed if conflicts are present.

Trees North of the 12031 Building

A significant number of these trees are in close proximity to the existing building, but other trees are east or south of the walkway traveling through the KC Conservation District.

Based on proximity to existing structures retention of the following trees is not recommended

- Red pines numbered 19-20 and 35-40
- Deodar cedar numbered 21
- Lombardy poplar numbered 22 -29

If no construction or construction related impact takes place east or south of the conservation district walkway and within 18-feet of the trunk of the red maple (#50) then trees can be retained, however additional monitoring is recommended.

Trees South and Southeast of 12031 Pavement

Most trees in this group are in close proximity to existing pavement. Based on root buckling observed adjacent to the red maple numbered 51, retention should not be considered unless no pavement excavation is planned during construction.

On the other hand preservation of red alders numbered 52 to 55 along with small diameter western red cedars south of paved surfaces and under alder and maple canopies should be considered.

Planting Strip Trees

All trees in this group are in close proximity to infrastructure that will be impacted by future construction. Based on space requirements for common construction equipment and material storage, trees in the planting strip should not be retained.

Conclusion

Retention of trees east of the KC Conservation District walkway is recommended. Preservation of the following trees should be considered if protection during construction is possible

- Street trees along Totem Lake Way, and or north of the existing building
- The grove of alders numbered 52 to 55 and adjacent small diameter western red cedars

Removal of other inspected trees is recommended.
**Recommendations**

The black cottonwood (#1) is the only street tree where removal is recommended in all cases.

If existing sidewalks will be retained and tree protection fencing is installed during construction, then street trees preservation is possible.

Preservation of the red maple (#8), the pacific madrone (#16) and red pines (#17-18) should be considered if tree canopies do not conflict with construction plans and protection fencing is installed during construction.

All trees east of the trail and on KC Conservation District Property should be retained and monitored.

Preservation of red alders (#52 to #55) and small diameter western red cedars is possible if protection fencing is installed during construction

- Small diameter western red cedars should receive additional protection during removal of adjacent red maples.

**Tree Protection Fencing**

When installing protection fencing the material should be located at distance from the trunk equivalent to the radial spread listed in all segments of Figure-3.

If distances for protection fencing are not possible an International Society of Arboriculture Certified Arborist can evaluate root growth patterns and provide protection fencing alternatives.

- Retained sidewalk can be used to mark protection fencing locations
- General diagrams for tree protection fencing are provided (Figure-4A, Figure-4B)

If you have questions about the contents of this report contact Symbiosis Tree Care.

Sincerely

---

Kurt Fickeisen  
International Society of Arboriculture™ (ISA) Certified Arborist # RM-451A  
ISA Tree Risk Assessment Qualified  
American Society of Consulting Arborists Registered Consulting Arborists© # 472

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Symbiosis Tree Care  
12-13-2017  
Assessment of 12031 Property Tree
Figure-1

King County iMAP 2015 Aerial Image
<table>
<thead>
<tr>
<th>Tree #</th>
<th>Species</th>
<th>dbh (in.)</th>
<th>Height (ft.)</th>
<th>Radial Spread (ft.)</th>
<th>Vigor</th>
<th>Structure</th>
<th>Comments / Defects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Black Cottonwood</td>
<td>19.5</td>
<td>48</td>
<td>21</td>
<td>Fair</td>
<td>Fair/Poor</td>
<td>Street tree, declining due to asphalt over structural roots, elevated over street</td>
</tr>
<tr>
<td>2</td>
<td>Red Maple</td>
<td>13</td>
<td>35</td>
<td>16</td>
<td>Fair</td>
<td>Fair</td>
<td>Street tree, Elevated over street</td>
</tr>
<tr>
<td>3</td>
<td>Red Maple</td>
<td>10</td>
<td>31</td>
<td>13</td>
<td>Fair</td>
<td>Poor</td>
<td>Street tree, codominant, elevated over street</td>
</tr>
<tr>
<td>4</td>
<td>Red Maple</td>
<td>7</td>
<td>24</td>
<td>10</td>
<td>Poor</td>
<td>Poor</td>
<td>Street tree, declining condition</td>
</tr>
<tr>
<td>5</td>
<td>Red Maple</td>
<td>14</td>
<td>36</td>
<td>16</td>
<td>Fair</td>
<td>Fair</td>
<td>Street tree, adjacent to utility box, elevated over street</td>
</tr>
<tr>
<td>6</td>
<td>Red Maple</td>
<td>11.5</td>
<td>34</td>
<td>14</td>
<td>Fair</td>
<td>Poor</td>
<td>Street tree, fracture at grade level, elevated over street</td>
</tr>
<tr>
<td>7</td>
<td>Red Maple</td>
<td>14</td>
<td>38</td>
<td>17</td>
<td>Fair</td>
<td>Fair</td>
<td>Street tree, adjacent to stairway, elevated over street</td>
</tr>
<tr>
<td>8</td>
<td>Red Maple</td>
<td>15.5</td>
<td>49</td>
<td>16</td>
<td>Fair</td>
<td>Fair</td>
<td>Street tree, adjacent to stairway, elevated over street</td>
</tr>
<tr>
<td>9</td>
<td>Plum/Cherry</td>
<td>7.8</td>
<td>15</td>
<td>10</td>
<td>Good</td>
<td>Fair</td>
<td>Street tree, epicormic growth, elevated over street</td>
</tr>
<tr>
<td>10</td>
<td>Red Maple</td>
<td>8.8</td>
<td>36</td>
<td>11</td>
<td>Fair</td>
<td>Poor</td>
<td>Street tree, fracture in trunk, elevated over street</td>
</tr>
<tr>
<td>11</td>
<td>Plum/Cherry</td>
<td>7.5</td>
<td>15</td>
<td>7</td>
<td>Good</td>
<td>Fair</td>
<td>Street tree, epicormic growth, elevated over street</td>
</tr>
<tr>
<td>12</td>
<td>Red Maple</td>
<td>17</td>
<td>41</td>
<td>15</td>
<td>Good</td>
<td>Fair</td>
<td>Street tree, adjacent to utility box, elevated over street</td>
</tr>
<tr>
<td>13</td>
<td>Plum/Cherry</td>
<td>6.2</td>
<td>10</td>
<td>14</td>
<td>Good</td>
<td>Fair</td>
<td>Street tree, codominant, shaded by adjacent trees</td>
</tr>
<tr>
<td>14</td>
<td>Red Maple</td>
<td>9.25</td>
<td>25</td>
<td>10</td>
<td>Fair</td>
<td>Fair</td>
<td>Street tree, adjacent to NE property corner</td>
</tr>
<tr>
<td>15</td>
<td>Red Maple</td>
<td>9.25</td>
<td>25</td>
<td>10</td>
<td>Fair</td>
<td>Fair</td>
<td>Street tree, near property border and sidewalk</td>
</tr>
<tr>
<td>16</td>
<td>Pacific Madrone</td>
<td>6</td>
<td>29</td>
<td>10</td>
<td>Fair</td>
<td>Fair</td>
<td>Shaded by adjacent trees</td>
</tr>
<tr>
<td>17</td>
<td>Red pine</td>
<td>11.5</td>
<td>49</td>
<td>10</td>
<td>Good</td>
<td>Good</td>
<td>Building clearance required</td>
</tr>
<tr>
<td>18</td>
<td>Red pine</td>
<td>10.5</td>
<td>49</td>
<td>10</td>
<td>Good</td>
<td>Good</td>
<td>Building clearance required</td>
</tr>
<tr>
<td>19</td>
<td>Red pine</td>
<td>11.5</td>
<td>49</td>
<td>10</td>
<td>Good</td>
<td>Good</td>
<td>Building clearance required</td>
</tr>
<tr>
<td>20</td>
<td>Red pine</td>
<td>13.5</td>
<td>49</td>
<td>10</td>
<td>Good</td>
<td>Good</td>
<td>Building clearance required</td>
</tr>
<tr>
<td>21</td>
<td>Deodar Cedar</td>
<td>10.25</td>
<td>45</td>
<td>6</td>
<td>Fair</td>
<td>Poor</td>
<td>Blocks deck gateway, leans to west</td>
</tr>
<tr>
<td>22</td>
<td>Lombardy Poplar</td>
<td>18.75</td>
<td>70</td>
<td>10</td>
<td>Fair</td>
<td>Fair</td>
<td>North end of 8 poplar group, 5-feet from building</td>
</tr>
<tr>
<td>23</td>
<td>Lombardy Poplar</td>
<td>12</td>
<td>65</td>
<td>7</td>
<td>Fair</td>
<td>Fair</td>
<td>5-feet from building</td>
</tr>
<tr>
<td>24</td>
<td>Lombardy Poplar</td>
<td>8</td>
<td>65</td>
<td>6</td>
<td>Fair</td>
<td>Poor</td>
<td>5-feet from building</td>
</tr>
<tr>
<td>25</td>
<td>Lombardy Poplar</td>
<td>9.5</td>
<td>65</td>
<td>5</td>
<td>Fair</td>
<td>Poor</td>
<td>5-feet from building</td>
</tr>
<tr>
<td>26</td>
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<td>9</td>
<td>65</td>
<td>5</td>
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<td>Poor</td>
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</tr>
<tr>
<td>27</td>
<td>Lombardy Poplar</td>
<td>8.5</td>
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<td>6</td>
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<td>Poor</td>
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<td>9</td>
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<td>13</td>
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<td>South end of 8 poplar group, 5-feet from building</td>
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### Figure-3B

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<tr>
<th>Tree #</th>
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<th>Vigor</th>
<th>Structure</th>
<th>Comments / Defects</th>
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<tr>
<td>30</td>
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<td>Fair</td>
<td>Elevation pruning near grade</td>
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<td>Fair-Poor</td>
<td>Codominant at grade</td>
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<td>Columnar Beech</td>
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<td>Fair</td>
<td>Elevation pruning near grade</td>
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<td>110</td>
<td>16</td>
<td>Fair</td>
<td>Fair</td>
<td>Leans to south</td>
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<tr>
<td>48</td>
<td>Douglas fir</td>
<td>7.25</td>
<td>30</td>
<td>10</td>
<td>Fair</td>
<td>Fair</td>
<td>Edge of wetland</td>
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<tr>
<td>49</td>
<td>Douglas fir</td>
<td>6</td>
<td>30</td>
<td>10</td>
<td>Fair</td>
<td>Fair</td>
<td>Edge of wetland</td>
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<tr>
<td>50</td>
<td>Red Maple</td>
<td>18</td>
<td>35</td>
<td>18</td>
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### Figure-3C

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<th>Vigor</th>
<th>Structure</th>
<th>Comments / Defects</th>
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<td>17</td>
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<td>Fair</td>
<td>Between wetland and parking lot. Roots heaving pavement</td>
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<td>52</td>
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<td>30</td>
<td>10</td>
<td>Fair</td>
<td>Fair</td>
<td>Close to wetland</td>
</tr>
<tr>
<td>53</td>
<td>Red Alder</td>
<td>6</td>
<td>30</td>
<td>10</td>
<td>Fair</td>
<td>Fair</td>
<td>Close to wetland</td>
</tr>
<tr>
<td>54</td>
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<td>30</td>
<td>10</td>
<td>Fair</td>
<td>Fair</td>
<td>Close to wetland</td>
</tr>
<tr>
<td>55</td>
<td>Red Alder</td>
<td>6</td>
<td>30</td>
<td>10</td>
<td>Fair</td>
<td>Fair</td>
<td>Close to wetland</td>
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<tr>
<td>56</td>
<td>Red Maple</td>
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<td>21</td>
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<td>8-feet from pavement, codominant at 5-feet</td>
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<td>49</td>
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<td>Fair-Poor</td>
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<td>40</td>
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<td>49</td>
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<td>20.5</td>
<td>55</td>
<td>25</td>
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<td>Fair</td>
<td>6 separate trunks joined near grade level, pavement heaving due to roots</td>
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<td>49</td>
<td>20</td>
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<td>Codominant above grade, adjacent to pavement</td>
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<td>15</td>
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<td>Fair</td>
<td>Fair</td>
<td>Adjacent to pavement</td>
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<tr>
<td>64</td>
<td>Alaska cedar</td>
<td>9.5</td>
<td>33</td>
<td>6</td>
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<td>Fair</td>
<td>Root flare covered with pavement</td>
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<td>65</td>
<td>Plum/Cherry</td>
<td>6.8</td>
<td>10</td>
<td>6</td>
<td>Fair</td>
<td>Poor</td>
<td>Pruned with topping cuts</td>
</tr>
<tr>
<td>66</td>
<td>Plum/Cherry</td>
<td>6.8</td>
<td>10</td>
<td>6</td>
<td>Fair</td>
<td>Poor</td>
<td>Pruned with topping cuts</td>
</tr>
<tr>
<td>67</td>
<td>Plum/Cherry</td>
<td>7.25</td>
<td>10</td>
<td>7</td>
<td>Fair</td>
<td>Fair</td>
<td>Trunk 3-feet north of parking lot</td>
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<td>68</td>
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<td>20</td>
<td>10</td>
<td>Poor</td>
<td>Poor</td>
<td>Stump sprout</td>
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<tr>
<td>69</td>
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<td>5.8</td>
<td>10</td>
<td>7</td>
<td>Fair</td>
<td>Poor</td>
<td>Planting strip tree, western end, stump sprouts</td>
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<tr>
<td>70</td>
<td>Crabapple</td>
<td>6.5</td>
<td>24</td>
<td>9</td>
<td>Fair</td>
<td>Poor</td>
<td>Planting strip tree, western end, stump sprouts</td>
</tr>
<tr>
<td>71</td>
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<td>24</td>
<td>10</td>
<td>Fair</td>
<td>Fair</td>
<td>Planting strip tree</td>
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<td>Fair</td>
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<td>73</td>
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<td>15</td>
<td>9</td>
<td>Fair</td>
<td>Poor</td>
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<tr>
<td>74</td>
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<td>Fair</td>
<td>Planting strip tree, eastern end</td>
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<td>18</td>
<td>9</td>
<td>Fair</td>
<td>Fair</td>
<td>Planting strip tree, eastern end</td>
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<tr>
<td>78</td>
<td>Plum/Cherry</td>
<td>5.8</td>
<td>18</td>
<td>9</td>
<td>Fair</td>
<td>Fair</td>
<td>Planting strip tree, eastern end</td>
</tr>
<tr>
<td>79</td>
<td>Crabapple</td>
<td>6</td>
<td>18</td>
<td>9</td>
<td>Fair</td>
<td>Poor</td>
<td>Planting strip tree, eastern end, stump sprouts</td>
</tr>
</tbody>
</table>
ASSUMPTIONS AND LIMITING CONDITIONS

Kurt Fickeisen
International Society of Arboriculture (ISA) Certified Arborist #RM 451A
ISA Tree Risk Assessment Qualification
American Society of Consulting Arborists Registered Consulting Arborist #472
Owner Symbiosis Tree Care LLC

1. Any legal description provided to the consultant is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character.

2. All existing liens, encumbrances, and assessments, if any, have been disregarded (unless otherwise noted), and the trees are evaluated as though free and clear, under responsible ownership and competent management. It is assumed that no violations of applicable governmental regulations have occurred.

3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible, however, Symbiosis Tree Care can neither guarantee nor be responsible for the accuracy of information.

4. Symbiosis Tree Care shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in our fee schedule and contract of engagement.

5. Loss or alteration of any part of this report invalidates the entire report.

6. This report shall be used for its intended purpose only and by the parties to whom it is addressed. Possession of this report does not include the right of publication.

7. Neither all or any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales, or other media, without the prior expressed written or verbal consent of Symbiosis Tree Care.

8. This report and any values expressed herein represent the opinion of Symbiosis Tree Care. Our fee is in no way contingent upon any specified value, a result or occurrence of a subsequent event, nor upon any finding to be reported.

9. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.

10. Unless expressed otherwise: 1) information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection, and 2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring.

11. There is no warranty or guarantee, expressed or implied that problems or deficiencies of the tree or other plant or property in question may not arise in the future.

12. The right is reserved to adjust tree valuations, if additional relevant information is made available.
Matt Martenson  
Berger Partnership  
1721 8th Avenue N  
Seattle, WA 98109

December 13, 2017

Dear Mr. Martenson,

Property at 12031 NE Totem Lake Way in Kirkland Washington (KC Parcel #692840-0032) is north of Totem Lake and contains a retail store. Mature trees are part of landscaping on the property and are present in King County (KC) Conservation District (KC Parcel #866372-0060) that surrounds Totem Lake.

Plans call for developing the 12031 property and improving and expanding a community trail north and east of Totem Lake. This trail will travel eastward, cross the wetland, and connect to the existing Cross Kirkland Corridor Trail. Since mature trees are adjacent to the expanded trail location, evaluating tree condition and developing protection plans prior to the start of work was required.

On December 6th and 7th 2017 Kurt Fickeisen from Symbiosis Tree Care evaluated trees adjacent to the pathway (Figure-1). This letter contains a report that provides information on tree condition, and a guide for mitigating conflicts during trail installation. Please see Assumptions and Limitations for this report (Assumptions and Limitations).

Summary

An existing trail east of property at 12031 NE Totem Lake Way in Kirkland Washington will be improved and expanded to connect with the Cross Kirkland Corridor Trail. While trees grow in clusters east of the 12031 property, trees become a grove east of power lines crossing the area. The final segment of trees grows on a peninsula of land extending northward from the Cross Kirkland Corridor into a wetland.

North of the wetland removal or additional assessment of trees with signs of poor structure is recommended. In addition root pruning may take place where trees grow in clusters, but alternative methods of trail installation should be considered once trees enter a grove.

South of the wetland trees should be removed, retained at root crown level and allowed to grow from stump sprouts.
Observations

The pathway assessment starts adjacent to a wetland near the southeast corner of the 12031 property. The pathway travels eastward. Once reaching a location south of 12411 NE Totem Lake Way the trail will cross a wetland devoid of trees and joins the Cross Kirkland Corridor in a treed segment of land. Assessed trees are present in these two locations. 41 trees were evaluated along the pathway.

Trees North of the Wetland

Figure-2A marks trees north of the wetland (Figure-2A). 34 trees have diameters greater than 6-inches.

Trees 80 to 93 are west of overhead community power lines (Photo-1, Photo-2). Tree species present consist of black cottonwoods (*Populus trichocarpa*), big leaf maples (*Acer macrophyllum*), Douglas firs (*Pseudotsuga menziesii*) and native willows (*Salix Sp.*).

Information on all trees over 6-inches diameter is provided in a spreadsheet (Figure-3A). This spreadsheet provides tree: species, size, vigor, condition, and comments.

All trees show signs of fair vigor. While tree structure is fair in many trees the following trees show signs of poor structure

- Willow: 84, 85
- Black cottonwood: 87, 88, 90

Most large diameter roots do not appear to interfere with the existing trail.

Trees 94 to 97 are under or in close proximity to overhead community power lines. All trees show signs of fair vigor. While tree vigor is fair, the following trees show signs of poor structure

- Willow: 94
- Red alder: 96

Most large diameter roots do not appear to interfere with the existing trail.

Trees 98 to 103 are east of overhead community power lines. All trees show signs of fair vigor (Photo-3).

While tree structure is fair in some trees, the following show signs of poor structure

- Willow: 98, 103
- Red alder: 99, 100

Most large diameter roots do not appear to interfere with the existing trail.
Trees 104 to 113 primarily consist of mature black cottonwoods with heights near or over 100-feet (Photo-4). In this case tree information is provided in two spreadsheets (Figure-3A, Figure-3B).

While tree vigor and structure is fair in many trees the following trees show signs of poor structure

- Black cottonwoods 106, 111
  - As an example trunk decay is present near grade level on the northern side of Tree-111 (Photo-5)

In this case the current pathway travels within 5-feet of most trees and significant structural roots are present.

Trees South of the Wetland

Figure-2B marks trees south of the wetland (Figure-2B). Seven trees have diameters greater than 6-inches.

Trees 114 to 120 consist of red alders, willows, and one black hawthorn (*Crataegus douglasii*) tagged with the marker number 305. Information on all trees over 6-inches diameter is provided in a spreadsheet (Figure-3B).

All trees in this group show signs of fair vigor and structure with the exception of a willow (Tree-115). The willow shows signs of poor structure.

All trees are north of the Cross Kirkland Corridor. Installation of the trail involved addition of fill soil. In many cases nearby new red alder sprouts are emerging from the borders of new fill soil.

Discussion

At this time trail use is occasional. Trail use will increase once development on 12031 property take place, the trail surface is improved, and the trail connects to the Cross Kirkland Corridor.

Trees North of the Wetland

A risk assessment of trees showing signs of poor structure should be considered. While removal of poor structure trees is an option, tree removal will reduce shade provided by trees and the woodland environment that trail users may desire.

Between Tree-80 and Tree-105 conflicts between structural roots and the existing trail are present but minor

- In most cases root pruning should be considered as opposed to tree removal prior to trail surface improvements.
East of Tree-105 the trail enters a tree grove primarily consisting of mature cottonwoods until reaching the wetland. Due to the presence of a mature trees grove with signs of fair vigor and structure, **root pruning is not recommended.**

Options for trail improvement/installation include

- Establishing an elevated trail supported by post and pier anchors
- Installation of a gravel or cobble base layer at grade and use of permeable asphalt for human travel

**Trees South of the Wetland**

With the exception of the willow numbered 115 all trees evaluated in this group have diameters of 10-inches or less

- Both willows and red alders are short lived trees and are known to regenerate from undamaged stumps

Design plans for the future trail in this location are unknown, but soil addition is likely to be required based on construction techniques employed on the adjacent Cross Kirkland Corridor.

While a trail supported by a post and pier system is an option, trunks and canopies of most trees in this group conflict with a future pedestrian trail. In this case tree removal and root sprout regeneration is an option to consider.

**Conclusion**

Trees north of the wetland and showing signs of poor structure should be considered for either removal or additional assessment. In areas where trees grow in individual clusters root pruning is recommended. Once the trail enters the mature grove of trees alternatives should be considered prior to trail installation.

Trees south of the wetland appear to conflict with new trail establishment. Based on species most can be cut to grade level and allowed to regenerate from stump sprouts.

**Recommendations**

Removal of the following trees should be considered

- Black cottonwood: 87, 88, 90, 106, 111
- Red alder: 96, 99, 100
- Willows: 84, 85, 94, 98, 103
- All species south of the wetland

The City of Kirkland or King County may require additional assessment prior to removal. As an alternative, retention and monitoring should be considered.
Root Pruning

Between Tree-80 and Tree-105 tree roots over 2-inches diameter conflicting with the trail should be exposed and cut with reciprocating saws such as a, “sawzall”.

Root Bridging

Between Tree-106 and Tree-113 new trails should avoid damage to existing roots over 2-inches diameter. This may require placing the trail on a post and pier support or use of gravel and permeable asphalt

- While two options are provided in this report, there are additional strategies for infrastructure installation that mitigate root damage

If you have questions about the contents of this report contact Symbiosis Tree Care.

Sincerely

[Signature]

Kurt Fickeisen
International Society of Arboriculture™ (ISA) Certified Arborist # RM-451A
ISA Tree Risk Assessment Qualified
American Society of Consulting Arborists Registered Consulting Arborists© # 472
Figure-1

King County iMAP 2015 Aerial Image
Figure-2B
## Figure-3A

<table>
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<th>Tree #</th>
<th>Species</th>
<th>dbh (in.)</th>
<th>Height (ft.)</th>
<th>Radial Spread (ft.)</th>
<th>Vigor</th>
<th>Structure</th>
<th>Comments / Defects</th>
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<td>80</td>
<td>Black Cottonwood</td>
<td>31</td>
<td>110</td>
<td>25</td>
<td>Fair</td>
<td>Fair</td>
<td>North of pathway and south of building</td>
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<td>81</td>
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<td>10</td>
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<td>8</td>
<td>Fair</td>
<td>Fair</td>
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<td>15</td>
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<td>Poor</td>
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<td>12&amp;15</td>
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<td>Poor</td>
<td>Trunks joined at root crown, previous trunk removal</td>
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<td>65</td>
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<td>Fair</td>
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<tr>
<td>87</td>
<td>Black Cottonwood</td>
<td>7</td>
<td>30</td>
<td>15</td>
<td>Fair</td>
<td>Poor</td>
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<td>Fair</td>
<td>Poor</td>
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<td>Poor</td>
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<td>10</td>
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<td>Fair</td>
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<td>15</td>
<td>Fair</td>
<td>Fair</td>
<td>Grows under power lines</td>
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<td>Poor</td>
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<td>25</td>
<td>10</td>
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<td>Poor</td>
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<td>30</td>
<td>10</td>
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<td>Fair</td>
<td>Located south of pathway, Leans to southwest</td>
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<td>7.5</td>
<td>30</td>
<td>10</td>
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<td>Fair</td>
<td>3-feet east of #101, vertical growth</td>
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<td>40</td>
<td>20</td>
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<td>Poor</td>
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<td>101</td>
<td>20</td>
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<td>10</td>
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<td>Fair</td>
<td>Leans to southeast and away from #104</td>
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<td>8</td>
<td>40</td>
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<td>Fair</td>
<td>Poor</td>
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<td>110</td>
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<td>110</td>
<td>30</td>
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<td>Fair</td>
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<td>Black Cottonwood</td>
<td>41</td>
<td>110</td>
<td>35</td>
<td>Fair</td>
<td>Fair</td>
<td>Part of mature grove, codominant at grade</td>
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### Figure-3B

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<th>Tree #</th>
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<th>Radial Spread (ft.)</th>
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<th>Structure</th>
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<td>Root crown against paved trail</td>
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<td>Poor</td>
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<td>6-feet south of paved trail</td>
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<td>110</td>
<td>30</td>
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<td>Fair</td>
<td>Canopy leans to east</td>
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<td>40</td>
<td>10</td>
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<td>115</td>
<td>Willow</td>
<td>21</td>
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<td>20</td>
<td>Fair</td>
<td>Poor</td>
<td>Three codominant trunks at grade, signs of decay</td>
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<td>20</td>
<td>8</td>
<td>Fair</td>
<td>Fair</td>
<td></td>
</tr>
<tr>
<td>117</td>
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<td>10</td>
<td>Fair</td>
<td>Fair</td>
<td></td>
</tr>
<tr>
<td>118</td>
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<td>30</td>
<td>8</td>
<td>Fair</td>
<td>Fair</td>
<td></td>
</tr>
<tr>
<td>119</td>
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<td>30</td>
<td>10</td>
<td>Fair</td>
<td>Fair</td>
<td></td>
</tr>
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<td>120</td>
<td>Hawthorn</td>
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<td>30</td>
<td>10</td>
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<td>Fair</td>
<td>Tagged with number 305</td>
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</tbody>
</table>
Assumptions and Limitations

ASSUMPTIONS AND LIMITING CONDITIONS

Kurt Fickeisen
International Society of Arboriculture (ISA) Certified Arborist #RM 451A
ISA Tree Risk Assessment Qualification
American Society of Consulting Arborists Registered Consulting Arborist #472
Owner Symbiosis Tree Care LLC

1. Any legal description provided to the consultant is assumed to be correct. Any titles and
   ownerships to any property are assumed to be good and marketable. No responsibility is assumed
   for matters legal in character.
2. All existing liens, encumbrances, and assessments, if any, have been disregarded (unless
   otherwise noted), and the trees are evaluated as though free and clear, under responsible
   ownership and competent management. It is assumed that no violations of applicable
   governmental regulations have occurred.
3. Care has been taken to obtain all information from reliable sources. All data has been verified
   insofar as possible, however, Symbiosis Tree Care can neither guarantee nor be responsible for
   the accuracy of information.
4. Symbiosis Tree Care shall not be required to give testimony or to attend court by reason of this
   report unless subsequent contractual arrangements are made, including payment of an additional
   fee for such services as described in our fee schedule and contract of engagement.
5. Loss or alteration of any part of this report invalidates the entire report.
6. This report shall be used for its intended purpose only and by the parties to whom it is addressed.
   Possession of this report does not include the right of publication.
7. Neither all or any part of the contents of this report, nor copy thereof, shall be conveyed by
   anyone, including the client, to the public through advertising, public relations, news, sales, or
   other media, without the prior expressed written or verbal consent of Symbiosis Tree Care.
8. This report and any values expressed herein represent the opinion of Symbiosis Tree Care. Our
   fee is in no way contingent upon any specified value, a result or occurrence of a subsequent
   event, nor upon any finding to be reported.
9. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not
   necessarily to scale and should not be construed as engineering or architectural reports or surveys.
10. Unless expressed otherwise: 1) information contained in this report covers only those items that
    were examined and reflects the condition of those items at the time of inspection, and 2) the
    inspection is limited to visual examination of accessible items without dissection, excavation,
    probing, or coring.
11. There is no warranty or guarantee, expressed or implied that problems or deficiencies of the tree
    or other plant or property in question may not arise in the future.
12. The right is reserved to adjust tree valuations, if additional relevant information is made available.
TREE REMOVAL GENERAL NOTES

Note # Description

1 FOR ALL TREES REMOVED ON SITE (SHEET ET101) ALL MATERIAL SHALL BE COMPLETELY REMOVED FROM SITE.

2 FOR ALL TREES REMOVED ON TRAIL SITE (SHEET ET102) FELL TREES DIRECIONALLY, SOUTH OF THE TRAIL SUCH THAT THE MAJORITY OF THE TREE LANDS SOUTH OF THE TRAIL IN THE BUFFER.

3 FOR ALL TREES REMOVED ON TRAIL AND BOARDWALK SITE ANY PORTION OF TREES FELLED FROM THE BUFFER THAT LAND IN THE WETLAND SHALL BE REMOVED FROM THE WETLAND.

4 FOR ALL TREES REMOVED ON TRAIL SITE (SHEET ET102) THAT OCCUR AT WITHIN BUFFER, FELL INTO BUFFER AND LEAVE. RELOCATE ANY PORTIONS OF THE TREE WHICH CONFLICT WITH PROPOSED HARDSCAPE ELEMENTS.

5 FOR ALL TREES REMOVED IN WETLAND AREAS, FELL TREE IN WETLAND AND LEAVE AS-IS. REMOVE/RELOCATE ANY PORTIONS WHICH CONFLICT WITH PROPOSED BOARDWALK.

6 FOR ALL TREES FELLED IN WETLAND AND BUFFER AREAS ON TRAIL AND BOARDWALK SITE (SHEET ET102 & ET103), TREES MAY BE SNAGGED AT 8' MAXIMUM HEIGHT IF THEY ARE LOCATED 10' OR GREATER FROM PROPOSED PATHWAYS, TRAILS, AND BOARDWALK.

7 FOR ALL TREES FELLED IN WETLAND AND BUFFER AREAS ON TRAIL AND BOARDWALK SITE (SHEET ET102 & ET103), LOCATED 10' OR LESS FROM PROPOSED PATHWAYS, TRAILS, AND BOARDWALK. CUT TRUNK W/N 1'-0" OF EXISTING GRADE.

8 FOR ALL SNAGGED TREES, JAGGED, BAYONET-STYLE CUTS PREFERRED TO FLAT CUTS FOR FELLED TREES THAT WILL BE LEFT IN THE BUFFER (AS SNAGS). BAYONET-STYLE CUTS MIMIC A NATURALLY-BROKEN TRUNK AND BENEFIT HABITAT CONDITIONS.

9 NO TREES OR SHRUBS OUTSIDE LIMIT OF WORK SHALL BE REMOVED.

10 TAG ALL TREES TO BE REMOVED PRIOR TO REMOVAL. CONFIRM WITH LANDSCAPE ARCHITECT. CONFIRM REMOVAL/RETAIN STATUS, FELLING/REMOVAL STATUS AND TREATMENT.
TREE REMOVAL GENERAL NOTES

<table>
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<tr>
<th>Note</th>
<th>Description</th>
</tr>
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<td>1</td>
<td>FOR ALL TREES REMOVED ON PARK SITE (BET WEET AL, MATERIAL SHALL BE COMPLETELY REMOVED FROM SITE.</td>
</tr>
<tr>
<td>2</td>
<td>FOR ALL TREES REMOVED ON PARK SITE, TREE TRUNKS (EXCEPT FFTFF) SHALL BE RENTERIMALLY BLACKED THE TREE SHALL FIND THE MAJORITY OF THE TREE'S LANDS SOUTH OF THE TRAIL IN THE BUFFER</td>
</tr>
<tr>
<td>3</td>
<td>FOR ALL TREES REMOVED ON TRAIL AND BOARDWALK THE ANY PORTION OF TREE'S ENS NBN FROM THE TRAIL, ANY BUNDER OR TRROOMS. REMOVED, LOCATE ANY PORTION OF THE TREE WHICH CONFLICT WITH PROPOSED HARDSCAPE ELEMENTS</td>
</tr>
<tr>
<td>4</td>
<td>FOR ALL TREES REMOVED ON TRAIL AND BOARDWALK, TREE TRUNKS (EXCEPT FFTFF) SHALL BE RENTERIMALLY BLACKED THE TREE SHALL FIND THE MAJORITY OF THE TREE'S LANDS SOUTH OF THE TRAIL IN THE BUFFER</td>
</tr>
<tr>
<td>5</td>
<td>FOR ALL TREES REMOVED ON TRAIL AND BOARDWALK, TREE TRUNKS (EXCEPT FFTFF) SHALL BE RENTERIMALLY BLACKED THE TREE SHALL FIND THE MAJORITY OF THE TREE'S LANDS SOUTH OF THE TRAIL IN THE BUFFER</td>
</tr>
</tbody>
</table>

**EXISTING TREE PLAN - BOARDWALK**

Total Tree Count: 12

- **Location:** Totem Lake Park Phase 1, City of Kirkland
- **Date:** 05/15/2019
- **Scale:** 1" = 100'
APPENDIX I

FEMA HABITAT ASSESSMENT
TOTEM LAKE PARK DEVELOPMENT – PHASE 1
Puget Sound BiOp Floodplain Habitat Assessment

Prepared for
City of Kirkland

February 2019
TOTEM LAKE PARK DEVELOPMENT – PHASE 1
Puget Sound BiOp Floodplain Habitat Assessment

Prepared for
City of Kirkland

ESA Project Number D170506.00
OUR COMMITMENT TO SUSTAINABILITY | ESA helps a variety of public and private sector clients plan and prepare for climate change and emerging regulations that limit GHG emissions. ESA is a registered assessor with the California Climate Action Registry, a Climate Leader, and founding partner for the Climate Registry. ESA is also a corporate member of the U.S. Green Building Council and the Business Council on Climate Change (BCC). Internally, ESA has adopted a Sustainability Vision and Policy Statement and a plan to reduce waste and energy within our operations. This document was produced using recycled paper.
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2  Existing and Mapped Features
3  Action Area and Proposed Project
4  100% Design Site Plan
1.0 INTRODUCTION

At the request of the City of Kirkland (City), Environmental Science Associates has prepared this Federal Emergency Management Agency (FEMA) Floodplain Habitat Assessment for the Phase 1 of the Totem Lake Park Development (Project). The National Marine Fisheries Service’s (NMFS) Biological Opinion (BiOp) on the implementation of the National Flood Insurance Program (NFIP) in Puget Sound (dated September 22, 2008) requires local communities that do not have BiOp-compliant floodplain management ordinances to require and review a Habitat Assessment (HA) before approving a floodplain permit, in order demonstrate project compliance with the Endangered Species Act (ESA). Development of this HA is also a requirement per Kirkland Zoning Code (KZC) 21.56.055 to obtain a permit for construction or development within the special flood hazard area. This HA has been developed using the guidance of the FEMA Puget Sound BiOp Floodplain Habitat Assessment Worksheet (FEMA, 2017) and FEMA’s Floodplain Habitat Assessment and Mitigation: Regional Guidance Manual (FEMA, 2013).

2.0 PROJECT AREA DESCRIPTION

The proposed park improvements are located within Totem Lake Park, in the northeast portion of the City of Kirkland, King County, Washington (Section 28, Township 26N, Range 5E) (Figure 1). The project is located within the Juanita Creek basin, east of Interstate 405. Totem Lake Park is generally bordered by residential developments to the north and commercial developments to the west, south, and east. Interstate 405 lies approximately 0.2 miles to the west and the Cross Kirkland Corridor Trail (CKC Trail) extends along the southeastern perimeter of the Park. The majority of the proposed park developments will occur on one City-owned parcel (King County Tax Parcel 6928400032) and one parcel owned by the King Conservation District (King County Tax Parcel 8663270060). Some limited trail improvements will require a temporary easement on two privately owned parcels to the north (King County Tax Parcels 8663270010 and 1542000000). The entire project area is within the Lake Washington Watershed in Water Resource Inventory Area (WRIA) 8. Several wetlands and streams are mapped as occurring with the project area (Figure 2) and are detailed in Section 5.1.

3.0 PROJECT DESCRIPTION

The City is proposing improvements to Totem Lake Park under a Master Plan. The overall plan aims to integrate the natural setting of Totem Lake with the surrounding urban area. Master Plan elements applicable to Totem Lake Park include but are not limited to: implementation of a trail/boardwalk to form a loop with existing pathways, improved pedestrian and bicyclists connections to the surrounding commercial and residential properties, a new restroom building, limited ADA parking, play area, pedestrian seating and picnic areas, opportunities for public art, and enhancement of the storm drainage and ecological functions of the wetland and surrounding area. There will also be frontage improvements associated with development of the site. The City will implement additional elements from the Master Plan over time as funding becomes available.
This project is Phase 1 of the Master Plan and would construct an approximately 720 linear-foot boardwalk on the eastern and northern portion of the property. The boardwalk will provide a connection between the CKC Trail and the existing foot path on the north side of the park. The majority of the proposed boardwalk had been designed to be outside of the floodplain, except where necessary to connect to the asphalt path (Figure 3). The proposed boardwalk will have a width of 10 feet and decking will consist of open grating that will allow approximately 25% light penetration. A 43-inch high cable railing will be installed on both sides of the boardwalk. Each railing has an approximate width of 1.5 inches resulting in the boardwalk having a total width of 10.3 feet.

The boardwalk height above the water level will vary throughout the alignment averaging 8 feet above the water surface with the lowest elevations occurring at the boardwalk termini, where the trail transitions to pavement. Estimated elevation over the lake water level is 1.3 feet at the northern extent of the trail and 5.2 feet at the southern extent. Moving waterward over the lake from these transition areas, the boardwalk gently slopes upward reaching a maximum height of 9.2 feet above the water level. Footings for portions of the boardwalk within the wetland will be 2-inch diameter steel pipe pilings. No mechanized clearing, disturbance, or excavation of wetland soils will occur. Construction of the boardwalk will occur in a sequenced manner moving waterward from the shoreline by using built portions as construction access. No construction equipment will enter the wetland or wetted portions of the lake over the entirety of construction. The total area of boardwalk is approximately 5,592 square feet, all of which is located above the OHWM of Totem Lake. The boardwalk will be constructed with open grating to minimize impacts to wetland functions. Removal of existing vegetation will be minimized to the extent possible and all cleared trees will remain in the wetland or wetland buffer to be used as habitat logs.

Other project improvements under Phase 1 include the creation of a play area on the north side of the park (in the former 1.2-acre Yuppie Pawn space). In order to accommodate the play area and an associated new restroom, the vacant Yuppie Pawn building will be demolished. The proposed play area will be approximately 31,300 square feet and will include play features such as play structures/equipment and a turf field. The remainder of the site will be planted with native vegetation. There will be a 28,332 square foot (SF) (0.65-acre) net decrease in impervious surface at the park site. Additionally, all remaining impervious surface at the park will be non-pollution generating.

Stormwater improvements will also be installed to collect and discharge all stormwater onsite through the construction of bioretention stormwater facilities within the former Yuppie Pawn space. Proposed stormwater improvements at the play area will treat stormwater runoff in bioretention cells which will reduce the peak flow and duration to the wetland as well as improve the water quality of the runoff to the wetland.

Improvements to the existing asphalt path (Totem Lake Path) on the north side of the lake will also occur under Phase 1. The path will be widened to 10-feet within its current alignment and resurfaced to meet standards for accessible design (i.e., ADA standards). In addition to the widening of the path, the area will be graded and a retaining wall will be installed the length of the path. The wall will be backfilled with rocks to facilitate drainage. The widening of the existing path and installation of retaining walls and backfill will result in a net increase of 7,608 SF (0.17) of impervious surface, the majority of which is in the floodplain, and all non-pollution generating.
Table 1-1 is a summary of elements associated with the Phase 1 park improvements. 100% design of these features are detailed in Figures 4a through 4e.

**TABLE 1**
**SUMMARY OF PHASE 1 PROJECT ELEMENTS**

<table>
<thead>
<tr>
<th>Project Element</th>
<th>Description</th>
</tr>
</thead>
</table>
| Boardwalk connection between CKC Trail and existing asphalt | Length: 720 linear feet  
Width: 10 feet  
Area: 5,592 square feet  
Decking: Open grate  
Handrail: Yes; metal panel railing at 43 inches height  
Foundation: 2” Steel pipe pilings |
| Widening of existing asphalt path                    | Width 10 feet  
ADA access: Yes  
Change in Impervious Surface: +7,608 SF |
| Play area and restroom                               | Area: 31,300 square feet  
Elements: play structures, synthetic turf area, grass lawn area, native plantings  
Change in Impervious Surface: -28,332 SF |

**4.0 ACTION AREA**

FEMA defines the Action Area as all areas, within the Special Flood Hazard Area (SFHA), that could be impacted by the proposal, including indirect effects and effects of interrelated and interdependent actions (FEMA, 2017). The Action Area for this habitat assessment is the entire Totem Lake 100-year floodplain (Figure 2 and 3). The majority of the Action Area is within the boundary of Wetland A, with the exception of portions in the northern and northwestern extent of the floodplain, which are currently developed with commercial and residential uses. Some forested areas also occur within these areas and are dominated by a mixture of deciduous and coniferous trees. No streams are mapped as occurring within the Action Area.

**5.0 HABITAT DESCRIPTION**

**5.1 Background Information**

The National Wetland Inventory (NWI) identifies a large wetland within Totem Lake Park (the Totem Lake Wetland). NWI maps this wetland as containing emergent, scrub-shrub, forested, and open water elements. Totem Lake is the open water element of the larger wetland at the site. Additionally, three small wetlands are mapped in the project vicinity; one on the southwest side of Totem Lake Blvd NE and two on the southeast side of the CKC Trail (Figure 2). These three smaller wetlands are outside of the Phase 1 project area. Other large wetland complexes are mapped approximately 0.3 miles to the west within the Juanita Creek basin.
In addition to the Totem Lake Wetland, the City of Kirkland Sensitive Areas map (2018) shows one stream exiting Totem Lake near the southwest corner, and eventually flowing into Juanita Creek. The majority of this stream is piped from the outlet at Totem Lake to the western side of Interstate 405. An additional stream is mapped as being piped into the wetland from a small wetland feature and ditch on the southern side of the CKC Trail (Figure 2).

The State of Washington Department of Ecology (Ecology) maps an additional unnamed stream flowing into Totem Lake from the east along the northwest side of the CKC Trail (Figure 2). This stream is on Ecology’s 303(d) list for dissolved oxygen. Several stormwater outfalls are also mapped by Ecology as being located with Totem Lake. No stream typing is provided by the City or Ecology for these streams.

5.2 Protected Species Identification

Both NMFS and USFWS provide listings of threatened and endangered species under their jurisdiction. The proposed project occurs within the general range of several ESA listed species. The current listings from NMFS indicates the potential presence of two federally-listed salmon species within the project vicinity, including the Puget Sound Evolutionary Significant Unit (ESU) of Chinook salmon (*Oncorhynchus tshawytscha*), as well as with one species under the jurisdiction of the USFWS, the Puget Sound Distinct Population Segment (DPS) of steelhead (*O. mykiss*) (Table 2).

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>ESA Status*</th>
<th>Jurisdiction</th>
<th>Critical Habitat in Action Area?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal-Puget Sound DPS Bull Trout</td>
<td><em>Salvelinus confluentus</em></td>
<td>Threatened</td>
<td>USFWS</td>
<td>No</td>
</tr>
<tr>
<td>Puget Sound Chinook Salmon Evolutionarily Significant Unit (ESU)</td>
<td><em>Oncorhynchus tshawytscha</em></td>
<td>Threatened</td>
<td>NMFS</td>
<td>No</td>
</tr>
<tr>
<td>Puget Sound Steelhead DPS</td>
<td><em>O. mykiss</em></td>
<td>Threatened</td>
<td>NMFS</td>
<td>No</td>
</tr>
<tr>
<td>Marbled Murrelet</td>
<td><em>Brachyramphus marmoratus</em></td>
<td>Threatened</td>
<td>USFWS</td>
<td>No</td>
</tr>
<tr>
<td>Streaked Horned Lark</td>
<td><em>Eremophila alpestris strigata</em></td>
<td>Threatened</td>
<td>USFWS</td>
<td>No</td>
</tr>
<tr>
<td>Yellow-billed Cuckoo</td>
<td><em>Coccyzus americanus</em></td>
<td>Threatened</td>
<td>USFWS</td>
<td>No</td>
</tr>
<tr>
<td>North American Wolverine</td>
<td><em>Gulo gulo luscus</em></td>
<td>Proposed</td>
<td>USFWS</td>
<td>No</td>
</tr>
</tbody>
</table>

*Threatened: Species are likely to become endangered within the foreseeable future.*

The USFWS, through the IPaC website, provides a site-specific species list for the project area (Table 2 and Attachment 1). In addition to bull trout, the IPaC report includes four threatened wildlife species; marbled murrelet (*Brachyramphus marmoratus*), streaked horned lark (*Eremophila alpestris strigata*) and yellow-billed cuckoo (*Coccyzus americanus*), as well as a proposed threatened species North American wolverine (*Gulo gulo luscus*). With the unlikely exception of bull trout, the other species identified in the IPaC report, were either not historically distributed within the Action Area or the Action Area does not
contain suitable habitat features to support the species. The project will have no effect on these species, for the reasons described in the following paragraphs.

Nesting habitat for marbled murrelet consist of large coniferous older forest stands. Suitable habitat, defined by USFWS (2012) as conifer-dominated stands greater than 5 acres with trees > 15-inch-diameter at breast height (dbh), that contain nesting platforms (meeting criteria of minimum of 4 inches wide and minimum of 33 feet above the ground), is not present within the Action Area. Although marbled murrelets may use the marine waters of Puget Sound for foraging, the Sound is located over 0.5 miles away from the project site and is not within line of site.

A key attribute of streaked horned lark habitat is open (i.e., flat, treeless) landscapes of 300 acres or more, such as the type of habitat present within airports (USFWS, 2013). Such habitat is entirely lacking within the Action Area.

Yellow-billed cuckoos are extremely rare in Washington State and if breeding still occurs in the state, it is likely limited to an extremely small number of breeding pairs (single digits). Furthermore, yellow billed cuckoo breed in large blocks of riparian habitats (particularly woodlands containing cottonwoods and willows) (Erhlich et al., 1988). Such habitat is entirely lacking within the Action Area.

The North American wolverine is found in remote, dense, and mature forests free from human activity (e.g., Cascade Mountains), not highly urbanized sites such as the Action Area.

In summary, marbled murrelet, streaked horned lark, yellow-billed cuckoo, and North American wolverine are not likely to occur on the site due to a lack of suitable habitat for these species. Therefore, these species or their designated critical habitats (where applicable) will not be affected by the project and these species are not addressed further in this BA.

Listed fish species in the project vicinity were determined through a review of species information provided by NMFS (Attachment 2), and on habitat information provided by Washington Department of Fish and Wildlife (WDFW 2019a; WDFW 2019b).

Chinook salmon, steelhead, and bull trout may all occur in the marine waters of Puget Sound in various life history forms throughout the year; however, use of Totem Lake by these species has not been documented (WDFW 2019a; WDFW 2019b). The nearest stream that provides habitat for ESA-listed salmonids is a reach of Juanita Creek, approximately 1.4 miles downstream. There is no designated critical habitat for any ESA-listed fish species within the Action Area. The closest designated critical habitat for Puget Sound Chinook salmon (NMFS, 2005) and Coastal-Puget Sound bull trout (USFWS, 2010) is in Lake Washington, over two miles downstream of the Action Area, while the closest designated critical habitat for Puget Sound steelhead is in the mainstem Cedar River, over 15 miles away from the Action Area.

No aquatic or terrestrial ESA listed species are documented as using the Action Area. Furthermore, no critical habitat mapped within the Action Area for any ESA listed species.
5.3 Site Visit

5.3.1 Wetlands

Field investigations were conducted by biologists Ilon Logan and Jessica Redman on January 5, 2016, and Jessica Redman and Christina Hersum on June 19, 2017. Field efforts were focused on areas of the park where improvements are proposed and did not include the southern corner of the wetland or the southeast side of the CKC Trail where the previously mentioned stream is located. One wetland (Wetland A) was delineated during these field efforts. According to FEMA floodplain mapping, the majority of the park and asphalt path improvements occur within the 100-year floodplain, as well as the northern extents of the proposed boardwalk (Figure 3).

Wetland A is located in the majority of the Action Area and is a depressional palustrine scrub-shrub and palustrine emergent (PSS/PEM) wetland, approximately 18 acres in size. Totem Lake, an open water feature in the center of Wetland A, is approximately 3 acres and supports a narrow aquatic bed fringe around its edge. The majority of Wetland A is a mixture of PSS and PEM plant communities. PSS communities are dominated by willow, red-osier dogwood, and Douglas spirea. PEM communities in the wetland are dominated by common cattail with slough sedge and skunk cabbage present to a lesser extent. A narrow forested area on the northern edge of the wetland is dominated by red alder with an understory of restoration plantings including Sitka spruce and western redcedar. Aquatic bed vegetation in the lake includes pond weed and yellow pond lily. Outside of the emergent and scrub-shrub vegetation, additional habitat features (Standing snags, downed wood, etc.) are limited.

Sources of hydrology to Wetland A include a high groundwater table, precipitation, multiple stormwater inputs, and the seasonal stream on the southeast side of the CKC Trail. The outlet of the Wetland A is a partially blocked culvert on its west side, east of 120th Avenue NE and Totem Lake Boulevard NE.

5.3.2 Streams

During the January 2016 site visit, no connection between Wetland A and the mapped stream to the southeast of the site was observed, and according to a previous study, this stream instead flows southwesterly into a ditch for some length before it is presumably piped again (Watershed Company, 2013). The downstream portion of the ditch is largely dominated by Himalayan blackberry and no suitable salmonid habitat was observed in the ditch.

Although a stream is mapped in the western portion of the site, no defined stream channel was observed during reconnaissance of this area. In this area, at the outlet of Wetland A, a partially blocked culvert east of 120th Avenue NE and Totem Lake Boulevard NE was observed. During the January 2018 site visit, the area was characterized by standing water several feet deep, choked with cattails and refuse, which does not represent suitable salmonid habitat.

Additionally, no defined stream channel was observed entering Totem Lake from the east as mapped by Ecology. According to City mapping, this stream instead originates along the hillside to the northwest, and flows north to south before entering a ditch along the north side of the CKC, and eventually flows into the Sammamish River. Based on site observations, the ditch does not contain suitable salmonid habitat.
5.3.3 Uplands

Within the Action Area, the north side of the wetland has a narrow upland fringe consisting of native deciduous and native coniferous trees. Conditions of the remainder of the SFHA within upland areas of the Action Area are largely developed and degraded. Adjacent to this narrow, forested area is a paved pedestrian path and multi-story residential developments. Himalayan blackberry is present along several portions of the asphalt path. Additional existing developments within the Action Area include existing boardwalks and the southwestern portion of the former Yuppie Pawn site, which is currently dominated by non-native landscaped trees, a paved parking lot, and a derelict building. The outfall at Totem Lake Boulevard is also the confluence of runoff from these developed areas. The western and southwestern edges of the wetland extend adjacent to the hardscape leaving little buffer between the wetland and a retaining wall at the former Yuppie Pawn site. The majority of the upland portion of the Action Area is already developed and provides little habitat for terrestrial species or a corridor connection to the wetland, and as mentioned above, does not represent suitable habitat for the ESA listed terrestrial species mentioned above.

6.0 HABITAT NARRATIVE

According to the FEMA floodplain habitat assessment guidance (FEMA 2013) the habitat narrative must include an analysis of several habitat elements that address the habitat factors required by the BiOp to assist jurisdictions in considering impacts to aquatic impacts and ESA listed fish species as a result of the project. A brief discussion of each habitat variable and its presence in the Action Area is below.

6.1 Primary Constituent Elements (PCEs)

Primary Constituent Elements (PCEs) are specific elements of physical or biological features that provide for a species’ life-history processes and are essential to the conservation of the species and used to define the presence or absence of critical habitat. Within freshwater sites, examples of these include freshwater spawning sites, freshwater rearing sites, and freshwater migration corridors. None of these sites occur within the Action Area, and the nearest stream the provides habitat for ESA-listed salmonids is in Juanita Creek, approximately 1.4 miles downstream. No defined stream channels were observed within the Action Area during the site visits. Additionally, waters upstream and downstream of the Action Area are largely piped and likely would not provide for migration corridors. Furthermore, aquatic portions of the Action Area are primarily shallow waters dominated by mucky soils that would likely not provide rearing or spawning habitat. It is anticipated that the project will have no effect of PCE’s for ESA-listed salmonids as no critical habitat is within the Action Area.

6.2 Water Quality and Quantity

An unnamed stream is mapped by Ecology flowing into Totem Lake from the east and is on Ecology’s 303(d) list for dissolved oxygen (Ecology, 2019). As mentioned above, a stream channel was not observed here during the site visit. However, several stormwater outfalls are also mapped by Ecology in this location, indicating the mapped feature is likely a culvert input. The ditched portion of this feature, approximately 1,000 feet upstream of the wetland, is on Ecology’s 303(d) list for dissolved oxygen and
bacteria. Though higher levels of dissolved oxygen are often synonymous with higher water temperatures, temperatures recorded in Totem Lake have likely not exceeded water quality criteria frequently enough to be placed on Ecology’s 303(d) list. The water quality standard for temperature in Totem Lake is 16°C (highest 7-day average of the daily maximum temperature).

Surface water runoff from the developed portion of the Action Area generally drains from north to south and is collected in an existing storm drain catch basin near the southwest corner of the former Yuppie Pawn site. The existing catch basin connects to an existing 24-inch storm drain, which discharges to Totem Lake. Runoff from the existing trail sheet flows down to Totem Lake, and rainfall over the proposed boardwalk area falls directly onto the water and/or wetland areas. Surface runoff from Totem Lake Way, adjacent to a commercial site, drains to a separate storm system that also outfalls to Totem Lake via a separate outlet west of the existing catch basin. In 2014, the City resolved local flooding issues by replacing three segments of existing culverts, including the outlet of the lake. The culvert improvements have addressed previously reported drainage issues at the time of the project. According to the City, the ordinary high-water mark indicated on the plans is well below the indicated adjacent roadway elevations (CH2M, 2018).

No flow levels were recorded as a part of this assessment, however, the aquatic portion of the Action Area is inundated throughout the year. Inundation was observed in both the summer and winter site visits. It is likely that water levels are slightly lower during summer months and during drought conditions, but these minor changes in water elevation are likely negligible on the overall system.

According to a geotechnical investigation performed by AESI (2017), groundwater was found in multiple exploration borings between 8 and 18 feet below the ground surface, with perched groundwater conditions present above wetland/peat deposits. The level and occurrence of groundwater seepage is expected to change due to factors including changes in season, precipitation, and site use.

Development within a floodplain that involves the addition of impervious surfaces can degrade water quality and negatively affect the flow regime of the adjacent waterbody. However, park improvements are reducing the reducing net impervious surface in the park by 20,724 SF (0.48 acre) while providing some additional floodplain storage not present today. Improvements along the existing asphalt path will result in a slight increase of impervious surface. However, all new impervious surfaces will be non-pollution generating and most of the new trail will overlay existing asphalt path.

Ground disturbance and other activities during construction have potential to result in short-term impacts to water quality within the adjacent wetland area. However, with the implementation of temporary erosion and sediment control (TESC) plan and other construction related best management practices, the proposed action is anticipated to result in no effects to habitat with respect to water quality and quantity.

### 6.3 Stream Substrate

No stream channels were observed in the Action Area. Aquatic portions of the Action Area are primarily shallow waters dominated by mucky soils that would likely not provide rearing or spawning habitat. However, the proposed project is not anticipated to cause increased rates of aggradation of fine or coarse sediments that would affect those habitats, if present. The proposed action involves limited in-water work.
Footings for portions of the boardwalk within the wetland will be 2-inch diameter steel pipe pilings. Installation of these features will not alter substrate size or distribution. No mechanized clearing, disturbance of wetland soils, or excavation will occur. Construction of the boardwalk will occur in a sequenced manner using built portions as construction access; all construction equipment will be kept above water levels during the entirety of construction. Additionally, the implementation of the TESC plan and BMPs will further ensure that the project has no effect on stream/lake substrates.

6.4 Floodplain Connectivity

The mapped floodplain of Totem Lake is isolated and does not contain a connection to any streams, side-channels, or tributaries. The proposed park improvements would not change or have an effect on the existing floodplain connectivity and therefore, would not result in habitat isolation.

6.5 Refugia for ESA-listed Species from High Velocity Flows

No ESA-listed species are present within the Action Area. Additionally, there is no floodplain refugia within the Action Area and therefore, the project will have no effect on the location, extent, or quality of habitat available to ESA-listed fish species from high velocity flows.

6.6 Riparian Vegetative Community

No stream channels are present within the Action Area. The aquatic portion of the Action Area is primarily the open water portion of Totem Lake and Wetland A, which is dominated by a scrub-shrub vegetative community. Some larger trees occur along the existing asphalt path but these would provide little opportunity for large woody debris (LWD) recruitment. Additionally, no stream channels occur within the Action Area where LWD recruitment would be beneficial for the creation of fish habitat. Furthermore, the majority of the proposed tree removal occurs at the former Yuppie Pawn site and will have little effect on the aquatic portion of the Action Area. Trees that are removed will be left onsite in the wetland and wetland buffer to provide a functional lift for the habitat of Wetland A.

7.0 CONSTRUCTION PROCESS

The project is scheduled to start the first quarter of 2019 and be completed by the fourth quarter of 2019. Construction is estimated to be approximately nine months and will adhere to all permit conditions.

7.1 Boardwalk Construction

The only in-water work proposed by the project will be the construction of the boardwalk, the majority of which will be constructed outside of the Action Area. As mentioned above, footings for portions of the boardwalk within the wetland will be 2-inch diameter steel pipe pilings. No mechanized clearing, disturbance of wetland soils, or excavation will occur. Construction of the boardwalk will occur in a sequenced manner using built portions as construction access; all construction equipment will be kept above
water levels during the entirety of construction. The boardwalk will be constructed with open grating to minimize impacts to wetland functions. Removal of existing vegetation will be minimized to the extent possible and all cleared trees will remain in the wetland or wetland buffer to be used as habitat logs.

7.2 Play Area Construction

Within the former Yuppie Pawn site, the entire site within the limits of work will be cleared of existing vegetation, hardscape, and structures, with the exception of trees located along the southern, wetland edge of the site. The vegetation removal consists primarily of non-native ornamental planting areas. The majority of the site clearing work is for pavement and structure clearing. Approximately 1,300 cubic yards (CY) of material will be placed as fill and approximately 1,900 CY of material will be cut from existing areas; the balance of cut and fill is approximately 600 CY cut material. Over 90% of the site will be graded to some degree.

No wastewater will be treated on site; however, the site will feature stormwater treatments. Methods used to install utilities include open trenching for below grade utilities, and placement of utilities, such as transformers, on concrete pads on grade.

Two primary methods of construction will be used for the construction of play structures. All structures sensitive to settlement, including a built-in-place Restroom Building, Play Structures, and Site Stairs, will be built on place on below grade driven steel pile system. All other structures, mostly limited to paving, but also include some site walls, fences, and lighting, will be constructed on a prepared subgrade using traditional construction techniques. No shoreline modification is proposed. Equipment used for site construction includes: pile driving equipment, excavators, concrete trucks, dump trucks, bulldozers, small grading machines such as bobcats, and ordinary powered handheld tools.

Mobilization and staging plans will be developed by the contractor onsite. Occasional use of Totem Lake Way Right-of-Way and the Cross Kirkland Corridor shared use path will be necessary to construction activities. Construction will obstruct vehicles currently exiting the adjacent property to the west which currently use a driveway on the park site off their property. Therefore, a temporary driveway will be provided on the private property to maintain vehicular exiting throughout construction.

7.3 Trail Construction

An area defined by project limit line to the North, a 2- to 6-foot offset from the proposed trail edge to the South, and the West and East ends of the trail will be completely cleared of all vegetation with the exception of an area north of the trail at the east end. Vegetation occurring within all other areas of the trail site within the limit of work will be preserved except for removal of hazard trees. Hazard tree removal will be mitigated on site with new tree plantings, planted with the existing planting at a ratio of 2 new trees for every 1 tree removed.

The entire cleared area will be graded to some degree. The asphalt trail is a widening of an existing trail. In order to widen the existing trail, the new trail will be cut into the existing slope on the north and south sides of the path at varying locations. The cut slopes will be retained by a rockery retaining wall. No fill
soil will be placed. However, the cut slopes are laid back beyond the slope of the rockery wall. The space between the rockery wall and the cut slope will be filled with imported 2 – to 4-inch quarry spall rock material. No wastewater will be treated on site. The only utilities occurring on the trail site are wall underdrain pipes which outlet into the landscape on the South edge of the trail.

All The trail and fencing will be constructed on a prepared subgrade using traditional construction techniques. No shoreline modification is proposed. Equipment used for site construction includes: small scale excavators, small grading machines such as bobcats, and ordinary powered handheld tools.

The Contractor is expected to mobilize and stage on the play area site immediately to the west of the trail site. The trail site may be used for construction access to the Boardwalk site. Similar to park construction, occasional use of Totem Lake Way Right-of-Way will be necessary for construction activities.

7.4 Protection Measures and Best Management Practices

To avoid erosion and the transport of sediment off site, the contractor will implement temporary control measures during the project’s construction phase. During construction, stormwater runoff will be conveyed in the existing conveyance systems, which are primarily storm drains. Erosion and sediment control (ESC) measures will be needed to prevent runoff from causing erosion and discharging sediment into the existing drainage system during and after construction. Appropriate ESC measures will be needed for construction activities on existing storm drain systems. The contractor will be responsible for phasing ESC measures so that they are coordinated with staging construction activities. Additionally, the contractor will be responsible for inspecting and maintaining temporary controls during construction, including removing accumulated sediment, and for removing the controls and remaining accumulated sediment at the end of construction.

The following ESC measures will be provided:

**Clearing limits** – Clearing limits will be delineated on the construction plans. A silt fence and compost socks will be installed down slope of any fill slopes to prevent offsite sediment migration.

**Cover measures** – The contractor will provide temporary and permanent cover measures where needed to protect disturbed areas. Mulching will be used in accordance with the King County Surface Water Design Manual (KCSWDM) Appendix D to provide immediate, temporary protection from erosion and to enhance plant growth. Nets and blankets may be used according to KCSWDM Appendix D to provide additional protection and to hold seed and mulch in place on slopes (King County, 2016). Disturbed areas will be seeded as a permanent cover measure to reduce erosion.

**Perimeter protection** – To reduce the transport of sediment off site, the contractor will provide catch basin filters, site fence, and street sweeping as indicated on the final construction drawings and as needed.

**Traffic area stabilization** – Stabilized construction entrances will be installed at all construction vehicle access locations.
**Sediment retention** – Catch basin filters (inlet protection) will provide sediment retention at the locations shown on the final construction drawings.

**Surface water collection** – Surface water control will be provided by using the existing and new drainage conveyance systems. The surrounding area will be protected with silt fences.

**Dewatering control** – Groundwater is not expected to be encountered during construction. If groundwater is encountered during construction, then it may be pumped to an onsite sediment trap or to a catchment created by sandbags with an overflow into a catch basin containing a catch basin insert.

**Dust control** – If necessary, the contractor will use water according to KCSWDM Section 3.8 to prevent wind transport of soil. Exposed soils will be sprayed until wet and resprayed as needed. When using water for dust control, the contractor will spray exposed soils until they are wet, but runoff should not be generated by spraying. Oil will not be used for dust control. At the contractor’s option, a tackifier may be used with approval from the Engineer and the City of Kirkland.

**Flow control** – Portable storage tanks are proposed during construction at the southwest portion of the site and will provide sediment retention and possible flow control as needed. Construction activities will remove and permanently reduce the amount of impervious surface area on the site. Excessive runoff during construction is not anticipated, because the site will be mostly pervious.

**ESC implementation** – Site development activities relative to ESC concerns will be coordinated and appropriately timed, and protective measures will be inspected, maintained, and updated in a timely fashion. The project will be phased to consider seasonal work limits to the maximum degree practicable. BMPs will be inspected, monitored, and repaired as needed. The site will be inspected and monitored, and the contractor will maintain, update, and implement the Construction Stormwater Pollution Prevention Plan (CSWPPP) in accordance with the Construction Stormwater General Permit and King County requirements. The contractor also will designate a certified ESC lead and provide give his or her name, address, and telephone number to the City of Kirkland before construction begins. The certified ESC lead will be present on site or on-call at all times.

The certified ESC lead will inspect the site at least once a month during the dry season, weekly during the wet season, and within 24 hours of each runoff-producing storm.

## 8.0 EFFECTS ANALYSIS

### 8.1 Direct Effects

Park improvements will result in a net decrease of 20,724 SF (0.48 acre) of impervious surfaces, primarily at the play area. All new impervious surfaces due to the widening of the asphalt path will be non-pollution generating and mostly overlay the existing asphalt path. Stormwater improvements will also be installed to collect and discharge all stormwater onsite through the construction of bioretention stormwater facilities within the former Yuppie Pawn space. Proposed stormwater improvements at the play area will treat stormwater runoff in bioretention cells which will reduce the peak flow and duration to the wetland as well as improve the water quality of the runoff to the wetland. No streams occur within
the Action Area. Additionally, there are no habitats used by ESA-listed species within the Action Area, and therefore, the project will result in *no direct effects* to listed species or their habitats.

### 8.2 Indirect Effects

The project will result in *no indirect effects* to ESA-listed species. No habitats used by ESA-listed species occur within the Action Area and no potential for suitable habitat formation is anticipated due to the level of development in the vicinity of the project. Proposed improvements do not include activities such as bank armoring or channel straightening that could potentially impact areas downstream of the Action Area. Additionally, no effects to the variables discussed above are anticipated within the project site and therefore, it is anticipated that areas downstream of the Action Area will also not be effected. The project will not result in any changes to development patterns or rates.

### 8.3 Interrelated and Interdependent Actions

No interrelated or interdependent actions will occur that would negatively impact ESA-listed species as a result of the project. Development during other phases of the Totem Lake Master Plan may be considered interrelated actions. However, these additional phases of the Totem Lake Master Plan will likely undergo independent effects analyses to determine possible effects on ESA-listed species and no effects are anticipated due to the lack of habitat. Additionally, there is no other action or project that will have an independent use or effect as a result of the proposed action and therefore, the proposed action will have no interdependent effects.

### 8.4 Cumulative Effects

The project, in conjunction with other current actions or reasonably foreseeable future actions, would not impact ESA-listed species. The site does not support ESA-listed species, and due to the level of development in the vicinity of the project, no potential for suitable habitat formation is anticipated in the foreseeable future.
9.0 REFERENCES


City of Kirkland. 2018. City of Kirkland Sensitive Areas Map. Available at: https://www.kirklandwa.gov/Assets/IT/GIS/Sensitive+Areas+Map.pdf


NMFS (National Marine Fisheries Service). 2005. Endangered and threatened species; designation of critical habitat for 13 evolutionarily significant units of Pacific salmon (Oncorhynchus spp.) and


Figures
Figure 1
Project Vicinity

SOURCE:
ESA 2016; OSM 2016; City of Kirkland 2015.
Figure 2

Existing and Mapped Features

SOURCE:
ESA 2016; City of Kirkland
2015; NAIP 2013.
Figure 3
Mapped Floodplain/Action Area & Proposed Project
Figure 4D
Trail Site Plan (100% Design)
Figure 4E
Boardwalk Site Plan (100% Design)
Attachment 1
In Reply Refer To: Consultation Code: 01EWFW00-2019-SLI-0355
Event Code: 01EWFW00-2019-E-00736
Project Name: Totem Lake Park Development -- Phase 1

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated and proposed critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. The species list is currently compiled at the county level. Additional information is available from the Washington Department of Fish and Wildlife, Priority Habitats and Species website: http://wdfw.wa.gov/mapping/phs/ or at our office website: http://www.fws.gov/wafwo/species_new.html. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.
A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether or not the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species, and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). You may visit our website at http://www.fws.gov/pacific/eagle/for information on disturbance or take of the species and information on how to get a permit and what current guidelines and regulations are. Some projects affecting these species may require development of an eagle conservation plan: (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Also be aware that all marine mammals are protected under the Marine Mammal Protection Act (MMPA). The MMPA prohibits, with certain exceptions, the "take" of marine mammals in U.S. waters and by U.S. citizens on the high seas. The importation of marine mammals and marine mammal products into the U.S. is also prohibited. More information can be found on the MMPA website: http://www.nmfs.noaa.gov/pr/laws/mmpa/.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Related website:

Attachment(s):

- Official Species List
Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Washington Fish And Wildlife Office
510 Desmond Drive Se, Suite 102
Lacey, WA 98503-1263
(360) 753-9440
Project Summary

Consultation Code: 01EWFW00-2019-SLI-0355
Event Code: 01EWFW00-2019-E-00736
Project Name: Totem Lake Park Development -- Phase 1
Project Type: TRANSPORTATION
Project Description: Construction of a boardwalk, path, and play field at Totem Lake Park

Project Location:
Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/47.71125589983922N122.17590280729542W

Counties: King, WA
Endangered Species Act Species

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>North American Wolverine <em>Gulo gulo luscus</em></td>
<td></td>
</tr>
<tr>
<td>No critical habitat has been designated for this species.</td>
<td></td>
</tr>
<tr>
<td>Species profile: <a href="https://ecos.fws.gov/ecp/species/5123">https://ecos.fws.gov/ecp/species/5123</a></td>
<td>Proposed Threatened</td>
</tr>
</tbody>
</table>

Birds

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marbled Murrelet <em>Brachyramphus marmoratus</em></td>
<td>Threatened</td>
</tr>
<tr>
<td>Population: U.S.A. (CA, OR, WA)</td>
<td></td>
</tr>
<tr>
<td>There is final critical habitat for this species. Your location is outside the critical habitat.</td>
<td></td>
</tr>
<tr>
<td>Species profile: <a href="https://ecos.fws.gov/ecp/species/4467">https://ecos.fws.gov/ecp/species/4467</a></td>
<td></td>
</tr>
<tr>
<td>Streaked Horned Lark <em>Eremophila alpestris strigata</em></td>
<td>Threatened</td>
</tr>
<tr>
<td>There is final critical habitat for this species. Your location is outside the critical habitat.</td>
<td></td>
</tr>
<tr>
<td>Species profile: <a href="https://ecos.fws.gov/ecp/species/7268">https://ecos.fws.gov/ecp/species/7268</a></td>
<td></td>
</tr>
<tr>
<td>Yellow-billed Cuckoo <em>Coccyzus americanus</em></td>
<td>Threatened</td>
</tr>
<tr>
<td>Population: Western U.S. DPS</td>
<td></td>
</tr>
<tr>
<td>There is proposed critical habitat for this species. Your location is outside the critical habitat.</td>
<td></td>
</tr>
<tr>
<td>Species profile: <a href="https://ecos.fws.gov/ecp/species/3911">https://ecos.fws.gov/ecp/species/3911</a></td>
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</table>
Fishes

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bull Trout <em>Salvelinus confluentus</em></td>
<td>Threatened</td>
</tr>
<tr>
<td>Population: U.S.A., conterminous, lower 48 states</td>
<td></td>
</tr>
<tr>
<td>There is <strong>final</strong> critical habitat for this species. Your location is outside the critical habitat.</td>
<td></td>
</tr>
<tr>
<td>Species profile: <a href="https://ecos.fws.gov/ecp/species/8212">https://ecos.fws.gov/ecp/species/8212</a></td>
<td></td>
</tr>
</tbody>
</table>

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.
Attachment 2
Status of ESA Listings & Critical Habitat Designations for West Coast Salmon & Steelhead

<table>
<thead>
<tr>
<th>Evolutionarily Significant Unit / Distinct Population Segment</th>
<th>ESA Status</th>
<th>Date of ESA Listing</th>
<th>Date of CH Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Puget Sound Recovery Domain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hood Canal Summer-run Chum Salmon</td>
<td>T</td>
<td>3/25/1999</td>
<td>9/2/2005</td>
</tr>
<tr>
<td>Ozette Lake Sockeye Salmon</td>
<td>T</td>
<td>3/25/1999</td>
<td>9/2/2005</td>
</tr>
<tr>
<td>Puget Sound Chinook Salmon</td>
<td>T</td>
<td>3/24/1999</td>
<td>9/2/2005</td>
</tr>
<tr>
<td>Interior Columbia Recovery Domain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle Columbia River Steelhead</td>
<td>T</td>
<td>3/25/1999</td>
<td>9/2/2005</td>
</tr>
<tr>
<td>Snake River Fall-run Chinook Salmon</td>
<td>T</td>
<td>4/22/1992</td>
<td>12/28/1999</td>
</tr>
<tr>
<td>Snake River Steelhead</td>
<td>T</td>
<td>8/18/1997</td>
<td>9/2/2005</td>
</tr>
<tr>
<td>Upper Columbia River Spring-run Chinook Salmon</td>
<td>E</td>
<td>3/24/1999</td>
<td>9/2/2005</td>
</tr>
<tr>
<td>Upper Columbia River Steelhead</td>
<td>T</td>
<td>8/18/1997</td>
<td>9/2/2005</td>
</tr>
<tr>
<td>Willamette / Lower Columbia Recovery Domain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Columbia River Chum Salmon</td>
<td>T</td>
<td>3/25/1999</td>
<td>9/2/2005</td>
</tr>
<tr>
<td>Lower Columbia River Chinook Salmon</td>
<td>T</td>
<td>3/24/1999</td>
<td>9/2/2005</td>
</tr>
<tr>
<td>Lower Columbia River Steelhead</td>
<td>T</td>
<td>3/19/1998</td>
<td>9/2/2005</td>
</tr>
<tr>
<td>Upper Willamette River Chinook Salmon</td>
<td>E</td>
<td>10/31/1996 (T)</td>
<td>6/28/2005 (E)</td>
</tr>
<tr>
<td>Upper Willamette River Steelhead</td>
<td>T</td>
<td>8/18/1997</td>
<td>9/2/2005</td>
</tr>
<tr>
<td>California Coastal Chum Salmon</td>
<td>E</td>
<td>11/5/1990 (T)</td>
<td>4/16/1993</td>
</tr>
<tr>
<td>Central Valley Spring-run Chinook Salmon</td>
<td>T</td>
<td>9/16/1999</td>
<td>9/2/2005</td>
</tr>
<tr>
<td>Sacramento River Winter-run Chinook Salmon</td>
<td>E</td>
<td>8/18/1997</td>
<td>9/2/2005</td>
</tr>
<tr>
<td>North-Central California Coast Recovery Domain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>California Central Valley Steelhead</td>
<td>T</td>
<td>3/19/1998</td>
<td>9/2/2005</td>
</tr>
<tr>
<td>Central Valley Spring-run Chinook Salmon</td>
<td>T</td>
<td>9/16/1999</td>
<td>9/2/2005</td>
</tr>
<tr>
<td>Sacramento River Winter-run Chinook Salmon</td>
<td>E</td>
<td>11/5/1990 (T)</td>
<td>4/16/1993</td>
</tr>
<tr>
<td>South-Central / Southern California Coast Recovery Domain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South-Central California Coast Steelhead</td>
<td>T</td>
<td>8/18/1997</td>
<td>9/2/2005</td>
</tr>
<tr>
<td>Southern California Steelhead</td>
<td>E</td>
<td>8/18/1997</td>
<td>9/2/2005</td>
</tr>
</tbody>
</table>

ESA = Endangered Species Act, CH = Critical Habitat, RE = Range Extension
E = Endangered, T = Threatened.
Critical Habitat Rules Cited

- 2/24/2016 (81 FR 9252) Final Critical Habitat Designation for Puget Sound Steelhead and Lower Columbia River Coho Salmon
- 2/11/2008 (73 FR 7816) Final Critical Habitat Designation for Oregon Coast Coho Salmon
- 9/2/2005 (70 FR 52630) Final Critical Habitat Designation for 12 ESU's of Salmon and Steelhead in WA, OR, and ID
- 9/2/2005 (70 FR 52488) Final Critical Habitat Designation for 7 ESU's of Salmon and Steelhead in CA
- 10/25/1999 (64 FR 57399) Revised Critical Habitat Designation for Snake River Spring/Summer-run Chinook Salmon
- 5/5/1999 (64 FR 24049) Final Critical Habitat Designation for Central CA Coast and Southern OR/Northern CA Coast Coho Salmon
- 12/28/1993 (58 FR 68543) Final Critical Habitat Designation for Snake River Chinook and Sockeye Salmon
- 6/16/1993 (58 FR 33212) Final Critical Habitat Designation for Sacramento River Winter-run Chinook Salmon

ESA Listing Rules Cited

- 4/2/2012 (77 FR 19552) Final Range Extension for Endangered Central California Coast Coho Salmon
- 2/11/2008 (73 FR 7816) Final ESA Listing for Oregon Coast Coho Salmon
- 5/11/2007 (72 FR 26722) Final ESA Listing for Puget Sound Steelhead
- 1/5/2006 (71 FR 5248) Final Listing Determinations for 10 Distinct Population Segments of West Coast Steelhead
- 6/28/2005 (70 FR 37160) Final ESA Listing for 16 ESU's of West Coast Salmon
- 6/7/2000 (65 FR 36074) Final ESA Listing for Northern California Steelhead
- 9/16/1999 (64 FR 50394) Final ESA Listing for Two Chinook Salmon ESUs in California
- 3/25/1999 (64 FR 14508) Final ESA Listing for Hood River Canal Summer-run and Columbia River Chum Salmon
- 3/25/1999 (64 FR 14517) Final ESA Listing for Middle Columbia River and Upper Willamette River Steelhead
- 3/25/1999 (64 FR 14528) Final ESA Listing for Ozette Lake Sockeye Salmon
- 3/24/1999 (64 FR 14308) Final ESA Listing for 4 ESU's of Chinook Salmon
- 3/19/1998 (63 FR 13347) Final ESA Listing for Lower Columbia River and Central Valley Steelhead
- 8/18/1997 (62 FR 43937) Final ESA Listing for 5 ESU's of Steelhead
- 5/6/1997 (62 FR 24588) Final ESA Listing for Southern Oregon / Northern California Coast Coho Salmon
- 10/31/1996 (61 FR 56138) Final ESA Listing for Central California Coast Coho Salmon
- 4/22/1992 (57 FR 14653) Final ESA Listing for Snake River Spring/summer-run and Snake River Fall Chinook Salmon
- 11/20/1991 (56 FR 58619) Final ESA Listing for Snake River Sockeye Salmon
Structural Calculations For

Totem Lake Park

Totem Lake, WA 98034

Prepared for: The Berger Partnership

Job #: 00586-2015-04-02
**USGS Design Maps Summary Report**

**User-Specified Input**

- **Report Title**: Totem Lake Boardwalk  
  Tue October 3, 2017 22:09:28 UTC

- **Building Code Reference Document**: ASCE 7-10 Standard  
  (which utilizes USGS hazard data available in 2008)

- **Site Coordinates**: 47.7145°N, 122.18094°W

- **Site Soil Classification**: Site Class E - “Soft Clay Soil”

- **Risk Category**: I/II/III

---

**USGS-Provided Output**

\[
S_a = 1.254 \text { g} \\
S_{sa} = 1.129 \text { g} \\
S_{st} = 0.752 \text { g} \\
S_{so} = 0.774 \text { g}
\]

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the “2009 NEHRP” building code reference document.

---

For PGA, Tc, Cso, and Cst values, please view the detailed report.

$W_{31} = 1.00$

$\mathbf{v} = 110$ mph

Exposure B
Criteria Sheet

Codes:
- Structural: IBC 2015
- ASCE 7-10
- Wood: NDS 2015
- Steel: AISC 14th ed.
- Concrete: ACI 318-14
- Masonry: ACI 530-13

Occupancy Category
- Risk Category: II

Seismic Load Summary:
- Analysis Procedure: Equivalent Lateral Force Procedure
- Lateral System: Ordinary Steel Cantilevered Columns
  - V = 1.25
  - S, = 1.254
  - S, = 0.75
  - C, = 0.002

Wind Load Summary:
- U, = 1.00
- V = 110
- Exposure = B
- K,U, = 1.00

Dead Loads:
- Boardwalk
  - Decking: 3 psf
  - Boardwalk Framing: 12 psf
  - Guardrail Weights: 4 psf
  - Misc.: 1 psf
  - Use: 20 psf

Live Loads:
- Snow: 25 psf
- Walkway: 100 psf

Soils:
- Allowable Bearing NA - Pile Supported psf

Project: Totem Lake Park
- kirkland, WA
- Date: 11/10/2017
- Project #: __________
- Design: GFJ
- Sheet: 3
### Seismic Design

**ASCE 7-10 Seismic Analysis**

**Equivalent Lateral Force Procedure**

| Risk Category | II, II, or III, or IV per Table 1.5-1
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Class</td>
<td>E (D assumed, without soils report)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>$\alpha$</th>
<th>1.25</th>
</tr>
</thead>
<tbody>
<tr>
<td>$S_0$</td>
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<tr>
<td>$S_1$</td>
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<tr>
<td>$h_o$</td>
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<td>$R$</td>
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<td>1.25</td>
</tr>
<tr>
<td>$C_1$</td>
<td>0.02</td>
</tr>
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<td>$x$</td>
<td>0.75</td>
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<tr>
<td>$T_a$</td>
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<td>$T_s$</td>
<td>0.21 (sec)</td>
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<tr>
<td>$k$</td>
<td>1.000</td>
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<tr>
<td>$F_s$</td>
<td>0.00</td>
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<tr>
<td>$F_v$</td>
<td>2.40</td>
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<td>$S_{H}$</td>
<td>1.16</td>
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<td>$S_{ES}$</td>
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<td>$S_{EH}$</td>
<td>0.77</td>
</tr>
<tr>
<td>$C_s$</td>
<td>0.602</td>
</tr>
</tbody>
</table>

- $C_s$, design: 0.602
- Bldg. Weight: 3.0 k

$V = C_s W = 1.8 k$ (Eq. 12.8-1, Strength Level Base Shear)

$V = C_{max} W = 1 k$ (Eq. 12.8-1 Allowable Stress Base Shear)

#### Vertical Distribution

<table>
<thead>
<tr>
<th>Level</th>
<th>$h_x$ (ft)</th>
<th>$W_x$</th>
<th>$h_x^2$ (ft)</th>
<th>$W_xh_x$</th>
<th>$C_{VX}$ (%)</th>
<th>$F_x$ (k)</th>
<th>$ZV$ (k)</th>
<th>$F_{px}$ (k)</th>
<th>$y_{px} = F_{px}/F_x$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roof</td>
<td>1.0</td>
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<td></td>
<td></td>
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<tr>
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<td>10.0</td>
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<td>0.323</td>
<td>0.5</td>
<td>1.6</td>
<td>0.4</td>
<td>0.790</td>
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<tr>
<td>E</td>
<td>3.0</td>
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<td>31.0</td>
<td>0.6</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

$C_{VX} = \frac{w_x h_x^2}{\sum_{i=1}^{n} w_x h_i^2}$ (Eq. 12.8-12)

$F_{px} = \frac{\sum_{i=1}^{n} F_i}{\sum_{i=1}^{n} w_i} w_{px}$ (Eq. 12.10-1)

$F_{px} \geq 0.2S_{DS}/I_kw_{px}$ (Eq. 12.10-2)

$F_{px} \leq 0.4S_{DS}/I_kw_{px}$ (Eq. 12.10-3)

---

**Structural Engineers**

2124 Third Avenue, Suite 100, Seattle, WA 98121

Phone: 206.445.6212

Fax: 206.443.4870
Wind Design

ASCE 7-10  Method 2 - Analytical Procedure

Wind Coefficients

<table>
<thead>
<tr>
<th>Exposure</th>
<th>B</th>
<th>V= 110</th>
<th>mph</th>
</tr>
</thead>
<tbody>
<tr>
<td>K_x</td>
<td>0.85</td>
<td>Table 26.6-1</td>
<td></td>
</tr>
<tr>
<td>L_x</td>
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<td>Table 1.5-2</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>0.86</td>
<td>26.94</td>
<td></td>
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</table>

Pressure Coefficients from Figure 27.4-1:

<table>
<thead>
<tr>
<th>Bidg Face</th>
<th>C_d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windward Wall</td>
<td>0.8</td>
</tr>
<tr>
<td>Leeward Wall</td>
<td>-0.5</td>
</tr>
<tr>
<td>Windward Roof</td>
<td>0</td>
</tr>
<tr>
<td>Leeward Roof</td>
<td>-0.7</td>
</tr>
</tbody>
</table>

*Note: Cp values are conservative worst case values

Location and Building Dimensions

<table>
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<th>Calculate Kzt?</th>
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</tr>
</thead>
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<td>Kzt</td>
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</tr>
<tr>
<td>Roof Angle</td>
<td>0 degrees</td>
</tr>
<tr>
<td>Ground to top of roof</td>
<td>8 ft</td>
</tr>
<tr>
<td>Bottom of roof to top of roof</td>
<td>1 ft</td>
</tr>
<tr>
<td>(mean roof height) h</td>
<td>7.5 ft</td>
</tr>
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</table>

Pressures:

<table>
<thead>
<tr>
<th>Ht</th>
<th>K_x</th>
<th>g_x</th>
<th>P_wet</th>
<th>P_wet</th>
<th>P_in</th>
<th>P_out</th>
<th>P_allow</th>
<th>P_allow</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-15</td>
<td>0.57</td>
<td>15.01</td>
<td>10.21</td>
<td>6.38</td>
<td>16.58</td>
<td>9.55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-20</td>
<td>0.62</td>
<td>16.32</td>
<td>11.10</td>
<td>6.38</td>
<td>17.48</td>
<td>10.49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-25</td>
<td>0.66</td>
<td>17.38</td>
<td>11.82</td>
<td>6.38</td>
<td>18.20</td>
<td>10.92</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-30</td>
<td>0.7</td>
<td>18.43</td>
<td>12.53</td>
<td>6.38</td>
<td>18.91</td>
<td>11.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-40</td>
<td>0.76</td>
<td>20.01</td>
<td>13.61</td>
<td>6.38</td>
<td>19.99</td>
<td>11.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41-50</td>
<td>0.81</td>
<td>21.33</td>
<td>14.00</td>
<td>6.38</td>
<td>20.80</td>
<td>12.53</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P_wet, P_in, P_out, P_allow

K_{zt} = (1 + K_1 K_2 K_3)^2
K_1 = Per Figure
K_2 = (1 - |x|/L_h)
K_3 = e^{-\gamma z/L_h}
K_{zt} = 1, if H/L_h \leq 0.2

PER FIGURE 26.8-1

Project: Totem Lake Park

Date: 11/10/2017

kirkland, WA

Project #: GFJ

Design: GFJ

Sheet: 5
Lateral Analysis (Boardwalk)

$S_s = 1.254$, $F_t = 0.90$, $S_{sm} = 1.128$, $S_{ds} = 0.752$

$S_1 = 0.483$, $F_V = 2.40$, $S_{my} = 1.159$, $S_{d1} = 0.773$

Site Class "E", Risk Category II

$R = 1.25$ (Ordinary Cantilevered Steel Column System)

Allowed for Site Class "E", Footnote "i"

due to height + weight

$C_s = \frac{S_{ds}}{(R/\text{KS})} = \frac{0.752}{(1.25/100)} = 0.602$ + Governs

$C_{s\text{max}} = \frac{S_{d1}}{T(R/\text{KS})} = \frac{0.773}{10(1.25/100)} = 0.616$

$C_{s\text{min}} = 0.0449S_{ds}\text{ KS} = 0.033$

$V_{base} = C_s \cdot W$

$C_s = 0.602$

$W = (20 \text{ psf} \times 16' \times 20') = 4000 \text{ lbs}$

$V_{base} = 0.602 \times 4000 = 2.411 \text{ k}$

$V_{base(ASD)} = (0.7)(2.411) = 1.681 \text{ k} (\text{East Direction})$

Projected Sail Area (Perp. To Boardwalk)

$T = (20')(4.5)(0.65)(16 \text{ psf}) = 936 \text{ lbs}$ (Service Level)

$V_{base} = 0.6(936 \text{ lbs}) = 562 \text{ lbs}$ (ASD) (Perp.)

Seismic Governs

Totem Lake Park 12/1/18

PROJECT Kirkland, WA

DATE

PROJ.  G-F-J

DESIGN L-1

SHEET
Lateral Design (Boardwalk)

\[ V_{\text{base}} = 1.68 \text{kN (ASD)} \] Ea Pile Cap.

* Use Battered Piles to Resist Forces *

Use Horiz component of Battered Piles 2°:

\[ = \left( \sin(14°) \right) \left( 4,000 \text{ lbs} \right) = 0.967 \text{ kN/pile} \]

Use (2) 2"/\# Battered Piles In Ea Direction

\[ L_p = (2)(0.967 \text{ kN/pile}) = 1.93 \text{ kN} > 1.68 \text{ kN} \] OK

Totem Lake, Kirkland, WA

12/1/18

PROJECT

DESIGN

SHEET
Lateral Design (Boardwalk Beam)

Design Theory:
Since the grating used does not have the ability to act as a structural diaphragm, we are checking the boardwalk beams for connections in weak-axis bending to transfer seismic forces.

Check Center Beam:

\[ \text{Span} = 20' \]
\[ w_1 = (1680 \text{ lbs}) \left( \frac{1}{2} \right) \left( \frac{1}{10} \right) = 84 \text{ p} \text{lbf} \]

Trib Area:

Weak Axis Bending (Seismic Only)

\[ R_a = 0.84 k \]
\[ V_{ax} / \alpha = 61.3 k \]
\[ V_a = 0.84 k \]
\[ M_{nx} / \alpha = 20.4 k \]
\[ M_a = 4.70 k \]
\[ \kappa = 0.60" / 398 \]

Use W12x26

Check Biaxial Flexure (Combined)

\[ P_r / P_c < 0.2 \]

\[ \text{Use } \frac{P_r}{2P_c} \left( \frac{M_{nx} + M_{ny}}{M_{ncx}} \right) \leq 1.0 \]

\[ \left( \frac{4.70}{20.4} + \frac{20.0}{75.7} \right) = 0.601 < 1.00 \]

Use W12x26

Totem Lake Park
Kirkland, WA

12/1/06

DATE
PROJ. #
DESIGN
SHEET
Lateral Design Continued (Boardwall Beams)

Check Edge Beam:

Span  = 20'

\[ W = \left(1680 \times \frac{1}{14}\right) \times \frac{1}{10'} = 42 \text{ kips} \]

Weak Axis Bending

\[ \begin{align*}
Ra &= 0.42k' & Wn/\omega &= 27.4k \\
Va &= 0.42k' & Mn/\omega &= 9.53k \text{-kips} \\
Wc &= 2.10k' & \Delta &= 1.17(1/20s)
\end{align*} \]

Use C12x25

Check Biaxial Flexure (Combined)

\[ Pr/Pc < 0.2 \quad \text{Use Eqn} \quad \frac{Pr}{2Pc} \left( \frac{\text{Max}}{\text{Max}} + \frac{\text{Min}}{\text{Min}} \right) = 1.00 \]

\[ \left( \frac{2.10 + 15.00}{9.53 + 37.8} \right) = 0.162 < 1.00 \quad \text{OK} \]

Use C12x25

Check Connection @ Beam Ends:

Use (1) 5/8" x 307 Bolt To Pile Cap Beam

\[ \frac{Pr}{2} = 4.14k/\text{Bolt} > 840 \text{lbs or 420 lbs} \quad \text{OK} \]

(Seismic out-of-plane reaction)

Totem Lake Park 12/1/18

Kirkland, WA
Beardwall Gravity

Live Load = 100psf
DL = 20 psf
Snow = 25psf

Grating shall be Pultruded T25115 1 1/2" Depth Grating (Safe - T-3 span)

Typical Rim Beam
Span = 20'
\( w = (10/4)(120psf) = 300psf \)

\( R = 3.00k/3.75in \) \( M_a = 28.3k' \)
\( M_a = 15.00k/23.98in \) \( \Delta = 0.23''/1043 \)

Use C12 x 30

Center Beam
Span = 20'
\( w = (10/2)(120psf) = 600psf \)

\( R = 6.00k/70 \) \( M_a = 53.3k' \)
\( M_a = 30.00k/46.5'' \) \( \Delta = 0.31''/1047 \)

Pile Spacing
Total Reaction @ 20'
\( = (120psf)(10')(20') = 24,000 \)

2 1/4" Pile Capacity = 41k
Use (6) 2 1/4" Pipe Piles
@ 20' - 0' OC

\( \tan \theta = \frac{opp}{adj} \)
\( \theta = 140^\circ \)

Vertical Component
\( = (\cos(140^\circ))(41k) = 3.83k \)

For Bornteed Piles
Total Support Capacity
\( (6)(3.83k) = 23.08k \)

S = T

Tote Lake Park
Wickland, WA

DATE: 12/11/18
PROJ #: E-17
DESIGN: S & F
PROJECT: Structural Engineering
Spray Park Slab Design + Pile Spacing

DL = (8/12)(150) (self-wt) + (5/12)(150) (Topping Slab) = 162 psf → Use 200 psf

LL = 100 psf

Total = 200 psf (ASD)

Use 4"Ø Schedule 40 Pipe Piles w/ 20 kips Capacity

Spacing = \( \frac{20,000 \text{lbs}}{200 \text{psf}} \) = 8.16' OC

Use 4"Ø Schedule 40 @ 8'-0" OC Ea Way

Slab Design: (Two-Way Slab Design)

\( q_u = (1.2)(200) + (1.6)(100) = 400 \text{ psf} \)

\( l_1 = 8' \) (Length in Span direction)

\( l_2 = 8' \) (Perp. to \( l_1 \))

\( w_c = 8'/2 = 4' \)

\( w_m = 9' - 8'/2 = 4' \), \( l_h = 8' \)

Flexure:

\( M_o = q_u l_2 l_h \frac{l^2}{8} = (400)(8')(8')^2 = 25.60 \text{ k-ft} \)

\( M_m = 0.35 M_o = (0.35)(25.60) = 8.96 \text{ k-ft} \)

\( M_{cm} = 0.60 M_m = (0.60)(8.96 \text{ k-ft}) = 5.40 \text{ k-ft} \) (Col Strip Moment Midspan)

\( M_{mm} = M_m - M_{cm} = 3.58 \text{ k-ft} \) (Mid Strip Positive Moment Midspan)

Totem Lake Park

Kirkland, WA

12/1/18

GJ

6-2
Sonan Park Slab Design Continued

Flexure:

\[ M_c = 0.65 M_0 = (0.65)(25.60) = 16.64 \text{ k-ft} \]
\[ M_{cc} = (0.75)M_c = (0.75)(16.64 \text{ k-ft}) = 12.48 \text{ k-ft} \]
\[ M_{mc} = M_c - M_{cc} = 4.16 \text{ k-ft} \]

Check Slab For Worst Case Positive Moment @ Mid

\[ \phi M_n = 0.62 F_{yd} (d - a/2) = (63.10 \text{ k-in})(8') = 42.07 \text{ k-ft} \]

Use 8" slab w/ #5 @ 12" OC Centered

Check Slab For Worst Case Negative Moment @ Support

\[ \phi M_n = 42.07 \text{ k-ft} \]

Use 8" slab w/ #5 @ 12" OC Centered

Totem Lake Park

Project: Kirkland, WA

Date: 12/1/18
Spray Park Slab Design Continued:

Check Flexural Shear @ Support:

\[ x = \frac{l_1}{2} - \left( d + \frac{c_1}{2} \right) = 3.41 \text{ ft} \]

\[ V_u = q u l_2 x = (400 \text{ psf})(8')(3.41') = 10.91 \text{ k} \]

\[ V_C = 2 \varphi d l_2 + f'c \]

\[ = (2)(0.45)(4)(96)(1.0)(3400) = 36.43 \text{ k} > V_u \]

8" Slab OK

Check Punching Shear:

\[ b = c + d = (6' + 4') = 0.83 \text{ ft} \]

\[ V_u = q u (l_1 l_2 - b^2) = 25.32 \text{ k} \]

\[ b_0 = 4b = (4)(0.83') = 3.32 \text{ ft} \]

\[ V_C = 4 \varphi b_0 d x + f'c \]

\[ = (4)(0.45)(40)(4)(1.0)(3400) = 30.35 \text{ k} > V_u \]

8" Slab OK

Totem Lake Park

Kirkland, WA

12/1/18

PROJECT: Kirkland, WA

DATE: 12/1/18

PROJ #: EFS

DESIGN: E-4

SHEET:
Concrete Stair on Grade Design

\[ W_{BL} = \left( \frac{1}{6} \right) (600) = 75 \text{ psf} \]
\[ W_{LL} = 100 \text{ psf} \]
\[ w_u = (1.2)(75) + (1.6)(100) = 250 \text{ psf} \]

Check One-Way Slab Design:

\[ w_u = (250 \text{ psf})(1 \text{ ft}) = 250 \text{ psf} \]
\[ l_n = 9.5' \]

Try #4 @ 12" OC Endway Centered

\[ A_s = 0.20 \text{ in}^2 \]
\[ f'c = 3 \text{ ksi}, f_y = 60 \text{ ksi} \]
\[ b_w = 12" \]
\[ d = 3" \]
\[ a = \frac{A_s f_y}{0.85 f'c b_w} = 0.39 \text{ in} \]

\[ M_u = w_u l_n^2 / 12 = 24.61 \text{ k-ft} \]
\[ \phi M_n = \phi A_s f_y (d - a/2) = 30.3 \text{ k-ft} > M_u \text{ OK} \]

As \[ M_{min} = \frac{200 b_w d}{f_y} = 0.12 \text{ in}^2 / \text{ft} \text{ V} \]
\[ A_s M_{min} = \frac{3 b_w d}{f_y} = 0.098 \text{ in}^2 / \text{ft} \text{ V} \]

\[ P = \frac{A_s}{b_d} = 0.0055 \text{ V}, f_t = 0.319 (f_y) (l_c) = 0.0135 \]

\[ \rightarrow \text{Tension controlled OK} \rightarrow \text{Ductile Failure} \]

\[ V_u = 1.15 w_u l_n / 2 = 1.36 \text{ k} \]

\[ V_c = 0.2 f'c b_w d = 2.96 \text{ k} > V_u \text{ OK} \]
\[ V_{1/2} > V_u \rightarrow \text{No Shear Steel Req'd} ! \]

Use 6" Slab with #4 @ 12" OC Endway

PROJECT
Tokem Lake Park
Kirkland, WA

DATE
12/1/18

PROJ.
GFI

DESIGN
G-5
Concrete Stair on Grade Design Cont'd

Check Grade Beam Design + Pile Spacing:

\[ W_u = (250 \text{ psf}) \times (10') = 1250 \text{ plb (LRFD)} \]

\[ h = 4' \text{ (pile spacing)} \]

\[ W_u = \frac{W_u h n^2}{12} = 21.82 \text{ k-in} \]

\[ b_w = 8'' \]

\[ \alpha = \frac{A_s F_y}{0.85 F_c b_w} = 1.17 \text{ in} \]

\[ f_{min} = 0.319 (3) \left( \frac{F_y}{F_c} \right) = 6.01 \text{ k-in} > W_u \text{ OK} \]

\[ \frac{f_{min}}{F_c b_w / F_y} = 0.1192 \text{ in} \]

\[ V_u = 1.15 W_u h n / 2 = 2.88 \text{ k} \]

\[ \phi V_c = 0.24 F_c b_w = 5.75 \text{ k} \]

\[ \phi V_c / 2 > V_u \rightarrow \text{ No Shear Steel Required} \]

Use 8' Wide x 12' Deep Conc Grd Beam W/ (2) #4 Cont. Bot.

Pile Spacing:

\[ W_a = (75 + 100)(10') = 875 \text{ plb (allowable) (ASD)} \]

Pile Capacity 2' x 8 Schedule 80 = 4000 lbs

\[ \text{Spacing} = \frac{4000}{575} = 4.57' \text{ OC} \]

Use 2' x Schedule 80 Pipe Piles @ 4'-0" OC

Totem Lake Park

Vashon

\[ 12/1/18 \]

DATE

PROJECT

Vashon, WA

PROJ. #

6FJ

DESIGN

5-6

SHEET
**Pipe Pile Capacity Check**

\[ F_y = 35 \text{ ksf} \quad E = 29,000 \text{ ksf} \]

<table>
<thead>
<tr>
<th>Diameter</th>
<th>2&quot; Pipe (Sch 40)</th>
<th>3&quot; Pipe (Sch 80)</th>
<th>4&quot; Pipe (Sch 80)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>11.7</td>
<td>12.5</td>
<td>14.3</td>
</tr>
<tr>
<td>dx</td>
<td>91</td>
<td>91</td>
<td>91</td>
</tr>
<tr>
<td>A</td>
<td>1.40 ft²</td>
<td>2.83 ft²</td>
<td>4.14 ft²</td>
</tr>
<tr>
<td>k</td>
<td>15'</td>
<td>15'</td>
<td>15'</td>
</tr>
<tr>
<td>z</td>
<td>0.771 in</td>
<td>1.14 in</td>
<td>1.48 in</td>
</tr>
<tr>
<td>s</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>( F_e )</td>
<td>232 &gt;</td>
<td>158 &gt;</td>
<td>122 &lt;</td>
</tr>
<tr>
<td>4.71( F_e )</td>
<td>136</td>
<td>136</td>
<td>136</td>
</tr>
<tr>
<td>Fe</td>
<td>5122 psi</td>
<td>11,465 psi</td>
<td>19,229 psi</td>
</tr>
<tr>
<td>Fc</td>
<td>4,623 psi</td>
<td>10,054 psi</td>
<td>16,338 psi</td>
</tr>
<tr>
<td>( P_n )</td>
<td>3,876 lbs</td>
<td>17,038 lbs</td>
<td>40,502 lbs</td>
</tr>
</tbody>
</table>

---

**Totton Lake Park**

**Date**: 12/1/18

**Project**: Kirkland, WA

**Sheet**: 6-7
Wood Boardwall Gravity  

Live Load = 100 psf  
DL = 20 psf  
Snow = 25 psf  

Typical Infill Purlin Framing  
Span = 8'  
\( w = \frac{16}{12}(120 \text{psf}) = 160 \text{psf} \)  

\[ R = 0.64 \times 160 = 102.4 \text{psf} \]  
\[ M = 1.28 \times 160 = 204.8 \text{psf} \]  
\[ \Delta = 0.115'' / 83'' \]  

Use P.T. 2x10 @ 16" OC  

Typical Purlin Support Beam  
Span = 10'  
\( w = (8') (120 \text{psf}) = 960 \text{psf} \)  

\[ R_1 = 2.30 \times 960 = 2192 \text{psf} \]  
\[ R_2 = 3.45 \times 960 = 3288 \text{psf} \]  
\[ M = 5.53 \times 8 = 44.24 \text{psf} \]  

Use (2) P.T. 4x12  

---  

Totem Lake Park  
Kirkland, WA  

DATE: 12/1/19  
PROJ #: GFJ  
DESIGN: G-8  
SHEET:
STRUCTURAL CALCULATIONS

Totem Lake Park
Phase 1
Kirkland, WA  98034

INNOVA Job No. 17-116

Prepared for:
Kirkland Parks and Community Services Department
123 5th Avenue
Kirkland, WA  98033
(425) 587-3874

November 29, 2017

Prepared by:
Paul McCormick P.E., S.E.
### TABLE OF CONTENTS

This package includes the following:

**Section:**

Gravity Design – Structure and Foundation

Lateral Design – Base Shear, Wood and CMU Shear Walls, Roof Diaphragm
GRAVITY DESIGN

STRUCTURE AND FOUNDATION
## Roof Design Loads

<table>
<thead>
<tr>
<th>Items</th>
<th>Description</th>
<th>Multiple</th>
<th>psf (max)</th>
<th>psf (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roofing</td>
<td>Metal, copper, or tin sheets</td>
<td>1.5</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Deck</td>
<td>3/4&quot; plywood/OSB</td>
<td>2.7</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>Framing</td>
<td>Steel roof beams &amp; girders</td>
<td>5.0</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>Insulation</td>
<td>None</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Ceiling</td>
<td>5/8&quot; plywood/OSB</td>
<td>2.2</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td>Sprinklers</td>
<td>None</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Mech &amp; Elec.</td>
<td>Mech. &amp; Elec.</td>
<td>2.0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Misc.</td>
<td>Decking</td>
<td>2.2</td>
<td>1.8</td>
<td></td>
</tr>
</tbody>
</table>

- **Actual Dead Load**: 15.6 psf (max) 9.9 psf (min)
- **Use this DL instead**: 16.0 psf (max) 12.0 psf (min)
- **Live Load**: 10.0 psf (max) 0.0 psf (min)
- **Snow Load**: 25.0 psf (max) 0.0 psf (min)
- **Wind (zone 2 - 100sf)**: 10.0 psf (max) -14.1 psf (min)

### ASD Loading
- Dead + Snow Load: 41.0 psf
- Dead + 0.75(Wind + Snow) Load: 42.3 psf
- 0.6*Dead + Wind Load: -6.9 psf

### LRFD Loading
- 1.2D + 1.6S + 0.8W: 67.2 psf
- 1.2D + 1.6W + 0.5S: 47.7 psf
- 0.9D + 1.6W: -11.8 psf

### Roof Live Load Reduction

- **Roof angle**: 0.00 / 12
- **Roof angle**: 0.0 deg

- 0 to 200 sf: 10.0 psf
- 200 to 600 sf: 24 - 0.02 Area, but not less than 12 psf
- over 600 sf: 12.0 psf

- 300.0 sf: 18.0 psf
- 400.0 sf: 16.0 psf
- 500.0 sf: 14.0 psf

**User Input**: 2000.0 sf: 12.0 psf
Steel Beam

Lic. # : KW-06010241
Description : Roof Beam

CODE REFERENCES
Calculations per AISC 360-10, IBC 2012, ASCE 7-10
Load Combination Set : ASCE 7-10

Material Properties
Analysis Method : Allowable Strength Design
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling
Bending Axis : Major Axis Bending
Load Combination ASCE 7-10

- 2015

Fy : Steel Yield : 50.0 ksi
E : Modulus : 29,000.0 ksi

NOTE = W10 x 14, 12

Applied Loads
Beam self weight calculated and added to loading
Uniform Load : D = 0.0160, S = 0.0250 ksi, Tributary Width = 4.0 ft, (Gravity)

DESIGN SUMMARY
Maximum Bending Stress Ratio = 0.282 : 1
Section used for this span W10x12
Ma : Applied 8.803 k-ft
Mn / Omega : Allowable 31.207 k-ft
Load Combination +D+S+H
Location of maximum on span 10,000 ft
Span # where maximum occurs Span # 1

Maximum Deflection
Max Downward Transient Deflection 0.233 in Ratio = 1,031
Max Upward Transient Deflection 0.000 in Ratio = 0 <360
Max Downward Total Deflection 0.409 in Ratio = 586
Max Upward Total Deflection 0.000 in Ratio = 0 <240

Design OK

Maximum Forces & Stresses for Load Combinations

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Max Stress Ratios</th>
<th>Summary of Moment Values</th>
<th>Summary of Shear Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mmax + Mmax - Ltd</td>
<td>Mmax - Ma - Max Mnx Mnx/Omega</td>
<td>Va Va Max Vnx Vnx/Omega</td>
</tr>
<tr>
<td>+D+H</td>
<td>Dsgn. L = 20.00 ft</td>
<td>1.022 0.020 3.80 3.80 52.12 31.21 1.00 1.00</td>
<td>0.76 56.26 37.51</td>
</tr>
<tr>
<td>+Df+H</td>
<td>Dsgn. L = 20.00 ft</td>
<td>1.022 0.020 3.80 3.80 52.12 31.21 1.00 1.00</td>
<td>0.76 56.26 37.51</td>
</tr>
<tr>
<td>+Df+H</td>
<td>Dsgn. L = 20.00 ft</td>
<td>1.022 0.020 3.80 3.80 52.12 31.21 1.00 1.00</td>
<td>0.76 56.26 37.51</td>
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<tr>
<td>+Df+H</td>
<td>Dsgn. L = 20.00 ft</td>
<td>1.022 0.020 3.80 3.80 52.12 31.21 1.00 1.00</td>
<td>0.76 56.26 37.51</td>
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<td>+Df+H</td>
<td>Dsgn. L = 20.00 ft</td>
<td>1.022 0.020 3.80 3.80 52.12 31.21 1.00 1.00</td>
<td>0.76 56.26 37.51</td>
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<tr>
<td>+Df+H</td>
<td>Dsgn. L = 20.00 ft</td>
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<td>0.76 56.26 37.51</td>
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<td>Dsgn. L = 20.00 ft</td>
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<td>0.76 56.26 37.51</td>
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<td>Dsgn. L = 20.00 ft</td>
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<td>0.76 56.26 37.51</td>
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</table>
### Steel Beam

**Load Combination**

<table>
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<tr>
<th>Segment Length</th>
<th>Span #</th>
<th>M</th>
<th>V</th>
<th>Mmax +</th>
<th>Mmax -</th>
<th>Ma - Max</th>
<th>Mnx</th>
<th>Mnx/omega</th>
<th>Cb</th>
<th>Rm</th>
<th>Va Max</th>
<th>VnX</th>
<th>VnX/omega</th>
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<tr>
<td>+0.60D+0.70E+0.60H</td>
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<td>0.073</td>
<td>0.012</td>
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<td>1.00</td>
<td>0.46</td>
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**Degn. L = 20.00 ft**

**Overall Maximum Deflections**

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<tr>
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<th>Span</th>
<th>Max. <strong>.</strong> Defl</th>
<th>Location in Span</th>
<th>Load Combination</th>
<th>Max. <strong>.</strong> Defl</th>
<th>Location in Span</th>
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<tbody>
<tr>
<td>+D+V+S+H</td>
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**Vertical Reactions**

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<th>Load Combination</th>
<th>Support 1</th>
<th>Support 2</th>
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<tr>
<td>Overall MAXimum</td>
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<td>1.761</td>
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<tr>
<td>Overall MINimum</td>
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<tr>
<td>+D+H</td>
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<tr>
<td>+D+L+H</td>
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<tr>
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<tr>
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<td>1.511</td>
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<tr>
<td>+D+0.60W+H</td>
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<tr>
<td>+D+0.60E+L+0.60H</td>
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<td>0.456</td>
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<td>0.761</td>
</tr>
<tr>
<td>L Only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S Only</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>W Only</td>
<td></td>
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<tr>
<td>E Only</td>
<td></td>
<td></td>
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<tr>
<td>H Only</td>
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**Steel Section Properties**: W10x12

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
<tr>
<td>Depth</td>
<td>9.870 in</td>
</tr>
<tr>
<td>Web Thick</td>
<td>0.190 in</td>
</tr>
<tr>
<td>Flange Width</td>
<td>3.860 in</td>
</tr>
<tr>
<td>Flange Thick</td>
<td>0.210 in</td>
</tr>
<tr>
<td>Area</td>
<td>3.540 in^2</td>
</tr>
<tr>
<td>Weight</td>
<td>12.059 lb</td>
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<tr>
<td>K1</td>
<td>0.563 in</td>
</tr>
<tr>
<td>Torsion</td>
<td>0.983 in</td>
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<tr>
<td>Yield</td>
<td>4.935 in</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>J</td>
<td>0.055 in^4</td>
</tr>
<tr>
<td>Cw</td>
<td>50.90 in^6</td>
</tr>
<tr>
<td>Wno</td>
<td>9.560 in^2</td>
</tr>
<tr>
<td>Sw</td>
<td>1.990 in^4</td>
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<tr>
<td>Qf</td>
<td>1.910 in^3</td>
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<tr>
<td>Qw</td>
<td>6.140 in^3</td>
</tr>
</tbody>
</table>
Steel Beam
Lic. #: KW-06010241
Description: Roof Transfer Beam

CODE REFERENCES
Calculations per AISC 360-10, IDC 2012, ASCE 7-10
Load Combination Set: ASCE 7-10

Material Properties
Analysis Method: Allowable Strength Design
Beam Bracing: Beam is Fully Braced against lateral-torsional buckling
Bending Axis: Major Axis Bending
Load Combination: ASCE 7-10

Applied Loads
Beam self weight calculated and added to loading
Load for Span Number 1
- Uniform Load: D = 0.0160, S = 0.0250 ksf, Tributary Width = 4.0 ft, (Gravity)
- Point Load: D = 1.870, S = 1.890 k @ 0.0 ft, (Side Beam)
Load for Span Number 2
- Uniform Load: D = 0.0160, S = 0.0250 ksf, Tributary Width = 4.0 ft, (Gravity)
Load for Span Number 3
- Uniform Load: D = 0.0160, S = 0.0250 ksf, Tributary Width = 4.0 ft, (Gravity)
- Point Load: D = 1.870, S = 1.890 k @ 4.0 ft, (Side Beam)

DESIGN SUMMARY
Maximum Bending Stress Ratio = 0.353 : 1
Section used for this span W10x17
Mn / Omega : Allowable 16.468 k-ft
Load Combination +Ds+H
Location of maximum on span 20.000 ft
Span # where maximum occurs Span # 2
Maximum Deflection
Max Downward Transient Deflection 0.178 in
Max Upward Transient Deflection -0.157 in
Max Downward Total Deflection 0.367 in
Max Upward Total Deflection -0.335 in

Maximum Forces & Stresses for Load Combinations
Load Combination Max Stress Ratios
Segment Length Span # M V Mmax + Mmax - Ma Max Mnx Mnx/Omega Cb Rm Summary of Moment Values Summary of Shear Values
+D+H
Dsgn. L = 4.00 ft 1 0.174 0.045 -8.13 8.13 77.92 46.66 1.00 1.00 2.19 72.72 48.48
Dsgn. L = 20.00 ft 2 0.174 0.045 -8.13 8.13 77.92 46.66 1.00 1.00 2.19 72.72 48.48
+D+L+H
Dsgn. L = 4.00 ft 1 0.174 0.045 -8.13 8.13 77.92 46.66 1.00 1.00 2.19 72.72 48.48
Dsgn. L = 20.00 ft 2 0.174 0.045 -8.13 8.13 77.92 46.66 1.00 1.00 2.19 72.72 48.48
+D+Lr+H
Dsgn. L = 4.00 ft 1 0.174 0.045 -8.13 8.13 77.92 46.66 1.00 1.00 2.19 72.72 48.48
Dsgn. L = 20.00 ft 2 0.174 0.045 -8.13 8.13 77.92 46.66 1.00 1.00 2.19 72.72 48.48
+D+S+H
Dsgn. L = 4.00 ft 1 0.353 0.092 -16.49 16.49 77.92 46.66 1.00 1.00 4.48 72.72 48.48
Dsgn. L = 20.00 ft 2 0.353 0.092 -16.49 16.49 77.92 46.66 1.00 1.00 4.48 72.72 48.48
+D+0.75L+0.75Lr+H

## Steel Beam

**Description:** Roof Transfer Beam

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Max Stress Ratios</th>
<th>Summary of Moment Values</th>
<th>Summary of Shear Values</th>
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<tr>
<td></td>
<td>Segment Length</td>
<td>Span #</td>
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<td>Dsgn. L. = 4.00 ft</td>
<td>1</td>
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<td>-8.13 8.13</td>
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<tr>
<td>Dsgn. L. = 20.00 ft</td>
<td>2</td>
<td>0.174 0.045</td>
<td>-8.13 8.13</td>
</tr>
<tr>
<td>Dsgn. L. = 4.00 ft</td>
<td>3</td>
<td>0.174 0.045</td>
<td>-8.13 8.13</td>
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<tr>
<td>+D+0.70L+0.750S+H</td>
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<td></td>
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</tr>
<tr>
<td>Dsgn. L. = 4.00 ft</td>
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<td>-14.40 14.40</td>
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<tr>
<td>Dsgn. L. = 20.00 ft</td>
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<td>0.309 0.081</td>
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<tr>
<td>Dsgn. L. = 4.00 ft</td>
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<td>0.174 0.045</td>
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<td>0.174 0.045</td>
<td>-8.13 8.13</td>
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<tr>
<td>+D+0.70L+0.750S+0.450W+H</td>
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<tr>
<td>Dsgn. L. = 4.00 ft</td>
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<td>-14.40 14.40</td>
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<tr>
<td>Dsgn. L. = 20.00 ft</td>
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<td>Dsgn. L. = 4.00 ft</td>
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<td>-14.40 14.40</td>
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## Overall Maximum Deflections

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Span</th>
<th>Max. ** Defl</th>
<th>Location in Span</th>
<th>Load Combination</th>
<th>Max. ** Defl</th>
<th>Location in Span</th>
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<td>+D+S+H</td>
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## Vertical Reactions

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<th>Load Combination</th>
<th>Support 1</th>
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<th>Support 3</th>
<th>Support 4</th>
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<tr>
<td>Overall MINimum</td>
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<td>1.802</td>
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<td>+D+L+H</td>
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<td>3.004</td>
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<td>+D+S+H</td>
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<tr>
<td>+D+0.70L+0.750S+H</td>
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<tr>
<td>H Only</td>
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# Steel Beam

**License #:** KW-06010241  
**Description:** Roof Transfer Beam

<table>
<thead>
<tr>
<th>Steel Section Properties</th>
<th>W10x17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth</td>
<td>10.100 in</td>
</tr>
<tr>
<td>Web Thick</td>
<td>0.240 in</td>
</tr>
<tr>
<td>Flange Width</td>
<td>4.010 in</td>
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<tr>
<td>Flange Thick</td>
<td>0.330 in</td>
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<tr>
<td>Area</td>
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<tr>
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<tr>
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<tr>
<td>Ixx</td>
<td>81.90 in⁴</td>
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<tr>
<td>Sxx</td>
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</tr>
<tr>
<td>Rxx</td>
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<tr>
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<tr>
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<tr>
<td>Syy</td>
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<td>Ryy</td>
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<td>rT</td>
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<td>J</td>
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<td>Qw</td>
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<td>Wm0</td>
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<td>Qf</td>
<td>3.040 in³</td>
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<tr>
<td>Qw</td>
<td>9.140 in³</td>
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</table>
Steel Beam

Calculations per AISC 360-10, IBC 2012, ASCE 7-10
Load Combination Set : ASCE 7-10

Material Properties

Analysis Method: Allowable Strength Design
Beam Bracing: Beam is Fully Braced against lateral-torsional bucking
Bending Axis: Major Axis Bending
Load Combination: ASCE 7-10

Applied Loads

Beam self weight calculated and added to loading
Uniform Load: D = 0.0160, S = 0.0250 ksf, Tributary Width = 4.0 ft, (Gravity)

DESIGN SUMMARY

Maximum Bending Stress Ratio = 0.205 : 1
Section used for this span
W12×14
Ma : Applied
8,908 k-ft
Mn / Omega : Allowable
43,413 k-ft
Load Combination
+D+S+H
Location of maximum on span
10,000 ft
Span # where maximum occurs
Span # 1

Maximum Deflection
Max Downward Transient Deflection
0.141 in Ratio = 1.699
0.000 in Ratio = 0 < 360
Max Upward Transient Deflection
Max Downward Total Deflection
0.252 in Ratio = 954
0.000 in Ratio = 0 < 240
Max Upward Total Deflection

Maximum Forces & Stresses for Load Combinations

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Max Stress Ratios</th>
<th>Summary of Moment Values</th>
<th>Summary of Shear Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Segment Length</td>
<td>Mx</td>
<td>V</td>
</tr>
<tr>
<td></td>
<td>Span #</td>
<td>M</td>
<td>V</td>
</tr>
<tr>
<td>+D+H</td>
<td>Dsgn. L = 20.00 ft</td>
<td>1</td>
<td>0.090</td>
</tr>
<tr>
<td>+D+L+H</td>
<td>Dsgn. L = 20.00 ft</td>
<td>1</td>
<td>0.090</td>
</tr>
<tr>
<td>+D+L+H</td>
<td>Dsgn. L = 20.00 ft</td>
<td>1</td>
<td>0.090</td>
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<td>Dsgn. L = 20.00 ft</td>
<td>1</td>
<td>0.090</td>
</tr>
<tr>
<td>+D+0.750L+0.750S+H</td>
<td>Dsgn. L = 20.00 ft</td>
<td>1</td>
<td>0.090</td>
</tr>
<tr>
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<td>Dsgn. L = 20.00 ft</td>
<td>1</td>
<td>0.090</td>
</tr>
<tr>
<td>+D+0.60W+h</td>
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<td>1</td>
<td>0.090</td>
</tr>
<tr>
<td>+D+0.70E+H</td>
<td>Dsgn. L = 20.00 ft</td>
<td>1</td>
<td>0.090</td>
</tr>
<tr>
<td>+D+0.70E+H</td>
<td>Dsgn. L = 20.00 ft</td>
<td>1</td>
<td>0.090</td>
</tr>
</tbody>
</table>

Steel Beam Analysis

File: p2017/17-116 Totem Lake Splash Pad (Berger)/Engineering Calculations/Totem Lake-enercalc edits
Licensee: INNOVA Architects Inc.

Design OK
### Steel Beam

**Description:** Roof Beam

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Max Stress Ratios</th>
<th>Summary of Moment Values</th>
<th>Summary of Shear Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>V</td>
<td>Mmax +</td>
</tr>
<tr>
<td>+0.50D+0.70E+0.60H</td>
<td>1.054</td>
<td>0.011</td>
<td>2.34</td>
</tr>
</tbody>
</table>

**Overall Maximum Deflections**

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Span</th>
<th>Max. <strong>Defl</strong></th>
<th>Location in Span</th>
<th>Load Combination</th>
<th>Max. <strong>Defl</strong></th>
<th>Location in Span</th>
</tr>
</thead>
<tbody>
<tr>
<td>+D+S+H</td>
<td>1</td>
<td>0.02516</td>
<td>10.100</td>
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<td>0.0000</td>
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</table>

**Vertical Reactions**

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Support 1</th>
<th>Support 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall MAXimum</td>
<td>1.782</td>
<td>1.782</td>
</tr>
<tr>
<td>Overall MINimum</td>
<td>0.469</td>
<td>0.469</td>
</tr>
<tr>
<td>+D+H</td>
<td>0.782</td>
<td>0.782</td>
</tr>
<tr>
<td>+D+L+H</td>
<td>0.782</td>
<td>0.782</td>
</tr>
<tr>
<td>+D+Lr+H</td>
<td>0.782</td>
<td>0.782</td>
</tr>
<tr>
<td>+D+S+H</td>
<td>1.782</td>
<td>1.782</td>
</tr>
<tr>
<td>+D+0.750L+0.750S+H</td>
<td>0.782</td>
<td>0.782</td>
</tr>
<tr>
<td>+D+0.60W+H</td>
<td>0.782</td>
<td>0.782</td>
</tr>
<tr>
<td>+D+0.70E+H</td>
<td>0.782</td>
<td>0.782</td>
</tr>
<tr>
<td>+D+0.750L+0.750S+H</td>
<td>0.782</td>
<td>0.782</td>
</tr>
<tr>
<td>+D+0.750L+0.750S+H</td>
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<td>1.532</td>
</tr>
<tr>
<td>+D+0.60W+H</td>
<td>0.782</td>
<td>0.782</td>
</tr>
<tr>
<td>+D+0.70E+H</td>
<td>0.782</td>
<td>0.782</td>
</tr>
<tr>
<td>+D+0.700+0.450W+H</td>
<td>0.782</td>
<td>0.782</td>
</tr>
<tr>
<td>+D+0.750L+0.750S+H</td>
<td>1.532</td>
<td>1.532</td>
</tr>
<tr>
<td>+D+0.750L+0.750S+H</td>
<td>1.532</td>
<td>1.532</td>
</tr>
<tr>
<td>+D+0.60W+0.60W+H</td>
<td>0.469</td>
<td>0.469</td>
</tr>
<tr>
<td>+D+0.70E+0.70E+H</td>
<td>0.469</td>
<td>0.469</td>
</tr>
<tr>
<td>D Only</td>
<td>0.782</td>
<td>0.782</td>
</tr>
<tr>
<td>L Only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S Only</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>W Only</td>
<td></td>
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<tr>
<td>E Only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H Only</td>
<td></td>
<td></td>
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</table>

**Steel Section Properties:** W12x14

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<thead>
<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
<tr>
<td>Depth</td>
<td>11.900 in</td>
</tr>
<tr>
<td>Web Thick</td>
<td>0.200 in</td>
</tr>
<tr>
<td>Flange Width</td>
<td>3.970 in</td>
</tr>
<tr>
<td>Flange Thick</td>
<td>0.225 in</td>
</tr>
<tr>
<td>Area</td>
<td>4.160 in²</td>
</tr>
<tr>
<td>Weight</td>
<td>14.181 lb</td>
</tr>
<tr>
<td>Kdesign</td>
<td>0.526 in</td>
</tr>
<tr>
<td>Kt</td>
<td>0.563 in</td>
</tr>
<tr>
<td>tts</td>
<td>0.961 in</td>
</tr>
<tr>
<td>Ycg</td>
<td>5.950 in</td>
</tr>
</tbody>
</table>
Steel Beam

Lic. #: KW-06010241

Description: Roof Edge Channel Beam

CODE REFERENCES

Calculations per AISC 360-10, IBC 2012, ASCE 7-10
Load Combination Set: ASCE 7-10

IBC 2015 CV

Material Properties

Analysis Method: Allowable Strength Design
Beam Bracing: Beam is Fully Braced against lateral-torsional buckling
Bending Axis: Major Axis Bending
Load Combination: ASCE 7-10

$F_y : 36.0 \text{ ksi}$
$F : 29,000.0 \text{ ksi}$

Applied Loads

Beam self weight calculated and added to loading
Uniform Load: $D = 0.0160$, $S = 0.0250 \text{ ksf}$, Tributary Width = 2.0 ft, (Gravity)

Design Summary

Maximum Bending Stress Ratio = 0.235 : 1
Section used for this span: C12x20.7
$M_a : 10.796 \text{ k-ft}$
$M_n : 45.988 \text{ k-ft}$
Load Combination: $+D+S+H$
Location of maximum on span: 14.500 ft
Span # where maximum occurs: Span # 1

Maximum Deflection
Max Downward Transient Deflection: 0.214 in
Max Upward Transient Deflection: 0.003 in
Max Downward Total Deflection: 0.440 in
Max Upward Total Deflection: 0.000 in

Maximum Forces & Stresses for Load Combinations

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Span #</th>
<th>M</th>
<th>V</th>
<th>Mmax +</th>
<th>Mmax -</th>
<th>Ma - Max</th>
<th>Mnx</th>
<th>Mnx/Omega</th>
<th>Cb</th>
<th>Rm</th>
<th>Va Max</th>
<th>Vnx</th>
<th>Vnx/Omega</th>
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</thead>
<tbody>
<tr>
<td>$+D+H$</td>
<td>1</td>
<td>0.120</td>
<td>0.017</td>
<td>5.54</td>
<td>5.54</td>
<td>76.80</td>
<td>45.99</td>
<td>1.00</td>
<td>1.00</td>
<td>0.76</td>
<td>73.09</td>
<td>43.77</td>
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<tr>
<td>$+D+L+H$</td>
<td>1</td>
<td>0.120</td>
<td>0.017</td>
<td>5.54</td>
<td>5.54</td>
<td>76.80</td>
<td>45.99</td>
<td>1.00</td>
<td>1.00</td>
<td>0.76</td>
<td>73.09</td>
<td>43.77</td>
<td></td>
</tr>
<tr>
<td>$+D+L+H$</td>
<td>1</td>
<td>0.120</td>
<td>0.017</td>
<td>5.54</td>
<td>5.54</td>
<td>76.80</td>
<td>45.99</td>
<td>1.00</td>
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<td>0.76</td>
<td>73.09</td>
<td>43.77</td>
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<td>43.77</td>
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<td>0.120</td>
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<td>5.54</td>
<td>76.80</td>
<td>45.99</td>
<td>1.00</td>
<td>1.00</td>
<td>0.76</td>
<td>73.09</td>
<td>43.77</td>
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<td>$+D+0.8006W+H$</td>
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<td>0.206</td>
<td>0.030</td>
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<td>9.48</td>
<td>76.80</td>
<td>45.99</td>
<td>1.00</td>
<td>1.00</td>
<td>1.31</td>
<td>73.09</td>
<td>43.77</td>
<td></td>
</tr>
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</table>

Service loads entered. Load Factors will be applied for calculations.
Steel Beam

Lic. #: KW-06010241

Description: Roof Edge Channel Beam

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Max Stress Ratios</th>
<th>Summary of Moment Values</th>
<th>Summary of Shear Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Segment Length</td>
<td>M</td>
<td>V</td>
</tr>
<tr>
<td>+0.60D+0.70E+0.60H</td>
<td>+Dg 10.0 ft</td>
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<td></td>
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<tr>
<td></td>
<td>Dsgn. L = 23.00 ft</td>
<td>1</td>
<td>0.072</td>
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Overall Maximum Deflections

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Span</th>
<th>Max. ** Defl</th>
<th>Location in Span</th>
<th>Load Combination</th>
<th>Max. ** Defl</th>
<th>Location in Span</th>
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<tbody>
<tr>
<td>+D+S+H</td>
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Vertical Reactions

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Support 1</th>
<th>Support 2</th>
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<tbody>
<tr>
<td>Overall MAXimum</td>
<td>1.489</td>
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<tr>
<td>Overall MINimum</td>
<td>0.458</td>
<td>0.458</td>
</tr>
<tr>
<td>+D+H</td>
<td>0.764</td>
<td>0.764</td>
</tr>
<tr>
<td>+D+L+H</td>
<td>0.764</td>
<td>0.764</td>
</tr>
<tr>
<td>+D+Lr+H</td>
<td>0.764</td>
<td>0.764</td>
</tr>
<tr>
<td>+D+S+H</td>
<td>1.489</td>
<td>1.489</td>
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<tr>
<td>+D+0.750Lr-0.750L+H</td>
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<td>1.308</td>
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<td>+D+0.60W+H</td>
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<td>+D+0.70E-H</td>
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</tr>
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<td>+D+0.750L+0.750S+0.450W+H</td>
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<td>1.308</td>
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<td>1.308</td>
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<td>0.458</td>
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<tr>
<td>+0.60D+0.70E+0.60H</td>
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<td>0.458</td>
</tr>
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<td>Lr Only</td>
<td>0.725</td>
<td>0.725</td>
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<tr>
<td>S Only</td>
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<td>0.725</td>
</tr>
<tr>
<td>W Only</td>
<td>0.725</td>
<td>0.725</td>
</tr>
<tr>
<td>E Only</td>
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<td>0.725</td>
</tr>
<tr>
<td>H Only</td>
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Steel Section Properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>C12x20.7</td>
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</tr>
<tr>
<td>Depth</td>
<td>12.000 in</td>
</tr>
<tr>
<td>Web Thick</td>
<td>0.282 in</td>
</tr>
<tr>
<td>Flange Width</td>
<td>2.940 in</td>
</tr>
<tr>
<td>Flange Thick</td>
<td>0.501 in</td>
</tr>
<tr>
<td>Area</td>
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<tr>
<td>Weight</td>
<td>20.700 lbf</td>
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<tr>
<td>Kdesign</td>
<td>1.130 in</td>
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<tr>
<td>ris</td>
<td>0.983 in</td>
</tr>
<tr>
<td>Yc</td>
<td>0.698 in</td>
</tr>
<tr>
<td>Xp</td>
<td>0.253 in</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<th>Value</th>
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</thead>
<tbody>
<tr>
<td>E₀</td>
<td>0.870 in</td>
</tr>
</tbody>
</table>

Project Title: Totem Lake
Engineer: SGH
Project Descr:
Steel Beam

Lic. #: KW-06010241

Description: Roof Side Channel Beam

CODE REFERENCES

Calculations per AISC 360-10, IBC 2012, ASCE 7-10
Load Combination Set: ASCE 7-10

Material Properties

Analysis Method: Allowable Strength Design
Beams: Beam is Fully Braced against lateral-torsional buckling
Bending Axis: Major Axis Bending
Load Combination: ASCE 7-10

Fy: Steel Yield: 36.0 ksi
E: Modulus: 29,000.0 ksi

Applied Loads

Beam self weight calculated and added to loading

Load for Span Number 1
Uniform Load: D = 0.0160, S = 0.0250 ksf, Tributary Width = 2.50 ft, (Gravity)
Point Load: D = 0.80, S = 0.80 k @ 0.0 ft, (Edge Beam)

Load for Span Number 2
Uniform Load: D = 0.0160, S = 0.0250 ksf, Tributary Width = 2.50 ft, (Gravity)

DESIGN SUMMARY

Maximum Bending Stress Ratio = 0.207:1
Section used for this span: C12x20.7
Ma : Applied 9.540 k-ft
Mn / Omega : Allowable 45.988 k-ft
Load Combination +D+S+H
Location of maximum on span 5.000ft
Span # where maximum occurs Span # 1

Maximum Deflection
Max Downward Transient Deflection 0.052 in Ratio = 2.328
Max Upward Transient Deflection -0.013 in Ratio = 10.839
Max Downward Total Deflection 0.103 in Ratio = 1164
Max Upward Total Deflection -0.027 in Ratio = 5397

Design OK

Maximum Forces & Stresses for Load Combinations

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Max Stress Ratios</th>
<th>Summary of Moment Values</th>
<th>Summary of Shear Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mmax +</td>
<td>Mmax -</td>
<td>Vmax</td>
</tr>
<tr>
<td>+D+H</td>
<td>1.013</td>
<td>0.025</td>
<td>-4.76</td>
</tr>
<tr>
<td>Dign. L = 5.00 ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dign. L = 12.00 ft</td>
<td>2.013</td>
<td>0.017</td>
<td>-4.76</td>
</tr>
<tr>
<td>+D+L+H</td>
<td>1.013</td>
<td>0.025</td>
<td>-4.76</td>
</tr>
<tr>
<td>Dign. L = 5.00 ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dign. L = 12.00 ft</td>
<td>2.013</td>
<td>0.017</td>
<td>-4.76</td>
</tr>
<tr>
<td>+D+L+H</td>
<td>1.013</td>
<td>0.025</td>
<td>-4.76</td>
</tr>
<tr>
<td>Dign. L = 5.00 ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dign. L = 12.00 ft</td>
<td>2.013</td>
<td>0.017</td>
<td>-4.76</td>
</tr>
<tr>
<td>+D+L+H</td>
<td>1.013</td>
<td>0.025</td>
<td>-4.76</td>
</tr>
<tr>
<td>Dign. L = 5.00 ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dign. L = 12.00 ft</td>
<td>2.013</td>
<td>0.017</td>
<td>-4.76</td>
</tr>
<tr>
<td>+D+L+H</td>
<td>1.013</td>
<td>0.025</td>
<td>-4.76</td>
</tr>
<tr>
<td>Dign. L = 5.00 ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dign. L = 12.00 ft</td>
<td>2.013</td>
<td>0.017</td>
<td>-4.76</td>
</tr>
<tr>
<td>+D+L+H</td>
<td>1.013</td>
<td>0.025</td>
<td>-4.76</td>
</tr>
<tr>
<td>Dign. L = 5.00 ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dign. L = 12.00 ft</td>
<td>2.013</td>
<td>0.017</td>
<td>-4.76</td>
</tr>
<tr>
<td>+D+L+H</td>
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Page 13 of 93
### Steel Beam

**Description:** Roof Side Channel Beam

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<tr>
<th>Load Combination</th>
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<th>Max Stress Ratios</th>
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**Support notation:** Far left is #1

**Values in KIPS**
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<td>Flange Width</td>
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<tr>
<td>Eo</td>
<td>0.870 in</td>
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Steel Beam

Lic. #: KW-06010241

Description: Roof Transfer Beam

CODE REFERENCES

Calculations per AISC 360-10, IBC 2012, ASCE 7-10
Load Combination Set: ASCE 7-10

IBC 2015 OK

Material Properties

Analysis Method: Allowable Strength Design
Beam Bracing: Beam is Fully Braced against lateral-torsional buckling
Bending Axis: Major Axis Bending
Load Combination ASCE 7-10

Applied Loads

Beam self weight calculated and added to loading
Load for Span Number 1
Uniform Load: D = 0.0160, S = 0.0250 ksf, Tributary Width = 4.0 ft, (Gravity)
Point Load: D = 1.870, S = 1.890 k @ 0.0 ft, (Side Beam)
Load for Span Number 2
Uniform Load: D = 0.0160, S = 0.0250 ksf, Tributary Width = 4.0 ft, (Gravity)
Load for Span Number 3
Uniform Load: D = 0.0160, S = 0.0250 ksf, Tributary Width = 4.0 ft, (Gravity)
Point Load: D = 1.870, S = 1.890 k @ 4.0 ft, (Side Beam)

DESIGN SUMMARY

Maximum Bending Stress Ratio = 0.379 : 1
Section used for this span W12x14
Ma Applied 16.465 k-ft
Mn / Omega : Allowable 43.413 k-ft
Load Combination +D+S+H
Location of maximum on span 4.000 ft
Span # where maximum occurs Span # 1
Maximum Deflection
Max Downward Transient Deflection 0.165 in Ratio = 582
Max Upward Transient Deflection -0.145 in Ratio = 1,651
Max Downward Total Deflection 0.342 in Ratio = 281
Max Upward Total Deflection -0.313 in Ratio = 767

Design OK

Maximum Forces & Stresses for Load Combinations

<table>
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<tbody>
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<td></td>
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<td>M</td>
<td>V</td>
<td>Mmax+</td>
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<td>Dizng. L = 4.00 ft</td>
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<td>0.187</td>
<td>0.051</td>
<td>-8.11</td>
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<td>Dizng. L = 20.00 ft</td>
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## Steel Beam

**Description:** Roof Transfer Beam

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### Overall Maximum Deflections

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<th>Location in Span</th>
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**Support notation:** Far left is #1

**Values in KIPS**
Steel Beam

<table>
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<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
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<td>11.900 in</td>
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<td>Web Thick</td>
<td>0.200 in</td>
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<tr>
<td>Flange Width</td>
<td>3.970 in</td>
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<tr>
<td>Area</td>
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<tr>
<td>Weight</td>
<td>14.161 psf</td>
</tr>
<tr>
<td>K design</td>
<td>0.525 in</td>
</tr>
<tr>
<td>Kf</td>
<td>0.563 in</td>
</tr>
<tr>
<td>Yog</td>
<td>5.950 in</td>
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<table>
<thead>
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<th>Value</th>
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<tbody>
<tr>
<td>Ixx</td>
<td>88.60 in⁴</td>
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<tr>
<td>Sxx</td>
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</tr>
<tr>
<td>Rxx</td>
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<tr>
<td>Zs</td>
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</tr>
<tr>
<td>Iyy</td>
<td>2.360 in⁴</td>
</tr>
<tr>
<td>Syy</td>
<td>1.190 in³</td>
</tr>
<tr>
<td>Kyy</td>
<td>0.753 in</td>
</tr>
<tr>
<td>Zy</td>
<td>1.900 in³</td>
</tr>
<tr>
<td>rT</td>
<td>0.060 in</td>
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<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>J</td>
<td>0.070 in⁴</td>
</tr>
<tr>
<td>Cw</td>
<td>80.40 in⁶</td>
</tr>
<tr>
<td>Wno</td>
<td>11.600 in²</td>
</tr>
<tr>
<td>Sw</td>
<td>2.590 in⁴</td>
</tr>
<tr>
<td>Qf</td>
<td>2.480 in³</td>
</tr>
<tr>
<td>Qw</td>
<td>8.400 in³</td>
</tr>
</tbody>
</table>
Steel Beam
Lic. #: KW-06010241
Description: Edge Cantilever

CODE REFERENCES
Calculations per AISC 360-10, IBC 2012, ASCE 7-10
Load Combination Set: ASCE 7-10

Material Properties
Analysis Method: Allowable Strength Design
Beam Bracing: Beam is Fully Braced against lateral-torsional buckling
Bending Axis: Major Axis Bending
Load Combination ASCE 7-10

Deflection =
Span = 4.50 ft
W12 x 14

Applied Loads
Beam self weight calculated and added to loading
Uniform Load: D = 0.0160, S = 0.0250 ksf, Tributary Width = 6.0 ft, (Gravity)
Point Load: D = 1.860, S = 1.890 k @ 4.250 ft, (Side Beam)

DESIGN SUMMARY
Maximum Bending Stress Ratio = 0.428 : 1
Section used for this span W12 x 14
Ma : Applied 18.572 k-ft
Mn / Omega : Allowable 43.413 k-ft
Load Combination +D+S+H
Location of maximum on span 0.000 ft
Span # where maximum occurs Span # 1

Maximum Deflection
Max Downward Transient Deflection 0.040 in Ratio = 2.671
Max Upward Transient Deflection 0.000 in Ratio = 0 <360
Max Downward Total Deflection 0.079 in Ratio = 1369
Max Upward Total Deflection 0.000 in Ratio = 0 <240

Maximum Forces & Stresses for Load Combinations

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Segment Length</th>
<th>Span #</th>
<th>Max Stress Ratios</th>
<th>Summary of Moment Values</th>
<th>Summary of Shear Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mmax + Mmax - Ma Max Mnx Mmx/Omega Cb Rm</td>
<td>Va Max Vnx Vnv/Omega</td>
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<tr>
<td>+D+H</td>
<td>Dgn. L = 4.50 ft</td>
<td>1</td>
<td>0.208 0.055</td>
<td>-9.02 9.02 72.50 43.41 1.00 1.00</td>
<td>2.36 71.40 42.75</td>
</tr>
<tr>
<td>+D+L+H</td>
<td>Dgn. L = 4.50 ft</td>
<td>1</td>
<td>0.208 0.055</td>
<td>-9.02 9.02 72.50 43.41 1.00 1.00</td>
<td>2.36 71.40 42.75</td>
</tr>
<tr>
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<td>Dgn. L = 4.50 ft</td>
<td>1</td>
<td>0.208 0.055</td>
<td>-9.02 9.02 72.50 43.41 1.00 1.00</td>
<td>2.36 71.40 42.75</td>
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<td>2.36 71.40 42.75</td>
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<tr>
<td></td>
<td>Dgn. L = 4.50 ft</td>
<td>1</td>
<td>0.373 0.100</td>
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<tr>
<td></td>
<td>Dgn. L = 4.50 ft</td>
<td>1</td>
<td>0.208 0.055</td>
<td>-9.02 9.02 72.50 43.41 1.00 1.00</td>
<td>2.36 71.40 42.75</td>
</tr>
<tr>
<td></td>
<td>Dgn. L = 4.50 ft</td>
<td>1</td>
<td>0.208 0.055</td>
<td>-9.02 9.02 72.50 43.41 1.00 1.00</td>
<td>2.36 71.40 42.75</td>
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<tr>
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<td>0.373 0.100</td>
<td>-16.18 16.18 72.50 43.41 1.00 1.00</td>
<td>4.28 71.40 42.75</td>
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Design OK
### Steel Beam

**Description:** Edge Cantilever

#### Load Combination

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<tr>
<th>Segment Length</th>
<th>Span #</th>
<th>Max Stress Ratios</th>
<th>Summary of Moment Values</th>
<th>Summary of Shear Values</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>V</td>
<td>Mmax</td>
</tr>
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<td>Dgn. L = 4.50 ft</td>
<td>1</td>
<td>0.125</td>
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<td>-5.41</td>
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**Overall Maximum Deflections**

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<tr>
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<th>Span</th>
<th>Max. <strong>&quot;</strong> Defl</th>
<th>Location in Span</th>
<th>Load Combination</th>
<th>Max. <strong>&quot;</strong> Defl</th>
<th>Location in Span</th>
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<tbody>
<tr>
<td>+D+S+H</td>
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#### Vertical Reactions

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<th>Support 2</th>
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</tr>
<tr>
<td>Overall MINimum</td>
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<td></td>
</tr>
<tr>
<td>+D+H</td>
<td>2.356</td>
<td></td>
</tr>
<tr>
<td>+D+L+H</td>
<td>2.356</td>
<td></td>
</tr>
<tr>
<td>+D+Lr+H</td>
<td>2.356</td>
<td></td>
</tr>
<tr>
<td>+D+S+H</td>
<td>4.921</td>
<td></td>
</tr>
<tr>
<td>+D+0.750L+0.750L+H</td>
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<td></td>
</tr>
<tr>
<td>+D+0.750L+0.750S+H</td>
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<td></td>
</tr>
<tr>
<td>+D+0.60W+H</td>
<td>2.356</td>
<td></td>
</tr>
<tr>
<td>+D+0.70E+H</td>
<td>2.356</td>
<td></td>
</tr>
<tr>
<td>+D+0.750l+0.750l+0.450W+H</td>
<td>2.356</td>
<td></td>
</tr>
<tr>
<td>+D+0.750L+0.750S+0.450W+H</td>
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<td></td>
</tr>
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<td></td>
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<tr>
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</tr>
<tr>
<td>+D+0.60D+0.70E+0.60H</td>
<td>1.413</td>
<td></td>
</tr>
<tr>
<td>D Only</td>
<td>2.356</td>
<td></td>
</tr>
<tr>
<td>Lr Only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L Only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S Only</td>
<td>2.565</td>
<td></td>
</tr>
<tr>
<td>W Only</td>
<td></td>
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<td>E Only</td>
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<tr>
<td>H Only</td>
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Steel Section Properties: **W12x14**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
<tr>
<td>Depth</td>
<td>11.900 in</td>
</tr>
<tr>
<td>Web Thick</td>
<td>0.200 in</td>
</tr>
<tr>
<td>Flange Width</td>
<td>3.970 in</td>
</tr>
<tr>
<td>Flange Thick</td>
<td>0.225 in</td>
</tr>
<tr>
<td>Area</td>
<td>4.160 in²</td>
</tr>
<tr>
<td>Weight</td>
<td>14.161 plf</td>
</tr>
<tr>
<td>Design</td>
<td>0.525 in</td>
</tr>
<tr>
<td>K</td>
<td>0.563 in</td>
</tr>
<tr>
<td>rts</td>
<td>0.962 in</td>
</tr>
<tr>
<td>Yg</td>
<td>5.950 in</td>
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**Steel Section Properties:**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>J</td>
<td>0.070 in⁴</td>
</tr>
<tr>
<td>Cw</td>
<td>0.40 in⁴</td>
</tr>
<tr>
<td>Wno</td>
<td>11.600 in²</td>
</tr>
<tr>
<td>Sw</td>
<td>2.590 in⁴</td>
</tr>
<tr>
<td>Qf</td>
<td>2.400 in³</td>
</tr>
<tr>
<td>Qw</td>
<td>6.400 in³</td>
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## Masonry Beam

**Description:** Untitled

**Code References**
Calculations per ACI 530-11, IBC 2012, CBC 2013, ASCE 7-10
Load Combinations Used: ASCE 7-10

### General Information

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<tr>
<th>Component</th>
<th>Value</th>
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<tr>
<td>f'm</td>
<td>1,500.0 psi</td>
</tr>
<tr>
<td>Fs</td>
<td>24,000.0 psi</td>
</tr>
<tr>
<td>Em = f'm *</td>
<td>750.0</td>
</tr>
<tr>
<td>Wall Wt Mut</td>
<td>1.0</td>
</tr>
<tr>
<td>Block Type</td>
<td>Normal Wt</td>
</tr>
<tr>
<td>Lateral Wind Load</td>
<td>19.0 psf</td>
</tr>
<tr>
<td>Lateral Wall Weight Seismic Factor</td>
<td>0.540</td>
</tr>
<tr>
<td>Calculate vertical beam weight ?</td>
<td>No</td>
</tr>
<tr>
<td>Clear Span</td>
<td>5.340 ft</td>
</tr>
<tr>
<td>Beam Depth</td>
<td>1.340 ft</td>
</tr>
<tr>
<td>Thickness</td>
<td>8 in</td>
</tr>
<tr>
<td>End Fixity</td>
<td>Pin-Pin</td>
</tr>
<tr>
<td>Equiv. Solid Thick</td>
<td>7.60 in</td>
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<tr>
<td>Wall Weight</td>
<td>84.0 psf</td>
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<tr>
<td>E</td>
<td>n</td>
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<tr>
<td>1,125.0 ksi</td>
<td>25.778</td>
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### Uniform Loads

<table>
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<tr>
<th>Start X</th>
<th>End X</th>
<th>Dead Load</th>
<th>L : Floor Live</th>
<th>Lr : Roof Live</th>
<th>S : Snow</th>
<th>W : Wind</th>
<th>E : Earthquake</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
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<td>0.0640</td>
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<td>0.10</td>
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<td></td>
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<tr>
<td>#2</td>
<td>ft</td>
<td>ft</td>
<td></td>
<td></td>
<td></td>
<td>k/ft</td>
<td></td>
</tr>
<tr>
<td>#3</td>
<td>ft</td>
<td>ft</td>
<td></td>
<td></td>
<td></td>
<td>k/ft</td>
<td></td>
</tr>
<tr>
<td>#4</td>
<td>ft</td>
<td>ft</td>
<td></td>
<td></td>
<td></td>
<td>k/ft</td>
<td></td>
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</tbody>
</table>

### Design Summary

<table>
<thead>
<tr>
<th>Maximum Stress Ratios...</th>
<th>Vertical</th>
<th>Lateral</th>
<th>Combined</th>
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</thead>
<tbody>
<tr>
<td>fb/Fb</td>
<td>0.04969</td>
<td>0.02304</td>
<td>0.05478 : 1.00</td>
</tr>
<tr>
<td>fw/Fv</td>
<td>0.1091</td>
<td>0.02890</td>
<td>0.1129 : 1.00</td>
</tr>
</tbody>
</table>

**Maximum Moment**
- Vertical Loads: 0.5846 k-ft
- Lateral Loads: 0.1516 k-ft
- Combined: 6.579 k-ft

**Maximum Shear**
- Vertical Loads: 4.754 psi
- Lateral Loads: 1.119 psi
- Combined: 38.730 psi

**Minimum Mn = 1.3 * Fcr * S =**
- 3.560 k-ft

### Vertical Strength

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>As</td>
<td>0.620 in^2</td>
</tr>
<tr>
<td>rho</td>
<td>0.006731</td>
</tr>
<tr>
<td>np</td>
<td>0.1736</td>
</tr>
<tr>
<td>k : ((np)^2+2np)^0.5-np</td>
<td>0.4406</td>
</tr>
<tr>
<td>j = 1 - k/3</td>
<td>0.8531</td>
</tr>
<tr>
<td>M:mas = Fb k j b d'^2/2</td>
<td>11.783 k-ft</td>
</tr>
<tr>
<td>M:Stl = Fs As j d</td>
<td>12.779 k-ft</td>
</tr>
</tbody>
</table>

### Lateral Strength

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>As</td>
<td>0.620 in^2</td>
</tr>
<tr>
<td>rho</td>
<td>0.006108</td>
</tr>
<tr>
<td>np</td>
<td>0.1575</td>
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<tr>
<td>k' : (np^2+2np)^0.5-np</td>
<td>0.4254</td>
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<td>j = 1 - k/3</td>
<td>0.8582</td>
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<tr>
<td>M:mas = Fb k j b d'^2/2</td>
<td>6.579 k-ft</td>
</tr>
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<td>M:Stl = Fs As j d</td>
<td>6.718 k-ft</td>
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</tbody>
</table>
## Detailed Load Combination Results

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Vertical</th>
<th>Lateral</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Mmax</td>
<td>Mallow</td>
</tr>
<tr>
<td></td>
<td>k-ft</td>
<td>k-ft</td>
</tr>
<tr>
<td>+D+H</td>
<td>0.23</td>
<td>11.76</td>
</tr>
<tr>
<td>+D+L+H</td>
<td>0.23</td>
<td>11.76</td>
</tr>
<tr>
<td>+D+Lr+H</td>
<td>0.23</td>
<td>11.76</td>
</tr>
<tr>
<td>+D+S+H</td>
<td>0.58</td>
<td>11.76</td>
</tr>
<tr>
<td>+D+0.750Lr+0.750L+H</td>
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<td>11.76</td>
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<td>11.76</td>
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<td>11.76</td>
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<td>11.76</td>
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<tr>
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<tr>
<td>+D+0.70E+H</td>
<td>0.23</td>
<td>11.76</td>
</tr>
<tr>
<td>+D+0.750Lr+0.750L+0.450W+H</td>
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<td>11.76</td>
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<td>11.76</td>
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<tr>
<td>+D+0.750L+0.750S+0.450W+H</td>
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<td>11.76</td>
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<td>11.76</td>
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<tr>
<td>+D+0.750L+0.750S+0.5250E+H</td>
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<td>11.76</td>
</tr>
<tr>
<td>+0.60D+0.60W+0.60H</td>
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<td>11.76</td>
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<td>+0.60D+0.60W+0.60H</td>
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<td>11.76</td>
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<tr>
<td>+0.60D+0.70E+0.60H</td>
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<td>11.76</td>
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<tr>
<td>+0.60D+0.70E+0.60H</td>
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<td>11.76</td>
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**Wood Shear Wall**

**Lic. #: KW-66010241**

**Description:** Grid 2 Shear Wall Above CMU

### General Information

<table>
<thead>
<tr>
<th>Total Wall Length</th>
<th>6.0 ft</th>
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<tbody>
<tr>
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</tr>
<tr>
<td>Story #1 Height</td>
<td>3.0 ft</td>
</tr>
</tbody>
</table>

### Framing & Chord Material

- **Wood Species:** Douglas Fir - Larch
- **Wood Grade:** No.2
- **Ft - Prll:** 1,350.0 psi
- **Ft - Perp:** 625.0 psi
- **E:** 575.0 psi
- **ksi:** 1,600.0
- **Specific Gravity:** 1.4999
- **SDC:** Seismic Design Category: F

### Sheathing

**Main Sheathing**

- **SDPWS 2008 Construction Table:** 4.3A
- **Wood Structural Panels, Struct I, 15/32" Thk, 1-1/2" Mi**

#### Nominal Seismic Shear Capacities (plf)

- **6" Spac.:** 680 plf
- **3" Spac.:** 1330 plf
- **4" Spac.:** 1020 plf
- **2" Spac.:** 1740 plf

#### Nominal Wind Shear Capacities (plf)

- **6" Spac.:** 950 plf
- **3" Spac.:** 1860 plf
- **4" Spac.:** 1430 plf
- **2" Spac.:** 2435 plf

### Chord Data

**Chord Member Size for each level:**

- **Level 1 Chord Size:** 2x4 Chord Cf: 1.0 Chord Area = 5.250 in²

**Max. Allow Stress Ratio:** 1.0 : 1

- All chords treated as fully braced about both axes

### Applied Distributed Vertical Loads

<table>
<thead>
<tr>
<th>Load Location (ft)</th>
<th>Start Location</th>
<th>End Location</th>
<th>Height of Application</th>
<th>Dead</th>
<th>Load Magnitude (kif)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Roof Live</td>
</tr>
<tr>
<td>0.0</td>
<td>0.0</td>
<td>6.0</td>
<td>3.0</td>
<td>0.0640</td>
<td>0.0</td>
</tr>
<tr>
<td>0.0</td>
<td>0.0</td>
<td>6.0</td>
<td>3.0</td>
<td>3.0140</td>
<td>0.0</td>
</tr>
</tbody>
</table>
**Wood Shear Wall**

**Applied Concentrated Lateral Loads**

<table>
<thead>
<tr>
<th>Load &quot;Y&quot; Location (ft)</th>
<th>Dead</th>
<th>Roof Live</th>
<th>Live</th>
<th>Snow</th>
<th>Wind</th>
<th>Seismic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>2.030</td>
</tr>
</tbody>
</table>

**Shear Panel Summary**

<table>
<thead>
<tr>
<th>Panel ID</th>
<th>Level</th>
<th>Max Shear (kips)</th>
<th>Load Comb</th>
<th># Sides Used</th>
<th>Actual (pfl)</th>
<th>Shear Summary &amp; Attachment Status</th>
<th>Attachment</th>
<th>Height/Width Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td></td>
<td>1.423 +D+0.70E</td>
<td></td>
<td>1</td>
<td>237.1</td>
<td>340.0 OK</td>
<td></td>
<td>0.50</td>
</tr>
</tbody>
</table>

Chord Naming Information:
- C: Item is a Chord
- L: Followed by level number
- WL: Indicates Chord is on left edge of wall
- WR: Indicates Chord is on right edge of wall

**Shear Panel Detail by Panel ID**

<table>
<thead>
<tr>
<th>Panel ID</th>
<th>Load Combination</th>
<th>Story</th>
<th>Trib Wid (ft)</th>
<th>Trib % V (kip)</th>
<th>Panel Width (ft)</th>
<th>v-max (pfl)</th>
<th>ASD</th>
<th>Aspect</th>
<th>Side 1</th>
<th>Side 2</th>
<th>Spec Grav</th>
<th>Spec Edge @ &amp; Edge Spac (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>+D+0.60W</td>
<td>0</td>
<td>6.00</td>
<td>1.00</td>
<td>6.00</td>
<td>6.00</td>
<td>0.50</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>475</td>
<td>715</td>
</tr>
<tr>
<td></td>
<td>+D+0.70E</td>
<td>0</td>
<td>6.00</td>
<td>1.00</td>
<td>6.00</td>
<td>6.00</td>
<td>0.50</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>340</td>
<td>510</td>
</tr>
<tr>
<td></td>
<td>+D+0.750L+0.750L+0.450W</td>
<td>0</td>
<td>6.00</td>
<td>1.00</td>
<td>6.00</td>
<td>237.1</td>
<td>0.50</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>475</td>
<td>715</td>
</tr>
<tr>
<td></td>
<td>+D+0.750L+0.750S+0.450W</td>
<td>0</td>
<td>6.00</td>
<td>1.00</td>
<td>6.00</td>
<td>0.50</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>475</td>
<td>715</td>
</tr>
<tr>
<td></td>
<td>+D+0.750L+0.750S+0.5250E</td>
<td>0</td>
<td>6.00</td>
<td>1.00</td>
<td>6.00</td>
<td>0.50</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>475</td>
<td>715</td>
</tr>
<tr>
<td></td>
<td>+D+0.60D+0.60W</td>
<td>0</td>
<td>6.00</td>
<td>1.00</td>
<td>6.00</td>
<td>6.00</td>
<td>0.50</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>475</td>
<td>715</td>
</tr>
<tr>
<td></td>
<td>+D+0.60D+0.70E</td>
<td>0</td>
<td>6.00</td>
<td>1.00</td>
<td>6.00</td>
<td>6.00</td>
<td>0.50</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>475</td>
<td>715</td>
</tr>
</tbody>
</table>

**Chord Summary**

<table>
<thead>
<tr>
<th>Chord ID</th>
<th>Level</th>
<th>Left Dist (ft)</th>
<th>Force (kips)</th>
<th>Load Comb</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>1</td>
<td>0.00</td>
<td>0.8 +D+0.70E</td>
<td></td>
</tr>
<tr>
<td>Comp Values:</td>
<td>Max. Comp:</td>
<td>0.8 k</td>
<td>Load Comb: +D+0.70E</td>
<td></td>
</tr>
<tr>
<td>Tens Values:</td>
<td>Max. Tens:</td>
<td>0.7 k</td>
<td>Load Comb: +D+0.60D+0.70E</td>
<td></td>
</tr>
<tr>
<td>C2</td>
<td>1</td>
<td>6.00</td>
<td>0.8 +D+0.70E</td>
<td></td>
</tr>
<tr>
<td>Comp Values:</td>
<td>Max. Comp:</td>
<td>0.8 k</td>
<td>Load Comb: +D+0.70E</td>
<td></td>
</tr>
<tr>
<td>Tens Values:</td>
<td>Max. Tens:</td>
<td>0.7 k</td>
<td>Load Comb: +D+0.60D+0.70E</td>
<td></td>
</tr>
</tbody>
</table>

Chord Naming Information:
- C: Item is a Chord
- L: Followed by level number
- WL: Indicates Chord is on left edge of wall
- WR: Indicates Chord is on right edge of wall

**CHORD DESIGN SUMMARY**

<table>
<thead>
<tr>
<th># Req’d @ Location</th>
<th>Member Size</th>
<th>Stress Ratio</th>
<th>Governs</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2x4</td>
<td>0.11</td>
<td>Tension</td>
<td>OK</td>
</tr>
<tr>
<td>Max fc = 145 psi</td>
<td>Allow F+c = 1,350 psi</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max ft = 130 psi</td>
<td>Allow P1 = 575 psi</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 1                  | 2x4         | 0.11         | Tension | OK     |
| Max fc = 145 psi   | Allow F+c = 1,350 psi |
| Max ft = 130 psi   | Allow P1 = 575 psi |

*Additional details not transcribed*
Holdowns

This product is preferable to similar connectors because of a) easier installation, b) higher loads, c) lower installed cost, or a combination of these features.

HDU holdowns are prefabricated during the manufacturing process, virtually eliminating deflection under load due to material stretch. They use Simpson Strong-Tie® Strong-Drive® SDS Heavy Duty Connector screws which install easily, reduce fastener slip, and provide a greater net section when compared to bolts.

The DTT tension ties are designed for lighter-duty holdown applications on single 2x posts. The DTT1Z is installed with nails or Simpson Strong-Tie Strong-Drive SD Connector screws and the DTT2Z installs easily with the Strong-Drive SDS Heavy Duty Connector screws (included). The DTT1Z holdowns have been tested for use in designed shearwalls and prescriptive braced wall panels as well as prescriptive wood-deck applications (see p. 337 for deck applications).

For more information on holdown options, contact Simpson Strong-Tie.

HDU Special Features:

- Holdown designs virtually eliminate deflection due to material stretch
- Uses Strong-Drive SDS Heavy Duty Connector screws which install easily, reduce fastener slip, and provide a greater net section area of the post compared to bolts
- Strong-Drive SDS Heavy Duty Connector screws are supplied with the holdowns to ensure proper fasteners are used
- No stud bolts to countersink at openings

Material: See table

Finish: HDU — Galvanized; DTT1Z and DTT2Z — ZMAX® coating; DTT2SS — stainless steel

Installation:

- See General Notes on pp. 75–76
- The HDU requires no additional washer, the DTT requires a standard cut washer (included with DTT2Z) be installed between the nut and the seat
- Strong-Drive SDS Heavy Duty Connector screws install best with a low-speed high-torque drill with a 1/4" hex-head driver

Codes: See p. 14 for Code Reference Key Chart
## Holdowns (cont.)

These products are available with additional corrosion protector. For more information, see p. 18.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DTT1Z</td>
<td>14</td>
<td>1 1/4 7 1/4 1 3/4</td>
<td>(6) SD #9 x 1 1/2&quot;</td>
<td>1 1/2</td>
<td>840</td>
<td>840</td>
</tr>
<tr>
<td>DTT2Z</td>
<td>14</td>
<td>3 1/2 6 1/2 1 3/4</td>
<td>(8) 1/4&quot; x 1 1/4&quot; SDS</td>
<td>1 1/2</td>
<td>840</td>
<td>840</td>
</tr>
<tr>
<td>DTT2Z-SDS2.5</td>
<td>14</td>
<td>3 1/2 6 1/2 1 3/4</td>
<td>(8) 1/4&quot; x 1 1/4&quot; SDS</td>
<td>3</td>
<td>2.145</td>
<td>2.145</td>
</tr>
<tr>
<td>HDU4-SDS2.5</td>
<td>14</td>
<td>3 1/2 6 1/2 1 3/4</td>
<td>(8) 1/4&quot; x 1 1/4&quot; SDS</td>
<td>3</td>
<td>2.145</td>
<td>2.145</td>
</tr>
<tr>
<td>HDU4-SDS2.5</td>
<td>14</td>
<td>3 1/2 6 1/2 1 3/4</td>
<td>(8) 1/4&quot; x 1 1/4&quot; SDS</td>
<td>3</td>
<td>2.145</td>
<td>2.145</td>
</tr>
<tr>
<td>HDU8-SDS2.5</td>
<td>10</td>
<td>3 1/2 6 1/2 1 3/4</td>
<td>(8) 1/4&quot; x 1 1/4&quot; SDS</td>
<td>3</td>
<td>2.145</td>
<td>2.145</td>
</tr>
<tr>
<td>HDU11-SDS2.5</td>
<td>10</td>
<td>3 1/2 6 1/2 1 3/4</td>
<td>(8) 1/4&quot; x 1 1/4&quot; SDS</td>
<td>3</td>
<td>2.145</td>
<td>2.145</td>
</tr>
<tr>
<td>HDU14-SDS2.5</td>
<td>7</td>
<td>3 1/2 6 1/2 1 3/4</td>
<td>(8) 1/4&quot; x 1 1/4&quot; SDS</td>
<td>3</td>
<td>2.145</td>
<td>2.145</td>
</tr>
</tbody>
</table>

1. See pp. 75-76 for Holdown and Tension Tie General Notes.
2. Noted HDU14 allowable loads are based on a 5/8" wide post (6x6 min.).
3. HDU14 requires heavy-hex anchor nut to achieve tabulated loads (supplied with holdown).
4. Loads are applicable to installation on either narrow or wide face of post.

![Typical HDU Tie Between Floors](image)

\[ T = \frac{700 \text{ lbs.} \times 8.4 \text{ lbs.}}{10} \]
### Carbon-Steel Wedge-All® Allowable Tension Loads in Sand-Lightweight Concrete over Metal Deck

<table>
<thead>
<tr>
<th>Size in (mm)</th>
<th>Embed Depth in (mm)</th>
<th>Critical Edge Dist. in (mm)</th>
<th>Critical Spacing in (mm)</th>
<th>Tension Load (Install in Concrete) f'c = 3,000 psi (20.7 MPa)</th>
<th>Tension Load (Install through Metal Deck) f'c = 3,000 psi (20.7 MPa)</th>
<th>Install. Torque ft-lb (N-m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4 (20.2)</td>
<td>1 1/2 (38)</td>
<td>3/4 (69)</td>
<td>2 1/8 (70)</td>
<td>1,440 (6.4)</td>
<td>360 (1.6)</td>
<td>1,67 (7.4)</td>
</tr>
<tr>
<td>1/2 (12.7)</td>
<td>2 1/4 (57)</td>
<td>6/1 (105)</td>
<td>4 1/4 (109)</td>
<td>3,860 (17.2)</td>
<td>965 (4.3)</td>
<td>564 (2.5)</td>
</tr>
<tr>
<td>3/8 (9.5)</td>
<td>2 1/4 (57)</td>
<td>8/1 (213)</td>
<td>5 1/4 (127)</td>
<td>5,220 (23.2)</td>
<td>1,305 (6.0)</td>
<td>370 (1.7)</td>
</tr>
<tr>
<td>1/4 (6.4)</td>
<td>3/4 (19.1)</td>
<td>10 (254)</td>
<td>6 1/4 (156)</td>
<td>7,140 (31.8)</td>
<td>1,650 (7.3)</td>
<td>903 (4.0)</td>
</tr>
</tbody>
</table>

See notes 1-7 below.

### Carbon-Steel Wedge-All® Allowable Shear Loads in Sand-Lightweight Concrete over Metal Deck

<table>
<thead>
<tr>
<th>Size in (mm)</th>
<th>Embed Depth in (mm)</th>
<th>Critical Edge Dist. in (mm)</th>
<th>Critical Spacing in (mm)</th>
<th>Shear Load (Install in Concrete) f'c = 3,000 psi (20.7 MPa)</th>
<th>Shear Load (Install through Metal Deck) f'c = 3,000 psi (20.7 MPa)</th>
<th>Install. Torque ft-lb (N-m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4 (20.2)</td>
<td>1 1/2 (38)</td>
<td>3/4 (69)</td>
<td>2 1/8 (70)</td>
<td>1,660 (7.4)</td>
<td>415 (1.8)</td>
<td>627 (2.8)</td>
</tr>
<tr>
<td>1/2 (12.7)</td>
<td>2 1/4 (57)</td>
<td>6/1 (105)</td>
<td>4 1/4 (109)</td>
<td>5,720 (26.8)</td>
<td>1,815 (8.1)</td>
<td>607 (2.7)</td>
</tr>
<tr>
<td>3/8 (9.5)</td>
<td>2 1/4 (57)</td>
<td>8/1 (213)</td>
<td>5 1/4 (127)</td>
<td>8,560 (38.1)</td>
<td>2,140 (9.5)</td>
<td>114 (0.5)</td>
</tr>
<tr>
<td>1/4 (6.4)</td>
<td>3/4 (19.1)</td>
<td>10 (254)</td>
<td>6 1/4 (156)</td>
<td>11,040 (49.1)</td>
<td>2,760 (12.3)</td>
<td>321 (1.4)</td>
</tr>
</tbody>
</table>

1. The allowable loads listed are based on a safety factor of 4.0.
2. Refer to allowable load-adjustment factors for edge distance on page 176.
3. 100% of the allowable load is permitted at critical spacing. Loads at reduced spacing have not been determined.
4. Drill bit diameter used in base material corresponds to nominal anchor diameter.
5. The minimum concrete thickness is 1 1/4 times the embedment depth.
6. Metal deck must be minimum 20 gauge.
7. Anchors installed in the bottom flutes of the steel deck must have a minimum allowable edge distance of 1 1/4 from the inclined edge of the bottom flute.

### Carbon-Steel Wedge-All® Allowable Tension and Shear Loads in Grout-Filled CMU

<table>
<thead>
<tr>
<th>Size in (mm)</th>
<th>Embed. Depth in (mm)</th>
<th>Critical Edge Dist. in (mm)</th>
<th>Critical Spacing in (mm)</th>
<th>8&quot; Grout-Filled CMU Allowable Load Based on CMU Strength</th>
<th>Shear Load</th>
<th>Install. Torque ft-lb (N-m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4 (20.2)</td>
<td>2% (67)</td>
<td>10% (267)</td>
<td>1 1/2 (267)</td>
<td>1,700 (7.6)</td>
<td>340</td>
<td>3,360 (14.9)</td>
</tr>
<tr>
<td>1/2 (12.7)</td>
<td>3% (56)</td>
<td>1 1/2 (267)</td>
<td>1 1/2 (267)</td>
<td>2,120 (9.4)</td>
<td>425</td>
<td>5,360 (23.8)</td>
</tr>
<tr>
<td>3/8 (9.5)</td>
<td>4% (45)</td>
<td>1 1/2 (267)</td>
<td>1 1/2 (267)</td>
<td>3,120 (13.9)</td>
<td>625</td>
<td>8,180 (36.4)</td>
</tr>
<tr>
<td>1/4 (6.4)</td>
<td>5% (33)</td>
<td>1 1/2 (267)</td>
<td>1 1/2 (267)</td>
<td>4,400 (19.2)</td>
<td>865</td>
<td>10,160 (45.2)</td>
</tr>
</tbody>
</table>

1. The tabulated allowable loads are based on a safety factor of 5.0 for installations under the IBC and IRC.
2. Listed loads may be applied to installations on the face of the CMU wall at least 1" inch away from head joints.
3. Values for 8"-inch wide concrete masonry units (CMU) with a minimum specified compressive strength of masonry, f' m, at 28 days is 1,500 psi.
4. Embedment depth is measured from the outside face of the concrete masonry unit.
5. Drill bit diameter used in base material corresponds to nominal anchor diameter.
6. Allowable loads may be increased 33 1/3% for short-term loading due to wind and seismic forces, where permitted by code.
7. Tension and shear loads for the Wedge-All® anchor may be combined using the parabolic interaction equation (n=P).
8. Refer to allowable load-adjustment factors for edge distance on page 176.

* See page 12 for an explanation of the load table icons.
Masonry Slender Wall

Description: 8-inch CMU

Code References
Calculations per ACI 530-11, IBC 2012, CBC 2013, ASCE 7-10
Load Combinations Used: ASCE 7-10

General Information
Construction Type: Grouted Hollow Concrete Masonry
Fm = 1.50 ksi
Fy - Yielc = 60.0 ksi
Fr - Rupture = 61.0 psi
Em = f' m = 900.0
Max % of P bal. = 0.000633
Grout Density = 140pcf
Block Weight = Normal Weight
Wall Weight = 61.0 psf
Nom. Wall Thickness = 8 in
Actual Thickness = 7.625 in
Rebar 'd' distance = 7.125 in
Lower Level Rebar... Bar Size = #5
Bar Spacing = 24.0 in
Temp Diff across thickness = deg F
Min Allow Out-of-plane Def Ratio = 0
Minimum Vertical Steel % = 0.0020

One-Story Wall Dimensions
A Clear Height = 8.50 ft
B Parapet Height = ft
Wall Support Condition: Top Free, Bottom Fix

Vertical Loads
Vertical Uniform Loads... (Applied per foot of Strip Width)
Ledger Load Eccentricity = 2.0 in
Concentric Load

Lateral Loads
Full area WIND load = 10.0 psf
Fp = Wall Wt. * = 33.184 psf

Wall Weight Seismic Load Input Method: SDS Value per ASCE 12.11.1
S35 = 1.380

ASCE seismic factors entered
### Design Summary

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Axial Load</th>
<th>Moment Capacity</th>
<th>Service Deflection</th>
<th>Axial Load</th>
<th>Reinforcing Limit Check</th>
<th>Minimum Moment Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>+1.40D+1.60H at 0.00 to 0.28</td>
<td>0.000</td>
<td>18.720</td>
<td>0.47</td>
<td>0.02</td>
<td>0.90</td>
<td>3.28</td>
</tr>
<tr>
<td>+1.20D+0.50Lr+1.60L+1.60H at 0.00 to 0.28</td>
<td>0.000</td>
<td>18.720</td>
<td>0.47</td>
<td>0.01</td>
<td>0.90</td>
<td>3.28</td>
</tr>
<tr>
<td>+1.20D+1.60Lr+0.50S+1.60H at 0.00 to 0.28</td>
<td>0.000</td>
<td>18.720</td>
<td>0.47</td>
<td>0.01</td>
<td>0.90</td>
<td>3.28</td>
</tr>
<tr>
<td>+1.20D+1.60Lr+0.50S+1.60H at 0.00 to 0.28</td>
<td>0.000</td>
<td>18.720</td>
<td>0.47</td>
<td>0.38</td>
<td>0.90</td>
<td>3.28</td>
</tr>
<tr>
<td>+1.20D+0.50Lr+1.60S+1.60H at 0.00 to 0.28</td>
<td>0.000</td>
<td>18.720</td>
<td>0.47</td>
<td>0.04</td>
<td>0.90</td>
<td>3.28</td>
</tr>
<tr>
<td>+1.20D+1.60S+0.50W+1.60H at 0.00 to 0.28</td>
<td>0.000</td>
<td>18.720</td>
<td>0.47</td>
<td>0.39</td>
<td>0.90</td>
<td>3.28</td>
</tr>
<tr>
<td>+1.20D+0.50Lr+0.50S+W+1.60H at 0.00 to 0.28</td>
<td>0.000</td>
<td>18.720</td>
<td>0.47</td>
<td>0.70</td>
<td>0.90</td>
<td>3.28</td>
</tr>
<tr>
<td>+1.20D+0.50Lr+0.50S+W+1.60H at 0.00 to 0.28</td>
<td>0.000</td>
<td>18.720</td>
<td>0.47</td>
<td>0.71</td>
<td>0.90</td>
<td>3.28</td>
</tr>
<tr>
<td>+1.20D+0.50Lr+0.50S+W+1.60H at 0.00 to 0.28</td>
<td>0.000</td>
<td>18.720</td>
<td>0.47</td>
<td>1.22</td>
<td>0.90</td>
<td>3.28</td>
</tr>
</tbody>
</table>

### Design Maximum Combinations - Moments

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Axial Load</th>
<th>Pu</th>
<th>0.2F^m*b^t</th>
<th>Mu</th>
<th>Moment Values</th>
<th>As</th>
<th>As Ratio</th>
<th>0.6*rho bal</th>
</tr>
</thead>
<tbody>
<tr>
<td>+1.40D+1.60H at 0.00 to 0.28</td>
<td>0.000</td>
<td>18.720</td>
<td>0.47</td>
<td>0.02</td>
<td>0.90</td>
<td>3.28</td>
<td>0.155</td>
<td>0.0026</td>
</tr>
<tr>
<td>+1.20D+0.50Lr+1.60L+1.60H at 0.00 to 0.28</td>
<td>0.000</td>
<td>18.720</td>
<td>0.47</td>
<td>0.01</td>
<td>0.90</td>
<td>3.28</td>
<td>0.155</td>
<td>0.0026</td>
</tr>
<tr>
<td>+1.20D+1.60Lr+0.50S+1.60H at 0.00 to 0.28</td>
<td>0.000</td>
<td>18.720</td>
<td>0.47</td>
<td>0.01</td>
<td>0.90</td>
<td>3.28</td>
<td>0.155</td>
<td>0.0026</td>
</tr>
</tbody>
</table>

### Design Maximum Combinations - Deflections

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Axial Load</th>
<th>Pu</th>
<th>Moment Values</th>
<th>Stiffness</th>
<th>Deflections</th>
</tr>
</thead>
<tbody>
<tr>
<td>+D at 8.22 to 8.50</td>
<td>0.081</td>
<td>0.47</td>
<td>0.01</td>
<td>353.60</td>
<td>54.50</td>
</tr>
<tr>
<td>+D+Lr at 8.22 to 8.50</td>
<td>0.081</td>
<td>0.47</td>
<td>0.01</td>
<td>353.60</td>
<td>54.50</td>
</tr>
<tr>
<td>+D+Lr+H at 8.22 to 8.50</td>
<td>0.181</td>
<td>0.47</td>
<td>0.03</td>
<td>353.60</td>
<td>54.96</td>
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<td>+D at 8.22 to 8.50</td>
<td>0.081</td>
<td>0.47</td>
<td>0.01</td>
<td>353.60</td>
<td>54.50</td>
</tr>
<tr>
<td>+D+Lr+0.750L+0.750H at 8.22 to 8.50</td>
<td>0.081</td>
<td>0.47</td>
<td>0.01</td>
<td>353.60</td>
<td>54.50</td>
</tr>
<tr>
<td>+D+Lr+0.750S+0.750H at 8.22 to 8.50</td>
<td>0.156</td>
<td>0.47</td>
<td>0.02</td>
<td>353.60</td>
<td>54.84</td>
</tr>
<tr>
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<td>0.081</td>
<td>0.47</td>
<td>0.01</td>
<td>353.60</td>
<td>54.50</td>
</tr>
<tr>
<td>+D+Lr+0.70E+0.70H at 8.22 to 8.50</td>
<td>0.082</td>
<td>0.47</td>
<td>0.01</td>
<td>353.60</td>
<td>54.50</td>
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<td>+D+Lr+0.750L+0.450W+0.450H at 8.22 to 8.50</td>
<td>0.081</td>
<td>0.47</td>
<td>0.02</td>
<td>353.60</td>
<td>54.84</td>
</tr>
<tr>
<td>+D+Lr+0.750S+0.450W+0.450H at 8.22 to 8.50</td>
<td>0.156</td>
<td>0.47</td>
<td>0.02</td>
<td>353.60</td>
<td>54.84</td>
</tr>
<tr>
<td>+D+Lr+0.60W+0.60H at 8.22 to 8.50</td>
<td>0.049</td>
<td>0.47</td>
<td>0.01</td>
<td>353.60</td>
<td>54.35</td>
</tr>
<tr>
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<td>0.049</td>
<td>0.47</td>
<td>0.01</td>
<td>353.60</td>
<td>54.35</td>
</tr>
<tr>
<td>D Only at 8.22 to 8.50</td>
<td>0.000</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>
| D Only at 8.22 to 8.50 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00
### Masonry Slender Wall

**Masonry Slender Wall**

**Design Maximum Combinations - Deflections**

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Axial Load</th>
<th>Moment Values</th>
<th>Stiffness</th>
<th>Deflections</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pu</td>
<td>Mcr</td>
<td>Mactual</td>
<td>I gross</td>
</tr>
<tr>
<td>S Only at 8.22 to 8.50</td>
<td>0.100</td>
<td>0.47</td>
<td>0.02</td>
<td>353.60</td>
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<tr>
<td>W Only at 8.22 to 8.50</td>
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<td>0.47</td>
<td>0.00</td>
<td>353.60</td>
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<tr>
<td>E Only at 8.22 to 8.50</td>
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<td>0.47</td>
<td>0.00</td>
<td>353.60</td>
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</table>

### Reactions - Vertical & Horizontal

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Base Horizontal</th>
<th>Top Horizontal</th>
<th>Vertical @ Wall Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>+D+H</td>
<td>0.0 k</td>
<td>0.00 k</td>
<td>0.583 k</td>
</tr>
<tr>
<td>+D+L+H</td>
<td>0.0 k</td>
<td>0.00 k</td>
<td>0.583 k</td>
</tr>
<tr>
<td>+D+L+H</td>
<td>0.0 k</td>
<td>0.00 k</td>
<td>0.583 k</td>
</tr>
<tr>
<td>+D+S+H</td>
<td>0.0 k</td>
<td>0.00 k</td>
<td>0.682 k</td>
</tr>
<tr>
<td>+D+0.75L+0.75L+H</td>
<td>0.0 k</td>
<td>0.00 k</td>
<td>0.682 k</td>
</tr>
<tr>
<td>+D+0.75L+0.75S+H</td>
<td>0.0 k</td>
<td>0.00 k</td>
<td>0.682 k</td>
</tr>
<tr>
<td>+D+0.60W+H</td>
<td>0.1 k</td>
<td>0.00 k</td>
<td>0.582 k</td>
</tr>
<tr>
<td>+D+0.70E+H</td>
<td>0.2 k</td>
<td>0.00 k</td>
<td>0.582 k</td>
</tr>
<tr>
<td>+D+0.75L+0.450L+H</td>
<td>0.1 k</td>
<td>0.00 k</td>
<td>0.582 k</td>
</tr>
<tr>
<td>+D+0.75L+0.75S+0.450W+H</td>
<td>0.1 k</td>
<td>0.00 k</td>
<td>0.657 k</td>
</tr>
<tr>
<td>+D+0.75L+0.75S+0.525OE+H</td>
<td>0.1 k</td>
<td>0.00 k</td>
<td>0.657 k</td>
</tr>
<tr>
<td>+0.60D+0.60W+0.60H</td>
<td>0.1 k</td>
<td>0.00 k</td>
<td>0.350 k</td>
</tr>
<tr>
<td>+0.60D+0.70E+0.60H</td>
<td>0.2 k</td>
<td>0.00 k</td>
<td>0.350 k</td>
</tr>
<tr>
<td>D Only</td>
<td>0.0 k</td>
<td>0.00 k</td>
<td>0.583 k</td>
</tr>
<tr>
<td>Lr Only</td>
<td>0.0 k</td>
<td>0.00 k</td>
<td>0.000 k</td>
</tr>
<tr>
<td>L Only</td>
<td>0.0 k</td>
<td>0.00 k</td>
<td>0.000 k</td>
</tr>
<tr>
<td>S Only</td>
<td>0.0 k</td>
<td>0.00 k</td>
<td>0.100 k</td>
</tr>
<tr>
<td>W Only</td>
<td>0.2 k</td>
<td>0.00 k</td>
<td>0.000 k</td>
</tr>
<tr>
<td>E Only</td>
<td>0.3 k</td>
<td>0.00 k</td>
<td>0.000 k</td>
</tr>
<tr>
<td>H Only</td>
<td>0.0 k</td>
<td>0.00 k</td>
<td>0.000 k</td>
</tr>
</tbody>
</table>
Masonry Shear Wall Design Based on TMS 402-11 / 2012 IBC (both ASD and SD)

INPUT DATA & DESIGN SUMMARY
SPECIAL INSPECTION (O=NO, 1=YES) 1 Yes
(Typical option only for local jurisdiction amendments to the code, not part of TMS.)
TYPE OF MASONRY (1=CMU, 2=BRICK) 1 CMU
MASONRY STRENGTH $f_m^0$ = 1.5 ksi
REBAR YIELD STRESS $f_y$ = 60 ksi
ALLOWABLE 30% INCREASING? (IBC 1605.3.2) Yes
SEISMIC PERFORMANCE CATEGORY E Seismic E
(C,D,E, O=WIND, 5=GRAVITY)

SERVICE AXIAL LOAD $P = 1.5$ kips, at middle of $L_w$
SERVICE SHEAR LOAD $V_s = 2$ kips, (in-plane force)
SERVICE MOMENT LOAD $M_x = 17$ ft-kips, (top flange, b1, compression)
$M_y = 2.4$ ft-kips, (out-of-plane, left b11 & b21, compression)

EFFECTIVE HEIGHT OF WALL $h_w = 8.5$ ft
LENGTH OF SHEAR WALL $L_w = 8$ ft, (within vertical control joints)

THE WALL DESIGN IS ADEQUATE.

THICKNESS OF WALL $t_w = 8$ in
REINFORCING OF WALL
$A_{sh}$, Horizontal 2 # 5 @ 24 in o.c.
$A_{sv}$, Vertical 2 # 5 @ 24 in o.c.

TOP FLANGE (COMPRESSION) $b_{11} = 0$ in , $b_{12} = 0$ in , $b_{11} = 8$ in, (TMS 1.9.4.2.3)
$|t| = 0$ in , 2 # 5 @ 48 in o.c., Vertical

BOTTOM FLANGE $b_{21} = 0$ in , $b_{22} = 0$ in , $b_{21} = 8$ in, (TMS 1.9.4.2.3)
$|t| = 0$ in , 2 # 5 @ 48 in o.c., Vertical

ANALYSIS
CHECK FLEXURAL & AXIAL CAPACITY BY ALLOWABLE STRESS DESIGN (ASD)

\[
M (ft-k) = \frac{1.5 \text{ kips}}{P (load)} < \frac{P (allowable)}{P_a} = 302.021 \text{ kips}
\]

Where $E_m = 1350$ ksi, (TMS 1.8.2.2.1)
$E_s = 29000$ ksi, (TMS 1.8.2.1)
Scale Factor = 1.333 , (TMS 2.1.2.3)
$F_y = 0.680$ ksi, (TMS 2.18)
$F_s = 32.00$ ksi, (TMS 2.3.3.1)

$A_h = 744$ in$^2$
$A_{sv} = 2.89$ in$^2$

$I_e \geq 0$ ksi, (TMS 2.3.3.3)
$h / t = 46$ , neglected conservatively flanges.

$P_a = 302.021$ kips, (TMS 2.3.4.2.1)
CHECK FLEXURAL & AXIAL CAPACITY BY STRENGTH DESIGN (SD)

\[ P_u = 1.2 \cdot P = 1.8 \text{ kips} \]
\[ M_n = (1/0.7) \cdot (M_u^2 + M_v^2)^{0.5} = 24.5265 \text{ ft-kips} < \phi P_n = 681.462 \text{ kips, (TMS 402.3.3.4.1.1)} \]
\[ \phi M_n = 523.077 \text{ ft-kips, at } P_u \text{ level.} \]

Where
\[ \varepsilon_{mu} = 0.0025 \text{, (TMS 3.3.2.c)} \]
\[ \phi = 0.9 \text{, (TMS 3.1.4.1)} \]
\[ d = 98 \text{ in} \]
\[ l_m = 1.5 \text{ ksi} \]

CHECK SHEAR CAPACITY (ASD), (TMS 2.3.6)

\[ F_v = \text{MAX} \left( \left( SF \right) \frac{1}{4} \left( 4 - 1.75 \text{MIN} \left( 1, \frac{M_T}{V_d} \right) \right) \sqrt{f_m^2 + 0.25 \frac{P}{A_s}} + 0.5 \frac{A_k F d}{A_s^2}, \left( SF \right) \left[ \frac{1}{2} \left( 4 - 1.75 \text{MIN} \left( 1, \frac{M_T}{V_d} \right) \right) \sqrt{f_m^2 + 0.25 \frac{P}{A_s}} \right] \right) \]
\[ = 83 \text{ psi} > 1.5 f_v = 4 \text{ psi} \]

[Satisfactory]

\[ F_v \text{ Maximum} = \left( SF \right) \text{MIN} \left[ 3, \text{MAX} \left( 2, 2 + \frac{4}{3} \left( 1 - \frac{M_T}{V_d} \right) \right) \right] \sqrt{f_m} = 103 \text{ psi} > 1.5 f_v \]

[Satisfactory]

CHECK MINIMUM REINFORCEMENTS

\[ A_{sh, min} = 0.137 \text{ in}^2/ft < A_{sh, actual} = 0.310 \text{ in}^2/ft \]

[Satisfactory] (TMS 1.18.3.2.6)

\[ S_{sh, max} = 24 \text{ in} > S_{sh, actual} = 24 \text{ in} \]

[Satisfactory] (TMS 1.18.3.2.6)

\[ A_{sv, min} = 0.064 \text{ in}^2/ft < A_{sv, actual} = 0.310 \text{ in}^2/ft \]

[Satisfactory] (TMS 1.18.3.2.6)

\[ S_{sv, max} = 24 \text{ in} > S_{sv, actual} = 24 \text{ in} \]

[Satisfactory] (TMS 1.18.3.2.6)

CHECK MAXIMUM REINFORCEMENT PERCENTAGE

\[ \rho_{\text{max}} = \frac{n f_m}{2 f_c} = 0.0044 > \rho = 0.0008 \]

[Satisfactory] (TMS 402.2.3.4.4)

Page 32 of 93
Determination of Pile Cap Balanced Loads and Reactions

DESIGN CRITERIA
1. PILE TOP SHEAR, Rv, & MOMENT, Rm, RELATIONSHIP MUST BE FROM SOIL REPORT (Rv vs Rm) DIAGRAM. THEY ARE NON-LINEAR SET AND EQUAL AT ALL TOP OF PILES FOR RIGID PILE CAP. USING LINEAR SPRINGS TO MODEL THEM IS INADEQUATE.
2. PILE CAPS SHALL BE INTERCONNECTED BY TIES WITH Min(SD/10, 0.25) TIMES AXIAL VERT COLUMN LOADING. (IBC 1810.3.13). TO CONSIDER CONCRETE TENSION CREAKED, THE TIE BEAM SHOULD NOT BE LATERAL REACTION MEMBER.

INPUT DATA & DESIGN SUMMARY
NUMBER OF HORIZONTAL PILE ROWS 4
NUMBER OF VERTICAL PILE ROWS 3
PILES STAGGERED? No
PILE DIAMETER D = 6 in
PILE CLEAR DISTANCE Clear = 24 in
EDGE DISTANCE Edge = 24 in
PILE CAP HEIGHT H = 18 in
PASSIVE SOIL PRESSURE \( P_P = 200 \text{ pcf} \)

PILE LOCATION TO CENTER OF PILE CAP AND VERTICAL REACTIONS

<table>
<thead>
<tr>
<th>Pile</th>
<th>X (in)</th>
<th>Y (in)</th>
<th>R (kips)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-132</td>
<td>-132</td>
<td>26.0</td>
</tr>
<tr>
<td>2</td>
<td>-132</td>
<td>-48</td>
<td>26.0</td>
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<tr>
<td>3</td>
<td>-132</td>
<td>48</td>
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</tr>
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<td>4</td>
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<td>26.0</td>
</tr>
<tr>
<td>5</td>
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<td>-132</td>
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<td>26.2</td>
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<td>9</td>
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<td>-132</td>
<td>26.3</td>
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<tr>
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<td>132</td>
<td>-48</td>
<td>26.3</td>
</tr>
<tr>
<td>11</td>
<td>132</td>
<td>48</td>
<td>26.3</td>
</tr>
<tr>
<td>12</td>
<td>132</td>
<td>132</td>
<td>26.3</td>
</tr>
</tbody>
</table>

GROUP CENTER X = 0 in  Y = 0 in

INPUT POINT LOADS ON TOP OF CAP

<table>
<thead>
<tr>
<th>LOAD</th>
<th>X (in)</th>
<th>Y (in)</th>
<th>P (kips)</th>
<th>Vx (k)</th>
<th>Vy (k)</th>
<th>My (ft-k)</th>
<th>Mx (ft-k)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-48</td>
<td>-48</td>
<td>76.5</td>
<td>2</td>
<td></td>
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<td></td>
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<tr>
<td>2</td>
<td>-48</td>
<td>48</td>
<td>76.5</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>48</td>
<td>48</td>
<td>76.5</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4</td>
<td>48</td>
<td>-48</td>
<td>76.5</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
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<td></td>
</tr>
</tbody>
</table>

PILE CAP SIZE

\[ P = \frac{Vv (V_y^2 + V_y^2)^{0.5}}{No.} \]

\[ Rv = 0.4 \text{ kips} \]

\[ Rv = 0 \text{ ft-kips, (from Soil Report per } Rv \text{ above) } \]

Determine Maximum Pile Vertical Reactions

\[ A = 12 \quad 118368 \quad 139392 \quad 26.3 \text{ kips} \]

\[ R_{max} = 26.3 \text{ kips} \quad R_{min} = 26.0 \text{ kips} \]

(The Bold Italic Red values are for pile and pile cap design.)
Concrete Beam

Description: Gage Beam-Pile Cap

**CODE REFERENCES**

Calculations per ACI 318-11, IBC 2012, ASCE 7-10

Load Combination Set: ASCE 7-10

**IBC 2015 GV**

**Material Properties**

- $f'_c = 3.0$ ksi
- $f_{0.8} = 0.85$ ksi
- $f_y = 60.0$ ksi
- $f_{	ext{min}} = 29,000$ ksi

- $\phi$ Values: Flexure: 0.90
- $\beta_1$: Shear: 0.750
- $\lambda$: L/W Factor: 1.0
- $E$: Elastic Modulus: 3,122,000 ksi
- $F$: Stirrups: 60.0 ksi
- $E$: Stirrups: 29,000 ksi
- Number of Resisting Legs Per Stirrup: 2

**Load Combination ASCE 7-10**

**Cross Section & Reinforcing Details**

- Rectangular Section, Width = 12.0 in, Height = 26.0 in
- Span #1 Reinforcing:
  - 1@6 at 6.0 in from Bottom, from 0.0 to 11.0 ft in this span
- Span #2 Reinforcing:
  - 1@6 at 6.0 in from Bottom, from 0.0 to 11.0 ft in this span

**Applied Loads**

- Beam self weight calculated and added to loads
- Load for Span Number 1
  - Uniform Load: $D = 0.1820$, $L = 0.040$, $S = 0.0420$ k/ft, Tributary Width = 1.0 ft, (Gravity)
- Load for Span Number 2
  - Uniform Load: $D = 0.1820$, $L = 0.040$, $S = 0.0420$ k/ft, Tributary Width = 1.0 ft, (Gravity)

**DESIGN SUMMARY**

- Maximum Bending Stress Ratio: 0.161:1
- Typical Section
  - Mu: Applied
  - Mn * Phi: Allowable

- Load Combination
  - +1.400 +1.60H

- Location of maximum on span: 0.000 ft
- Span # where maximum occurs: Span # 2

**Cross Section Strength & Inertia**

- Top & Bottom references are for tension side of section

<table>
<thead>
<tr>
<th>Cross Section</th>
<th>Bar Layout Description</th>
<th>Max Mu (k-ft)</th>
<th>Phi/Mn (k-ft)</th>
<th>Moment of Inertia (in^4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 1</td>
<td>1@6 @ d=20+1@6 @ d=3+</td>
<td>Bottom: 0.00</td>
<td>Top: 41.75</td>
<td>54.00, 17,576.00, 1,283.87, 1,745.93</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bottom: 0.00</td>
<td>Top: 41.75</td>
<td>54.00, 17,576.00, 1,283.87, 1,745.93</td>
</tr>
<tr>
<td>Section 2</td>
<td>1@6 @ d=20+1@6 @ d=3+</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bottom: 0.00</td>
<td>Top: 41.75</td>
<td>54.00, 17,576.00, 1,283.87, 1,745.93</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bottom: 0.00</td>
<td>Top: 41.75</td>
<td>54.00, 17,576.00, 1,283.87, 1,745.93</td>
</tr>
</tbody>
</table>

**Vertical Reactions**

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Support 1</th>
<th>Support 2</th>
<th>Support 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Max</td>
<td>2.091</td>
<td>6.971</td>
<td>2.091</td>
</tr>
<tr>
<td>Overall Min</td>
<td>0.150</td>
<td>0.500</td>
<td>0.150</td>
</tr>
<tr>
<td>+D+H</td>
<td>1.861</td>
<td>6.202</td>
<td>2.011</td>
</tr>
<tr>
<td>+D+L+H</td>
<td>2.011</td>
<td>6.702</td>
<td>2.011</td>
</tr>
</tbody>
</table>
**Concrete Beam**

**Lic. #**: KW-06010241  
**Description**: Grade Beam-Pile Cap 

### Vertical Reactions

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Support 1</th>
<th>Support 2</th>
<th>Support 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>+D+L+H</td>
<td>1.861</td>
<td>6.202</td>
<td>1.861</td>
</tr>
<tr>
<td>+D+L+H</td>
<td>2.018</td>
<td>6.727</td>
<td>2.018</td>
</tr>
<tr>
<td>+D+0.750L+0.750L+H</td>
<td>1.973</td>
<td>6.577</td>
<td>1.973</td>
</tr>
<tr>
<td>+D+0.750L+0.750L+H</td>
<td>2.091</td>
<td>6.971</td>
<td>2.091</td>
</tr>
<tr>
<td>+D+0.60W+H</td>
<td>1.861</td>
<td>6.202</td>
<td>1.861</td>
</tr>
<tr>
<td>+D+0.70E+H</td>
<td>1.861</td>
<td>6.202</td>
<td>1.861</td>
</tr>
<tr>
<td>+D+0.750L+0.750L+0.450W+H</td>
<td>1.973</td>
<td>6.577</td>
<td>1.973</td>
</tr>
<tr>
<td>+D+0.750L+0.750L+0.450W+H</td>
<td>2.091</td>
<td>6.971</td>
<td>2.091</td>
</tr>
<tr>
<td>+D+0.750L+0.750L+0.5250E+H</td>
<td>2.091</td>
<td>6.971</td>
<td>2.091</td>
</tr>
<tr>
<td>+0.60D+0.60W+0.00H</td>
<td>1.116</td>
<td>3.721</td>
<td>1.116</td>
</tr>
<tr>
<td>+0.60D+0.70E+0.00H</td>
<td>1.116</td>
<td>3.721</td>
<td>1.116</td>
</tr>
<tr>
<td>D Only</td>
<td>1.861</td>
<td>6.202</td>
<td>1.861</td>
</tr>
<tr>
<td>L Only</td>
<td>0.150</td>
<td>0.500</td>
<td>0.150</td>
</tr>
<tr>
<td>S Only</td>
<td>0.158</td>
<td>0.525</td>
<td>0.158</td>
</tr>
<tr>
<td>W Only</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E Only</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H Only</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Shear Stirrup Requirements

Entire Beam Span Length: Vu < Phil Vo2, Req'd Vs = Not Req'd 11.4.6.1, use stirrups spaced at 0.000 in

### Maximum Forces & Stresses for Load Combinations

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Span #</th>
<th>Location (ft) in Span</th>
<th>Mu : Max</th>
<th>Phi'Mnx</th>
<th>Stress Ratio</th>
</tr>
</thead>
</table>

**MAXIMUM BENDING Envelope**

| Span # 1 | 10.000 | -8.48 | 54.00 | 0.16 |
| Span # 2 | 10.000 | -8.68 | 54.00 | 0.16 |

| +1.40D+1.60H | Span # 1 | 10.000 | -8.48 | 54.00 | 0.16 |
| Span # 2 | 10.000 | -8.68 | 54.00 | 0.16 |

| +1.20D+0.50L+1.60L+1.60H  | Span # 1 | 10.000 | -8.05 | 54.00 | 0.15 |
| Span # 2 | 10.000 | -8.24 | 54.00 | 0.15 |

| +1.20D+1.60L+0.50S+1.60H | Span # 1 | 10.000 | -8.30 | 54.00 | 0.15 |
| Span # 2 | 10.000 | -8.50 | 54.00 | 0.16 |

| +1.20D+1.60L+0.50L+1.60H  | Span # 1 | 10.000 | -7.51 | 54.00 | 0.14 |
| Span # 2 | 10.000 | -7.69 | 54.00 | 0.14 |

| +1.20D+1.60L+0.50W+1.60H | Span # 1 | 10.000 | -7.27 | 54.00 | 0.13 |
| Span # 2 | 10.000 | -7.44 | 54.00 | 0.14 |

| +1.20D+0.50L+1.60S+1.60H | Span # 1 | 10.000 | -8.33 | 54.00 | 0.15 |
| Span # 2 | 10.000 | -8.53 | 54.00 | 0.16 |

| +1.20D+1.60S+0.50W+1.60H | Span # 1 | 10.000 | -8.09 | 54.00 | 0.15 |
| Span # 2 | 10.000 | -8.28 | 54.00 | 0.15 |

| +1.20D+0.50L+0.50L+W+1.60H | Span # 1 | 10.000 | -7.51 | 54.00 | 0.14 |
| Span # 2 | 10.000 | -7.69 | 54.00 | 0.14 |

| +1.20D+0.50L+0.50S+W+1.60H  | Span # 1 | 10.000 | -7.77 | 54.00 | 0.14 |
| Span # 2 | 10.000 | -7.95 | 54.00 | 0.15 |

| +1.20D+0.50L+0.20S+E+1.60H | Span # 1 | 10.000 | -7.61 | 54.00 | 0.14 |
| Span # 2 | 10.000 | -7.80 | 54.00 | 0.14 |

| +0.90D+W+0.90H | Span # 1 | 10.000 | -5.45 | 54.00 | 0.10 |
| Span # 2 | 10.000 | -5.58 | 54.00 | 0.10 |

| +0.90D+E+0.90H | Span # 1 | 10.000 | -5.45 | 54.00 | 0.10 |
| Span # 2 | 10.000 | -5.58 | 54.00 | 0.10 |
### Concrete Beam

**Lic. #:** KW-06010241  
**Description:** Grade Beam-Pile Cap

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Span</th>
<th>Max. <em>±</em> Defl</th>
<th>Location in Span</th>
<th>Load Combination</th>
<th>Max. <em>±</em> Defl</th>
<th>Location in Span</th>
</tr>
</thead>
<tbody>
<tr>
<td>+D+0.750L+0.750S+0.5250E+H</td>
<td>1</td>
<td>0.0009</td>
<td>4.167</td>
<td></td>
<td>0.0000</td>
<td>0.000</td>
</tr>
<tr>
<td>+D+0.750L+0.750S+0.5250E+H</td>
<td>2</td>
<td>0.0009</td>
<td>5.833</td>
<td></td>
<td>0.0000</td>
<td>0.000</td>
</tr>
</tbody>
</table>
Steel Base Plate

Lic. #: KW-06010241

Description: Pipe Pile Cap Plate

Code References
Calculations per AISC Design Guide # 1, IBC 2012, CBC 2013, ASCE 7-10
Load Combination Set: ASCE 7-10

BBC 2015

General Information

Material Properties
AISC Design Method: Allowable Strength Design
Steel Plate Fy = 36.0 ksi
Concrete Support fc = 3.0 ksi
Assumed Bearing Area: Full Bearing

Column Properties
Steel Section: Pipe 6 Std
Depth 6.625 in
Width 6.625 in
Flange Thickness 0.261 in
Web Thickness in

Plate Dimensions
N: Length 12.0 in
B: Width 12.0 in
Thickness 0.50 in

Support Dimensions
Width along "X" 12.0 in
Length along "Z" 12.0 in

Column assumed welded to base plate.

Applied Loads

<table>
<thead>
<tr>
<th>P-Y</th>
<th>V-Z</th>
<th>M-X</th>
</tr>
</thead>
<tbody>
<tr>
<td>k</td>
<td>k</td>
<td>k-ft</td>
</tr>
<tr>
<td>k</td>
<td>k</td>
<td>k-ft</td>
</tr>
<tr>
<td>30.0 k</td>
<td>k</td>
<td>k-ft</td>
</tr>
<tr>
<td>k</td>
<td>k</td>
<td>k-ft</td>
</tr>
<tr>
<td>k</td>
<td>k</td>
<td>k-ft</td>
</tr>
<tr>
<td>k</td>
<td>k</td>
<td>k-ft</td>
</tr>
<tr>
<td>k</td>
<td>k</td>
<td>k-ft</td>
</tr>
</tbody>
</table>

*P* = Gravity load, *"* sign is downward.

Anchor Bolts

Anchor Bolt or Rod Description 1 1/2"
Max of Tension or Pullout Capacity... k
Shear Capacity........................................ k
Edge distance: bolt to plate........... 1.250 in
Number of Bolts in each Row........... 2.0
Number of Bolt Rows...................... 1.0
Steel Base Plate

Description: Pipe Pile Cap Plate

GOVERNING DESIGN LOAD CASE SUMMARY

<table>
<thead>
<tr>
<th>Plate Design Summary</th>
<th>Allowable Strength Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Method</td>
<td></td>
</tr>
<tr>
<td>Governing Load Combination</td>
<td>+D+L+H</td>
</tr>
<tr>
<td>Governing Load Case Type</td>
<td>Axial Load Only</td>
</tr>
<tr>
<td>Design Plate Size</td>
<td>1'-0&quot; x 1'-0&quot; x 0'-1/2&quot;</td>
</tr>
<tr>
<td>Pa : Axial Load</td>
<td>30,000 k</td>
</tr>
<tr>
<td>Ma : Moment</td>
<td>0.000 k-ft</td>
</tr>
</tbody>
</table>

Mu : Max. Moment          : 1.169 k-in
fb : Max. Bending Stress  : 18.704 ksi
Fb : Allowable            : 21.557 ksi

Bending Stress Ratio      : 0.863
Bending Stress OK         : 0.206 ksi
Fp : Allowable            : 1.020 ksi

min(0.85f'c'sqrt(A2/A1), 1.7'f'c')Omega Bearing Stress Ratio: 0.204
Bearing Stress OK         : 0.204 ksi
LATERAL DESIGN

BASE SHEAR, SHEARWALLS
AND ROOF DIAPHRAGM
USGS Design Maps Summary Report

User-Specified Input
Building Code Reference Document  ASCE 7-10 Standard
(which utilizes USGS hazard data available in 2008)

Site Coordinates  47.71°N, 122.18°W
Site Soil Classification  Site Class E - "Soft Clay Soil"
Risk Category  I/II/III

USGS-Provided Output

\[ S_2 = 1.253 \text{ g} \quad S_{MS} = 1.128 \text{ g} \quad S_{PS} = 0.752 \text{ g} \]
\[ S_1 = 0.483 \text{ g} \quad S_{MS1} = 1.159 \text{ g} \quad S_{PS1} = 0.773 \text{ g} \]

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.

For PGAw, T, C55, and C45 values, please view the detailed report.
Design Maps Detailed Report

2012/2015 International Building Code (47.71°N, 122.18°W)

Site Class E – "Soft Clay Soil", Risk Category I/II/III

Section 1613.3.1 – Mapped acceleration parameters

Note: Ground motion values provided below are for the direction of maximum horizontal spectral response acceleration. They have been converted from corresponding geometric mean ground motions computed by the USGS by applying factors of 1.1 (to obtain Sₛ) and 1.3 (to obtain Sᵢ). Maps in the 2012/2015 International Building Code are provided for Site Class B. Adjustments for other Site Classes are made, as needed, in Section 1613.3.3.

From Figure 1613.3.1(1) \[ Sₛ = 1.253 \text{ g} \]

From Figure 1613.3.1(2) \[ Sᵢ = 0.483 \text{ g} \]

Section 1613.3.2 – Site class definitions

The authority having jurisdiction (not the USGS), site-specific geotechnical data, and/or the default has classified the site as Site Class E, based on the site soil properties in accordance with Section 1613.

2010 ASCE-7 Standard – Table 20.3-1
SITE CLASS DEFINITIONS

<table>
<thead>
<tr>
<th>Site Class</th>
<th>( \bar{v}_s )</th>
<th>( N ) or ( \bar{N}_{ch} )</th>
<th>( s_u )</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Hard Rock</td>
<td>&gt;5,000 ft/s</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>B. Rock</td>
<td>2,500 to 5,000 ft/s</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>C. Very dense soil and soft rock</td>
<td>1,200 to 2,500 ft/s</td>
<td>&gt;50</td>
<td>&gt;2,000 psf</td>
</tr>
<tr>
<td>D. Stiff Soil</td>
<td>600 to 1,200 ft/s</td>
<td>15 to 50</td>
<td>1,000 to 2,000 psf</td>
</tr>
<tr>
<td>E. Soft clay soil</td>
<td>&lt;600 ft/s</td>
<td>&lt;15</td>
<td>&lt;1,000 psf</td>
</tr>
</tbody>
</table>

Any profile with more than 10 ft of soil having the characteristics:
- Plasticity index \( PI > 20 \),
- Moisture content \( w \geq 40\% \), and
- Undrained shear strength \( s_u < 500 \text{ psf} \)

F. Soils requiring site response analysis in accordance with Section 21.1
See Section 20.3.1

For SI: 1 ft/s = 0.3048 m/s 1 lb/ft² = 0.0479 kN/m²
Section 1613.3.3 — Site coefficients and adjusted maximum considered earthquake spectral response acceleration parameters

**TABLE 1613.3.3(1)**  
VALUES OF SITE COEFFICIENT F<sub>s</sub>

<table>
<thead>
<tr>
<th>Site Class</th>
<th>Mapped Spectral Response Acceleration at Short Period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S&lt;sub&gt;s&lt;/sub&gt; ≤ 0.25</td>
</tr>
<tr>
<td>A</td>
<td>0.8</td>
</tr>
<tr>
<td>B</td>
<td>1.0</td>
</tr>
<tr>
<td>C</td>
<td>1.2</td>
</tr>
<tr>
<td>D</td>
<td>1.6</td>
</tr>
<tr>
<td>E</td>
<td>2.5</td>
</tr>
<tr>
<td>F</td>
<td>See Section 11.4.7 of ASCE 7</td>
</tr>
</tbody>
</table>

Note: Use straight-line interpolation for intermediate values of S<sub>s</sub>

**For Site Class = E and S<sub>s</sub> = 1.253 g, F<sub>s</sub> = 0.900**

**TABLE 1613.3.3(2)**  
VALUES OF SITE COEFFICIENT F<sub>i</sub>

<table>
<thead>
<tr>
<th>Site Class</th>
<th>Mapped Spectral Response Acceleration at 1-s Period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S&lt;sub&gt;i&lt;/sub&gt; ≤ 0.10</td>
</tr>
<tr>
<td>A</td>
<td>0.8</td>
</tr>
<tr>
<td>B</td>
<td>1.0</td>
</tr>
<tr>
<td>C</td>
<td>1.7</td>
</tr>
<tr>
<td>D</td>
<td>2.4</td>
</tr>
<tr>
<td>E</td>
<td>3.5</td>
</tr>
<tr>
<td>F</td>
<td>See Section 11.4.7 of ASCE 7</td>
</tr>
</tbody>
</table>

Note: Use straight-line interpolation for intermediate values of S<sub>i</sub>

**For Site Class = E and S<sub>i</sub> = 0.483 g, F<sub>i</sub> = 2.400**
Equation (16-37): \[ S_{ns} = F_dS_s = 0.900 \times 1.253 = 1.128 \text{ g} \]

Equation (16-38): \[ S_{m1} = F_sS_1 = 2.400 \times 0.483 = 1.159 \text{ g} \]

Section 1613.3.4 — Design spectral response acceleration parameters

Equation (16-39): \[ S_{ds} = \frac{3}{4} S_{ns} = \frac{3}{4} \times 1.128 = 0.752 \text{ g} \]

Equation (16-40): \[ S_{d1} = \frac{3}{4} S_{m1} = \frac{3}{4} \times 1.159 = 0.773 \text{ g} \]
Section 1613.3.5 — Determination of seismic design category

**TABLE 1613.3.5(1)**
SEISMIC DESIGN CATEGORY BASED ON SHORT-PERIOD (0.2 second) RESPONSE ACCELERATION

<table>
<thead>
<tr>
<th>VALUE OF $S_{oa}$</th>
<th>RISK CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I or II</td>
</tr>
<tr>
<td>$S_{oa} &lt; 0.167g$</td>
<td>A</td>
</tr>
<tr>
<td>$0.167g \leq S_{oa} &lt; 0.33g$</td>
<td>B</td>
</tr>
<tr>
<td>$0.33g \leq S_{oa} &lt; 0.50g$</td>
<td>C</td>
</tr>
<tr>
<td>$0.50g \leq S_{oa}$</td>
<td>D</td>
</tr>
</tbody>
</table>

For Risk Category = I and $S_{oa} = 0.752$ g, Seismic Design Category = D

**TABLE 1613.3.5(2)**
SFISIMIC DESIGN CATEGORY BASED ON 1-SECOND PERIOD RESPONSE ACCELERATION

<table>
<thead>
<tr>
<th>VALUE OF $S_{os}$</th>
<th>RISK CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I or II</td>
</tr>
<tr>
<td>$S_{os} &lt; 0.067g$</td>
<td>A</td>
</tr>
<tr>
<td>$0.067g \leq S_{os} &lt; 0.133g$</td>
<td>B</td>
</tr>
<tr>
<td>$0.133g \leq S_{os} &lt; 0.20g$</td>
<td>C</td>
</tr>
<tr>
<td>$0.20g \leq S_{os}$</td>
<td>D</td>
</tr>
</tbody>
</table>

For Risk Category = I and $S_{os} = 0.773$ g, Seismic Design Category = D

Note: When $S_{i}$ is greater than or equal to 0.75g, the Seismic Design Category is E for buildings in Risk Categories I, II, and III, and F for those in Risk Category IV, irrespective of the above.

Seismic Design Category ≡ "the more severe design category in accordance with Table 1613.3.5(1) or 1613.3.5(2)" = D

Note: See Section 1613.3.5.1 for alternative approaches to calculating Seismic Design Category.

References

1. *Figure 1613.3.1(1)*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/IBC-2012-Fig1613p3p1(1).pdf
2. *Figure 1613.3.1(2)*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/IBC-2012-Fig1613p3p1(2).pdf
Seismic Design Parameters

Per GeoTech report, use Site Class F:

\[ F_a S_b = 1.5 \times (0.9) = 1.35 \times (1.5) = 2.03 \]

\[ F_v S_l = 0.16 \times (2.4) = 1.44 \times (1.5) = 2.16 \]

\[ S_{ds} = \frac{S_{d1}}{1.5} = 1.36 \]

\[ S_{d1} = \frac{S_{d3}}{1.5} = 1.45 \]

Let \( \omega = 1.25 \)

Steel Special Caut. Col. Sys.: \( R_w = 2.5 \)

\[ C_s = \frac{1.34}{2.5/1.0} = 0.54 \]

Wood Sh. Walls: \( R_w = 4.5, \omega = 2.5 \)

Or

Sp. Reinf. CMU: \( R_w = 5, \omega = 2.5 \)

\[ C_s = \frac{1.34}{5/1.0} = 0.27 \]
**Structure Loads**

\[ \text{Roof } DL = 100 (28.67) (32) = 14,777 \text{kN} \]

8" CMU = \[ 22(2) + 18.67(2) + 16.0 + 20.67 + 12 \] (8)(60)

\[ = 672,480 \text{kN} \]

28" Deep Pile Cap = \[ 22(23.33)(23.33)(0.150) \]

\[ = 180 \text{kN} \]

\[ \text{Roof } SL = 25(28.67)(32) = 230,000 \text{kN} \]

**Total Load to Piles:**

\[ DL = 25777 \text{kN} \]

\[ SL = 230kN \]

\[ TL = 280kN \]

6" x 6" Pile Capacity = 30 kN Each

\[ \# \text{ of Piles} = \frac{280}{30} = 9.4 \text{ Piles} \]

\[ \text{For symmetry, use 12 Piles.} \]

\[ \text{Load Pile } = \frac{280}{12} = 23.3kN \]

\[ \text{OK} \]
Roof Seismic Force to Columns:
\[ V_x = 0.54(15) = 8.1 \text{ kN} \]

Roof Seismic Force to Sh-Walls:
\[ V_x = 0.24(15) = 4.0 \text{ kN} \]

Seismic Force to Pile Cap:
\[ V_x = 0.24(14.7 + \frac{1}{2}(62.4)) = 12.4 \text{ kN} \]

Passive Pressure = 200 ksf

28" Deep Pile Cap:
\[ P = \frac{1}{2}(2.33)(200)(2.33)(23.33) \]
\[ = 12.7 \text{ kN} > 12.4 \text{ kN} \quad OK \]
**IBC 2012 1609.6 Alternate All-Heights Wind**

**Analytical Values**

**User verified these IBC 2012 All-Heights Wind Method Limitations:**

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1609.6.1 (1)</td>
<td>Total Height (\leq 75) ft with (\text{Height} / \text{Least Width} \leq 4) or Fundamental frequency (\geq 1) hertz</td>
</tr>
<tr>
<td>1609.6.1 (2)</td>
<td>Not sensitive to dynamic effects</td>
</tr>
<tr>
<td>1609.6.1 (3)</td>
<td>Site not affected by channeling/buffeting from upwind items</td>
</tr>
<tr>
<td>1609.6.1 (4)</td>
<td>Simple diaphragm building per ASCE 7-05 Sec 26.2</td>
</tr>
<tr>
<td>1609.6.1 (5)</td>
<td>Aware of ASCE 7 provisions for open buildings, multispans gable roofs, stepped roofs, sawtooth roofs, domed roofs, roofs with slopes (\geq 45) deg, solid free standing walls &amp; signs</td>
</tr>
<tr>
<td>1609.6.4.1</td>
<td>Aware of need to check torsion per ASCE 7 Fig. 27.4-8</td>
</tr>
</tbody>
</table>

**MWFRS Table per IBC 2012 1609.6.2, Section 1**

<table>
<thead>
<tr>
<th>Kz based on Ibc 2012 1609.6.4.2 Item 1</th>
<th>Enclosed</th>
<th>Partially Enclosed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Kz</td>
<td>Internal</td>
</tr>
<tr>
<td>0' - 15'</td>
<td>0.570</td>
<td>7.60</td>
</tr>
<tr>
<td>20'</td>
<td>0.620</td>
<td>8.26</td>
</tr>
<tr>
<td>30'</td>
<td>0.700</td>
<td>9.33</td>
</tr>
<tr>
<td>40'</td>
<td>0.760</td>
<td>10.13</td>
</tr>
<tr>
<td>50'</td>
<td>0.810</td>
<td>10.80</td>
</tr>
<tr>
<td>60'</td>
<td>0.850</td>
<td>11.33</td>
</tr>
<tr>
<td>70'</td>
<td>0.890</td>
<td>11.86</td>
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<tr>
<td>80'</td>
<td>0.930</td>
<td>12.40</td>
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<tr>
<td>90'</td>
<td>0.960</td>
<td>12.80</td>
</tr>
<tr>
<td>100'</td>
<td>0.990</td>
<td>13.20</td>
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</table>

<table>
<thead>
<tr>
<th>Kz based on IBC 2012 1609.6.4.2 Item 2</th>
<th>Enclosed</th>
<th>Partially Enclosed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>Kz</td>
<td>+Internal</td>
</tr>
<tr>
<td>Leeward Wall</td>
<td>0.570</td>
<td>-9.01</td>
</tr>
<tr>
<td>Side Wall</td>
<td>-11.88</td>
<td>-6.18</td>
</tr>
<tr>
<td>Parapet Wall: Leeward</td>
<td>Both Directions</td>
<td>-15.02</td>
</tr>
</tbody>
</table>

**Design Pressure**

\[ P = 0.00256 \ V^2 \ K \ C \ K_z \text{ net} ^{z_l} \]

**LEEWARD & SIDEWALLS**

\[ W = 7.60 + 9.01 = 16.61 \text{ psf} \]

\[ W = 12.40 + 3.71 = 16.11 \text{ psf} \]

\[ W = 14.61 (30') (6') = 2990 \text{ lbs} \]

\[ EQ = 3.0k > W \]

\[ \text{Seismic Controls} \]
**IBC 2012 1609.6 Alternate All-Heights Wind**

**MWFRS per IBC 2012 Table 1609.6.2 Section 1**

Kz per IBC 2012 1609.6.4.2 Item 2 = 0.570

| Kz per IBC 2012 1609.6.4.2 Item 2 | Design Pressure P = 0.00256 V^2 |

<table>
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<th>Partially Enclosed</th>
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<tbody>
<tr>
<td>+Internal</td>
<td>-Internal</td>
</tr>
<tr>
<td>11.66</td>
<td>-6.18</td>
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**WIND PERPENDICULAR TO RIDGE**

<table>
<thead>
<tr>
<th>Windward Roof Slopes</th>
<th>Condition 1</th>
<th>Condition 2</th>
<th>Condition 1</th>
<th>Condition 2</th>
<th>Condition 1</th>
<th>Condition 2</th>
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<th>Condition 2</th>
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<th>Condition 1</th>
<th>Condition 2</th>
<th>Condition 1</th>
<th>Condition 2</th>
<th>Condition 1</th>
<th>Condition 2</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>-4.95</td>
<td>0.35</td>
<td>-10.60</td>
<td>6.01</td>
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</tr>
<tr>
<td>Slope &lt; 4:12 (18 deg)</td>
<td>-12.90</td>
<td>-7.42</td>
<td>-18.38</td>
<td>-1.94</td>
<td></td>
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<tr>
<td></td>
<td>-0.88</td>
<td>4.42</td>
<td>-6.54</td>
<td>10.07</td>
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<td></td>
</tr>
<tr>
<td>Slope &lt; 5:12 (23 deg)</td>
<td>-10.25</td>
<td>-4.95</td>
<td>-15.59</td>
<td>0.71</td>
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<tr>
<td></td>
<td>0.53</td>
<td>6.01</td>
<td>-5.12</td>
<td>11.49</td>
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<tr>
<td></td>
<td>1.06</td>
<td>6.54</td>
<td>-4.42</td>
<td>12.02</td>
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</tr>
<tr>
<td>Slope &lt; 7:12 (30 deg)</td>
<td>-6.54</td>
<td>-1.06</td>
<td>-12.02</td>
<td>4.59</td>
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<td></td>
<td>1.24</td>
<td>6.54</td>
<td>-4.42</td>
<td>12.19</td>
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</tr>
<tr>
<td>Slope &lt; 9:12 (37 deg)</td>
<td>-4.77</td>
<td>0.71</td>
<td>-10.25</td>
<td>6.18</td>
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<td></td>
<td>2.47</td>
<td>7.77</td>
<td>-3.18</td>
<td>13.43</td>
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</tr>
<tr>
<td>Slope &lt; 12:12 (45 deg)</td>
<td>2.47</td>
<td>7.77</td>
<td>-3.18</td>
<td>13.43</td>
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</table>

**WIND PARALLEL TO RIDGE**

<table>
<thead>
<tr>
<th>Windward Roof Slopes</th>
<th>Condition 1</th>
<th>Condition 2</th>
<th>Condition 1</th>
<th>Condition 2</th>
<th>Condition 1</th>
<th>Condition 2</th>
<th>Condition 1</th>
<th>Condition 2</th>
<th>Condition 1</th>
<th>Condition 2</th>
<th>Condition 1</th>
<th>Condition 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>All slopes including Flat Roofs</td>
<td>-19.26</td>
<td>-13.96</td>
<td>-24.91</td>
<td>-8.30</td>
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</table>

**Wall & Parapet Components & Cladding per IBC 2012 Table 1609.6.2, Section 4 & 5**

<table>
<thead>
<tr>
<th>Description</th>
<th>Continuity</th>
<th>Item Type</th>
<th>Z, Ht. Above Ground Level, ft</th>
<th>Eff. Area ft^2</th>
<th>Kz Enclosed</th>
<th>Partially Enclosed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wall Out of Plane Force</td>
<td>No Discontinuity</td>
<td>Wall Elements, h&lt;=60 ft</td>
<td>15</td>
<td>45.00</td>
<td>0.57</td>
<td>+: 17.35</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-: -18.93</td>
<td>-24.42</td>
</tr>
</tbody>
</table>

Page 50 of 93
**ROOF DIAPHRAGM SHEAR FORCES**

**NORTH - SOUTH ORIENTED WALLS**

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>LENGTH</th>
<th>WIDTH</th>
<th>WEIGHT (KIPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roof</td>
<td>32</td>
<td>29</td>
<td>15</td>
</tr>
</tbody>
</table>

**TOTAL DEAD LOAD (KIPS)** 15

Shear Force: $Cs \times W = 8$ Kips
Diaphragm Shear Force to Exterior Walls = 127 PLF

**EAST - WEST ORIENTED WALLS**

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>LENGTH</th>
<th>WIDTH</th>
<th>WEIGHT (KIPS)</th>
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</thead>
<tbody>
<tr>
<td>Roof</td>
<td>29</td>
<td>32</td>
<td>15</td>
</tr>
</tbody>
</table>

**TOTAL DEAD LOAD (KIPS)** 15

Shear Force: $Cs \times W = 8$ Kips
Diaphragm Shear Force to Exterior Walls = 141 PLF

**DIAPHRAGM SHEAR CAPACITIES (NDS Table 4.2A):**

5/16" Struct 1, 6d nails, 6" o.c., 2x Joists

296 PLF
(Global) Model Settings

- Display Sections for Member Calcs: 5
- Max Internal Sections for Member Calcs: 97
- Include Shear Deformation?: Yes
- Increase Nailing Capacity for Wind?: Yes
- Merge Tolerance (in): 0.12
- P-Delta Analysis Tolerance: 0.50%
- Include P-Delta for Walls?: Yes
- Automatically Iterate Stiffness for Walls?: Yes
- Max Iterations for Wall Stiffness: 3
- Gravity Acceleration (ft/sec²): 32.2
- Wall Mesh Size (in): 12
- Eigensolution Convergence Tol. (1.E-): 4
- Dynamic Solver: Accelerated Solver

- Hot Rolled Steel Code: AISC 14th(360-10); ASD
- Adjust Stiffness?: Yes(Iterative)
- Cold Formed Steel Code: AISI S100-12; ASD
- Wood Code: AWC NDS-12; ASD
- Wood Temperature: < 100°F
- Concrete Code: ACI 318-11
- Masonry Code: ACI 530-13; ASD
- Aluminum Code: AA ADM1-10; ASD - Building
- Number of Shear Regions: 4
- Region Spacing Increment (in): 4
- Concrete Stress Block: Rectangular
- Use Cracked Sections?: Yes
- Bad Framing Warnings?: No
- Unused Force Warnings?: Yes
- Min 1 Bar Dia., Spacing?: No
- Concrete Rebar Set: REBAR_SET_ASTMA615
- Min % Steel for Column: 1
- Max % Steel for Column: 8

Hot Rolled Steel Properties

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>1</td>
<td>A36 Gr.36</td>
<td>29000</td>
<td>11154</td>
<td>.3</td>
<td>.65</td>
<td>.49</td>
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<tr>
<td>2</td>
<td>A572 Gr.50</td>
<td>29000</td>
<td>11154</td>
<td>.3</td>
<td>.65</td>
<td>.49</td>
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<tr>
<td>3</td>
<td>A992</td>
<td>29000</td>
<td>11154</td>
<td>.3</td>
<td>.65</td>
<td>.49</td>
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<tr>
<td>4</td>
<td>A500 Gr.B RND</td>
<td>29000</td>
<td>11154</td>
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<td>.527</td>
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<td>5</td>
<td>A500 Gr.B Rect</td>
<td>29000</td>
<td>11154</td>
<td>.3</td>
<td>.65</td>
<td>.527</td>
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<tr>
<td>6</td>
<td>A53 Gr.B</td>
<td>29000</td>
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<td>.65</td>
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<td>7</td>
<td>A1085</td>
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Hot Rolled Steel Section Sets

<table>
<thead>
<tr>
<th>Label</th>
<th>Shape</th>
<th>Type</th>
<th>Design List</th>
<th>Material</th>
<th>Design Rules</th>
<th>A [in²]</th>
<th>I (90.270)</th>
<th>I (0.180)</th>
<th>l...</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Post</td>
<td>HSS6x0.250</td>
<td>Column</td>
<td>Pipe</td>
<td>A500 Gr.B RND</td>
<td>Typical</td>
<td>4.22</td>
<td>17.6</td>
<td>17.6</td>
</tr>
<tr>
<td>2</td>
<td>Beam</td>
<td>W12x40</td>
<td>Beam</td>
<td>Wide Flange</td>
<td>A572 Gr.50</td>
<td>Typical</td>
<td>11.7</td>
<td>44.1</td>
<td>307</td>
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Material Takeoff

<table>
<thead>
<tr>
<th>Material</th>
<th>Size</th>
<th>Pieces</th>
<th>Length [ft]</th>
<th>Weight [K]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hot Rolled Steel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>A500 Gr.B RND</td>
<td>HSS6x0.250</td>
<td>5</td>
<td>63.3</td>
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</table>
### Material Takeoff (Continued)

<table>
<thead>
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<th>Material</th>
<th>Size</th>
<th>Pieces</th>
<th>Length(ft)</th>
<th>Weight(K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A572 Gr.50</td>
<td>W12x40</td>
<td>6</td>
<td>32.5</td>
<td>1.3</td>
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<tr>
<td>Total HR Steel</td>
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<td>11</td>
<td>95.6</td>
<td>2.3</td>
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</table>

### Joint Coordinates and Temperatures

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<thead>
<tr>
<th>Label</th>
<th>X [ft]</th>
<th>Y [ft]</th>
<th>Temp [F]</th>
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<tbody>
<tr>
<td>1 N1</td>
<td>-7.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2 N2</td>
<td>3.58</td>
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<td>0</td>
</tr>
<tr>
<td>3 N3</td>
<td>10.08</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4 N4</td>
<td>10.5</td>
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<td>0</td>
</tr>
<tr>
<td>5 N5</td>
<td>18</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6 N6</td>
<td>-3.33</td>
<td>13.33</td>
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</tr>
<tr>
<td>7 N7</td>
<td>4.5</td>
<td>12.34</td>
<td>0</td>
</tr>
<tr>
<td>8 N8</td>
<td>7.5</td>
<td>12</td>
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<tr>
<td>9 N9</td>
<td>13.5</td>
<td>11.25</td>
<td>0</td>
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<td>10 N10</td>
<td>23.66</td>
<td>10</td>
<td>0</td>
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<tr>
<td>11 N11</td>
<td>-6.08</td>
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<td>12 N12</td>
<td>27</td>
<td>9.58</td>
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### Joint Boundary Conditions

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<th>Joint Label</th>
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### Hot Rolled Steel Design Parameters (Continued)

| Label | Shape | Lenth(ft) | Lb-out(ft) | Lb-in(ft) | Lcomp top(ft) | Lcomp bot(ft) | L-toric(| in | K-out | K-in | Ch | Function |
|-------|-------|-----------|------------|------------|---------------|---------------|--------------|-----------|--------|-----|----------|
| 10    | M10   | Beam      | 1.768      |            | Lb out        | Lb out        |              |           |        |     | Lateral |
| 11    | M11   | Beam      | 3.366      |            | Lb out        | Lb out        |              |           |        |     | Lateral |

### Joint Loads and Enforced Displacements (BLC 3 : EQ)

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### Load Combinations

| Description   | Solve | PDelta | SRSS | BLC Fa | BLC Fa | BLC Fa | BLC Fa | BLC Fa | BLC Fa | BLC Fa | BLC Fa | BLC Fa | BLC Fa | BLC Fa | BLC Fa | BLC Fa | BLC Fa | BLC Fa | BLC Fa |
|---------------|-------|--------|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1             | DL + SL | Yes    | Y    | 1      | 1      | 2      | 1      |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 2             | DL + EQ | Yes    | Y    | 1      | 1      | 3      | 1      |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 3             | DL + .75SL + ... | Yes | Y    | 1      | 1      | 2      | .75    | 3      | 3       | .75    |        |        |        |        |        |        |        |        |        |        |
| 4             | .6DL + EQ | Yes | Y    | 1      | .6     | 3      | 1      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |

### Envelope Joint Reactions

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## Envelope AISC 14th (360-10): ASD Steel Code Checks

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(Global) Model Settings

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## Joint Loads and Enforced Displacements (BLC 3 : EQ)

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## Member Distributed Loads (BLC 1 : Dead)

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## Envelope Joint Reactions

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<td>2.326</td>
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</table>
Steel Column

Lic. #: KW-06019241

Description: Typical Column

Code References

Calculations per AISC 360-10, IBC 2012, CBC 2013, ASCE 7-10

Load Combinations Used: ASCE 7-10

IBC 2015

General Information

Steel Section Name: HSS 6x3.250
Analysis Method: Allowable Strength
Steel Stress Grade: 42.0 ksi
E : Elastic Bending Modulus: 29,000.0 ksi
Load Combination: ASCE 7-10

Applied Loads

Column self weight included: 184.405 lbs * Dead Load Factor
AXIAL LOADS... Gravity: Axial Load at 12.0 ft, D = 3.80, S = 5.90 k
BENDING LOADS... EQ: Lat. Point Load at 12.0 ft creating Mx-x, E = 0.840 k

DESIGN SUMMARY

Bending & Shear Check Results
PASS Max. Axial+Bending Stress Ratio = 0.5809 : 1
Load Combination +D+0.750L+0.750S+0.525G+E+H
Location of max.above base 0.0 ft
At maximum location values are...
Pa : Axial 8.409 k
Pn / Omega : Allowable 28.866 k
Ma-x : Applied -5.292 k-ft
Mn-x / Omega : Allowable 16.243 k-ft
Ma-y : Applied 0.0 k-ft
Mn-y / Omega : Allowable 16.243 k-ft

PASS Maximum Shear Stress Ratio = 0.01847 : 1
Load Combination +D+0.70E+H
Location of max.above base 0.0 ft
At maximum location values are...
Va : Applied 0.5880 k
Vn / Omega : Allowable 31.840 k

Maximum SERVICE Load Reactions ...
Top along X-X 0.0 k
Bottom along X-X 0.0 k
Top along Y-Y 0.0 k
Bottom along Y-Y 0.840 k

Maximum SERVICE Load Deflections ...
Along Y-Y 1.630 in at 12.0 ft above base
for load combination: E Only
Along X-X 0.0 in at 0.0 ft above base
for load combination:

Load Combination Results

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Maximum Axial + Bending Stress Ratios</th>
<th>Maximum Shear Ratios</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stress Ratio</td>
<td>Status</td>
</tr>
<tr>
<td>+D+H</td>
<td>0.138</td>
<td>PASS</td>
</tr>
<tr>
<td>+D+L+H</td>
<td>0.138</td>
<td>PASS</td>
</tr>
<tr>
<td>+D+Lr+H</td>
<td>0.138</td>
<td>PASS</td>
</tr>
<tr>
<td>+D+S+H</td>
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<tr>
<td>+D+0.750L+0.750L+H</td>
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<tr>
<td>+D+0.750L+0.750S+H</td>
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<tr>
<td>+D+0.60W+H</td>
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<td>+D+0.70E+H</td>
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<tr>
<td>+D+0.750L+0.750S+0.450W+H</td>
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<tr>
<td>+D+0.60D+0.70E+0.60H</td>
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### Maximum Reactions

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>X-X Axis Reaction @ Base</th>
<th>X-X Axis Reaction @ Top</th>
<th>Y-Y Axis Reaction @ Base</th>
<th>Y-Y Axis Reaction @ Top</th>
<th>Axial Reaction @ Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>+D+H</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>3.984 k</td>
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<td>3.984 k</td>
</tr>
<tr>
<td>+D+S+H</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>9.884 k</td>
</tr>
<tr>
<td>+D+0.750Lr+0.750L+H</td>
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<td>k</td>
<td>k</td>
<td>k</td>
<td>3.984 k</td>
</tr>
<tr>
<td>+D+0.750Lr+0.750S+H</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>8.409 k</td>
</tr>
<tr>
<td>+D+0.600W+H</td>
<td>k</td>
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<td>k</td>
<td>k</td>
<td>3.984 k</td>
</tr>
<tr>
<td>+D+0.70E+H</td>
<td>-0.588 k</td>
<td>k</td>
<td>-0.588 k</td>
<td>k</td>
<td>9.884 k</td>
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<td>k</td>
<td>k</td>
<td>8.409 k</td>
</tr>
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<td>k</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>8.409 k</td>
</tr>
<tr>
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<td>2.391 k</td>
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<td>k</td>
<td>2.391 k</td>
</tr>
<tr>
<td>+0.600D+0.70E+0.600H</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>2.391 k</td>
</tr>
<tr>
<td>D Only</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>3.984 k</td>
</tr>
<tr>
<td>Lr Only</td>
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<td>k</td>
<td>k</td>
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<tr>
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<td>k</td>
<td>k</td>
<td>k</td>
<td>5.900 k</td>
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<tr>
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<td>k</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>k</td>
</tr>
<tr>
<td>E Only</td>
<td>k</td>
<td>k</td>
<td>0.843 k</td>
<td>k</td>
<td>k</td>
</tr>
<tr>
<td>H Only</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>k</td>
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</table>

**Note:** Only non-zero reactions are listed.

### Maximum Deflections for Load Combinations

<table>
<thead>
<tr>
<th>Load Combination</th>
<th>Max. X-X Deflection</th>
<th>Distance</th>
<th>Max. Y-Y Deflection</th>
<th>Distance</th>
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<td>+D+H</td>
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<td>0.000 ft</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
</tr>
<tr>
<td>+D+L+H</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
</tr>
<tr>
<td>+D+S+H</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
</tr>
<tr>
<td>+D+0.750Lr+0.750L+H</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
</tr>
<tr>
<td>+D+0.750Lr+0.750S+H</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
</tr>
<tr>
<td>+D+0.600W+H</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
</tr>
<tr>
<td>+D+0.70E+H</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
<td>1.141 in</td>
<td>12.000 ft</td>
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<tr>
<td>+D+0.750Lr+0.750L+0.450W+H</td>
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<td>0.000 ft</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
</tr>
<tr>
<td>+D+0.750Lr+0.750S+0.450W+H</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
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<td>0.000 ft</td>
<td>0.865 in</td>
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<td>0.000 ft</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
</tr>
<tr>
<td>+0.600D+0.70E+0.600H</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
<td>1.141 in</td>
<td>12.000 ft</td>
</tr>
<tr>
<td>D Only</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
<td>-0.0000 in</td>
<td>0.000 ft</td>
</tr>
<tr>
<td>Lr Only</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
<td>-0.0000 in</td>
<td>0.000 ft</td>
</tr>
<tr>
<td>S Only</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
<td>-0.0000 in</td>
<td>0.000 ft</td>
</tr>
<tr>
<td>W Only</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
<td>-0.0000 in</td>
<td>0.000 ft</td>
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<tr>
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<td>0.0000 in</td>
<td>0.000 ft</td>
<td>1.630 in</td>
<td>12.000 ft</td>
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<tr>
<td>H Only</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
<td>0.0000 in</td>
<td>0.000 ft</td>
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**Steel Section Properties:** HSS 6x0.250
**Steel Column**

**Description:** Typical Column

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<th>Steel Section Properties</th>
<th>HSS 6x0.250</th>
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<tr>
<td>Depth</td>
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<tr>
<td>Ixx</td>
<td>17.60 in⁴</td>
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<tr>
<td>Sxx</td>
<td>5.86 in³</td>
</tr>
<tr>
<td>Rxx</td>
<td>2.040 in</td>
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<tr>
<td>Zr</td>
<td>7.750 in³</td>
</tr>
<tr>
<td>Iyy</td>
<td>17.600 in⁴</td>
</tr>
<tr>
<td>Syy</td>
<td>5.860 in³</td>
</tr>
<tr>
<td>Ryy</td>
<td>2.040 in</td>
</tr>
</tbody>
</table>

Ycg = 0.000 in

---

**Diagram:**

- **X-axis:**
  - Load 1

- **Y-axis:**
  - Height = 12.0 ft

Legend:
- Mx Loads

Notes:
- Loads are total entered value. Arrows do not reflect absolute direction.
Steel Base Plate

Description: Column Base Plate

Code References
Calculations per AISC Design Guide # 1, IBC 2012, CBC 2013, ASCE 7-10
Load Combination Set: ASCE 7-10

General Information

Material Properties
AISC Design Method: Allowable Strength Design
Steel Plate Fy = 36.0 ksi
Concrete Support f’c = 3.0 ksi
Assumed Bearing Area: Full Bearing
\( \Omega_c \): ASD Safety Factor.
Allowable Bearing Fp per J8

Column & Plate

Column Properties
Steel Section: HSS 6x0.250
Depth: 6 in
Width: 6 in
Flange Thickness: 0.233 in
Web Thickness: in

Area: 4.22 in^2
lxx: in^4
lly: in^4

Plate Dimensions
N: Length: 12.0 in
B: Width: 12.0 in
Thickness: 0.750 in

Support Dimensions
Width along X*: 18.0 in
Length along Z*: 18.0 in

Applied Loads

D: Dead Load ....... 2.60 k
L: Live ........... k
Lr: Roof Live ........... k
S: Snow .............. 3.40 k
W: Wind ............. k
E: Earthquake ........ k
H: Lateral Earth .......... k

*P*: Gravity load, *V* sign is downward.
*Z*: Moments create higher soil pressure at +Z edge.
*Y*: Shears push plate towards +Z edge.

Anchor Bolts

Anchor Bolt or Rod Description: 3/4" Dia.
Max of Tension or Pullout Capacity: 8.20 k
Shear Capacity: 7.0 k
Edge distance: bolt to plate: 1.50 in
Number of Bolts in each Row: 2.0
Number of Bolt Rows: 1.0
Steel Base Plate
Lic. #: KW-06010241
Description: Column Base Plate

GOVERNING DESIGN LOAD CASE SUMMARY

<table>
<thead>
<tr>
<th>Design Method</th>
<th>Design Plate Combination</th>
<th>Design Case Type</th>
<th>Allowable Strength Design</th>
<th>Mu : Max. Moment</th>
<th>fb : Max. Bending Stress</th>
<th>Fb : Allowable</th>
<th>Bending Stress Ratio</th>
<th>Bearing Stress Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axial + Moment, L/2 &lt; Eccentricity, Tension on Bc</td>
<td>1'-0&quot; x 1'-0&quot; x 0 -3/4&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.558 k-in</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.600 k</td>
<td></td>
<td>21.557 ksi</td>
<td>0.844</td>
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</table>

<table>
<thead>
<tr>
<th>Fu : Max. Plate Bearing Stress</th>
<th>Fp : Allowable</th>
<th>Bearing Stress Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.530 ksi</td>
<td>1.530 ksi</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Tension in each Bolt: 3.411
Allowable Bolt Tension: 8.200
Tension Stress Ratio: 0.410
1 Input data

Anchor type and diameter: Hex Head ASTM F 1554 GR. 36 3/4
Effective embedment depth: $h_{ef} = 9.000 \text{ in.}$
Material: ASTM F 1554
Proof: Design method ACI 318-14 / CIP
Stand-off installation: $e_s = 0.000 \text{ in.} \text{ (no stand-off)}; t = 0.750 \text{ in.}$
Anchor plate: $l_x \times l_y \times t = 12.000 \text{ in.} \times 12.000 \text{ in.} \times 0.750 \text{ in.};$ (Recommended plate thickness: not calculated
Profile: Round HSS, Steel pipe (AISC); $(L \times W \times T) = 6.000 \text{ in.} \times 6.000 \text{ in.} \times 0.250 \text{ in.}$
Base material: cracked concrete, 3000, $f'_c = 3.000 \text{ psi}; h = 18.000 \text{ in.}$
Reinforcement: tension: condition B, shear: condition B;
edge reinforcement: $\geq$ No. 4 bar
Seismic loads (cat. C, D, E, or F) Tension load: yes (17.2.3.4.3 (c))
Shear load: yes (17.2.3.5.3 (b))

R - user is responsible to ensure a rigid base plate for the entered thickness with appropriate solutions
(stiffeners, ...)

Geometry [in.] & Loading [lb, in.lb]
2 Load case/Resulting anchor forces

Load case: Design loads

Anchor reactions [lb]

<table>
<thead>
<tr>
<th>Anchor</th>
<th>Tension force</th>
<th>Shear force</th>
<th>Shear force x</th>
<th>Shear force y</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>361</td>
<td>1,000</td>
<td>1,000</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>1,000</td>
<td>1,000</td>
<td>0</td>
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<tr>
<td>3</td>
<td>361</td>
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<td>0</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
<td>1,000</td>
<td>1,000</td>
<td>0</td>
</tr>
</tbody>
</table>

max. concrete compressive strain: 0.01 [%]
max. concrete compressive stress: 49 [psi]
resulting tension force in (x/y)=(4.500/0.000): 723 [lb]
resulting compression force in (x/y)=(5.185/0.000): 723 [lb]

Anchor forces based on a rigid base plate assumption!

3 Tension load

<table>
<thead>
<tr>
<th>Load $N_{sa}$ [lb]</th>
<th>Capacity $\phi N_{s}$ [lb]</th>
<th>Utilization $\phi_{n} = N_{sa}/\phi N_{s}$</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel Strength*</td>
<td>361</td>
<td>14,529</td>
<td>3</td>
</tr>
<tr>
<td>Pullout Strength*</td>
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<tr>
<td>Concrete Breakout Strength**</td>
<td>723</td>
<td>16,304</td>
<td>5</td>
</tr>
<tr>
<td>Concrete Side-Face Blowout, direction **</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

* anchor having the highest loading  **anchor group (anchors in tension)

3.1 Steel Strength

\[ N_{sa} = A_{tan} f_{tan} \]

\[ f_{tan} = ACI 318-14 \text{ Eq. (17.4.1.2)} \]

\[ \phi N_{sa} \geq N_{sa} \]

\[ \text{ACI 318-14 Table 17.3.1.1} \]

Variables

\[ A_{tan} = \text{ in.}^2 \]

\[ f_{tan} = 58,000 \text{ psi} \]

Calculations

\[ N_{sa} = 19,372 \text{ lb} \]

Results

\[ N_{sa} [\text{lb}] \]

\[ \phi = 0.750 \]

\[ \phi N_{sa} [\text{lb}] \]

\[ N_{sa} [\text{lb}] \]

\[ 19,372 \]

\[ 14,529 \]

\[ 361 \]
3.2 Pullout Strength

\[ N_{pl} = \psi \cdot N_p \]  
ACI 318-14 Eq. (17.4.3.1)

\[ N_p = 8 \cdot A_{trm} \cdot f_c \]  
ACI 318-14 Eq. (17.4.3.4)

\[ \phi \cdot N_{pl} \geq N_{sa} \]  
ACI 318-14 Table 17.3.1.1

Variables

<table>
<thead>
<tr>
<th>( \psi_{c.f} )</th>
<th>( A_{trm} ) [in.²]</th>
<th>( \lambda_s )</th>
<th>( f_c ) [psi]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.000</td>
<td>0.65</td>
<td>1.000</td>
<td>3,000</td>
</tr>
</tbody>
</table>

Calculations

\[ N_p \ [lb] \]
15,696

Results

<table>
<thead>
<tr>
<th>( N_{pl} ) [lb]</th>
<th>( \phi_{concrete} )</th>
<th>( \phi_{seismic} )</th>
<th>( \phi_{nonductive} )</th>
<th>( \phi \cdot N_p ) [lb]</th>
<th>( N_{sa} ) [lb]</th>
</tr>
</thead>
<tbody>
<tr>
<td>15,696</td>
<td>0.700</td>
<td>0.750</td>
<td>1.000</td>
<td>8,240</td>
<td>361</td>
</tr>
</tbody>
</table>

3.3 Concrete Breakout Strength

\[ N_{cb} = \left( \frac{A_{cb}}{A_{Nlc}} \right) \psi_{ec,N} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_p \]  
ACI 318-14 Eq. (17.4.2.1b)

\[ A_{Nlc} \]  
see ACI 318-14, Section 17.4.2.1, Fig. R 17.4.2.1(b)

\[ \psi_{ec,N} = \frac{1}{1 + \frac{2}{3} h_{eff}^{\phi}} \leq 1.0 \]  
ACI 318-14 Eq. (17.4.2.4)

\[ \psi_{ed,N} = 0.7 + 0.3 \left( \frac{C_{ ppl \min}}{C_{ ppl \max}} \right) \leq 1.0 \]  
ACI 318-14 Eq. (17.4.2.5b)

\[ \psi_{cp,N} = \text{MAX} \left( \frac{C_{ ppl \min}}{C_{ ppl \max}} \cdot \frac{1.5h_{eff}^{\phi}}{C_{pl}} \right) \leq 1.0 \]  
ACI 318-14 Eq. (17.4.2.7b)

\[ N_p = k_c \lambda_s \sqrt{f_c} h_{eff}^{\phi} \]  
ACI 318-14 Eq. (17.4.2.2a)

Variables

\[
\begin{array}{cccc}
 h_{eff} \ [in.] & e_{c1,N} \ [in.] & e_{c2,N} \ [in.] & c_{p,\text{min}} \ [in.] & \psi_{c,N} \\
 9.000 & 0.000 & 0.000 & 9.000 & 1.000 \\
 c_{pl} \ [in.] & k_c & \lambda_s & f_c \ [psi] \\
 24 & 1.000 & 3.000 \\
\end{array}
\]

Calculations

<table>
<thead>
<tr>
<th>( A_{cb} ) [in.²]</th>
<th>( A_{Nlc} ) [in.²]</th>
<th>( \psi_{ec,N} )</th>
<th>( \psi_{ed,N} )</th>
<th>( \psi_{cp,N} )</th>
<th>( \psi_{c,N} )</th>
<th>( N_p ) [lb]</th>
</tr>
</thead>
<tbody>
<tr>
<td>708.75</td>
<td>729.00</td>
<td>1.000</td>
<td>1.000</td>
<td>0.900</td>
<td>1.000</td>
<td>35,492</td>
</tr>
</tbody>
</table>

Results

<table>
<thead>
<tr>
<th>( N_{cb} ) [lb]</th>
<th>( \phi_{concrete} )</th>
<th>( \phi_{seismic} )</th>
<th>( \phi_{nonductive} )</th>
<th>( \phi \cdot N_{cb} ) [lb]</th>
<th>( N_{sa} ) [lb]</th>
</tr>
</thead>
<tbody>
<tr>
<td>31,056</td>
<td>0.700</td>
<td>0.750</td>
<td>1.000</td>
<td>16,304</td>
<td>723</td>
</tr>
</tbody>
</table>
4 Shear load

<table>
<thead>
<tr>
<th>Load $V_{ua}$ [lb]</th>
<th>Capacity $\phi , V_a$ [lb]</th>
<th>Utilization $\phi_{u} = V_{ua}/\phi , V_a$</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel Strength*</td>
<td>1,000</td>
<td>7,555</td>
<td>14</td>
</tr>
<tr>
<td>Steel failure (with lever arm)*</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Pryout Strength**</td>
<td>4,000</td>
<td>54,602</td>
<td>8</td>
</tr>
<tr>
<td>Concrete edge failure in direction x**</td>
<td>4,000</td>
<td>10,393</td>
<td>39</td>
</tr>
</tbody>
</table>

* anchor having the highest loading  **anchor group (relevant anchors)

4.1 Steel Strength

$V_{sa} = 0.6 \, A_{se \, V} \, f_{ue}$  ACI 318-14 Eq. (17.5.1.2b)

$\phi \, V_{steel} \geq V_{sa}$  ACI 318-14 Table 17.3.1.1

Variables

<table>
<thead>
<tr>
<th>$A_{se , V} [in.^2]$</th>
<th>$f_{ue} [psi]$</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.33</td>
<td>58,000</td>
</tr>
</tbody>
</table>

Calculations

$V_{sa} [lb] = 11,623$

Results

<table>
<thead>
<tr>
<th>$V_{sa} [lb]$</th>
<th>$\phi_{steel}$</th>
<th>$\phi , V_{sa} [lb]$</th>
<th>$V_{sa} [lb]$</th>
</tr>
</thead>
<tbody>
<tr>
<td>11,623</td>
<td>0.650</td>
<td>7,555</td>
<td>1,000</td>
</tr>
</tbody>
</table>

4.2 Pryout Strength

$V_{pr} = k_{p} \left[ \left( \frac{A_{se \, N}}{A_{nc}} \right) \frac{\psi_{e,N}}{\psi_{ed,N}} \frac{\psi_{e,N}}{\psi_{cp,N}} N_{b} \right]$  ACI 318-14 Eq. (17.5.3.1b)

$\phi \, V_{pr} \geq V_{sa}$  ACI 318-14 Table 17.3.1.1

$A_{nc} = 9 \, h_{ef}^2$  ACI 318-14 Eq. (17.4.2.1c)

$\psi_{e,N} = \left( \frac{1}{1 + \frac{2 \, e_{N}}{3 \, h_{ef}}} \right) \leq 1.0$  ACI 318-14 Eq. (17.4.2.4)

$\psi_{ed,N} = 0.7 + 0.3 \left( \frac{c_{mn}}{1.5 \, h_{ef}} \right) \leq 1.0$  ACI 318-14 Eq. (17.4.2.5b)

$\psi_{cp,N} = MAX \left( \frac{c_{mn}}{c_{ac}} \frac{1.5 \, h_{ef}}{c_{ac}} \right)$  ACI 318-14 Eq. (17.4.2.7a)

$N_{b} = k_{c} \, \lambda_{s} \, \frac{f_{c}}{h_{ef}}$  ACI 318-14 Eq. (17.4.2.2a)

Variables

<table>
<thead>
<tr>
<th>$k_{p}$</th>
<th>$h_{ef} [in.]$</th>
<th>$e_{e,N} [in.]$</th>
<th>$e_{e,N} [in.]$</th>
<th>$e_{e,N} [in.]$</th>
<th>$c_{mn} [in.]$</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>6.000</td>
<td>0.000</td>
<td>0.000</td>
<td>7.500</td>
<td></td>
</tr>
</tbody>
</table>

Calculations

$A_{se \, N} [in.^2]$ | $A_{nc} [in.^2]$ | $\psi_{e,N}$ | $\psi_{ed,N}$ | $\psi_{cp,N}$ | $N_{b} [lb]$ |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>688.50</td>
<td>324.00</td>
<td>1.000</td>
<td>1.000</td>
<td>0.950</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Results

<table>
<thead>
<tr>
<th>$V_{pr} [lb]$</th>
<th>$\phi_{concrete}$</th>
<th>$\phi_{seismic}$</th>
<th>$\phi_{nonconcrete}$</th>
<th>$\phi , V_{pr} [lb]$</th>
<th>$V_{sa} [lb]$</th>
</tr>
</thead>
<tbody>
<tr>
<td>78,003</td>
<td>0.700</td>
<td>1.000</td>
<td>1.000</td>
<td>54,602</td>
<td>4,000</td>
</tr>
</tbody>
</table>
4.3 Concrete edge failure in direction x+

\[ V_{cdg} = \left( \frac{A_{cdg}}{V_{cdg}} \right) \psi_{c,c} \psi_{c,v} \psi_{c,v} \psi_{n,v} \psi_{n,v} \psi_{p,v} V_{c} \]

\( \phi V_{cdg} \geq V_{cdg} \)

\( A_{cdg} \quad \text{see ACI 318-14, Section 17.5.2.1, Fig. R 17.5.2.1(b)} \)

\( V_{cdg} = 4.5 c_{1} \)

\( \psi_{c,c} = \left( \frac{1}{3c_{1}+1} \right) \leq 1.0 \)

\( \psi_{c,v} = 0.7 + 0.3 \left( \frac{c_{2}}{1.5c_{1}} \right) \leq 1.0 \)

\( \psi_{n,v} = \sqrt{\frac{1.5c_{2}}{c_{1}}} \geq 1.0 \)

\( V_{c} = 9 \lambda_{s} \sqrt{f'_{c} c_{1}^{3}} \)

Variables

\begin{tabular}{|c|c|c|c|c|}
\hline
\( c_{1} \) [in.] & \( c_{2} \) [in.] & \( e_{av} \) [in.] & \( \psi_{c,v} \) & \( h_{a} \) [in.] \\
\hline
7.500 & 9.000 & 0.000 & 1.200 & 18.000 \\
\hline
\end{tabular}

\begin{tabular}{|c|c|c|c|c|c|}
\hline
\( l_{a} \) [in.] & \( \lambda_{s} \) & \( d_{a} \) [in.] & \( f'_{c} \) [psi] & \( \psi_{n,v} \) [psi] & \( V_{c} \) [lb] \\
\hline
6.000 & 1.000 & 0.750 & 3.000 & 1.000 & \\
\hline
\end{tabular}

Calculations

\begin{tabular}{|c|c|c|c|c|c|}
\hline
\( A_{cdg} \) [in.\(^2\)] & \( A_{cdg} \) [in.\(^2\)] & \( \psi_{c,c} \) & \( \psi_{c,v} \) & \( \psi_{n,v} \) & \( V_{c} \) [lb] \\
\hline
329.95 & 253.13 & 1.000 & 0.940 & 1.000 & 10,125 \\
\hline
\end{tabular}

Results

\begin{tabular}{|c|c|c|c|c|c|}
\hline
\( V_{cdg} \) [lb] & \( \phi_{concrete} \) & \( \phi_{seismic} \) & \( \phi_{nonductile} \) & \( \phi V_{cdg} \) [lb] & \( V_{fr} \) [lb] \\
\hline
14,847 & 0.700 & 1.000 & 1.000 & 10,393 & 4,000 \\
\hline
\end{tabular}

5 Combined tension and shear loads

\( \beta_{H} \)

\( \beta_{V} \)

\( \zeta \)

Utilization \( \beta_{H,V} \) [%] & Status

\begin{tabular}{|c|c|c|c|c|}
\hline
0.044 & 0.385 & 5/3 & 21 & OK \\
\hline
\end{tabular}

\( \beta_{H,V} = \beta_{H} + \beta_{V} \leq 1 \)
6 Warnings

- The anchor design methods in PROFIS Anchor require rigid anchor plates per current regulations (ETAG 001/Annex C, EOTA TR029, etc.). This means load redistribution on the anchors due to elastic deformations of the anchor plate are not considered - the anchor plate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Anchor calculates the minimum required anchor plate thickness with FEM to limit the stress of the anchor plate based on the assumptions explained above. The proof if the rigid base plate assumption is valid is not carried out by PROFIS Anchor. Input data and results must be checked for agreement with the existing conditions and for plausibility!

- Condition A applies when supplementary reinforcement is used. The $\Phi$ factor is increased for non-steel Design Strengths except Pullout Strength and Pryout strength. Condition B applies when supplementary reinforcement is not used and for Pullout Strength and Pryout Strength. Refer to your local standard.

- Checking the transfer of loads into the base material and the shear resistance are required in accordance with ACI 318 or the relevant standard!

- An anchor design approach for structures assigned to Seismic Design Category C, D, E or F is given in ACI 318-14, Chapter 17, Section 17.2.3.4.3 (a) that requires the governing design strength of an anchor or group of anchors be limited by ductile steel failure. If this is NOT the case, the connection design (tension) shall satisfy the provisions of Section 17.2.3.4.3 (b), Section 17.2.3.4.3 (c), or Section 17.2.3.4.3 (d). The connection design (shear) shall satisfy the provisions of Section 17.2.3.5.3 (a), Section 17.2.3.5.3 (b), or Section 17.2.3.5.3 (c).

- Section 17.2.3.4.3 (b) / Section 17.2.3.5.3 (a) require the attachment the anchors are connecting to the structure be designed to undergo ductile yielding at a load level corresponding to anchor forces no greater than the controlling design strength. Section 17.2.3.4.3 (c) / Section 17.2.3.5.3 (b) waive the ductility requirements and require the anchors to be designed for the maximum tension / shear that can be transmitted to the anchors by a non-yielding attachment. Section 17.2.3.4.3 (d) / Section 17.2.3.5.3 (c) waive the ductility requirements and require the design strength of the anchors to equal or exceed the maximum tension / shear obtained from design load combinations that include E, with E increased by $\Phi_D$.

Fastening meets the design criteria!
7 Installation data

Anchor plate, steel: -
Profile: Round HSS, Steel pipe (AISC); 6.000 x 6.000 x 0.250 in.
Hole diameter in the fixture: \( d_f = 0.813 \) in.
Plate thickness (input): 0.750 in.
Recommended plate thickness: not calculated

Anchor type and diameter: Hex Head ASTM F 1554 GR. 36 3/4
Installation torque: -
Hole diameter in the base material: - in.
Hole depth in the base material: 9.000 in.
Minimum thickness of the base material: 10.000 in.

\( ^R \) - user is responsible to ensure a rigid base plate for the entered thickness with appropriate solutions (stiffeners,...)

Coordinates Anchor in.

<table>
<thead>
<tr>
<th>Anchor</th>
<th>x</th>
<th>y</th>
<th>c_x</th>
<th>c_y</th>
<th>c_{x,y}</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-4.500</td>
<td>-4.500</td>
<td>9.000</td>
<td>16.500</td>
<td>9.000</td>
</tr>
<tr>
<td>2</td>
<td>4.500</td>
<td>-4.500</td>
<td>18.000</td>
<td>7.500</td>
<td>9.000</td>
</tr>
<tr>
<td>3</td>
<td>-4.500</td>
<td>4.500</td>
<td>9.000</td>
<td>16.500</td>
<td>18.000</td>
</tr>
<tr>
<td>4</td>
<td>4.500</td>
<td>4.500</td>
<td>18.000</td>
<td>7.500</td>
<td>18.000</td>
</tr>
</tbody>
</table>

Input data and results must be checked for agreement with the existing conditions and for plausibility!
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8 Remarks; Your Cooperation Duties

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1 Input data

Anchor type and diameter: Hex Head ASTM F 1554 GR. 36 3/4
Effective embedment depth: $h_{ef} = 9.000$ in.
Material: ASTM F 1554
Proof: Design method ACI 318-14 / CIP
Stand-off installation: $e_b = 0.000$ in. (no stand-off); $t = 0.750$ in.
Anchor plate: $l_1 \times l_2 \times t = 12.000$ in. x $12.000$ in. x $0.750$ in.; (Recommended plate thickness: not calculated
Profile: Round HSS, Steel pipe (AISC); (L x W x T) = $6.000$ in. x $6.000$ in. x $0.250$ in.
Base material: cracked concrete, 3000, $f'_c = 3,000$ psi; $h = 18.000$ in.
Reinforcement:
tension: condition B, shear: condition B;
edge reinforcement: $\geq$ No. 4 bar
Seismic loads (cat. C, D, E, or F)
Tension load: yes (17.2.3.4.3 (c))
Shear load: yes (17.2.3.5.3 (b))

R - user is responsible to ensure a rigid base plate for the entered thickness with appropriate solutions (stiffeners, ...)

Geometry [in.] & Loading [lb, in.lb]
2 Load case/Resulting anchor forces

Load case: Design loads

<table>
<thead>
<tr>
<th>Anchor reactions [lb]</th>
<th>Tension force (+Tension, -Compression)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Anchor</td>
</tr>
<tr>
<td>1</td>
<td>376</td>
</tr>
<tr>
<td>2</td>
<td>348</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

max. concrete compressive strain: 0.01 [%]
max. concrete compressive stress: 60 [psi]
resulting tension force in (x/y)=(0.865/-4.500): 724 [lb]
resulting compression force in (x/y)=(0.865/5.169): 724 [lb]

Anchor forces based on a rigid base plate assumption!

3 Tension load

<table>
<thead>
<tr>
<th>Steel Strength*</th>
<th>Load N_{as} [lb]</th>
<th>Capacity (\phi N_a) [lb]</th>
<th>Utilization (\frac{\phi N_a}{\phi N_a})</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>376</td>
<td>14,529</td>
<td>3</td>
<td>OK</td>
<td></td>
</tr>
</tbody>
</table>

Pullout Strength* 376 8,240 5 OK
Concrete Breakout Strength** 724 19,945 4 OK
Concrete Side-Face Blowout, direction ** N/A N/A N/A N/A

* anchor having the highest loading **anchor group (anchors in tension)

3.1 Steel Strength

\[ N_{as} = A_{as} f_{as}\]
\[ A_{as} f_{as} \geq N_{as}\]

ACI 318-14 Eq. (17.4.1.2)
ACI 318-14 Table 17.3.1.1

Variables

\[ A_{as} f_{as} [\text{in}^2] \quad f_{as} [\text{psi}] \]

0.33 58,000

Calculations

\[ N_{as} [\text{lb}] \]

19,372

Results

\[ N_{as} [\text{lb}] \quad \phi \text{Steel} \quad \phi N_{as} [\text{lb}] \quad N_{as} [\text{lb}] \]

19,372 0.750 14,529 376
3.2 Pullout Strength

\[ N_{p,N} = \psi_{p,N} N_p \]

ACI 318-14 Eq. (17.4.3.1)

\[ N_p = 8 A_{og} f_c' \]

ACI 318-14 Eq. (17.4.3.4)

\[ \phi N_{MN} \geq N_{us} \]

ACI 318-14 Table 17.3.1.1

Variables

\[
\begin{array}{cccc}
\psi_{c,f} & A_{og} [\text{in.}^2] & \lambda_s & f_c' [\text{psi}] \\
1.000 & 0.65 & 1.000 & 3,000
\end{array}
\]

Calculations

\[ N_c [\text{lb}] \]

15,696

Results

\[
\begin{array}{cccccc}
N_{p,c} [\text{lb}] & \phi_{\text{concrete}} & \phi_{\text{seismic}} & \phi_{\text{nonductive}} & \phi N_p, [\text{lb}] & N_{us} [\text{lb}] \\
15,696 & 0.700 & 0.750 & 1.000 & 8,240 & 375
\end{array}
\]

3.3 Concrete Breakout Strength

\[ N_{cb,c} = \left( \frac{A_{nc}}{A_{nc0}} \right) \psi_{ec,N} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_p \]

ACI 318-14 Eq. (17.4.2.1b)

\[ \phi N_{cb,c} \geq N_{ub} \]

ACI 318-14 Table 17.3.1.1

\[ A_{nc0} = 9 h_t^2 \]

ACI 318-14 Eq. (17.4.2.1c)

\[ \psi_{ec,N} = \left( \frac{1}{1 + 2 \frac{2 e_n}{3 h_t}} \right) \leq 1.0 \]

ACI 318-14 Eq. (17.4.2.4)

\[ \psi_{ed,N} = 0.7 + 0.3 \left( \frac{c_{mn}}{C_{ec}} - \frac{1.5 h_t}{C_{ec}} \right) \leq 1.0 \]

ACI 318-14 Eq. (17.4.2.5b)

\[ \psi_{cp,N} = \text{MAX} \left( \frac{c_{mn}}{C_{ec}} \frac{1.5 h_t}{C_{ec}} \right) \leq 1.0 \]

ACI 318-14 Eq. (17.4.2.7b)

\[ N_b = k_c \lambda_s \sqrt{f_c} h_t^3 \]

ACI 318-14 Eq. (17.4.2.2a)

Variables

\[
\begin{array}{cccc}
h_t [\text{in.}] & e_{c1,N} [\text{in.}] & e_{c2,N} [\text{in.}] & c_{mn} [\text{in.}] \\
8.000 & 0.135 & 0.000 & 12.000 & 1.000
\end{array}
\]

Calculations

\[
\begin{array}{cccccc}
A_{nc} [\text{in.}^2] & A_{nc0} [\text{in.}^2] & \psi_{ec1,N} & \psi_{ec2,N} & \psi_{ed,N} & \psi_{cp,N} & N_b [\text{lb}] \\
744.00 & 576.00 & 0.989 & 1.000 & 1.000 & 1.000 & 28,745
\end{array}
\]

Results

\[
\begin{array}{cccccc}
N_{cb,c} [\text{lb}] & \phi_{\text{concrete}} & \phi_{\text{seismic}} & \phi_{\text{nonductive}} & \phi N_{cb,c} [\text{lb}] & N_{us} [\text{lb}] \\
37,961 & 0.700 & 0.750 & 1.000 & 19,945 & 724
\end{array}
\]
4 Shear load

| Steel Strength* | 1,387 | 7,555 | 19 | OK |
| Steel failure (with lever arm)* | N/A | N/A | N/A | N/A |
| Pryout Strength** | 4,000 | 59,167 | 7 | OK |
| Concrete edge failure in direction y** | 4,085 | 12,567 | 33 | OK |

* anchor having the highest loading  **anchor group (relevant anchors)

4.1 Steel Strength

\[ V_{sa} = 0.6 A_{se,v} f_{us} \]

ACI 318-14 Eq. (17.5.1.2b)

\[ \phi V_{sa} \geq V_{ug} \]

ACI 318-14 Table 17.3.1.1

Variables

<table>
<thead>
<tr>
<th>[ A_{se,v} \text{ [in.}^2 ]</th>
<th>[ f_{us} \text{ [psi] }</th>
<th>[ \text{Calculations} ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.33</td>
<td>58,000</td>
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</tr>
</tbody>
</table>

\[ V_{se} \text{ [lb]} \]

11,623

Results

<table>
<thead>
<tr>
<th>[ V_{sa} \text{ [lb]}</th>
<th>[ \phi \text{ steel}</th>
<th>[ \phi V_{sa} \text{ [lb]}</th>
<th>[ V_{ug} \text{ [lb]}</th>
</tr>
</thead>
<tbody>
<tr>
<td>11,623</td>
<td>0.650</td>
<td>7,555</td>
<td>1,387</td>
</tr>
</tbody>
</table>

4.2 Pryout Strength

\[ V_{cpg} = k_c \left( \frac{A_{nc}}{A_{nc,0}} \right) \left( \frac{f_{ck} N_b}{1.5 h_{ef}} \right) \]

ACI 318-14 Eq. (17.5.3.1b)

\[ \phi V_{cpg} \geq V_{ug} \]

ACI 318-14 Table 17.3.1.1

\[ A_{nc,0} = 9 h_{ef}^2 \]

ACI 318-14 Eq. (17.4.2.1c)

\[ \psi_{c,n} = \left( \frac{1}{1 + \frac{2}{3} \frac{h_{ef}}{h_{cr}}} \right) \leq 1.0 \]

ACI 318-14 Eq. (17.4.2.4)

\[ \psi_{c,d} = 0.7 + 0.3 \left( \frac{c_{min}}{1.5 h_{ef}} \right) \leq 1.0 \]

ACI 318-14 Eq. (17.4.2.5b)

\[ \psi_{c,p} = \max \left( \frac{c_{min}}{C_{f,c} \cdot c_{pc}} \right) \leq 1.0 \]

ACI 318-14 Eq. (17.4.2.7b)

\[ N_b = k_c \lambda_s \frac{f_c}{h_{ef}} \]

ACI 318-14 Eq. (17.4.2.2a)

Variables

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<th>[ k_c</th>
<th>h_{ef} \text{ [in.]}</th>
<th>e_{c1,n} \text{ [in.]}</th>
<th>e_{c2,n} \text{ [in.]}</th>
<th>c_{a,min} \text{ [in.]}</th>
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<td>2</td>
<td>8.000</td>
<td>3.000</td>
<td>0.000</td>
<td>12.000</td>
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</table>

\[ \psi_{c,n} \text{ [in.]} | \psi_{c,d} \text{ [in.]} | \psi_{c,p} \text{ [in.]} | k_c | \lambda_s | f_c \text{ [psi]} |
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<td>1.000</td>
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<td>1.000</td>
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Calculations

<table>
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<th>[ A_{nc,0} \text{ [in.}^2 ]</th>
<th>[ \psi_{c,n} \text{ [in.]}</th>
<th>[ \psi_{c,d} \text{ [in.]}</th>
<th>[ \psi_{c,p} \text{ [in.]}</th>
<th>[ N_b \text{ [lb]}</th>
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<td>576.00</td>
<td>576.00</td>
<td>0.800</td>
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<td>1.000</td>
<td>29,745</td>
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Results

<table>
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<tr>
<th>[ V_{cpg} \text{ [lb]}</th>
<th>[ \phi_{concrete}</th>
<th>[ \phi_{seismic}</th>
<th>[ \phi_{nonconcrete}</th>
<th>[ \phi V_{cpg} \text{ [lb]}</th>
<th>[ V_{ug} \text{ [lb]}</th>
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<tr>
<td>84,524</td>
<td>0.700</td>
<td>1.000</td>
<td>1.000</td>
<td>59,167</td>
<td>4,000</td>
</tr>
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</table>
4.3 Concrete edge failure in direction y+

\[ V_{c,y} = A_{c,y} + V_{a,x} + V_{c,y} + V_{p,y} \]

\[ \phi = \frac{V_{c,y}}{V_{a,x}} \]

\[ A_{c,y} = \text{see ACI 318-14, Section 17.5.2.1, Fig. R 17.5.2.1(b)} \]

\[ A_{w,y} = 4.5 \frac{c_{21}}{a} \]

\[ \psi_{c,y} = \left( \frac{1}{1 + 2e_{ay}} \right) \leq 1.0 \]

\[ \psi_{ed,y} = 0.7 + 0.3 \left( \frac{c_{21}}{1.5c_{21}} \right) \leq 1.0 \]

\[ \psi_{h,y} = \sqrt{\frac{1.5c_{21}}{h_s}} \geq 1.0 \]

\[ V_{b} = 9 \frac{h_s}{a} \sqrt{f_c c_{21}^p} \]

Variables

<table>
<thead>
<tr>
<th>( c_{21} ) [in.]</th>
<th>( c_{22} ) [in.]</th>
<th>( e_{ay} ) [in.]</th>
<th>( \psi_{c,y} )</th>
<th>( h_s ) [in.]</th>
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<td>12.00</td>
<td>1.107</td>
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</table>

<table>
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<th>( h_s ) [in.]</th>
<th>( \lambda_a )</th>
<th>( d_s ) [in.]</th>
<th>( f_c ) [psi]</th>
<th>( \psi_{shear} )</th>
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<tr>
<td>6.000</td>
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</table>

Calculations

<table>
<thead>
<tr>
<th>( A_{c,y} ) [in.]</th>
<th>( A_{w,y} ) [in.²]</th>
<th>( \psi_{c,y} )</th>
<th>( \psi_{ed,y} )</th>
<th>( \psi_{h,y} )</th>
<th>( V_s ) [lb]</th>
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Results

<table>
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<th>( \phi_{\text{seismic}} )</th>
<th>( \phi_{\text{nondisturb}} )</th>
<th>( \phi_{c,y} ) [lb]</th>
<th>( V_{c,y} ) [lb]</th>
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</thead>
<tbody>
<tr>
<td>17,953</td>
<td>0.700</td>
<td>1.000</td>
<td>1.000</td>
<td>12,567</td>
<td>4,085</td>
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</table>

5 Combined tension and shear loads

<table>
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<tr>
<th>( \beta_h )</th>
<th>( \beta_v )</th>
<th>( \gamma )</th>
<th>Utilization ( \beta_{h,v} ) (%)</th>
<th>Status</th>
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<tr>
<td>0.046</td>
<td>0.325</td>
<td>5/3</td>
<td>16</td>
<td>OK</td>
</tr>
</tbody>
</table>

\( \beta_{h,v} = \beta_h + \beta_v \leq 1 \)
6 Warnings

- The anchor design methods in PROFIS Anchor require rigid anchor plates per current regulations (ETAG 001/Annex C, EOTA TR029, etc.). This means load re-distribution on the anchors due to elastic deformations of the anchor plate are not considered - the anchor plate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Anchor calculates the minimum required anchor plate thickness with FEM to limit the stress of the anchor plate based on the assumptions explained above. The proof if the rigid base plate assumption is valid is not carried out by PROFIS Anchor. Input data and results must be checked for agreement with the existing conditions and for plausibility!

- Condition A applies when supplementary reinforcement is used. The Φ factor is increased for non-steel Design Strengths except Pullout Strength and Pryout strength. Condition B applies when supplementary reinforcement is not used and for Pullout Strength and Pryout Strength. Refer to your local standard.

- Checking the transfer of loads into the base material and the shear resistance are required in accordance with ACI 318 or the relevant standard!

- An anchor design approach for structures assigned to Seismic Design Category C, D, E or F is given in ACI 318-14, Chapter 17, Section 17.2.3.4.3 (a) that requires the governing design strength of an anchor or group of anchors be limited by ductile steel failure. If this is NOT the case, the connection design (tension) shall satisfy the provisions of Section 17.2.3.4.3 (b), Section 17.2.3.4.3 (c), or Section 17.2.3.4.3 (d). The connection design (shear) shall satisfy the provisions of Section 17.2.3.5.3 (a), Section 17.2.3.5.3 (b), or Section 17.2.3.5.3 (c).

- Section 17.2.3.4.3 (b) / Section 17.2.3.6.3 (a) require the attachment the anchors are connecting to the structure be designed to undergo ductile yielding at a load level corresponding to anchor forces no greater than the controlling design strength. Section 17.2.3.4.3 (c) / Section 17.2.3.5.3 (b) waive the ductility requirements and require the anchors to be designed for the maximum tension / shear that can be transmitted to the anchors by a non-yielding attachment. Section 17.2.3.4.3 (d) / Section 17.2.3.5.3 (c) waive the ductility requirements and require the design strength of the anchors to equal or exceed the maximum tension / shear obtained from design load combinations that include E, with E increased by 0.9.

Fastening meets the design criteria!
7 Installation data

Anchor plate, steel:
Profile: Round HSS, Steel pipe (AISC); 6.000 x 5.000 x 0.250 in.
Hole diameter in the fixture: \( d_f = 0.813 \text{ in.} \)
Plate thickness (input): 0.750 in.
Recommended plate thickness: not calculated

Anchor type and diameter: Hex Head ASTM F 1554 GR. 36 3/4
Installation torque: -
Hole diameter in the base material: - in.
Hole depth in the base material: 9.000 in.
Minimum thickness of the base material: 10.000 in.

R - user is responsible to ensure a rigid base plate for the entered thickness with appropriate solutions (stiffeners,...)

Coordinates Anchor In.

<table>
<thead>
<tr>
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<th>x</th>
<th>y</th>
<th>c_x</th>
<th>c_yx</th>
<th>c_y</th>
<th>c_yx</th>
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<td>-4.500</td>
<td>19.000</td>
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<td>21.000</td>
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<tr>
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<td>12.000</td>
<td>19.000</td>
<td>21.000</td>
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<tr>
<td>4</td>
<td>4.500</td>
<td>4.500</td>
<td>19.000</td>
<td>12.000</td>
<td>21.000</td>
<td>12.000</td>
</tr>
</tbody>
</table>

Input data and results must be checked for agreement with the existing conditions and for plausibility.
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APPENDIX L

PLAY AREA EQUIPMENT

City of Kirkland
Totem Lake Park
Kirkland, WA
**DETAIL 1**
Support Post, Spiral Slide and RockBlocks Post Footing Detail

- **STONE OPTION**
- **BLOCK OPTION**

**DETAIL 2**
GroundZero, Cantilever and "T" Post Footing Detail

- **STONE OPTION**
- **BLOCK OPTION**

**DETAIL 3**
Component Footing Detail

- **STONE OPTION**
- **BLOCK OPTION**

**DETAIL 4**
Surface Mount Detail

- **STONE OPTION**
- **BLOCK OPTION**

**INSTALLATION NOTES:**
1. Prepared surfaces, such as sand and concrete, are not acceptable for use under your structure.
2. The consumer is responsible to check with local utilities prior to excavation for any underground utilities that may exist.
3. The consumer is responsible to check for proper approval of the proposed installation site.
4. This structure is to be installed on a level and flat surface.
5. The consumer is responsible to prepare the surface by leveling and grading the site area, and installing a base material suitable for the intended use.
6. The base material must be below the frost line.
7. Do not install the framework on support posts in concrete, as the framework is not designed to be used in such conditions.
8. Additional information and instructions are provided with your structure prior to beginning construction.

**SITE NOTES:**
1. The installation area is to be a minimum width of 1200mm (48"") and a minimum depth of 1000mm (39.37"").
2. The framework is to be installed on a level and flat surface.
3. The consumer is responsible to check with local utilities prior to excavation for any underground utilities that may exist.
4. The consumer is responsible to prepare the surface by leveling and grading the site area, and installing a base material suitable for the intended use.
5. The base material must be below the frost line.
6. The installation area is to be a minimum width of 1200mm (48"") and a minimum depth of 1000mm (39.37"").
7. The framework is to be installed on a level and flat surface.
8. Additional information and instructions are provided with your structure prior to beginning construction.

*PLAYGROUND SUPERVISION REQUIRED
*PLAYGROUND SUPERVISION REQUIRED

S.L.O.P.E.


S.P.I.N  C.U.P

P.A.R.T  #  Z Z X X  0 0 6 5

A.R.C.H

B.R.I.D.G.E

R.I.B.B.O.N

C.L.I.M.B.E.R

B.E.A.N.S.T.A.L.K

C.L.I.M.B.E.R

C.L.I.M.B.I.N.G

S.Q.U.A.R.E

C.L.U.S.T.E.R 1 (4)

D.R.O.P  Z.O.N.E

W./  A.C.C.E.S.S

G.A.T.E

S.L.I.T.H.E.R

S.L.I.D.E

P.O.R.T.A.L  W./

A.C.C.E.S.S  G.A.T.E

I.N.F.I.N.E.T

L.A.Y.O.U.T  E

A.R.C.H

B.R.I.D.G.E

T.W.I.S.T.E.D

C.L.I.M.B.E.R

S.L.I.T.H.E.R

S.L.I.D.E

W./  R.O.L.L.E.R

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6'  C.A.T.W.A.L.K

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S.Q.U.A.R.E

C.L.U.S.T.E.R 1 (9)

I.N  S.L.O.P.E

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1 2 4”

S.M.
## Totem Lake Park

*Design Number: 18-3649D - Bill Of Material*

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<th>Quantity</th>
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<td>SLANT CORRUGATED ROOF</td>
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<td>ZZCH0048S</td>
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<td>ZZCH0239S</td>
<td>3.5in OD x 144in SWAGED STEEL POST (SURFACE MOUNT)</td>
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*Footnotes:

- **Decks & Kick Plates**
- **Slides**
- **Activity Panels**
- **Barriers**
- **Climbers**
- **Bridges**
- **GroundZer0 Bridges**
- **Audible Activities**
- **Roofs & Arches**
- **Surf Mnt Posts**
- **Surf Mnt Slides**
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<td>32</td>
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<td>33</td>
<td>ZZCH3537S</td>
<td>SLIDE- NUVO 360 SPIRAL SLIDE</td>
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<td>38</td>
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<td>6ft TWISTED CLIMBER (SURFACE MOUNT)</td>
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<td>ZZUN6268S</td>
<td>INFINET DBL CONNECTION POST W/ CAP FOR 24in-36in NETS (SM)</td>
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<td>INFINET POST W/ CAP FOR 48in NET (SM)</td>
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<td>53</td>
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<td>54</td>
<td>ZZUN9930</td>
<td>PIPE SYSTEMS MAINTENANCE KIT W/ AEROSOL</td>
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**Surf Mnt Climbers**

**Additional Tool & Maintenance Kits**

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<th>Ref. No.</th>
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<th>Description</th>
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<td>PIPE SYSTEMS MAINTENANCE KIT W/ AEROSOL</td>
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APPENDIX M

ART PLAN
APPENDIX N

YUPPIE PAWN SITE ASSESSMENT
HAZARDOUS MATERIALS REPORT

Tax Parcel 2724200525
12031 Northeast Totem Lake Way
Kirkland, Washington 98034

Submitted to:

O’Neill Service Group
17619 Northeast 67th Court, Suite 100
Redmond, Washington 98052

Prepared by:

Med-Tox Northwest
Post Office Box 1446
Auburn, WA 98071-1446
MTNW Project A-8570.53
Telephone: 253-351-0677

Jón A. Havelock, CSP, CHMM
AHERA BI # ABIR0907180004N15667 Exp. 09/07/2019

December 28, 2018
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Acronyms

AAS atomic absorption spectroscopy
ACM asbestos-containing materials
AHERA Asbestos Hazard Emergency Response Act
ASHARA Asbestos Schools Hazard Abatement Reauthorization Act
ASTM American Society of Testing and Materials
CFC chlorofluorocarbons
CFR Code of Federal Regulation
DEHP Di (2-ethylhexyl) phthalate
EPA U.S. Environmental Protection Agency
GWB gypsum wallboard
HBM hazardous building materials
HVAC heating, ventilation, and air conditioning
LBP lead-based paint
mg/cm² milligrams per square centimeter
mg/kg milligrams per kilogram
MTNW Med-Tox Northwest
NVLAP National Voluntary Laboratory Accreditation Program
OSHA Occupational Safety and Health Administration
PCB polychlorinated biphenyl
PLM polarized light microscopy
ppm parts per million
PSCAA Puget Sound Clean Air Agency
SAT Seattle Asbestos Test
SVF sheet vinyl flooring
TCLP toxicity characteristic leaching procedure
TSI thermal system insulation
WAC Washington Administration Code
WDCC Washington Department of Commerce
WISHA Washington Industrial Safety and Health Act
XRF x-ray fluorescence
% wt. percent in weight
Survey Summary

On November 14, 2018, Jon Havelock, Eric Jarvis and Jason Carlson of Med-Tox Northwest (MTNW) conducted a hazardous building materials (HBM) survey of the property located at 12031 Northeast Totem Lake Way in Kirkland, Washington. This work was conducted on behalf of O’Neill Service Group. The building was occupied at the time of the survey; however, at the request of property management, only limited destructive sampling was allowed.

This report identifies building materials that contain asbestos, estimates the quantity of asbestos-containing material (ACM) present and documents building materials that potentially contain lead-based paint (LBP), polychlorinated biphenyls (PCBs), and other hazardous materials that require removal or management as part of demolition activities. Washington Administrative Code (WAC) 296-155-775 requires identification of asbestos and hazardous materials and their hazards eliminated before demolition is started.

As required by WAC 296-62-077 and Puget Sound Clean Air Agency (PSCAA), building inspectors certified under the Asbestos Hazard Emergency Response Act (AHERA) and employed by MTNW conducted the asbestos portion of the survey. Copies of the inspector’s AHERA Building Inspector certificate and Washington Department of Commerce (WDOC) LBP Inspector/Risk Assessor certificates are included in Appendix A.

No previous HBM surveys or as-built construction documents were available as part of the survey.

Building Information

Photographic documentation of the structure and the major systems described herein are provided in Appendix B.

General and Structural: Originally constructed in 1979 the structure at 12031 NE Totem Lake Way is approximately 7000 square feet (SF) in size. The building is currently occupied by two different companies which use their areas as office space. Prior to the current tenants, this building was used as a retail store.

There is one main floor to the building with the addition of a second tier wrap around storage area. The interior of the building is divided into three main areas; an entry way and two office spaces. The entryway consists of two restrooms, a custodial closet, and one office room.

Office 1 is composed of a main office area, a long meeting room, a back-office area, a conference room, a closet area, a bathroom, and an electrical room. Office 2 consisted of one open office space with a closet space in the SE corner.
The building is constructed on a concrete slab foundation, is wood-framed and finished with plywood siding on the bottom portion and silver rib-metal paneling on the upper portion. Exterior windows were vinyl-framed, and aluminum-framed with steel rebar stretching horizontally over the interior portion of the windows. Interior doors are hollow core wood and metal, exterior doors were metal and wood framed. The roof is a combination of a pitched roof and built up roof. The pitched roof sections of the building were finished with brown rib-metal paneling. The built-up roofing system was inaccessible during the time of the survey. The roof for the entrance overhang was finished with gray rib-metal paneling.

A 120 SF detached wood-framed shed is located east of the southeast section of the building. The shed was finished with the same plywood siding as the building. The roof was finished with multiple layers of asphalt roofing shingles. The interior walls and ceiling of the shed were finished with sprayed on yellow foam insulation.

**Heating and Mechanical Systems:** Heat for the building is provided by electric baseboards and central heating, ventilation, and air conditioning (HVAC) system. Pipes that were observed either had a polyethylene wrap or they were un-insulated.

**Walls/Ceiling:** Interior walls of the building were finished with a heavy textured gypsum wallboard (GWB) system, an orange peel textured GWB system, untextured GWB, lap wood siding, and vinyl sheet board. Bathroom walls were finished with ceramic wall tiles. In addition, walls were also finished with wood, brick, ceramic tile, and vinyl cove base. Ceilings of the building were finished with a heavy textured GWB system, an orange peel textured GWB system, untextured GWB, or horizontal wood planks.

**Floor Systems:** Floors of the building were primarily a concrete sub-floor, with wood sub-floor found in elevated areas of Office 1. Offices and the entry way were primarily finished with glued-down carpet. Office 1 and 2 also had parquet wood tiles, sheet vinyl tiles, sheet vinyl flooring (SVF), and ceramic tiles. Bathrooms floors were finished with ceramic tiles.

**Asbestos Survey**

The AHERA regulation, 40 Code of Federal Regulation (CFR) 763, is the primary governing regulation when performing asbestos surveys. This regulation was originally enacted for school buildings but has since been applied to public and commercial buildings by the Asbestos School Hazard Abatement Reauthorization Act (ASHARA) in 1994 and by the Occupational Safety and Health Administration’s (OSHA) worker protection regulations in 1995, specifically 29 CFR 1926.1101(k).

PSCAA also requires compliance with AHERA’s survey and sampling requirements. This applies to any renovation or demolition activities where suspect ACM may be disturbed. PSCAA is a local agency that receives statutory authority from the U.S. Environmental Protection Agency (EPA) to enforce environmental regulations.
AHERA divides suspect ACM into three categories; “surfacing materials” (i.e., sprayed fireproofing, popcorn ceiling texture, etc.), “thermal system insulation” (TSI) (i.e., pipe or building insulation, etc.), and “miscellaneous materials” (i.e., flooring material, roofing, construction mastics, etc.). The following sections summarize the potential ACMs identified for each of these three categories. For a complete listing of suspect materials sampled, see Appendix C. See Appendix J for drawings of asbestos and lead sample locations and material types.

The following sections summarize the potential ACMs identified by homogeneous material (HM) description as they relate to each of the AHERA categories and clarify location along with the number of samples collected for regulatory compliance.

**Surfacing Materials**

There were four surfacing materials observed in the building.

- **Heavy Troweled Textured GWB system (HM-01).** HM-01 was the identified on the walls throughout the building. Nine samples of HM-01 were collected between the two offices and entrance. After being analyzed for asbestos content HM-01 was determined to be negative for asbestos.

- **Untextured GWB (HM-02).** Untextured GWB was present in the entrance area and in Office 1. Five samples were collected between the two areas and analyzed for asbestos content; HM-02 was found to be negative for asbestos.

- **Orange peel textured GWB system (HM-03).** Orange peel textured GWB was present in the entrance area restrooms, entry way office, custodial closet, and in the conference room of Office 1. Seven samples of HM-03 were collected from seven different locations then analyzed for asbestos content. HM-03 was found to be negative for asbestos.

- **Sprayed on yellow foam insulation (HM-26).** HM-26 was observed on the walls and ceilings of the shed. Three samples of HM-26 were collected and analyzed for asbestos content; no asbestos detected.

**Thermal System Insulation**

There was one TSI material observed in the building.

- **Pink wall insulation (HM-23).** HM-23 was found in an exposed area of the wall inside the electrical room. Three samples were collected and analyzed for asbestos content; no asbestos was detected.

**Miscellaneous Materials**

- **Wall laminate board with yellow mastic (HM-04).** HM-04 was identified on the NW wall of the meeting room in Office 1. Two samples of HM-04 were collected and analyzed for asbestos content. HM-04 was determined to be negative for asbestos.
Wall laminate board with orange mastic (HM-05). HM-05 was identified on the N wall of the meeting room hallway in Office 1. Two samples of HM-05 were collected and analyzed for asbestos content; HM-05 was determined to be negative for asbestos.

Wall laminate board with brown mastic (HM-06). HM-06 was found in the NW corner of the meeting room in Office 1 on the E wall. Two samples were collected and analyzed for asbestos content; no asbestos was detected.

3- x 3-inch brown wall tile with grout (HM-07). HM-07 was present in the men’s and women’s restroom. Two samples were collected and analyzed for asbestos content; this material was determined to be negative for asbestos.

3- x 3-inch brown wall with yellow and green mastic (HM-08). HM-08 was found in the men’s restroom. Two samples were collected and analyzed for asbestos content; no asbestos was detected.

6- x 6-inch red floor tile with grout (HM-09). This material was present in Office 2, the electric room, and both the men’s and women’s restroom. Two samples were collected and analyzed for asbestos content; no asbestos was detected.

Dark gray and red carpet with yellow mastic (HM-10). HM-10 was present in the entry way, Office 1, and Office 2. Three samples (one from each area) were collected and analyzed for asbestos content; HM-10 was found to be negative for asbestos.

Blue and gray carpet with yellow mastic (HM-11). HM-11 was present in the entry way, Office 1, and Office 2. Three samples (one from each area) were collected and analyzed for asbestos content; HM-11 was found to be negative for asbestos.

Parquet wood floor tile with white mastic and grout (HM-12). HM-12 was identified in the main office area of Office 1. Two samples were collected and analyzed for asbestos content; no asbestos was detected.

Parquet wood floor tile with dark yellow mastic (HM-13). HM-13 was identified in Office 2. Two samples were collected and analyzed for asbestos content; no asbestos was detected.

12- x 12-inch green and yellow SVT with yellow mastic (HM-14). HM-14 was discovered in the main office of Office 1 under HM-10. Two samples were collected and analyzed for asbestos content; no asbestos was detected.

6- x 6-inch brown/white square pattern SVF with brown binder (HM-15). This material was observed in the electrical room hallway. Three samples were collected and analyzed for asbestos; no asbestos was detected.
Brick wall base with white paint and grout (HM-16). This material was observed in the NW corner of the meeting room in Office 1. Two samples were collected and analyzed for asbestos; no asbestos was detected.

Gray wall base grout with white paint (HM-17). This material was found in the conference room of Office 1. Two samples were collected and analyzed for asbestos content; no asbestos was detected.

Black vinyl cove base with yellow mastic (HM-18). HM-18 was identified in the entry way office. Two samples were collected and analyzed for asbestos content; this material was determined to be negative for asbestos.

Gray vinyl cove base with brown mastic (HM-19). HM-19 was identified in Office 2. Two samples were collected and analyzed for asbestos content; HM-19 was determined to be negative for asbestos.

Tan cove base with yellow mastic (HM-20). HM-20 was identified in the SE bathroom of Office 1. Two samples were collected and analyzed for asbestos content; no asbestos was detected.

Brown wall base sealant (HM-21). HM-21 found along the N wall of the meeting room hallway in Office 1. Two samples were collected and analyzed for asbestos content; no asbestos was detected.

Exterior window caulking (HM-22). This material was observed on exterior window frames. Three samples were collected and analyzed for asbestos; this material was determined to be negative for asbestos.

Wall VBP (HM-24). HM-24 was found under the GWB of the second level storage area. Three samples were collected and analyzed for asbestos content; no asbestos was detected.

Asphalt roofing shingles and VBP (HM-25). The shed roof was covered by multiple layers of asphalt roof shingles with VBP over the plywood sheathing. Three samples were collected and analyzed for asbestos content; no asbestos was detected.

Table 1 summarizes ACM identified in the residence surveyed by MTNW.

### Table 1. Summary of Asbestos-Containing Materials

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<th>Material</th>
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Note: This table is not to be used without the complete survey document including appendices for additional information.

Table 2 lists all suspect materials sampled that have been determined to be non-asbestos containing.
Table 2. Summary of Suspect Materials Determined Non-Asbestos Containing

<table>
<thead>
<tr>
<th>Material Location</th>
<th>Material Description</th>
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<td>Interior</td>
<td>Heavy Troweled Textured GWB system</td>
</tr>
<tr>
<td>Interior</td>
<td>Untextured GWB</td>
</tr>
<tr>
<td>Interior</td>
<td>Orange peel textured GWB system</td>
</tr>
<tr>
<td>Meeting room – Office 1</td>
<td>Wall laminate board with yellow mastic</td>
</tr>
<tr>
<td>Meeting room hallway – Office 1</td>
<td>Wall laminate board with orange mastic</td>
</tr>
<tr>
<td>Meeting room – Office 1</td>
<td>Wall laminate board with brown mastic</td>
</tr>
<tr>
<td>Restroom’s</td>
<td>3- x 3-inch brown wall tile with grout</td>
</tr>
<tr>
<td>Men’s restroom</td>
<td>3- x 3-inch brown wall with yellow and green mastic</td>
</tr>
<tr>
<td>Office 2, electric room, restrooms</td>
<td>6- x 6-inch red floor tile with grout</td>
</tr>
<tr>
<td>Interior</td>
<td>Dark gray and red carpet with yellow mastic</td>
</tr>
<tr>
<td>Interior</td>
<td>Blue and gray carpet with yellow mastic</td>
</tr>
<tr>
<td>Office 1</td>
<td>Parquet wood floor tile with white mastic and grout</td>
</tr>
<tr>
<td>Office 2</td>
<td>Parquet wood floor tile with dark yellow mastic</td>
</tr>
<tr>
<td>Main office – Office 1</td>
<td>12- x 12-inch green and yellow SVT with yellow mastic</td>
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<tr>
<td>Electrical room hallway</td>
<td>6- x 6-inch brown/white square pattern SVF with brown binder</td>
</tr>
<tr>
<td>Meeting room – Office 1</td>
<td>Brick wall base with white paint and grout</td>
</tr>
<tr>
<td>Conference room – Office 1</td>
<td>Gray wall base grout with white paint</td>
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<tr>
<td>Entry way - office</td>
<td>Black vinyl cove base with yellow mastic</td>
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<tr>
<td>Office 2</td>
<td>Gray vinyl cove base with brown mastic</td>
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<td>Bathroom – Office 1</td>
<td>Tan cove base with yellow mastic</td>
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<tr>
<td>Meeting room hallway – Office 1</td>
<td>Brown wall base sealant</td>
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<tr>
<td>Exterior</td>
<td>Exterior window caulking</td>
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<td>Electrical room</td>
<td>Pink wall insulation</td>
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<td>Interior - second level storage area</td>
<td>Wall VBP</td>
</tr>
<tr>
<td>Shed - roof</td>
<td>Asphalt roofing shingles and VBP</td>
</tr>
<tr>
<td>Shed - interior</td>
<td>Sprayed on yellow foam insulation</td>
</tr>
</tbody>
</table>

Note: This table is not to be used without the complete survey document including appendices for additional information.

Lead-Based Paint Summary

Lead was commonly used in most paint products until 1978, when it was banned from residential paints at concentrations greater than 600 parts per million (ppm) and then reduced to 90 ppm in 2012; however, commercial applications with lead are still utilized and available. Lead is poisonous to the human body and presents a potential health hazard during any kind of disturbance (such as maintenance, including grinding,
welding, and cutting) and if improperly disposed, where lead can enter drinking water supplies.

EPA defines LBP as a concentration of 1.0 milligrams per square centimeter (mg/cm²) or greater by x-ray fluorescence (XRF) or 0.5 percent in weight (% wt.) or greater by total lead analysis; equivalent to 5,000 milligrams per kilogram (mg/kg). This EPA action level triggers requirements for protection of the environment, maintenance workers, and building occupants in child occupied facilities as defined by 40 CFR 745. Additionally, building components exceeding EPA lead levels may cause demolition waste streams to fail waste designation sampling performed for compliance with WAC 173-303 Dangerous Waste Regulations.

Washington Department of Occupational Safety and Health (DOSH) worker protection regulations have not defined a minimum concentration for regulating lead and has clarified that lead at any detectable concentration shall be considered regulated by WAC 296-155-176, Lead. Paint sample results can be expressed in mg/kg (same as ppm), % wt. or mg/cm² by area depending on the type of analytical method used. Any positive result, regardless of the reporting method by the laboratory, will require compliance with WAC 296-155-176.

Lead in Painted Surfaces

Interior painted surfaces were tested for lead content using bulk sample collection and chemical analysis. A total of nine paint chip samples were collected. Analytical results are provided in Table 3.

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Location</th>
<th>Component</th>
<th>Substrate</th>
<th>Color</th>
<th>Result (ppm)</th>
</tr>
</thead>
</table>
| Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retail | Totem Lake Retall
Waste Designation Survey

Construction waste or demolition debris expected as a result of 8808.2 consists of most of the building materials due to limited recycling value for the type of construction. Due to no Pb, toxicity characteristic leaching procedure (TCLP) samples were not collected.

All nine samples analyzed were determined to contain lead less than the detection limit of the analytical method. Based on these results, the demolition waste from the building can be disposed of as general construction debris.

Other Hazardous Building Materials

Chlorofluorocarbons

MTNW inspected the building for cooling systems with potential chlorofluorocarbons (CFCs); none were observed.

PCB Light Ballasts and Fluorescent Light Tubes

Older fluorescent light ballasts have small capacitors that may contain high concentrations of PCBs. Nearly all ballasts manufactured before 1979 contain PCBs. All ballasts manufactured after July 1, 1978 that do not contain PCBs are required to be clearly marked "No PCBs". Unmarked ballasts or ballasts without a date code should be assumed to be PCB ballasts. PCBs are toxic chemicals according to the EPA. While there is only a small amount, about one ounce, of PCBs in each light ballast capacitor, there are a large number of ballasts in the United States. A "No PCB" label means there are less than 50 ppm PCBs; however, in the state of Washington, PCB in oils are regulated at 2 ppm (WAC 173-303-9904).

There were fluorescent light fixtures observed at 8808.2. Smoke detectors may be regulated as universal or hazardous waste and will require dismantling and special handling. Table 4 provides a summary of these items in the building:

Table 4. Summary of Fluorescent Lights and Smoke Detectors

<table>
<thead>
<tr>
<th>Location</th>
<th>4-foot, 4-bulb</th>
<th>4-foot, 2-bulb</th>
<th>4-foot, 1-bulb</th>
<th>Exit signs</th>
<th>Door closers</th>
<th>Smoke Detectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Throughout</td>
<td>6</td>
<td>54</td>
<td>32</td>
<td>7</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>54</td>
<td>32</td>
<td>7</td>
<td>8</td>
<td>25</td>
</tr>
</tbody>
</table>

Note: This table is not to be used without the complete survey document including appendices for additional information.

Typically, there is one ballast for every two-light tubes in a fluorescent light fixture; accordingly, there are approximately two ballasts in the light fixture requiring recycling or PCB hazardous waste disposal. There are also four four-foot tubes that will need to be recycled during demolition along individual 4-foot tubes.
PCB in Caulking and Paint

PCBs were used in paint and caulk formulations as drying oils (resins) and plasticizers or softening agents (liquids). Concrete surfaces and equipment, as well as marine or waterproofing applications may have painted surfaces containing PCBs.

PCBs were tested in representative caulking and paint on the exterior of 12031. Table 6 below provides a summary of PCB sample results.

Table 6. Summary of PCB Sample Results.

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Location</th>
<th>Material</th>
<th>Result (mg/kg*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Totem Lake Retail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2-EJ-01PCB</td>
<td>Exterior north window</td>
<td>Window caulk</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-02PCB</td>
<td>West exterior wall</td>
<td>CMU</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-03PCB</td>
<td>Exterior north wall</td>
<td>Red paint</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-04PCB</td>
<td>Exterior door frame</td>
<td>Dark Red paint</td>
<td>None Detected</td>
</tr>
</tbody>
</table>

Note: Do not use this table without the complete survey document.

Mercury Containing Switches

Heating system thermostats were investigated for mercury containing systems. All the thermostats observed were electric.

Laboratory Analytical Methods

Asbestos-Containing Materials

Bulk samples were analyzed by Polarized Light Microscopy (PLM) dispersion staining EPA Method 600/R-93/116 and by 400 Point Count Analysis by Seattle Asbestos Test (SAT). SAT is accredited through the National Voluntary Laboratory Accreditation Program (NVLAP) of the U.S. Department of Commerce. This accreditation does not constitute endorsement, but rather a finding of laboratory competence. The NVLAP participant number for SAT is 200768-0 (certification copies are in Appendix D). Analytical results are in Appendix E.

Lead-Based Paint

Bulk paint chip samples were submitted to EMSL Analytical, Inc. for analysis using atomic absorption spectroscopy (AAS) to determine the presence and percentage of lead. Procedures for analyzing metals are found in the American Society of Testing and Materials (ASTM) D-3335-78 and EPA Method Manual SW-846, Method 6010. EMSL used SW 846-7000B, an equivalent analytical method.
Analytical results for paint chip results are provided in Appendix F. EMSL Analytical, Inc., laboratory certification is attached in Appendix G.

Sample and material location drawings are provided in Appendix I.

**PCB**

Bulk PCB samples were submitted to On-Site Environmental, Inc., for analysis using gas chromatography (GC) equipped with electron capture detectors (ECD). The samples were analyzed using EPA Method SW-846 8082A and the analytical results are provided in Appendix H. On-Site Environmental, Inc. laboratory certification is attached in Appendix I.

Sample and material location drawings are provided in Appendix J.
Comments and Recommendations

Asbestos-Containing Materials

MTNW recommends that this survey report be placed on-site during renovation and/or demolition and copies provided to the contractor(s) bidding and performing work. Washington Industrial Safety and Health Act (WISHA), OSHA and PSCAA require that the report be on-site and available for review during the entire project duration.

No materials containing asbestos content were found during the survey. The building was occupied at the time of the survey. A limited destructive investigation was conducted during the survey; however, additional destructive investigation will be required prior to demolition.

1. Electrical systems were not sampled due to power being live. Sample and verify that asbestos is not present prior to building demolition.

2. The doors to the structure did not appear to be fire doors with suspect asbestos content. Prior to any activity that will impact the doors, drill into the doors and door frames to determine if suspect fire protection is located inside.

3. Perform destructive investigation inside wall and ceiling cavities to verify suspect asbestos is not hidden or present prior to demolition.

4. Perform destructive investigation to verify if additional layers of flooring suspected of containing asbestos are not hidden or present prior to demolition.

5. If during demolition, pipe or pipe fitting insulation suspected of containing ACM is made visible, the material(s) must be sampled by an AHERA building inspector prior to being disturbed.

WAC 296-65 requires ACM be removed by trained and licensed contractors using certified asbestos abatement workers and supervisors (except for deregulated roofing sealants, mastics, and coatings). A 10-day prior notification is also required before abatement can begin. In addition, PSCAA requires notification and fees prior to beginning removal of friable ACM.

If additional destructive investigations uncover asbestos-containing materials, MTNW recommends third party oversight of asbestos abatement and renovation activities by an AHERA accredited building inspector to ensure regulatory compliance and completion of the additional destructive methods recommended herein.

Lead-Based Paint

Lead in painted surfaces were not detected in this building. All samples were analyzed to contain lead less than the detection of the analytical method and based on these results, the demolition waste from the building can be disposed of as general construction debris.


Hazardoub Building Materials Survey – Totem Lake Way

PCB

There were no PCB’s detected in the bulk samples collected. MTNW recommends that the asbestos abatement contractor be tasked with dismantling light fixtures, collecting all lighting ballasts for proper disposal, and recycling the light tubes. Ballasts without “No-PCB” labels are considered PCB-containing and must be disposed as a hazardous waste. “No-PCB” and Di (2-ethylhexyl) phthalate (DEHP) ballasts may designate as Washington Dangerous Waste and should be sent to an EPA licensed facility for proper disposal.

Other Hazardous Building Materials

Smoke detectors should be collected and recycled/disposed of appropriately.

Limitations

A good faith effort has been made to identify ACM, LBP and other HBM in preparation for building demolition. This survey was performed for complete demolition of the building. Additional destructive investigation and sampling will be required depending on inaccessible building systems including mechanical spaces and/or mechanical/electrical system routing.

Sampling was performed consistent with the level of care and skill ordinarily exercised by professionals currently practicing under similar conditions in the area. No other warranty, expressed or implied, is made.

This report has been prepared for the exclusive use of O’Neill Service Group and it designates for this project only. The analyses, conclusions, and recommendations presented in this report are based on conditions encountered at the time of our survey and our experience and judgment. MTNW cannot be held responsible for interpretation by others of the data contained in this report; any use of this report shall include the entire document. This survey is not intended for use as abatement plans and/or specifications which MTNW recommends for regulatory compliance.
Appendix A
AHERA Building Inspector and WDOC Lead Inspector/Risk Assessor Certificates
Certificate Of Completion
Asbestos Building Inspector Refresher Course
DOSH #: CA-015-06
Jon Havelock
ABIR0907180004N15667

Paul Semper
Principal Instructor

Michael W. Horner
Training Director

9/7/2018
Course Start Date

9/7/2018
Course End Date

9/7/2018
Exam Date

9/7/2019
Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California.

NATEC International, Inc.
National Association of Training and Environmental Consulting
1100 Technology Circle- Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts
CAL-OSHA: Ph# (916) 574-2993
Fax Notification (916) 483-0572
web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
web: www.cdphe.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax# (909) 396-3342

BAAQMD: Ph# (415) 749-4762

NATEC International, Inc.
National Association of Training and Environmental Consulting
Anahiem, CA • Oakland, CA • Fresno, CA • Sacramento, CA

Asbestos • Lead • Mold • HAZWOPER

P.O. Box 25205 Anaheim, CA 92825-5205
(714) 678-2750, (800) 969-3228, Fax (714) 678-2757
www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting

*Note: Card is not suitable substitute for certificate and is not accepted by CAAQMD as proof of certification.
This Card Acknowledges That
Jon Havelock

Holds Training Certification For
Asbestos Building Inspector Refresher Course
(Valid for 12 months)

Training Date
Certificate No.
ABIR0907180004N15667
Michael W. Horner
Training Director
STATE OF WASHINGTON
Department of Commerce
Lead-Based Paint Abatement Program

Jon A Havelock

Has fulfilled the certification requirements of
WAC 365-230
and has been certified to conduct lead-based paint activities as a
Risk Assessor New

<table>
<thead>
<tr>
<th>Certification #</th>
<th>Issuance Date</th>
<th>Expiration Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>0241</td>
<td>01/23/2017</td>
<td>12/03/2019</td>
</tr>
</tbody>
</table>
Certificate of Completion

This is to certify that

Eric T. Jarvis

has satisfactorily completed

24 hours of training as an

AHERA Building Inspector
to comply with the training requirements of
TSCA Title II, 40 CFR 763 (AHERA)

EPA Provider # 1085

Instructor

Certificate Number: 169779

Exam Score: 88.1

Date(s) of Training: Oct 15 - 17, 2018

Expiry in 1 year.

ARGUS PACIFIC, INC. / 21965 64th Ave W. Suite 100 / Mountlake Terrace, Washington 98043 / 206.285.3373 / ARGUSPACIFIC.COM
Certificate of Completion

This is to certify that

Jason S. Carlson

has satisfactorily completed

4 hours of refresher training as an

AHERA Building Inspector

to comply with the training requirements of

TSCA Title II, 40 CFR 763 (AHERA)

Sep 12, 2018

Date(s) of Training

Exam Score: N/A

If appropriate:

Expires in 1 year.

169363

Certificate Number

Instructor

EPA Provider # 1085

ARGUS PACIFIC, INC. / 7900 WEST NICKERSON ST, SUITE 315 / SEATTLE/WASHINGTON 98119 / 206.285.3373 / ARGUSPACIFIC.COM
Appendix B
Building and Building System Photographic Documentation
Photo 1: West side of 8808.2 looking east.

Photo 2: Northwest corner of building looking east.
Photo 3: Northeast corner of building looking southwest. Wood deck patio area enclosed by a wood fence. Windows at 88008.2 have rebar over the windows internally for security purposes.

Photo 4: East side-south end of building looking west. A detached shed is located east of the building. The area is fenced off with the same metal siding that is found on the main structure.
Photo 5: Southwest corner of the building looking northeast.

Photo 6: View of entry area looking east. Office 1 is to the right and Office 2 straight ahead. To the left are the restrooms, janitors closet, and entry area office.
Photo 7: View of upper storage area in entry area facing west. The previous tenants built miniature store fronts along the upper level for decorative purposes.

Photo 8: Men's restroom looking northwest. The women’s restroom is composed of the same building materials.
Photo 9: Office 1 – Main office area looking south.

Photo 10: Looking east into the long meeting room of Office 1 from the south end of the main office area.
Photo 11: From the north end of the long meeting room looking east down the conference room hallway. To the right is the conference room, straight ahead is a storage closet.

Photo 12: North end of conference room facing south.
Photo 13. North end of conference room looking east. The blanket on the wall is used to cover the doorway that leads to the electrical room and the exit for the storage shed.

Photo 14. North end of electric room hallway facing south towards the electrical room.
Photo 15. Electric room facing south.

Photo 16. Looking east from the door of the east office space in Office 1.
Photo 17. West side of Office 2 at entrance looking northeast.

Photo 18. West side of Office 2 at entrance looking southeast.

Photo 20. North end top view of Office 2 from upper storage area facing south.
Photo 21. Upper storage area of entry way facing west.

Photo 22. Upper storage area northwest corner perimeter wall.
Photo 23. Storage area north wall above Office 2.

Photo 24. North of detached shed facing south.
Photo 25. South door of shed with yellow sprayed on foam insulation.

Photo 26. South door way of shed facing southeast. Yellow foam insulation covers the interior walls and ceiling of the shed.
Photo 27. South doorway of shed facing north.

Photo 28. Southeast corner of shed, floors of the shed are bare concrete.
Appendix C
Summary of Materials Sampled for Asbestos
<table>
<thead>
<tr>
<th>Sample</th>
<th>Material</th>
<th>Location</th>
<th>AHERA Type</th>
<th>HM</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>8808.2-EJ-001</td>
<td>Heavy Troweled Textured GWB system</td>
<td>Entry Way; S wall, W side</td>
<td>Surfacing</td>
<td>01</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-002</td>
<td>Heavy Troweled Textured GWB system</td>
<td>Entry way; S wall, E side</td>
<td>Surfacing</td>
<td>01</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-003</td>
<td>Heavy Troweled Textured GWB system</td>
<td>Office 1 – E Side Main Office, S wall</td>
<td>Surfacing</td>
<td>01</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-004</td>
<td>Heavy Troweled Textured GWB system</td>
<td>Office 1 – Main Office; W wall, center</td>
<td>Surfacing</td>
<td>01</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-005</td>
<td>Heavy Troweled Textured GWB system</td>
<td>Office 1 – Main Office, NE corner</td>
<td>Surfacing</td>
<td>01</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-006</td>
<td>Heavy Troweled Textured GWB system</td>
<td>Office 1 – W Side Main Office, E wall</td>
<td>Surfacing</td>
<td>01</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-007</td>
<td>Heavy Troweled Textured GWB system</td>
<td>Office 2; E wall</td>
<td>Surfacing</td>
<td>01</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-008</td>
<td>Heavy Troweled Textured GWB system</td>
<td>Office 2; W wall, NW corner</td>
<td>Surfacing</td>
<td>01</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-009</td>
<td>Heavy Troweled Textured GWB system</td>
<td>Office 2; S wall, center</td>
<td>Surfacing</td>
<td>01</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-010</td>
<td>Untextured GWB system</td>
<td>Entry way; S Wall</td>
<td>Surfacing</td>
<td>02</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-011</td>
<td>Untextured GWB system</td>
<td>Entry way, SE corner</td>
<td>Surfacing</td>
<td>02</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-012</td>
<td>Untextured GWB system</td>
<td>Office 1 – Main Office; N wall, center</td>
<td>Surfacing</td>
<td>02</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-013</td>
<td>Untextured GWB system</td>
<td>Office 1 – Main Office, N wall, NE corner</td>
<td>Surfacing</td>
<td>02</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-014</td>
<td>Untextured GWB system</td>
<td>Office 1 – W side Main Office; S wall</td>
<td>Surfacing</td>
<td>02</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-015</td>
<td>Orange peel textured GWB system</td>
<td>Office 1 – Conference room; N wall</td>
<td>Surfacing</td>
<td>03</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-016</td>
<td>Orange peel textured GWB system</td>
<td>Women’s restroom; SW corner</td>
<td>Surfacing</td>
<td>03</td>
<td>None Detected</td>
</tr>
<tr>
<td>Sample</td>
<td>Material</td>
<td>Location</td>
<td>AHERA Type</td>
<td>HM</td>
<td>Result</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------------------------</td>
<td>---------------------------------------</td>
<td>------------</td>
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<td>--------------</td>
</tr>
<tr>
<td>8808.2-EJ-017</td>
<td>Orange peel textured GWB system</td>
<td>Men’s restroom; SW corner</td>
<td>Surfacing</td>
<td>03</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-018</td>
<td>Orange peel textured GWB system</td>
<td>Entry way Office; N wall</td>
<td>Surfacing</td>
<td>03</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-019</td>
<td>Orange peel textured GWB system</td>
<td>Entry way Office; SW corner</td>
<td>Surfacing</td>
<td>03</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-020</td>
<td>Orange peel textured GWB system</td>
<td>Custodial closet; E wall</td>
<td>Surfacing</td>
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<td>Orange peel textured GWB system</td>
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# Hazardous Building Materials Survey — Totem Lake Retail

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<td>8808.2-EJ-038</td>
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<td>Office 1 – Conference room, W wall</td>
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<td>8808.2-EJ-040</td>
<td>Wood square floor tile with white mastic and grout</td>
<td>Office 1 – Main office; N wall, W of door</td>
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<td>8808.2-EJ-044</td>
<td>12-inch green and yellow SVT with yellow mastic</td>
<td>Office 1 – Main office, W wall under dark gray and red carpet</td>
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<td>8808.2-EJ-045</td>
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<td>8808.2-EJ-046</td>
<td>6-inch brown and white square pattern SVF with brown binder</td>
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<td>Red brick with white paint wall base with grout</td>
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<td>Gray wall base grout with white paint</td>
<td>Office 1 – Conference room; S wall</td>
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<td>Office 1 – Conference room; E wall</td>
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<td>Black vinyl cove base with yellow mastic</td>
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<td>Entry way office; S wall</td>
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<td>Gray vinyl cove base with brown mastic</td>
<td>Office 2; SE corner</td>
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<td>Tan cove base with yellow mastic</td>
<td>SE restroom; N wall</td>
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<td>Tan cove base with yellow mastic</td>
<td>SE restroom; NW corner</td>
<td>Misc.</td>
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<td>8808.2-EJ-059</td>
<td>Brown wall base sealant</td>
<td>Office 1 – Meeting room hallway; N wall</td>
<td>Misc.</td>
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<td>8808.2-EJ-060</td>
<td>Brown wall base sealant</td>
<td>Office 1 – Meeting room hallway; N wall</td>
<td>Misc.</td>
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<td>8808.2-EJ-061</td>
<td>Exterior window caulking</td>
<td>E side of building</td>
<td>Misc.</td>
<td>22</td>
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<tr>
<td>8808.2-EJ-062</td>
<td>Exterior window caulking</td>
<td>E side of building</td>
<td>Misc.</td>
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<td>8808.2-EJ-063</td>
<td>Exterior window caulking</td>
<td>W side of building</td>
<td>Misc.</td>
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<td>8808.2-EJ-064</td>
<td>Wall insulation</td>
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<td>Wall VBP</td>
<td>Entry way; W wall above entrance</td>
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<td>8808.2-EJ-068</td>
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<td>Entry way; NW corner above restrooms</td>
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<td>Wall VBP</td>
<td>Entry way; W wall</td>
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<td>8808.2-EJ-070</td>
<td>Asphalt roof shingles and VBP</td>
<td>Shed; N end</td>
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<td>8808.2-EJ-072</td>
<td>Asphalt roof shingles and VBP</td>
<td>Shed; W side</td>
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<td>None Detected</td>
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</table>
# Hazardous Building Materials Survey — Totem Lake Retail

<table>
<thead>
<tr>
<th>Sample</th>
<th>Material</th>
<th>Location</th>
<th>AHERA Type</th>
<th>HM</th>
<th>Result</th>
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<td>Sprayed on yellow insulation</td>
<td>Shed; Ceiling</td>
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<td>Shed; W wall</td>
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<td>8808.2-EJ-075</td>
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<td>SE restroom; N wall</td>
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CHR = Chrysotile asbestos, E = East, GWB = gypsum wallboard, HM = homogeneous material, Misc. = miscellaneous, N = north, S = south, SE = southeast, SVF = sheet vinyl flooring, SW = southwest, TSI = thermal system insulation, TVF = tile vinyl flooring, VBP = vapor barrier paper, W = west.
Appendix D
SAT National Voluntary Laboratory Accreditation Program Certificate
Appendix E
Analytical Reports- Asbestos
**SEATTLE ASBESTOS TEST, LLC**
19711 Scriber Lake Rd, Suite D, Lynnwood, WA 98036
Tel: (425) 673-9850, Fax: (425) 673-9810
Website: seattleasbestos.com

**CHAIN OF CUSTODY**

Analysis Type: Bulk Analysis _X_  Point Count 400 __  Point Count 1000 __  Point Count Gravimetric __

Turn Around Time _5 Day_  Number of Samples _76_  Client Job # _8808.2_

Client Name _Med-Tox Northwest_

Address _Post Office Box 1446_  City _Auburn_  State _WA_  Zip _98071-1446_

Phone _253-351-0677_  Fax _253-351-0688_  Email _havelockj@medtoxnw.com_

Project Location _12031 Northeast Totem Lake Way, Kirkland WA_  Project Manager _Jon Havelock_

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Seattle Asbestos Test warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted, and disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. Seattle Asbestos Test accepts no legal responsibility for the purpose for which the client uses test results. By signing on this form, the clients agree to relieve Seattle Asbestos Test of any liability that may arise from the test results. Late payment may be charged interest, invoices goes to collection causes 17-25% of collection fee. NSF is $50.

Result Reporting method: Phone, Fax, Email X, Pick Up Report
## Table C-1. Summary of Materials Sampled for Asbestos

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<tr>
<th>Sample</th>
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<th>Location</th>
<th>AHERA Type</th>
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<th>Result</th>
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<tbody>
<tr>
<td>Totem Lake Retail</td>
<td><strong>Heavy Troweled Textured GWB system</strong></td>
<td>Entry Way; S wall, W side</td>
<td>Surfacing</td>
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<td></td>
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<td>8808.2-EJ-001</td>
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<td><strong>Heavy Troweled Textured GWB system</strong></td>
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<td>Surfacing</td>
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<td>8808.2-EJ-003</td>
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<td>Office 1 – E Side Main Office, S wall</td>
<td>Surfacing</td>
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<td>8808.2-EJ-004</td>
<td><strong>Heavy Troweled Textured GWB system</strong></td>
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<td>8808.2-EJ-005</td>
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<td>Office 1 – Main Office, NE corner</td>
<td>Surfacing</td>
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<td>8808.2-EJ-006</td>
<td><strong>Heavy Troweled Textured GWB system</strong></td>
<td>Office 1 – W Side Main Office, E wall</td>
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<td>8808.2-EJ-007</td>
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<td>8808.2-EJ-009</td>
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<td>Entry way, SE corner</td>
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<td>Office 1 – Conference room; N wall</td>
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<td>8808.2-EJ-016</td>
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<td>Surfacing</td>
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<td>Sample</td>
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<td>Location</td>
<td>AHERA Type</td>
<td>HM</td>
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<td>Meeting room; NW wall. Misc.</td>
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<td>Meeting room hallway; N wall</td>
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<td>Location</td>
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<td>8808.2-EJ-039</td>
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<td>8808.2-EJ-040</td>
<td>Wood square floor tile with white mastic and grout</td>
<td>Office 1 – Main office; N wall, W of door</td>
<td>Misc.</td>
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<tr>
<td>8808.2-EJ-041</td>
<td>Wood square floor tile with white mastic and grout</td>
<td>Office 1 – Main office; N wall, W of door</td>
<td>Misc.</td>
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<td>Office 2; N wall</td>
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<td>8808.2-EJ-043</td>
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<td>8808.2-EJ-044</td>
<td>12-inch green and yellow SVT with yellow mastic</td>
<td>Office 1 – Main office, W wall under dark gray and red carpet</td>
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<tr>
<td>8808.2-EJ-045</td>
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<td>6-inch brown and white square pattern SVF with brown binder</td>
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<td>Misc.</td>
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<td>AHERA Type</td>
<td>HM</td>
<td>Result</td>
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<tr>
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<td>8808.2-EJ-049</td>
<td>Red brick with white paint wall base with grout</td>
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<td>Red brick with white paint wall base with grout</td>
<td>Office 1 – Meeting room; N wall</td>
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<td>8808.2-EJ-051</td>
<td>Gray wall base grout with white paint</td>
<td>Office 1 – Conference room; S wall</td>
<td>Misc.</td>
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<td>Office 1 – Conference room; E wall</td>
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<td>8808.2-EJ-053</td>
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<td>Entry way office; S wall</td>
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<td>Office 1 – Meeting room hallway; N wall</td>
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<td>8808.2-EJ-060</td>
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<td>Misc.</td>
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<tr>
<td>8808.2-EJ-061</td>
<td>Exterior window caulking</td>
<td>E side of building</td>
<td>Misc.</td>
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<td>E side of building</td>
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<td>8808.2-EJ-063</td>
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<td>W side of building</td>
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<tr>
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<td>Wall VBP</td>
<td>Entry way; W wall above entrance</td>
<td>Misc.</td>
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<td>Material</td>
<td>Location</td>
<td>AHERA Type</td>
<td>HM</td>
<td>Result</td>
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<tr>
<td>8808.2-EJ-068</td>
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<td>Entry way; NW corner above restrooms</td>
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<td>8808.2-EJ-070</td>
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<td>Shed; N end</td>
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<td>8808.2-EJ-071</td>
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<td>Shed; S end</td>
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<td>Shed; Ceiling</td>
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<tr>
<td>8808.2-EJ-075</td>
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<td>8808.2-EJ-076</td>
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<td>SE restroom; N wall</td>
<td>Surfacing</td>
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</tbody>
</table>

CHR = Chrysotile asbestos, E = East, GWB = gypsum wallboard, HM = homogeneous material, Misc. = miscellaneous, N = north, S = south, SE = southeast, SVF = sheet vinyl flooring, SW = southwest, TSI = thermal system insulation, TVF = tile vinyl flooring, VBP = vapor barrier paper, W = west.
<table>
<thead>
<tr>
<th>Lab ID</th>
<th>Client Sample ID</th>
<th>Layer</th>
<th>Description</th>
<th>Asbestos Fibers</th>
<th>Non-fibrous Components</th>
<th>% Non-asbestos Fibers</th>
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<td>1</td>
<td>8808.2-EJ-001</td>
<td>1</td>
<td>White sandy/brittle material with paint</td>
<td>None detected</td>
<td>Sand, Filler, Binder, Paint</td>
<td>3 Cellulose</td>
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<td>Binder, Filler</td>
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<td>Sand, Filler, Binder, Paint</td>
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<td>Trace white powdery material with paper</td>
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<td>Binder, Filler</td>
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<td>2 Cellulose</td>
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<td>Sand, Filler, Binder, Paint</td>
<td>3 Cellulose</td>
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<td>Trace white chalky material with paper</td>
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<td>Binder/filler, Gypsum/binder</td>
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<tr>
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<td>Sand, Filler, Binder, Paint</td>
<td>2 Cellulose</td>
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<td>8808.2-EJ-009</td>
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<td>Binder, Filler, Paint</td>
<td>3 Cellulose</td>
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# SEATTLE ASBESTOS TEST

Lynnwood Laboratory: 19701 Scriber Lake Road, Suite 103, Lynnwood, WA 98036, Tel: 425.673.8850, Fax: 425.673.8810, NVLAP Lab Code: 200768-0

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## ANALYTICAL LABORATORY REPORT

PLM by Method EPA/800/R-93/116

<table>
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<tr>
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*Reviewed by: Steve (Fanyue) Zhang, President*

*Analyzed by: Carolyn Tan*
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</tr>
<tr>
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<td>Wood aggregates</td>
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<td>3 Cellulose</td>
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<tr>
<td></td>
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<tr>
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<td>Green/black tile</td>
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</tbody>
</table>
## SEATTLE ASBESTOS TEST

Lynnwood Laboratory: 19701 Scriber Lake Road, Suite 103, Lynnwood, WA 98036, Tel: 425.673.9850, Fax: 425.673.9810, NVLAP Lab Code: 200768-0

Disclaimer: This report must not be used by the client to claim product certification, approval, or endorsement by Seattle Asbestos Test, LLC, NVLAP, NIST, or any agency of the Federal government.

## ANALYTICAL LABORATORY REPORT

**PLM by Method EPA/800/R-93/116**

<table>
<thead>
<tr>
<th>Lab ID</th>
<th>Client Sample ID</th>
<th>Layer</th>
<th>Description</th>
<th>Asbestos Fibers</th>
<th>Non-fibrous Components</th>
<th>%</th>
<th>Non-asbestos Fibers</th>
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<tr>
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</tbody>
</table>
### Analytical Laboratory Report

**Job:** 8808.2  
**Client:** Med-Tox, Northwest  
**Address:** PO Box 1446, Auburn, WA 98071-1446  
**Date Received:** 11/21/2018  
**Date Analyzed:** 11/26/2018  
**Project Loc:** 12031 Northeast Totem Lake Way, Kirkland, WA

<table>
<thead>
<tr>
<th>Lab ID</th>
<th>Client Sample ID</th>
<th>Layer</th>
<th>Description</th>
<th>% Asbestos Fibers</th>
<th>Non-fibrous Components</th>
<th>% Non-asbestos Fibers</th>
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<td>Foam</td>
<td>None detected</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Yellow mastic</td>
<td>None detected</td>
<td>Mastic/binder</td>
<td>2 Cellulose</td>
</tr>
<tr>
<td>74</td>
<td>8808.2-EJ-074</td>
<td>1</td>
<td>Yellow foamy material</td>
<td>None detected</td>
<td>Foam</td>
<td>None detected</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Yellow mastic</td>
<td>None detected</td>
<td>Mastic/binder</td>
<td>3 Cellulose</td>
</tr>
</tbody>
</table>
### Analytical Laboratory Report

Table:

<table>
<thead>
<tr>
<th>Lab ID</th>
<th>Client Sample ID</th>
<th>Layer</th>
<th>Description</th>
<th>% Asbestos Fibers</th>
<th>Non-fibrous Components</th>
<th>% Non-asbestos Fibers</th>
</tr>
</thead>
<tbody>
<tr>
<td>75</td>
<td>8808.2-EJ-075</td>
<td>1</td>
<td>Yellow foamy material</td>
<td>None detected</td>
<td>Foam</td>
<td>None detected</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Yellow mastic</td>
<td>None detected</td>
<td>Mastic/binder</td>
<td>2</td>
</tr>
<tr>
<td>76</td>
<td>8808.2-EJ-076</td>
<td>1</td>
<td>White powdery material with paint</td>
<td>None detected</td>
<td>Binder, Filler, Paint</td>
<td>3</td>
</tr>
</tbody>
</table>
Appendix F
Analytical Report - Lead
## Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

<table>
<thead>
<tr>
<th>Client Sample Description</th>
<th>Collected</th>
<th>Analyzed</th>
<th>Weight</th>
<th>RDL</th>
<th>Lead Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>8808.2 - EJ - 01PB</td>
<td>11/14/2018 11/27/2018</td>
<td>Site: TOTEM LAKE RETAIL - ENTRY WAY; S WALL - WALL - GWB - BEIGE</td>
<td>0.213 g</td>
<td>94 ppm</td>
<td>&lt;94 ppm</td>
</tr>
<tr>
<td>8808.2 - EJ - 02PB</td>
<td>11/14/2018 11/27/2018</td>
<td>Site: TOTEM LAKE RETAIL - OFFICE 2; W WALL - WALL - GWB - GREEN</td>
<td>0.2208 g</td>
<td>91 ppm</td>
<td>&lt;91 ppm</td>
</tr>
<tr>
<td>8808.2 - EJ - 03PB</td>
<td>11/14/2018 11/27/2018</td>
<td>Site: TOTEM LAKE RETAIL - CUSTODIAL CLOSET; S WALL - WALL - GWB - WHITE</td>
<td>0.2082 g</td>
<td>96 ppm</td>
<td>&lt;96 ppm</td>
</tr>
<tr>
<td>8808.2 - EJ - 04PB</td>
<td>11/14/2018 11/27/2018</td>
<td>Site: TOTEM LAKE RETAIL - ENTRY WAY; W WALL - SIDING - WOOD - BROWN</td>
<td>0.2353 g</td>
<td>85 ppm</td>
<td>&lt;85 ppm</td>
</tr>
<tr>
<td>8808.2 - EJ - 05PB</td>
<td>11/14/2018 11/27/2018</td>
<td>Site: TOTEM LAKE RETAIL - ENTRY WAY; N WALL - SIDING - WOOD - GRAY</td>
<td>0.2194 g</td>
<td>91 ppm</td>
<td>&lt;91 ppm</td>
</tr>
<tr>
<td>8808.2 - EJ - 06PB</td>
<td>11/14/2018 11/27/2018</td>
<td>Site: TOTEM LAKE RETAIL - ENTRY WAY - 2ND LEVEL; N WALL - SIDING - WOOD - TAN</td>
<td>0.2327 g</td>
<td>86 ppm</td>
<td>&lt;86 ppm</td>
</tr>
<tr>
<td>8808.2 - EJ - 07PB</td>
<td>11/14/2018 11/27/2018</td>
<td>Site: EXTERIOR - E WALL - WINDOW - WOOD - WHITE</td>
<td>0.2449 g</td>
<td>82 ppm</td>
<td>&lt;82 ppm</td>
</tr>
<tr>
<td>8808.2 - EJ - 08PB</td>
<td>11/14/2018 11/27/2018</td>
<td>Site: EXTERIOR - W WALL - SIDING - WOOD - RED</td>
<td>0.2276 g</td>
<td>88 ppm</td>
<td>&lt;88 ppm</td>
</tr>
<tr>
<td>8808.2 - EJ - 09PB</td>
<td>11/14/2018 11/27/2018</td>
<td>Site: EXTERIOR - DOOR FRAME - TRIM - WOOD - DARK RED</td>
<td>0.2253 g</td>
<td>89 ppm</td>
<td>&lt;89 ppm</td>
</tr>
</tbody>
</table>

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Analytical, Inc. Indianapolis, IN AIHA-LAP, LLC--ELLAP 157245, OH E10040

Initial report from 11/27/2018 14:35:50
**Lead (Pb) Chain of Custody**

**EMSL Order ID** (Lab Use Only): 161823205

**Company:** Med-Tox Northwest  
**Street:** PO Box 1446  
**City:** Auburn  
**State/Province:** WA  
**Zip/Postal Code:** 98071  
**Country:** US

**Report To (Name):** Jon Havelock  
**Email Address:** havelock@medtoxnw.com; jarvise@medtoxnw.com  
**Project Name/Number:** Torn Lake / 8808.2  
**U.S. State Samples Taken:** WA

**Turnaround Time (TAT) Options** - Please Check:  
- [ ] 3 Hour  
- [ ] 6 Hour  
- [X] 24 Hour  
- [ ] 48 Hour  
- [ ] 72 Hour  
- [ ] 96 Hour  
- [X] 1 Week  
- [ ] 2 Week

**Matrix**  
<table>
<thead>
<tr>
<th>Method</th>
<th>Instrument</th>
<th>Reporting Limit</th>
<th>Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chips</td>
<td>SW846-7000B</td>
<td>Flame Atomic Absorption</td>
<td>0.01%</td>
</tr>
<tr>
<td>Air</td>
<td>NIOSH 7082</td>
<td>Flame Atomic Absorption</td>
<td>4 µg/filter</td>
</tr>
<tr>
<td></td>
<td>NIOSH 7105</td>
<td>Graphite Furnace AA</td>
<td>0.03 µg/filter</td>
</tr>
<tr>
<td></td>
<td>NIOSH 7300 modified</td>
<td>ICP-AES/ICP-MS</td>
<td>0.5 µg/filter</td>
</tr>
<tr>
<td>Wipe*</td>
<td>SW846-7000B</td>
<td>Flame Atomic Absorption</td>
<td>10 µg/wipe</td>
</tr>
<tr>
<td></td>
<td>SW846-6010B or C</td>
<td>ICP-AES</td>
<td>1.0 µg/wipe</td>
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<tr>
<td></td>
<td>SW846-7000B/7010</td>
<td>Graphite Furnace AA</td>
<td>0.075 µg/wipe</td>
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<tr>
<td>TCLP</td>
<td>SW846-13117/7000B/SM 3111B</td>
<td>Flame Atomic Absorption</td>
<td>0.4 mg/L (ppm)</td>
</tr>
<tr>
<td></td>
<td>SW846-1131/SW846-6010B or C</td>
<td>ICP-AES</td>
<td>0.1 mg/L (ppm)</td>
</tr>
<tr>
<td>Soil</td>
<td>SW846-7000B</td>
<td>Flame Atomic Absorption</td>
<td>40 mg/kg (ppm)</td>
</tr>
<tr>
<td></td>
<td>SW846-7010</td>
<td>Graphite Furnace AA</td>
<td>0.3 mg/kg (ppm)</td>
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<tr>
<td></td>
<td>SW846-6010B or C</td>
<td>ICP-AES</td>
<td>2 mg/kg (ppm)</td>
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<tr>
<td>Wastewater</td>
<td>SM3111B/SW846-7000B</td>
<td>Flame Atomic Absorption</td>
<td>0.4 mg/L (ppm)</td>
</tr>
<tr>
<td>Unpreserved</td>
<td>EPA 200.9</td>
<td>Graphite Furnace AA</td>
<td>0.003 mg/L (ppm)</td>
</tr>
<tr>
<td>Preserved with HNO₃ pH &lt; 2</td>
<td>EPA 200.7</td>
<td>ICP-AES</td>
<td>0.020 mg/L (ppm)</td>
</tr>
<tr>
<td>Drinking Water</td>
<td>EPA 200.9</td>
<td>Graphite Furnace AA</td>
<td>0.003 mg/L (ppm)</td>
</tr>
<tr>
<td>Unpreserved</td>
<td>EPA 200.8</td>
<td>ICP-MS</td>
<td>0.001 mg/L (ppm)</td>
</tr>
<tr>
<td>Preserved with HNO₃ pH &lt; 2</td>
<td>EPA 200.8</td>
<td>ICP-M</td>
<td>0.003 mg/L (ppm)</td>
</tr>
<tr>
<td>TSP/SPM Filter</td>
<td>40 CFR Part 50</td>
<td>ICP-AES</td>
<td>12 µg/filter</td>
</tr>
<tr>
<td></td>
<td>40 CFR Part 50</td>
<td>Graphite Furnace AA</td>
<td>3.6 µg/filter</td>
</tr>
</tbody>
</table>

**Name of Sampler:** Eric Jarvis  
**Signature of Sampler:**  
**Sample #**  
- 8808.2-EJ-01Pb  
  - Location: See attached Table  
  - Volume/Area:  
  - Date/Time Sampled: 11-14-18 / 1500  
- Through  
- 8808.2-EJ-09Pb

**Client Sample #s**  
- 8808.2-EJ-01Pb to 09Pb  
**Total # of Samples:** 9

**Relinquished (Client):**  
- Date: 11/20/18  
- Time: 12:30

**Received (Lab):**  
- Date: 11/21/18  
- Time: 10:00

**Comments:**
### Table 3. Summary of Bulk Paint Chip Sample Results

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Location</th>
<th>Component</th>
<th>Substrate</th>
<th>Color</th>
<th>Result (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Totem Lake Retail</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2-EJ-01Pb</td>
<td>Entry way; S wall</td>
<td>Wall</td>
<td>GWB</td>
<td>Beige</td>
<td></td>
</tr>
<tr>
<td>8808.2-EJ-02Pb</td>
<td>Office 2; W wall</td>
<td>Wall</td>
<td>GWB</td>
<td>Green</td>
<td></td>
</tr>
<tr>
<td>8808.2-EJ-03Pb</td>
<td>Custodial closet; S wall</td>
<td>Wall</td>
<td>GWB</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td>8808.2-EJ-04Pb</td>
<td>Entry way; W wall</td>
<td>Siding</td>
<td>Wood</td>
<td>Brown</td>
<td></td>
</tr>
<tr>
<td>8808.2-EJ-05Pb</td>
<td>Entry way; N wall</td>
<td>Siding</td>
<td>Wood</td>
<td>Gray</td>
<td></td>
</tr>
<tr>
<td>8808.2-EJ-06Pb</td>
<td>Entry way – 2nd level; N wall</td>
<td>Siding</td>
<td>Wood</td>
<td>Tan</td>
<td></td>
</tr>
<tr>
<td>Exterior</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2-EJ-07Pb</td>
<td>E Wall</td>
<td>Window</td>
<td>Wood</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td>8808.2-EJ-08Pb</td>
<td>W wall</td>
<td>Siding</td>
<td>Wood</td>
<td>Red</td>
<td></td>
</tr>
<tr>
<td>8808.2-EJ-09Pb</td>
<td>Door frame</td>
<td>Trim</td>
<td>Wood</td>
<td>Dark Red</td>
<td></td>
</tr>
</tbody>
</table>

GWB = gypsum wallboard, ppm = parts per million. **Bolded values** – bulk paint chip samples with lead detected above the laboratory reporting limit have been bolded. The Washington Industrial Safety and Health Administration (WISHA) worker protection regulations have stated that lead at any detectable concentration shall be considered regulated (Washington Administrative Code [WAC] 296-155-176, Lead.)
Appendix G
EMSL Analytical, Inc. Laboratory Certifications
AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.
6340 Castleplace Drive, Indianapolis, IN 46250
Laboratory ID: 157245

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

**LABORATORY ACCREDITATION PROGRAMS**

- **INDUSTRIAL HYGIENE**
  - Accreditation Expires: June 01, 2019
- **ENVIRONMENTAL LEAD**
  - Accreditation Expires: June 01, 2019
- **ENVIRONMENTAL MICROBIOLOGY**
  - Accreditation Expires: June 01, 2019
- **FOOD**
  - Accreditation Expires:
- **UNIQUE SCOPES**
  - Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached *Scope of Accreditation*. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached *Scope of Accreditation*. Please review the AIHA-LAP, LLC website ([www.aihaaccreditedlabs.org](http://www.aihaaccreditedlabs.org)) for the most current Scope.

William Walsh, CIH
Chairperson, Analytical Accreditation Board

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 15: 03/30/2016

Date Issued: 05/31/2017
The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory’s current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

The EPA recognizes the AIHA-LAP, LLC ELLAP program as meeting the requirements of the National Lead Laboratory Accreditation Program (NLLAP) established under Title X of the Residential Lead-Based Paint Hazard Reduction Act of 1992 and includes paint, soil and dust wipe analysis. Air and composited wipes analyses are not included as part of the NLLAP.

Environmental Lead Laboratory Accreditation Program (ELLAP)

Initial Accreditation Date: 09/01/2002

<table>
<thead>
<tr>
<th>Field of Testing (FoT)</th>
<th>Technology sub-type/ Detector</th>
<th>Method</th>
<th>Method Description (for internal methods only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paint</td>
<td></td>
<td>EPA SW-846 3050B</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>EPA SW-846 3051A</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>EPA SW-846 7000B</td>
<td></td>
</tr>
<tr>
<td>Soil</td>
<td></td>
<td>EPA SW-846 3050B</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>EPA SW-846 3051A</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>EPA SW-846 7000B</td>
<td></td>
</tr>
<tr>
<td>Settled Dust by Wipe</td>
<td></td>
<td>EPA SW-846 3050B</td>
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<tr>
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<td></td>
<td>EPA SW-846 3051A</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>EPA SW-846 7000B</td>
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</tr>
<tr>
<td>Airborne Dust</td>
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<td>NIOSH 7082</td>
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</tbody>
</table>

A complete listing of currently accredited Environmental Lead laboratories is available on the AIHA-LAP, LLC website at: [http://www.aihaaccreditedlabs.org](http://www.aihaaccreditedlabs.org)
Appendix H
Analytical Results – PCBs
November 28, 2018

Jon Havelock  
MED-TOX  
P.O. Box 1146  
Auburn, WA 98071

Re: Analytical Data for Project 8808.2  
Laboratory Reference No. 1811-194

Dear Jon:

Enclosed are the analytical results and associated quality control data for samples submitted on November 21, 2018.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

[Signature]

David Baumeister  
Project Manager

Enclosures
Date of Report: November 28, 2018
Samples Submitted: November 21, 2018
Laboratory Reference: 1811-194
Project: 8808.2

Case Narrative

Samples were collected on November 14, 2018 and received by the laboratory on November 21, 2018. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.
Date of Report: November 28, 2018
Samples Submitted: November 21, 2018
Laboratory Reference: 1811-194
Project: 8808.2

PCBs EPA 8082A

Matrix: Solid
Units: mg/Kg (ppm)

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Result</th>
<th>PQL</th>
<th>Method</th>
<th>Date Prepared</th>
<th>Date Analyzed</th>
<th>Flags</th>
</tr>
</thead>
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<td>Client ID:</td>
<td>8808.2-EJ-01PCB</td>
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</tr>
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<td>Laboratory ID:</td>
<td>11-194-01</td>
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<tr>
<td>Aroclor 1016</td>
<td>ND</td>
<td>9.1</td>
<td>EPA 8082A</td>
<td>11-26-18</td>
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<td></td>
</tr>
<tr>
<td>Aroclor 1221</td>
<td>ND</td>
<td>9.1</td>
<td>EPA 8082A</td>
<td>11-26-18</td>
<td>11-26-18</td>
<td></td>
</tr>
<tr>
<td>Aroclor 1232</td>
<td>ND</td>
<td>9.1</td>
<td>EPA 8082A</td>
<td>11-26-18</td>
<td>11-26-18</td>
<td></td>
</tr>
<tr>
<td>Aroclor 1242</td>
<td>ND</td>
<td>9.1</td>
<td>EPA 8082A</td>
<td>11-26-18</td>
<td>11-26-18</td>
<td></td>
</tr>
<tr>
<td>Aroclor 1248</td>
<td>ND</td>
<td>9.1</td>
<td>EPA 8082A</td>
<td>11-26-18</td>
<td>11-26-18</td>
<td></td>
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<tr>
<td>Aroclor 1254</td>
<td>ND</td>
<td>9.1</td>
<td>EPA 8082A</td>
<td>11-26-18</td>
<td>11-26-18</td>
<td></td>
</tr>
<tr>
<td>Aroclor 1260</td>
<td>ND</td>
<td>9.1</td>
<td>EPA 8082A</td>
<td>11-26-18</td>
<td>11-26-18</td>
<td></td>
</tr>
</tbody>
</table>

Surrogate: Percent Recovery
DCB 87
Control Limits 39-130

| Client ID:    | 8808.2-EJ-02PCB | | | | | |
| Laboratory ID: | 11-194-02 | | | | | |
| Aroclor 1016  | ND     | 1.5 | EPA 8082A| 11-26-18      | 11-26-18      |       |
| Aroclor 1221  | ND     | 1.5 | EPA 8082A| 11-26-18      | 11-26-18      |       |
| Aroclor 1232  | ND     | 1.5 | EPA 8082A| 11-26-18      | 11-26-18      |       |
| Aroclor 1242  | ND     | 1.5 | EPA 8082A| 11-26-18      | 11-26-18      |       |
| Aroclor 1248  | ND     | 1.5 | EPA 8082A| 11-26-18      | 11-26-18      |       |
| Aroclor 1254  | ND     | 1.5 | EPA 8082A| 11-26-18      | 11-26-18      |       |
| Aroclor 1260  | ND     | 1.5 | EPA 8082A| 11-26-18      | 11-26-18      |       |

Surrogate: Percent Recovery
DCB 92
Control Limits 39-130

| Client ID:    | 8808.2-EJ-03PCB | | | | | |
| Laboratory ID: | 11-194-03 | | | | | |
| Aroclor 1016  | ND     | 4.8 | EPA 8082A| 11-26-18      | 11-26-18      |       |
| Aroclor 1221  | ND     | 4.8 | EPA 8082A| 11-26-18      | 11-26-18      |       |
| Aroclor 1232  | ND     | 4.8 | EPA 8082A| 11-26-18      | 11-26-18      |       |
| Aroclor 1242  | ND     | 4.8 | EPA 8082A| 11-26-18      | 11-26-18      |       |
| Aroclor 1248  | ND     | 4.8 | EPA 8082A| 11-26-18      | 11-26-18      |       |
| Aroclor 1254  | ND     | 4.8 | EPA 8082A| 11-26-18      | 11-26-18      |       |
| Aroclor 1260  | ND     | 4.8 | EPA 8082A| 11-26-18      | 11-26-18      |       |

Surrogate: Percent Recovery
DCB 93
Control Limits 39-130
Date of Report: November 28, 2018  
Samples Submitted: November 21, 2018  
Laboratory Reference: 1811-194  
Project: 8808.2

**PCBs EPA 8082A**

Matrix: Solid  
Units: mg/Kg (ppm)

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Result</th>
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**DCB**  
Percent Recovery: 93  
Control Limits: 39-130
Date of Report: November 28, 2018  
Samples Submitted: November 21, 2018  
Laboratory Reference: 1811-194  
Project: 8808.2

PCBs EPA 8082A  
QUALITY CONTROL

Matrix: Soil  
Units: mg/Kg (ppm)

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Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical ____________.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL

PQL - Practical Quantitation Limit

RPD - Relative Percent Difference
Appendix I
OnSite Environmental Laboratory Accreditation
The State of Washington
Department of Ecology

OnSite Environmental, Inc.
Redmond, WA

has complied with provisions set forth in Chapter 173-50 WAC and is hereby recognized by the
Department of Ecology as an ACCREDITED LABORATORY for the analytical parameters
listed on the accompanying Scope of Accreditation. This certificate is effective July 27, 2018
and shall expire July 26, 2019.

Witnessed under my hand on August 10, 2018

Rebecca Wood
Lab Accreditation Unit Supervisor

Laboratory ID
C591
Appendix J
Sample and Material Location Drawing
City of Kirkland Public Works Department  
123 Fifth Avenue  
Kirkland, WA 98033  

Attention: Brian Baker  

Subject: Transmittal Letter  
Phase I and Limited Phase II Environmental Site Assessment Final Report  
12031 Totem Lake Way  
Parcel Number 692840-0032  
Kirkland, Washington 98034  

Dear Mr. Baker,  

Attached, please find our Phase I and Limited Phase II Environmental Site Assessment (ESA) for King County Parcel 692840-0032 located at 12031 Totem Lake Way (Subject Property). During the survey and research, our staff interviewed the current owner of the Subject Property and reviewed the Subject Property and its history. The report was completed according to the terms and conditions authorized by you. This report has been completed in general conformance with the ASTM Standard E 1527-13. An executive summary is provided; however, we recommend that the report be read in its entirety for a comprehensive understanding of the items contained therein.  

This report is addressed to the City of Kirkland and such other persons as may be designated by City of Kirkland and their respective successors and assigns. There are no intended or unintended third-party beneficiaries to this report, except as expressly stated herein.  

O’Neill Service Group (OSG) is an independent contractor, not an employee of either the issuer or the borrower, and its compensation was not based on the findings or recommendations made in the report or on the closing of any business transaction.  

We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312 and we have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Subject Property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.
We appreciate the opportunity to provide environmental consulting services to the City of Kirkland. Should you have any questions or require additional information, please do contact the undersigned.

Respectfully submitted,
O’Neill Service Group

Vance Atkins, LG, LHG
Project Manager

Dennis J. O’Neill, LHG, LEG
Principal Engineering Geologist/Hydrogeologist
Prepared for:

City of Kirkland Public Works Department  
123 Fifth Avenue  
Kirkland, WA 98033  
Attention: Mr. Brian Baker

PHASE I AND LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT  
12031 TOTEM LAKE WAY  
PARCEL NO 692840-0032  
KIRKLAND, WASHINGTON 98034

Prepared by:  
Vance Atkins, LG, LHG  
Project Manager

Reviewed by:  
Dennis O’Neill, LEG, LHG  
Principal Engineering Geologist/Hydrogeologist

O’Neill Service Group  
17619 NE 67th Ct, Suite 100  
Redmond, WA 98052  
T (425) 429-7800  
F (425) 633-2284

December 14, 2018  
OSG Job No.: 1956
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Executive Summary

At the request of the City of Kirkland, O’Neill Service Group (OSG) has performed a Phase I and Limited Phase II Environmental Site Assessment (ESA) of the vacant property located at 12031 Totem Lake Way in Kirkland, Washington herein referred to as the Subject Property. The main objective of this ESA was to identify recognized environmental conditions associated with the Subject Property, defined in ASTM Practice E 1527-13 as the presence or likely presence of any hazardous substances or petroleum products that indicate an existing release, a past release, or a material threat of a release. This ESA also includes a preliminary evaluation of certain potential environmental conditions that are outside the scope of ASTM Practice E 1527-13.

The Subject Property includes one irregular-shaped parcel totaling approximately 1.6 acres. The Subject Property is currently being utilized as office space. The parcel consists of an approximately 7,000 square foot retail/commercial building, with associated asphalt-paved parking and landscaped areas. The property is currently used for office and parking space associated with construction activities at an adjacent parcel. There are currently no manufacturing or industrial operations conducted at the Subject Property.

Following our site visit and review of the historical documents associated with the Subject Property, no recognized environmental conditions (REC) were identified. However, based on conversations with the client, an assessment of soils exposed to treated timber piles supporting the building was requested. OSG collected selected soil samples adjacent to timber piles uncovered during a site geotechnical investigation. One soil sample collected during the assessment contained regulated concentrations of petroleum hydrocarbons and carcinogenic polynuclear aromatic hydrocarbons. Additional characterization and management of disturbed soils during construction is recommended. No other RECs were identified through historic review, site interviews, or environmental database review.

Below is the Assessment Summary Table presenting our recommended actions for the Subject Property. OSG findings and opinions are presented in Section 9.0, and recommendations for further action or investigation are presented in Section 10.0.
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Key: NA - Not Applicable
1.0 INTRODUCTION

O’Neill Service Group (OSG) has completed a Phase I Environmental Site Assessment (ESA) and Limited Phase II ESA for the property located at 12031 Totem Lake Way in Kirkland, Washington. This work was conducted under contract to City of Kirkland and outlined in our Phase I and Limited Phase II ESA Proposal (Scope A), dated September 28, 2018. This study was conducted to assist the City of Kirkland with the plans to acquire the subject property as part of the future development of Totem Lake Park.

1.1 Purpose

The purpose of this ESA was to identify recognized environmental conditions (RECs) and certain environmental conditions outside the scope of ASTM Practice E 1527-13 about the property at the time of the property reconnaissance.

1.2 Scope-of-Services

This ESA was conducted utilizing a standard of good commercial and customary practice that was consistent with the ASTM Practice E 1527-13. Significant scope-of-work additions, deletions or deviations to ASTM Practice E 1527-13 are noted below or in the corresponding sections of this report. The scope-of-work for this assessment included an evaluation of the following:

- Physical characteristics of the Subject Property through a review of referenced sources for topographic, geologic, soils and hydrologic data.
- Subject Property history through a review of referenced sources such as land deeds, fire insurance maps, city directories, aerial photographs, prior reports, and interviews.
- Current Subject Property conditions, including observations and interviews regarding the following: the presence or absence of hazardous substances or petroleum products; generation, treatment, storage, or disposal of hazardous, regulated, or biomedical waste; equipment that utilizes oils which potentially contain PCBs; and storage tanks (aboveground and underground).
- Usage of surrounding area properties and the likelihood for releases of hazardous substances and petroleum products (if known and/or suspected) to migrate onto the Subject Property.
- Information in referenced environmental agency databases and local environmental records, within specified minimum search distances.
- Past ownership through a review of available prior reports and local municipal file review.
This Assessment also includes consideration of the following potential environmental conditions that are outside the scope of ASTM Practice E 1527-13: asbestos-containing materials (ACM), and Lead-Based Paint (LBP).

1.3 Assumptions, Limitations and Exceptions

This Phase I ESA has been prepared for the use of the City of Kirkland, in accordance with our Standard Conditions for Engagement and Authorization Letter and Agreement for Environmental Services approved and signed by the City of Kirkland, and with the limitations described below, all of which are integral parts of this report. A copy of the signed agreement is maintained at the OSG office in Redmond, Washington.

OSG has performed this Phase I ESA in general conformance with the scope and limitations of ASTM Standard E 1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. This Phase I ESA has been prepared to assess a parcel of commercial real estate with respect to the range of contaminants within the scope of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. §9601) and petroleum products. As such, this practice is intended to permit the City of Kirkland to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on CERCLA liability: that is, the practices that constitute “all appropriate inquiry into the previous ownership and uses of the Subject Property consistent with good commercial or customary practice” as defined in 42 U.S.C. § 9601(35)(B).

In defining a standard of good commercial and customary practice for conducting an environmental site assessment of a parcel of property, the goal of the processes established by this practice is to identify recognized environmental conditions. The term recognized environmental conditions means the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimis conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate
governmental agencies. Conditions determined to be de minimis are not recognized environmental conditions.

The information reported was obtained through sources deemed reasonably ascertainable, as defined in ASTM Standard E 1527-13; a visual site survey of areas readily observable, easily accessible or made accessible by the Subject Property contact and interviews with owners, agents, occupants, or other appropriate persons involved with the Subject Property. Municipal information was obtained through review of reasonably ascertainable standard government record sources and interviews with the authorities having jurisdiction over the Subject Property. Findings, conclusions, and recommendations included in the report are based on our visual observations in the field, the municipal information reasonably obtained, information provided by the Client, and/or a review of readily available and supplied documents and drawings. OSG relies completely on the information, whether written, graphic, or verbal, provided by the Subject Property contact or as shown on any documents reviewed or received from the Subject Property contact, owner or agent, or municipal source, and assumes that information to be true and correct. Although there may have been some degree of overlap in the information provided by these various sources, OSG did not attempt to independently verify the accuracy or completeness of the information reviewed or received during the course of these environmental services.

The observations in this report are valid on the date of the assessment. Where access to portions of the Subject Property or to structures on the Subject Property was unavailable or limited, OSG renders no opinion as to the presence of hazardous substances or petroleum products in that portion of the Subject Property or structure. Inaccessible portions of the Subject Property are described below. In addition, OSG renders no opinion as to the presence of, or indirect evidence relating to, hazardous substances or petroleum products where direct observation of the interior walls, floor, or ceiling of a structure was obstructed by objects or coverings on or over these surfaces.

It is acknowledged that OSG judgments shall not be based on scientific or technical tests or procedures beyond the scope of the Services or beyond the time and budgetary constraints imposed by the Client. It is acknowledged further that OSG conclusions do not rest on pure science but on such considerations as economic feasibility and available alternatives. Client also acknowledges that, because geologic and soil formations are inherently random, variable, and indeterminate in nature, the Services and opinions provided under this Agreement with respect to such Services are not guaranteed to be a representation
of actual conditions on the Subject Property, which are also subject to change with time as a result of natural or man-made processes, including water permeation. In performing the Services, OSG shall use that degree of care and skill ordinarily exercised by environmental consultants or engineers performing similar services in the same or similar locality. The standard of care shall be determined solely at the time the Services are rendered and not according to standards utilized at a later date. The Services shall be rendered without any other warranty, expressed or implied, including, without limitation, the warranty of merchantability and the warranty of fitness for a particular purpose.

Client and OSG agree that to the fullest extent permitted by law, OSG shall not be liable to Client for any special, indirect or consequential damages whatsoever, whether caused by OSG negligence, errors, omissions, strict liability, breach of contract, breach of warranty or other cause or causes whatsoever.

The ASTM Standard E 1527-13 does not encompass analytical testing to evaluate asbestos containing materials, radon, lead-based paint, drinking water quality, indoor air quality, stored chemicals, debris, fill materials, surface water, or subsurface samples (soil and groundwater) as part of a Phase I ESA. Analytical testing performed at the Subject Property has been conducted in accordance with the Standard Conditions for Engagement and Authorization Letter and Agreement for Environmental Services and the client-specific Scope of Work. Unless otherwise specified herein, such testing involves screening methods intended to provide a broad and approximate evaluation of conditions at readily accessible portions of the Subject Property, limited by project constraints, and should not be construed as a comprehensive program designed to comply with a specific regulatory program. If a thorough and regulatory-compliant study is warranted based on the findings of the Phase I ESA, OSG will recommend the appropriate further investigation. In certain cases, quantitative laboratory testing is performed as part of the assessment and analyses have been conducted by an outside laboratory. OSG relies upon the data provided by the outside laboratory, and has not conducted an independent evaluation of the reliability of this data.

The assessment was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession, and in accordance with generally accepted practices of other consultants currently practicing in the same locality under similar conditions. No other representation, expressed or implied, and no warranty or guarantee is included or intended. The report speaks only as of its date, in the absence of a specific written update of the report, signed and delivered by OSG.
Additional information that becomes available after our survey and draft submission concerning the Subject Property should be provided to OSG so that our conclusions may be revised and modified if necessary, at additional cost. This report has been prepared in accordance with our Standard Conditions for Engagement, which is an integral part of this report.

1.4 Special Terms and Conditions

This Phase I ESA has been prepared to assist the City of Kirkland in its proposed acquisition of Subject Property. This report can be relied upon by only the parties stated in the transmittal letter at the front of this report. OSG liability to a purchaser wishing to use this report is limited to the cost of the report. Amendments to OSG limitations as stated herein that may occur after issuance of the report are considered to be included in this report. Payment for the report is made by, and OSG contract and report extends to the City of Kirkland only, in accordance with our Agreement.

1.5 Data Gaps

Any data gaps identified herein, as defined by ASTM Practice E 1527-13 § 3.2.20, are not considered to have significantly affected the ability to identify recognized environmental conditions in connection with the Subject Property and do not alter the conclusions of this report.
2.0 SUBJECT PROPERTY DESCRIPTION

2.1 Ownership and Location

According to the King County Assessor’s Office, the Subject Property is currently owned by the City of Kirkland.

The Subject Property is located at 12031 Totem Lake Way in Kirkland, King County, Washington. The Subject Property consists of one irregularly shaped parcel, identified by the King County Department of Assessments as Parcel Number 692840-0032 totaling 1.6 acres. The parcel consists of an approximately 7,000 square foot retail/commercial building, with associated asphalt-paved parking and landscaped areas. The building was constructed in 1979 and is in inhabitable condition. Figures are included as Appendix A. Figure 1 - Site Plan depicts the configuration of the Subject Property and adjoining properties. Figure 2 – Topographic Map depicts the location of the Subject Property on the Kirkland, Washington United States Geological Survey (USGS) 7.5 Minute Topographic Quadrangle. Figure 3 - Location Map depicts the location of the Subject Property and proximity to the neighboring properties on an aerial photo of Kirkland, Washington.

2.2 Subject Property Improvements

The parcel is developed with an approximately 7,000 square foot wood framed retail/commercial building, with associated asphalt-paved parking and landscaped areas. The building was constructed in 1979.

2.3 Current Use of the Subject Property

At the time of this assessment, the Subject Property was developed for commercial use. The on-site building was being utilized as construction engineering and management offices associated with property redevelopment on the parcels adjacent north of Totem Lake Way.

2.4 Municipal Services and Utilities

The Subject Property is serviced by the following municipal services and utilities, listed on Table 1, below:
### TABLE 1
#### MUNICIPAL SERVICES AND UTILITIES

<table>
<thead>
<tr>
<th>Utility</th>
<th>Provider/Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Supply</td>
<td>Available at NE Totem Lake Way. Drinking water purchased from Seattle Public Utilities (SPU) through Cascade Water Alliance in association of regional water districts and cities.</td>
</tr>
<tr>
<td>Sewage Disposal System</td>
<td>Sanitary Sewer connection available at NE Totem Lake Way.</td>
</tr>
<tr>
<td>Electrical Service</td>
<td>Available at NE Totem Lake Way. Puget Sound Energy (PSE)</td>
</tr>
<tr>
<td>Natural Gas Service</td>
<td>Available at NE Totem Lake Way. PSE</td>
</tr>
</tbody>
</table>

### 2.5 Adjoining Properties

Property use in the vicinity is primarily commercial and City-owned park. Adjoining properties are listed on Table 2, below.

### TABLE 2
#### ADJOINING PROPERTIES

<table>
<thead>
<tr>
<th>North</th>
<th>The Subject Property is bordered on the north by Totem Lake Way, with commercial/retail development beyond. Currently under construction.</th>
</tr>
</thead>
<tbody>
<tr>
<td>East</td>
<td>Adjacent to the east of the Subject Property is a 3.68-acre parcel developed with a hotel.</td>
</tr>
<tr>
<td>South</td>
<td>The Subject Property is bound to the south by Totem Lake owned by King County.</td>
</tr>
<tr>
<td>West</td>
<td>Adjacent to the west of the Subject Property is a 1.02-acre parcel developed with a restaurant.</td>
</tr>
</tbody>
</table>
3.0 USER PROVIDED INFORMATION

The following section summarizes information provided by City of Kirkland with regard to this Phase I ESA. A User Questionnaire was forwarded to the City personnel with knowledge of the Subject Property. The information requested in the User Questionnaire is intended to assist in gathering information that may be material to identifying recognized environmental conditions in connection with the Subject Property. The User Questionnaire and any additional documentation referenced below are presented in Appendix B.

3.1 Title Records

Title record information associated with the Subject Property has not been provided to OSG by City of Kirkland. A detailed discussion regarding review of information obtained from other sources is presented in Section 4.3.5 of this report.

3.2 Environmental Liens and Activity and Use Limitations

City of Kirkland has provided no information regarding environmental liens or activity and use limitations in connection with the Subject Property. A detailed discussion regarding environmental liens is presented in Section 4.3.7 of this report. A detailed discussion regarding activity and use limitations is presented in Sections 4.1.1 and 4.1.2 of this report.

3.3 Specialized Knowledge

City of Kirkland provided two geotechnical reports prepared by Earth Consultants, Inc. in 1978 and by Associated Earth Sciences, Inc. (AESI) in 2017. The Earth Consultants report documented the geotechnical investigation consisting of three borings in the footprint of the proposed retail building. Based on the site soil conditions, Earth Consultants recommended supporting the building foundation on pressure treated timber piles as one alternative due to site soil conditions.

AESI completed three soil boring on the Subject Property. One boring was completed as a monitoring well to document site water levels. Two additional borings were completed off the Subject Property for future boardwalk construction associated with Totem Lake park development.
OSG was not provided with or made aware of previous environmental assessments or other documentation that is material to recognized environmental conditions in connection with the Subject Property, except as presented in Section 4.5.8 of this report.

3.4 Commonly Known or Reasonably Ascertainable Information

No commonly known or reasonably ascertainable information was identified during this assessment.

3.5 Valuation Reduction for Environmental Issues

City of Kirkland has provided no information regarding valuation reduction for environmental issues in connection with the Subject Property.

3.6 Owner, Property Manager, and Occupant Information

City of Kirkland is the current property owner of the parcel. No other information was provided.

3.7 Reason for Performing Phase I ESA

City of Kirkland retained OSG to complete this Phase I ESA in connection with a property redevelopment and planning process.
4.0 RECORDS REVIEW

4.1 Standard Environmental Records

A review of standard environmental databases maintained by federal, state, and tribal offices was completed through Environmental Data Resources, Inc. (EDR) of Shelton, Connecticut. The databases were searched for properties with reported environmental conditions located within approximate minimum search distances as specified by ASTM Standard E 1527-13, by using geocoding information that identified the coordinates of the properties in the databases or by checking the street addresses of practically reviewable non-geocoded “orphan” properties within the same zip code. The database report is presented in Appendix C.

It should be noted that plotted locations of listed sites are not always accurate. With regard to listings that are determined or suspected to be inaccurate, based on information from other sources such as direct observation or consultation with individual’s familiar with the property, OSG uses the best available data when evaluating the location of listed sites discussed below.

The following Table 3 provides a summary of the findings of the environmental database report. Specific properties identified within the database report are further discussed below.

<table>
<thead>
<tr>
<th>Report</th>
<th>Search Distance</th>
<th>Subject Property Listed</th>
<th>Sites Within the Search Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Priorities List (NPL)</td>
<td>1 Mile</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Delisted NPL Sites</td>
<td>0.5 Mile</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Non-NPL Superfund Enterprise Management System (SEMS)</td>
<td>0.5 Mile</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>SEMS-Archive [CERCLIS No Further Remedial Action Planned (NFRAP)]</td>
<td>0.5 Mile</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Resource Conservation and Recovery Information System (RCRIS) Generators</td>
<td>Property &amp; Adjoining</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>RCRIS Treatment, Storage and Disposal (TSD) Facilities</td>
<td>0.5 Mile</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Corrective Action Report (CORRACTS)</td>
<td>1 Mile</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>RCRA Generators List</td>
<td>0.25 mile</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Federal Institutional and Engineering Control Sites</td>
<td>Property Only</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>State Institutional and Engineering Control Sites</td>
<td>Property Only</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Emergency Response Notification System (ERNS)</td>
<td>Property Only</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>
4.1.1 Federal Agency Database Records

**National Priority List (NPL)**

The NPL database, also known as the Superfund List, is a subset of CERCLIS and identifies sites that are ranked as high priority for remedial action under the Federal Superfund Act. Neither the Subject Property nor any sites located within one mile of the Subject Property were identified on the NPL.

**Delisted National Priority List (NPL)**

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425(e), sites may be deleted from the NPL where no further response is appropriate. Neither the Subject Property nor any sites located within ½ mile of the Subject Property were identified on the Delisted NPL database.

**Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)**

CERCLIS contains data regarding potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies, and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation and Liability ACT (CERCLA). CERCLIS contains sites that are included on the National Priority List (NPL), as well as sites which are in the screening and assessment phase for possible inclusion on the NPL. Neither the Subject Property nor any sites located

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**TABLE 3**

**SUMMARY OF STANDARD ENVIRONMENTAL RECORD SOURCES**

<table>
<thead>
<tr>
<th>Report</th>
<th>Search Distance</th>
<th>Subject Property Listed</th>
<th>Sites Within the Search Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecology Confirmed and Suspected Contaminated Sites (CSCS) Report</td>
<td>1 Mile</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Ecology- and tribal - equivalent NPL</td>
<td>1 Mile</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Ecology Database of Registered Underground Storage Tank (UST) Facilities</td>
<td>Property &amp; Adjoining</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Ecology Database of Leaking Underground Storage Tank (LUST) Facilities</td>
<td>0.5 Mile</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Ecology Voluntary Cleanup Program (VCP) and Independent Cleanup Sites</td>
<td>0.5 Mile</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Ecology Solid Waste Facility Database</td>
<td>0.5 Mile</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Washington Brownfields</td>
<td>0.5 Mile</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>
within ½ mile of the Subject Property were identified on the CERCLIS database.

**CERCLIS – No Further Remedial Action Planned (CERCLIS-NFRAP)**

As of February 1995, CERCLIS sites designated as No Further Remedial Action Planned (NFRAP) have been removed from the CERCLIS list. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed without the need for the site to be placed on the NPL, or the contamination was not considered sufficient to warrant Federal Superfund action or NPL consideration. Neither the Subject Property nor any sites located within ½ mile of the Subject Property were identified on the CERCLIS-NFRAP database.

**Resource Conservation and Recovery Act (RCRA) – Corrective Action Tracking System (CORRACTS)**

RCRAInfo is EPA’s comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information regarding sites that generate, transport, store, treat, and/or dispose of hazardous waste as defined by RCRA. The RCRA-CORRACTS database identifies TSD facilities that have conducted, or are currently conducting, corrective action(s) as regulated under RCRA. Neither the Subject Property nor any sites located within one mile of the Subject Property were identified on the RCRA CORRACTS database.

**RCRA non-CORRACTS Treatment, Storage and/or Disposal (TSD) Facilities**

RCRA non-CORRACTS Treatment, Storage and/or Disposal (TSD) facilities are required to register hazardous waste activity under the Resource Conservation and Recovery Act (RCRA). Neither the Subject Property nor any sites located within ½ mile of the Subject Property were identified on the RCRA non-CORRACTS TSD database.

**RCRA Hazardous Waste Generators**

Hazardous waste generators tracked under the Resource Conservation and Recovery Act (RCRA) are classified as either Large Quantity Generators (LQGs), Small Quantity Generators (SQGs), or Conditionally Exempt Small Quantity Generators (CESQG). A RCRA-LQG is defined as a facility that generates over 1,000 kilograms (Kg) of hazardous waste, or over 1 Kg of acutely hazardous waste per
A RCRA-SQG is defined as a facility that generates between 100 Kg and 1,000 Kg of hazardous waste per month. A RCRA-CESQG is defined as a facility that generates less than 100 Kg of hazardous waste, or less than 1 Kg of acutely hazardous waste per month. The Subject Property was not identified on the RCRA Generator database. One Small Quantity Generator, and three Conditionally-Exempt Small Quantity Generators were identified on the RCRA Generator database. These listings are generally not under consideration as RECs unless their accompanying sites are also listed as having releases.

Federal Engineering Control / Institutional Control Registries

The completion of site cleanup activities may include the implementation of engineering controls or institutional controls as part of the response action. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use. The Subject Property was not identified on Federal Engineering Control or Institutional Control Registries.

Emergency Response Notification System (ERNS)

ERNS is a national database used to collect information regarding reported releases of petroleum products and/or hazardous substances. The database contains information from spill reports submitted to Federal agencies, including the EPA, the U.S. Coast Guard, the National Response Center, and the U.S. Department of Transportation. A review of this database was conducted in order to determine whether any spills or incidents involving releases of hazardous substances or petroleum products have occurred at the Subject Property. The Subject Property was not identified on the ERNS database.

4.1.2 State and Tribal Agency Database Records

State and Tribal Equivalent NPL Sites and CERCLIS Sites

State and tribal equivalent NPL and CERCLIS databases were searched for sites located within one mile of the Subject Property. The Subject Property was not included on either list. Two equivalent NPL sites were found within one mile of the Subject Property, and twelve CERCLIS (CSCSL) sites were found within one mile of the Subject Property.
State and Tribal Landfill Sites and Solid Waste Disposal Sites

The state and tribal landfill and solid waste disposal site databases identify active or inactive landfill and transfer station facilities, as well as open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites. The Subject Property was not included on the list. One site located within ½ mile of the Subject Property was identified on state or tribal landfill and solid waste disposal site databases.

State and Tribal Leaking Storage Tank Sites

Leaking Storage Tank Sites are properties where releases of hazardous substances or petroleum products from underground storage tanks (USTs) and/or aboveground storage tanks (ASTs) have been identified and reported to state, tribal, or local agencies. The Subject Property was not included on the list. Six sites within ½ mile of the Subject Property were identified in state or tribal leaking storage tank databases.

State and Tribal Registered Storage Tanks

The Underground Storage Tank database contains registered USTs, which are regulated under Subtitle I of RCRA and documented by the Department of Ecology. The Subject Property was not included on the list. Two adjoining properties were identified on state or tribal registered storage tank databases.

State and Tribal Engineering Control / Institutional Control Registries

The completion of site cleanup activities may include the implementation of engineering controls or institutional controls as part of the response action. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls. The Subject Property was not identified on state or tribal Engineering Control or Institutional Control Registries. One property within ½ mile was included on the list.
**State and Tribal Voluntary Cleanup Sites**

The Subject Property was not identified on state or tribal Voluntary Cleanup Site databases. The Subject Property was not included on the list. Five Voluntary Cleanup Program (VCP) sites and ten Independent Cleanup (ICR) sites were located within ½ mile of the Subject Property.

**State and Tribal Brownfield Sites**

The Subject Property was not included on the list. One site located within ½ mile of the Subject Property was identified on state or tribal Brownfield Sites databases.

4.1.3 Local Regulatory Agency Records

Local offices consulted during the completion of this assessment included the City of Kirkland Planning and Public Works and Planning & Building Departments, as well as the City of Kirkland Fire Department. OSG requested agency information regarding the Subject Property via the City’s online inquiries form. None of the three requested departments had significant documentation of past usage, ownership, building permits, or hazardous materials relating to the Subject Property. OSG did not identify documented adverse environmental conditions, violations, or complaints associated with the Subject Property.

4.1.4 Subject Site

EDR reports the standard environmental record sources required for review under ASTM Standard E1527-13 do not include listings for facilities on the subject property parcels.

4.1.5 Adjoining Properties

EDR reports the standard environmental record sources required for review under ASTM Standard E1527-13 do not include listings for properties adjoining the Subject Property. Although the EDR report lists several sites within 0.25 mile of the Subject Property, several of the listings are on multiple lists, or have multiple names for a single site. Additionally, geocoding of sites, particularly those with multiple addresses or large parcels, may be inaccurate. OSG reviewed the sites listed on the EDR report on the Washington Department of Ecology Toxics Cleanup database (https://fortress.wa.gov/ecy/neighborhood/). Four properties within 1/8 mile were identified. Table 4 summarizes the sites:
### Table 4
**Ecology Database Summaries**

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Site Status</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Totem Lake Dry Cleaners</td>
<td>Cleanup Started</td>
<td>12541 120th Ave NE</td>
</tr>
<tr>
<td>Totem Lake Chevron 91144</td>
<td>NFA</td>
<td>12500 Totem Lake Blvd NE</td>
</tr>
<tr>
<td>Brown Bear Car Wash 5495</td>
<td>Cleanup Started</td>
<td>12421 Totem Lake Blvd NE</td>
</tr>
<tr>
<td>Circle V Management Property</td>
<td>NFA</td>
<td>12632 120th Ave NE</td>
</tr>
</tbody>
</table>

**Totem Lake Dry Cleaners:** The site is part of the State Voluntary Cleanup Program. The original release was reported in 1998, as a release of halogenated solvents to soil and groundwater. A Cleanup Action Plan Report (GeoDesign, 2017) described multiple investigations and remedial actions taken at the site to remediate the solvent. The extent of solvent was found to be within the footprint of the former dry cleaner site, at the southeast corner of the Totem Lake shopping Center, which is north-northwest of the Subject Property. Investigations determined that the contamination did not migrate off-site. The Cleanup Action Plan provided a design for injection of reagents for chemical remediation of the remnant solvent. An opinion letter provided by the Department of Ecology (dated January 16, 2018) stated that, based on the proposed work plan, that a No Further Action determination for the site was likely after completion of remedial efforts and monitoring. A No Further Action has not yet been provided for the site. Based on the lack of evidence of off-site migration of contaminants from the site, OSG does not consider the Totem Lake Dry Cleaners site to constitute a REC at the Subject Property.

**Totem Lake Chevron:** The site is part of the State Voluntary Cleanup Program. The original release was reported in 2012, with documentation of the removal of a waste oil UST at the site. Additional UST removal and soil excavation took place in 2017. Three gasoline and one diesel fuel USTs were removed from the site, as well as a heating oil UST discovered on the north end of the site. Dispensers associated with the supply USTs were also removed. Approximately 300 cubic yards of petroleum-contaminated soil were removed from the site and disposed of at a licensed facility. Impacted groundwater was not reported. Based on the findings of the remedial action report, Ecology issued a No Further Action determination in April, 2017 (Ecology, 2017). Based on the lack of evidence of off-site migration of contaminants and NFA determination, OSG does not consider the Totem Lake Chevron site to constitute a REC at the Subject Property.
**Brown Bear Car Wash:** The site is on the LUST list and was formerly a combined car wash and gas station. According to a Site Hazard Assessment completed by Ecology in 2013, the original petroleum release was discovered in 1990 during UST removal. Subsequent subsurface investigations and remediations removed 400 cubic yards of contaminated soil. Diesel range petroleum hydrocarbons were remediared to below cleanup levels. Groundwater contamination was identified, and the site gradient was found to be to the north-northeast. Overall, contamination was located at the western end of the site, in the vicinity of the former USTs. Groundwater monitoring and remediation took place between 1995 and 1999. The most recent report available to the Ecology reviewers in 2005 noted that remnant gasoline-range petroleum contamination in groundwater was constrained to one well in the western (upgradient) portion of the site. Groundwater samples in all other monitoring wells on the site did not contain detectable concentrations of petroleum hydrocarbons. Ecology performed a Site Hazard Assessment based on the available data (Ecology, 2013). According to the assessment findings, the site was assigned a rating of ‘4’ out of 5, or low risk of exposure to the environment and humans. Based on the lack of evidence of off-site migration of contaminants and low-risk Site Hazard Assessment determination, OSG does not consider the Brown Bear Car Wash site to constitute a REC at the Subject Property.

**Circle V Management Property:** Available online documentation for the site was limited. However, the cleanup site details summary available from Ecology documented that the original LUST release was reported in 1995. Ecology performed an assessment of the site in 2011 and prepared a No Further Action opinion in 2012 (Ecology, 2012). The No Further Action letter concluded that soil had been contaminated by a waste oil release. Groundwater was not affected. Per the documentation available to Ecology, soil remediation at the site met state cleanup levels. Based on the lack of evidence of off-site migration of contaminants and NFA determination, OSG does not consider the Circle V Management Property site to constitute a REC at the Subject Property.

### 4.1.6 Non-Adjoining Properties

EDR reports the standard environmental record sources required for review under ASTM Standard E1527-13 include listings of non-adjoining properties situated within the respective search distance including two Ecology CSCSL sites, two Ecology LUST sites (likely the above-discusses sites), three Ecology ICR sits, and two Ecology CSCSL NFA facilities. These facilities are situated in positions that appear hydrologically non-tributary of the Subject Property, based on the topography, and/or are at
such a distance from the Subject Property that it is unlikely the reported contamination would migrate to the Subject Property.

4.1.7 Tribal Records

EDR provides information on Indian UST, LUST, VCP, open dumps, and brownfields and EDR reports those records do not include listings for facilities on the Subject Property, adjoining properties, or non-adjointing properties situated within the requisite ASTM Standard E1527-13 search distances. Additionally, the Subject Property is not within the reservation boundaries of a federally recognized Indian tribe according to Ecology’s “Tribal Land and Reservations” map.

4.2 Additional Environmental Record Sources

Included in the EDR report are additional federal and state environmental records not required for review under ASTM Standard E1527-13. The additional records are listed beginning on page 4 of the EDR report map findings summary. A review revealed 17 listings within the EDR-specified search distances. Most of the sites appear on what EDR brands as “Allsites” databases and includes Ecology’s Facility/Site Identification Listing, which is a compendium of all sites under the jurisdiction of various agency programs. The “Allsites” sites appear to reside in locations that are sufficiently distant, and/or is inferred, based on topography, to be hydro-geologically cross/down gradient in relation to the Subject Property. Therefore, it is unlikely that possible contamination at these facilities have adversely impacted the Subject Property.

The EDR report may also include "EDR proprietary records" which are non-regulatory listings that EDR considers as "high risk historical records". The "high risk" records include automotive filling/service stations and dry cleaners that are typically listed in archived business directories. The EDR proprietary records are listed in the EDR report and are not required for review under ASTM Standard E 1527-13.

4.3 Orphan Sites

The EDR report includes a listing of “Orphan” sites that EDR is unable to map because of insufficient location information. Based on a review of facility address information provided by EDR, the two listed orphan sites appear to be located outside of the search distances in Practice ASTM Standard E1527-13, and do not appear to represent a significant environmental risk to the subject property.
4.4 Physical Setting

4.4.1 Regional Physiographic Conditions

The Subject Property is situated on a rolling upland, glacial till plain bound by the Puget Sound on the west and the Cascade Mountain foothills on the east. Locally, the Subject Property is situated near Totem Lake, a ‘pothole’ type lake. The Subject Property is situated on the northern side of the lake.

4.4.2 Topography

The Subject Property is located at an elevation of approximately 120 to 140 feet above mean sea level (amsl). The subject property slopes down slightly to the south, towards Totem Lake. Totem Lake is situated in an east-west trending channel formed during the most recent Pleistocene glaciation (Earth Consultants, Inc, 1978).

Shallow groundwater flow, as well as potential soil or groundwater contaminant migration, would be expected to be generally southerly, towards the lake (See Figure 2 - Location Map, which depicts the location of the Subject Property on the Kirkland, Washington USGS 7.5 Minute Topographic Quadrangle, 2014).

4.4.3 Geologic and Soil Conditions

According to the USGS’ “Geologic Map of the Kirkland Quadrangle, Washington” (Minard, 1983) the geologic unit underlying the Subject Property are pre-glacial transitional beds. Transitional beds in the Subject Property vicinity are typically very dense/hard silts and clays that grade upward to fine sands. These deposits were placed during the interglacial period when the local environment was transitioning for a non-glacial to glacial environment. The Earth Consultants and AESI geotechnical reports interpreted site soils observed during their subsurface investigation as consisting of up to 19 feet of fill soils overlying two to four feet of peat. Dense sands were encountered below the peat.

The United States Department of Agriculture Natural Resource Conservation Service's Web Soil Survey was consulted for information relating to soils underlying the Subject Property. The survey, which typically addresses soil conditions from the ground surface to a depth of five feet, indicates the soil units underlying the Subject Property as a combination of Seattle Muck and Everett very gravelly sandy loam. Seattle Muck is described as a “very deep, very poorly drained organic soils formed in herbaceous and woody deposits in depressions in river valleys and glacial till plains. Slopes are 0 to 1 percent.” Everett
very gravelly sandy loam is formed on ice-marginal glacial deposits (kames, eskers, moraines) and is described as a very deep, somewhat excessively drained soil.

4.4.4 Hydrogeology and Hydrology

Near-surface or perched groundwater typically occurs when an underlying soil layer of less permeability prevents the downward percolation of water. Water will build up above the less permeable soil, such as glacial till, and move laterally in the more permeable overlying soils. Wet or saturated soils may also be encountered at depth due to cleaner sand and gravel zones. Groundwater conditions should be expected to fluctuate due to season, amount of precipitation, and other on-site and off-site factors.

The reviewed geologic map and soil survey indicate that transitional beds underlies the Subject Property, although the site geotechnical investigation found shallow fill and peat soils overlying the denser glacial or pre-glacial soils. Groundwater was encountered in the geotechnical borings at an approximate elevation of 120 feet MSL (8 to 20 feet bgs). The monitoring well installed by AESI had a groundwater level of 16 feet bgs at time of drilling. Groundwater levels will likely fluctuate with season, precipitation patterns, and site utilization.

Although groundwater flow direction is difficult to predict without the installation of at least three monitoring wells that measure water levels over time, an estimate of possible near-surface groundwater flow direction is provided to help evaluate potential on-site and off-site contaminant impacts. Groundwater flow direction is the path along which dissolved contaminants might migrate if present in groundwater supplies. Typically, in this region, the near-surface groundwater flow direction generally follows topography. The Subject Property slopes toward the south in the direction of Totem Lake thus potential near-surface groundwater underlying the Subject Property may be to the south. Variations in the assumed flow direction may exist that would remain uncharacterized without performing a subsurface exploration program with groundwater monitoring wells, which is beyond the Phase I scope of work.

4.4.5 Drinking Water Supplies and Water Wells

The City of Kirkland provides drinking water to the subject property through the Cascade Water Alliance (CWA). The Cascade Water Alliance (CWA) purchases its water from the City of Seattle, which obtains its drinking water supply from the Cedar River and Tolt River watersheds in southeast and northeast portions of King County, respectively. Based on the separation distances, it is highly unlikely that the
possible contamination associated with the Subject Property would directly affect these drinking water supplies.

A review of water well reports on the Washington Department of Ecology’s Well Log website did not reveal reports for drinking water wells located within approximately one-half-mile of the Subject Property.

4.5 Historical Use of the Subject Property and Adjoining Properties

Using historical aerial photographs, city directories, fire insurance maps, personal interviews and land title records, OSG attempted to assess the history of the Subject Property dating back to 1940 or first developed use. OSG identified historical vicinity records dating back to 1895, and documentation of site development dating back to 1980. The following Table 4 summarizes the historical use of the Subject Property and surrounding area.

<table>
<thead>
<tr>
<th>Period</th>
<th>Historical Uses</th>
<th>Source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Subject Property</strong></td>
<td><strong>Surrounding Area</strong></td>
</tr>
<tr>
<td><strong>1895-1980</strong></td>
<td>Unoccupied Lot</td>
<td>Primarily Undeveloped; limited residential/agricultural development. Commercial/urban development begins in late 1960s</td>
</tr>
<tr>
<td></td>
<td><strong>1980 to Present</strong></td>
<td>Commercial/urban development and arterial roadways</td>
</tr>
<tr>
<td></td>
<td>Developed with commercial building and associated paved parking and landscaping.</td>
<td></td>
</tr>
</tbody>
</table>

4.5.1 Aerial Photographs

Historical aerial photographs may be used to evaluate changes in land use and to identify visible areas of potential environmental concern. A search for historical aerial photographs depicting the Subject Property and vicinity was conducted by Environmental Data Resources, Inc. (EDR). It should be noted that the scale of the available aerial photographs precludes the distinct identification of structures
and/or land uses on or in the vicinity of the Subject Property. Aerial photographs depicting the Subject Property were reviewed and are summarized below.

OSG retained Environmental Data Resources, Inc. (EDR) to provide aerial photographs of the Subject Property and immediate surrounding area. OSG additionally viewed online aerial photograph images via Google Earth. The reviewed aerial photographs and images are listed below. The EDR Aerial Photograph Decade Package is included in Appendix D.

<table>
<thead>
<tr>
<th>Photograph Date</th>
<th>Source</th>
<th>Color or Black &amp; White</th>
<th>Base Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1941</td>
<td>EDR</td>
<td>B&amp;W</td>
<td>1“=500’</td>
</tr>
<tr>
<td>1944</td>
<td>EDR</td>
<td>B&amp;W</td>
<td>1&quot;=500’</td>
</tr>
<tr>
<td>1952</td>
<td>EDR</td>
<td>B&amp;W</td>
<td>1”=500’</td>
</tr>
<tr>
<td>1965</td>
<td>EDR</td>
<td>B&amp;W</td>
<td>1”=500’</td>
</tr>
<tr>
<td>1968</td>
<td>EDR</td>
<td>B&amp;W</td>
<td>1”=500’</td>
</tr>
<tr>
<td>1973</td>
<td>EDR</td>
<td>B&amp;W</td>
<td>1”=500’</td>
</tr>
<tr>
<td>1977</td>
<td>EDR</td>
<td>B&amp;W</td>
<td>1”=500’</td>
</tr>
<tr>
<td>1980</td>
<td>EDR</td>
<td>B&amp;W</td>
<td>1”=500’</td>
</tr>
<tr>
<td>1985</td>
<td>EDR</td>
<td>B&amp;W</td>
<td>1”=500’</td>
</tr>
<tr>
<td>1990</td>
<td>EDR</td>
<td>B&amp;W</td>
<td>1&quot;=500’</td>
</tr>
<tr>
<td>2006</td>
<td>EDR</td>
<td>Color</td>
<td>1”=500’</td>
</tr>
<tr>
<td>2009</td>
<td>EDR</td>
<td>Color</td>
<td>1”=500’</td>
</tr>
<tr>
<td>2013</td>
<td>EDR</td>
<td>Color</td>
<td>1”=500’</td>
</tr>
<tr>
<td>2017</td>
<td>EDR</td>
<td>Color</td>
<td>1”=500’</td>
</tr>
</tbody>
</table>

In the review of the aerial photographs, observations are interpretative and limited to the area within approximately one-quarter-mile of the lease area. The scale of each photograph did not provide a clear image of specific site characteristics. However, we were able to discern the absence and presence of structures on the lease area, as well as developmental trends in the immediate subject area.

**1941 - 1952**

The 1941 and 1944 photographs are difficult to decipher due to clarity; however, it appears that the Subject Property is undeveloped and vacant. Totem Lake is present adjacent to the southeast. The Northern Pacific Railroad alignment is present adjacent southeast of Totem Lake. Surrounding properties appear to be primarily developed as agriculture and single-family residences. An apparent orchard is approximately 500 feet north of the Subject Property. A roughly east-west secondary road equivalent to the current Northeast 124th Street is present approximately 500 feet south of the Subject
Property. The Subject Property is partially graded and cleared in the 1952 aerial photograph. Surrounding land use is generally unchanged.

1965-1968

A 1965 and 1968 aerial photographs show that the Subject Property has mostly revegetated and remains undeveloped. Grading and clearing has occurred on the adjacent north parcels in 1965, and the parcels appear to be returned to agricultural use in 1968. A roadway along the current Interstate 405 has been constructed approximately 500 feet west of the subject property, and arterial roads to the south of the Subject Property have been improved. Apparent commercial-scale development is visible south of Northeast 124th Street in 1965 and 1968.

1973-1977

Conditions on the Subject Property appear to be similar to those depicted on the 1968 aerial photograph. The profile of Totem Lake has been modified, possibly from filling and dredging during local development activities. The adjacent north parcel has been graded and cleared, and the Totem Lake Mall development is visible in the 1973 photograph, with extension of the commercial structures in the 1977 photograph. Continued urban/commercial infilling is visible to the south and southwest of the Subject Property. The Interstate 405 alignment is improved to a four-lane highway in the 1977 photograph, with associated access road and arterial improvements.

1980, 1985 and 1990

The Subject Property is developed in its current configuration in the 1980 photograph. A commercial-scale structure is built at the east end of the Subject Property, with the remainder of the Property developed with paved parking. A commercial-scale structure is visible adjacent west of the Subject Property in the 1980 photograph, and a second commercial-scale structure is visible adjacent east of the Subject Property in the 1990 photograph. The adjacent north Totem Lake Mall area is substantially unchanged. Continued urban/commercial infilling is visible to the south and southwest of the Subject Property.

Aerial photographs dated 2006, 2009, 2013 and 2017 show the Subject Property and immediate surrounding area developed much as they appear today.

4.5.2 Sanborn Fire Insurance Maps

OSG retained EDR to conduct a search of available Sanborn Map Company fire insurance maps for the Subject Property. Sanborn maps, as they are commonly referred, typically detail building construction type and use, and may show underground and above ground storage tanks, chemical storage areas, and other recognized environmental conditions. The collection dates from 1866 and includes over 1.2 million Sanborn maps chronicling the history of approximately 12,000 American cities and towns. A search for historical fire insurance maps depicting the Subject Property and vicinity was conducted by EDR Sanborn Maps, Inc. The EDR Report indicated that coverage for the vicinity of the Subject Property was not available. The EDR Certified Sanborn Map Report is included in Appendix D.

4.5.3 Topographic Maps

Historical topographic maps provide information related to physical land configuration such as elevation, ground slope, surface water and other features. While most buildings in densely developed urban centers are not depicted, topographic maps typically show structures equal to or larger than the size of a single-family residence in rural areas. Other notable features such as woods, pipelines, municipal boundaries, and areas of filled land are often marked on topographic maps.

A search for historical topographic maps depicting the Subject Property and vicinity was conducted by Environmental Data Resources, Inc. (EDR). Historical topographic maps depicting the Subject Property were reviewed and are summarized below. Copies of the topographic maps are presented in Appendix D.

Date: 1895, Snohomish, WA

Description: No structures are depicted on the Subject Property. Secondary roads are present south of the subject property within one-quarter mile. Several small, possibly single-family residential structures are shown approximately a one-half mile south of the Subject Property along a secondary road.
Date: 1897, Snohomish, WA

Description: Conditions on the Subject Property and adjoining properties appear similar to those depicted in the 1895 map. The 1968 map depicts increased development in the surrounding area.

Date: 1950, Kirkland, WA

Description: No development is depicted on the Subject Property. Totem Lake is depicted adjacent south, with an outlet stream flowing to the west. Northern Pacific Railroad is located southeast of Totem Lake and runs in a northeast-southwest alignment at that location. Secondary roads in the Subject Property vicinity have been improved and expanded, and residential-scale structures are depicted within one-quarter mile of the Subject Property.

Date: 1968, Kirkland, WA

Description: No development is depicted on the Subject Property. Grading and development is depicted to the west of the Subject Property. Roadways in the general area have been expanded and improved, and the Interstate 405 alignment is depicted approximately 1,000 feet west of the Subject Property. Commercial-scale structures are depicted within one-half mile of the Subject Property, with increased commercial/urban development in the surrounding area.

Date: 1973, Kirkland, WA

Description: No development is depicted on the Subject Property. The profile of Totem Lake has been modified, and the outlet stream is no longer depicted. The Totem Lake Mall development is depicted as a shaded polygon. The Interstate 405 alignment has been modified, with associated access roads and improvement to arterial streets.

Date: 2014, Kirkland, WA

Description: No development is depicted on the Subject Property. The topographic map format does not depict area development types. The Burlington Northern Railroad alignment is no longer shown to the southeast of Totem Lake. Roadways in the general area have been expanded and improved.
4.5.4 Street Directories

Street directories are commercial publications containing names and addresses, and in many cases, occupations of the occupants of a particular community. The directories may also contain information pertaining to business processes conducted within a community. A search for historical street directories was conducted by Environmental Data Resources, Inc. (EDR). Historical street directories dating back to 1969 and reviewed on approximately five-year intervals are summarized below.

The Subject Property was not listed prior to 1982. From 1982 to 1992, the Subject Property was first listed as ‘Sea Galley Restaurant.’ The Subject Property was subsequently listed as the ‘Cowboy Steakhouse & Saloon’ on the 1992 through 2000 directories, and as ‘Rosarita’ in 2005. The 2010 and 2014 directories listed the Subject Property as ‘Yuppie Pawn.’ Surrounding property listings in the reviewed directories consisted primarily office/commercial listings. No commercial or industrial listings were found on the reviewed directories that would be considered to constitute a REC.

Copies of the street directories are presented in Appendix D.

4.5.5 Recorded Land Title Records

Land title records provide information on previous ownership of a property. Typically, deeds signifying transfer of a land parcel are recorded in county files and can be researched to determine the identity of past owners. A “chain of title” is a continuous record of ownership for a specific parcel. A chain of title was not provided for the Subject Property. However, a search for Environmental Liens and Activity and Use Limitations (discussed in Section 4.5.7 of this Assessment) indicated that the title of the Subject Property belongs to the City of Kirkland.

4.5.6 Property Tax Records

The property card for the Subject Property was obtained at the King County Assessor’s Office. The property card identifies the owner as of 2014 as the City of Kirkland. Assessor’s Office records indicate that the property consists of a 7,000 square foot retail building and parking. Prior ownership of the property was by ‘Rosarita, LLC.’ Copies of the property tax records are presented in Appendix E.
4.5.7 Environmental Liens and Activity and Use Limitations

A search for Environmental Liens and Activity and Use Limitations of the Subject Property was conducted by EDR; none were found. A copy of the Environmental Lien and Activity and Use Limitations report is presented in Appendix F.

4.5.8 Previous Environmental Reports

OSG was not provided with or made aware of previous environmental assessments or other documentation regarding environmental investigations performed for the Subject Property. OSG did not identify previous environmental reports for the Subject Property at local agencies or other sources contacted during this assessment.

4.5.9 Other Historical Records and Interviews

The User Questionnaire was sent to the City, but not returned at the time of this printing.
5.0 SUBJECT PROPERTY RECONNAISSANCE

5.1 On-Site Inspection Observations

Vance Atkins of OSG conducted a reconnaissance of the Subject Property on November 14, 2018. The purpose of the site reconnaissance was to evaluate current conditions on the Subject Property to look for recognized, controlled, and historic environmental conditions. The weather was mostly sunny and in the mid 50°s. Site visit photographs are included in Appendix G.

Table 5 summarizes OSG’s observations of the Subject Property and project site. A discussion of the observed environmental concerns follows Table 5.

<table>
<thead>
<tr>
<th>Table 5</th>
<th>SITE RECONNAISSANCE OBSERVATIONS</th>
<th>Observed by OSG?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Environmental Concern</td>
<td>Subject Property</td>
</tr>
<tr>
<td>1.</td>
<td>Above ground indications of underground storage tanks (USTs).</td>
<td>No</td>
</tr>
<tr>
<td>2.</td>
<td>Above ground storage tanks of hazardous substances or petroleum.</td>
<td>No</td>
</tr>
<tr>
<td>3.</td>
<td>Drums or other containers of hazardous substances or petroleum.</td>
<td>No</td>
</tr>
<tr>
<td>4.</td>
<td>Surface staining on soil, pavement, or other surfaces that is indicative of a hazardous substance or petroleum release.</td>
<td>No</td>
</tr>
<tr>
<td>5.</td>
<td>Strong, pungent, or noxious odors.</td>
<td>No</td>
</tr>
<tr>
<td>6.</td>
<td>Stressed vegetation.</td>
<td>No</td>
</tr>
<tr>
<td>7.</td>
<td>Pits, ponds, or lagoons used in connection with waste disposal or waste treatment.</td>
<td>No</td>
</tr>
<tr>
<td>8.</td>
<td>Indication of fill including soil or solid waste.</td>
<td>No</td>
</tr>
<tr>
<td>9.</td>
<td>Debris piles or illicit waste disposal including possible suspect asbestos-containing material waste.</td>
<td>No</td>
</tr>
<tr>
<td>10.</td>
<td>Drains or sumps.</td>
<td>No</td>
</tr>
<tr>
<td>11.</td>
<td>Equipment that may contain polychlorinated biphenyls (PCBs).</td>
<td>No</td>
</tr>
<tr>
<td>12.</td>
<td>Wells including water wells, abandoned wells, monitoring wells, and dry wells.</td>
<td>Yes</td>
</tr>
<tr>
<td>13.</td>
<td>Septic systems.</td>
<td>No</td>
</tr>
<tr>
<td>14.</td>
<td>Possible lead-based paint that may be disturbed during demolition or construction.</td>
<td>Unk (See below)</td>
</tr>
<tr>
<td>15.</td>
<td>Suspect asbestos-containing materials that may be disturbed during demolition or construction.</td>
<td>Unk (See below)</td>
</tr>
<tr>
<td>16.</td>
<td>Other recognized environmental conditions that indicate a possible hazardous substance or petroleum release.</td>
<td>No</td>
</tr>
</tbody>
</table>
General Observations

The Property is currently developed with an approximately 7,000 square foot wood frame commercial building located at the eastern end of the parcel. The majority of the remainder of the Subject Property is occupied by paved parking and landscaped areas. The property is currently used as office space and occupied by construction management and engineering personnel associated with property redevelopment north of Totem Lake Way. A temporary office trailer is located south of the commercial building.

5.2 Adjacent Site and Vicinity Observations

Vance Atkins of OSG conducted a reconnaissance of the area surrounding the Subject Property on November 14, 2018. The purpose of this reconnaissance was to observe land use in the Subject Property vicinity and to evaluate the potential for nearby businesses or facilities to generate, use, or store hazardous substances that may affect the Subject Property. The off-site reconnaissance was generally non-intrusive with the adjoining properties observed from the Subject Property and public rights-of-way.

The adjoining properties are developed as noted in Section 3.5. OSG did not observe readily apparent recognized environmental conditions on parcels immediately adjoining the Subject Property, that in OSG’s opinion, may adversely environmentally affect the Subject Property.

5.3 Methodology and Limiting Conditions

The Subject Property reconnaissance consisted of visual and/or physical observations of the Subject Property, adjoining properties as viewed from the Subject Property boundaries, and the surrounding area based on visual observations made from adjacent public thoroughfares. At the time of the survey, the weather was clear and approximately 50º Fahrenheit.

5.4 Hazardous Substances and Petroleum Products

5.4.1 Hazardous Substances and Petroleum Products

OSG did not observe staining, discoloration, odors, or other readily apparent indications of a hazardous substance or petroleum release in these areas. Hazardous material use and storage at the Subject Property was limited to small quantities of fuel and maintenance materials used for fueling construction equipment (power tools and off-road 4-wheelers). Fuel was stored in containers of less than five gallons.
capacity and most hazardous materials were stored in a secure flammables cabinet. Housekeeping around other portions of the Subject Property appeared good and OSG did not observe readily apparent indications of hazardous substance or petroleum releases on the Subject Property.

5.4.2 Unidentified Substances Containers

OSG did not observe evidence of unidentified substances containers at the Subject Property.

5.5 Waste Generation, Storage, and Disposal

Non-regulated solid waste was not found improperly disposed of at the Subject Property. Commercial containers for solid waste and recycling were observed to the west of the Subject Property building.

5.6 Underground Storage Tanks (USTs) & Aboveground Storage Tanks (ASTs)

5.6.1 Existing Storage Tanks

OSG identified no evidence of current USTs or ASTs located at the Subject Property.

5.6.2 Former Storage Tanks

Based upon site reconnaissance, interviews, and a review of state and local records, OSG identified no evidence of former USTs or ASTs located at the Subject Property.

5.7 Oil-Containing Equipment and Polychlorinated Biphenyls (PCBs)

OSG did not observe any oil-containing equipment or evidence of PCBs at the Subject Property. Electrical service for the Property originates from underground power lines along Totem Lake Way. No transformers were observed. Based on these observations, it is unlikely that possible PCBs associated with the transformers have adversely environmentally affected the project site.

5.8 Monitoring Wells

A monitoring well cover was observed at the western portion of the Subject Property. Based on discussions with AESI personnel, the well was one of two installed as part of their 2017 geotechnical investigation. The well was not associated with groundwater quality monitoring or other uses.
5.9 Lead-Based Paint and Asbestos-Containing Building Materials

Lead-based paint and Asbestos-Containing Building Material (ACBM) surveys are not part of the Phase I ESA scope of work.
6.0 INTERVIEWS

The City of Kirkland identified Brian Baker, as a contact knowledgeable of the Subject Property history and development. The User Questionnaire was forwarded to City of Kirkland. The User Questionnaire and any accompanying documentation is presented in Appendix B.

<table>
<thead>
<tr>
<th>Contact / Affiliation</th>
<th>Date of Communication</th>
<th>Years Associated with Subject Property</th>
<th>Telephone No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brian Baker, City of Kirkland</td>
<td>8/23/17</td>
<td>7</td>
<td>206-617-2119</td>
</tr>
</tbody>
</table>

Brian Baker of the City of Kirkland, the current Property owner, was interviewed on November 19, 2018. The City has owned the Property since February, 2014, and purchased it from the prior owner, Rosarita, LLC. The property was developed as a restaurant at that time. Mr. Baker was not aware of any hazardous materials use or releases at the Property. He did not report any USTs or ASTs currently or formerly in use at the Property. The residence was on public electricity, water, natural gas, and sanitary sewer. He reported that some filling and ground improvement had occurred at the Subject Property, based, in part, on geotechnical report recommendations prior to its development in 1979, and provided a copy of the geotechnical report for review (discussed in Section 3.3). No dumping or waste disposal had occurred at the Property.
7.0 CONDITIONS OUTSIDE THE SCOPE OF ASTM PRACTICE E 1527-13

The following sections address environmental issues or conditions at the Subject Property that parties may wish to assess in connection with commercial real estate that are outside the scope of ASTM Practice E 1527-13 (non-scope considerations).

7.1 Asbestos-Containing Material (ACM)

Asbestos is a term used to describe a group of six naturally occurring crystalline fiber minerals. Asbestos has excellent thermal stability, a high degree of tensile strength, and has been used extensively in the textile, insulation, and building industries, particularly as a component in fireproofing, decorative coatings, insulation materials, and as reinforcement for plaster binders in building products. Asbestos-containing building materials are generally classified as friable or non-friable. Friable materials are those which can be crumbled, pulverized, or reduced to powder by hand pressure, or by normal use or maintenance can be expected to emit asbestos fibers into the air. Non-friable ACM is a potential concern if it is damaged by maintenance work, demolition, or other activities, at which time it may be considered friable.

7.2 Lead-Based Paint (LBP)

Use of lead in household paint was banned by the U.S. Environmental Protection Agency (EPA) effective January 1, 1978. The EPA and the U.S. Department of Housing and Urban Development (HUD) consider lead-based paint as containing a lead concentration equal to or greater than 1.0 milligram per square centimeter (mg/cm²) or 0.5% lead by weight, as defined by Title X of the 1992 Housing and Community Development Act.

Based on the construction date of the structure (1979), it was built as these products were phased out for construction use (1977 and 1978, respectively), although some remnant stock of these products was still utilized past that date. Med-Tox Northwest, a hazardous building materials consultant, conducted a survey and sampling of the building. Their report will be provided under separate cover.
8.0 LIMITED PHASE II ESA

Although treated wood piles do not typically meet the definition of a REC, OSG was requested to conduct an investigation to confirm the presence of piles, and assess soil conditions, if accessible.

8.1 Soil Sampling

On November 19, 2018, OSG was on site with AESI during their limited geotechnical investigation at the building structure. The purpose of the geotechnical investigation was to assess the presence of piles or other foundation structures at the building. OSG conducted soil sampling at the time of the investigation to assess soil impacts that may be associated with treated wood piles or filling. See Figure 2 for sampling locations.

8.1.1 Soil Sample Collection Methods

AESI’s contractor excavated a test pit/trench along the southwestern side of the building to expose the building foundation.

Soil samples from the borings were collected from the excavation or from the excavator bucket. Each soil sample was logged by an OSG geologist for physical properties such as grain size, color, and moisture. After sample collection, a portion was placed into pre-cleaned laboratory prepared glass jars and vials with Teflon lids.

All samples were immediately placed into ice-filled coolers and delivered to Fremont Environmental Laboratory in Seattle, Washington under standard chain-of-custody procedures.

8.1.2 Analytical Methods

OSG collected selected soil samples for analysis by Fremont Analytical, a Washington Department of Ecology-accredited analytical laboratory for:

- Diesel and heavy oil-range petroleum hydrocarbons by Washington Method NWTPH-Dx
- Polyaromatic hydrocarbons by EPA Method 8270
- MTCA 5 metals (arsenic, cadmium, chromium, lead, mercury) be EPA Method 6020/7471

Analyses were performed in accordance with Fremont’s in-house Quality Assurance/Quality Control Plans. Sample analyses were performed in compliance with EPA analytical methods and Ecology
guidelines. Samples were analyzed within specified holding times. Detection limits were within method requirements and no factors appeared to adversely affect data quality.

8.2 Results

8.2.1 Field Observations and Screening

Approximately four feet of sandy fill soils were observed, and one treated wood pile was exposed. A second pile was identified by probing under the building footprint, but not exposed. Native soils (silt with sand and peat) were encountered at approximately four feet. OSG collected one soil sample from fill soils adjacent to the pile (TP-1-2) and two samples from native soils adjacent to the pile and building footprint (TP-1-4 and TP-1-5). See Figure 2 for soil sample locations.

Soil samples were field screened for indications of petroleum contamination including strong petroleum related odors. No positive indications of contamination were encountered during field screening.

8.2.2 Analytical Results

Soil sample results are summarized in Table 7. The full analytical report is included in Appendix J.

Oil range petroleum and carcinogenic PAHs were detected in the shallow fill soil sample (TP-1-2). Carcinogenic PAH concentrations exceeded the MTCA Method A Cleanup level in that sample. Other PAHs were detected but did not exceed cleanup levels. Metals were detected, but within concentrations typical of local background conditions. Significant detections of petroleum, PAHs, or metals were not detected in the two native soil samples.
9.0 FINDINGS AND OPINIONS

OSG has performed this Phase I ESA of the Subject Property in conformance with the scope and limitations of ASTM Standard E 1527-13. Any exceptions to, or deletions from, this practice are described in Section 1.0 of this report. Based upon the aforementioned research, this assessment did not identify recognized environmental conditions (RECs) in connection with the Subject Property.

However, the presence of treated wood piles underlying the were of concern for potential impacts to fill soils that may require excavation as part of the property redevelopment. OSG collected representative samples at the building footprint as part of a geotechnical investigation of the existing building foundation and support.

cPAHs were identified in shallow fill soils adjacent to the treated wood piles. If the fill soils underlying the building footprint require disturbance as part of construction or ground improvement, they should be further characterized and profiled for off-site disposal at a licensed facility. If the piles are to be removed or cut off, they may be handled and disposed in accordance with the Departments of Ecology’s guidance for treated wood (attached as Appendix K).
10.0 RECOMMENDATIONS

Based upon the findings of this investigation, OSG recommends that:

- cPAHs were identified in shallow fill soils adjacent to the treated wood piles. If the fill soils underlying the building footprint require disturbance as part of construction or ground improvement, they should be further characterized and profiled for off-site disposal at a licensed facility. If the piles are to be removed or cut off, they may be handled and disposed in accordance with the Departments of Ecology’s guidance for treated wood.
11.0 REFERENCES

PHASE I ENVIRONMENTAL SITE ASSESSMENT REFERENCES


Environmental Data Resources, Inc., EDR Aerial Photograph report; Inquiry No. 5463995.8, dated October 25, 2018.

Environmental Data Resources, Inc., EDR Historical Topographic Map report; Inquiry No. 5463995.4, dated October 24, 2018.

Environmental Data Resources, Inc., The EDR Radius Report with GeoCheck®; Inquiry No. 5463995.2s, dated October 24, 2018.


USGS Topographic Map, Kirkland, Washington Quadrangle, 7.5-Minute Series, dated 2014.


Washington Department of Ecology, No Further Action at the Following Site: Totem Lake Chevron 91144, dated April 26, 2017

Washington Department of Ecology, Opinion on Proposed Cleanup of the Following Site: Totem Lake Drycleaners, dated January 16, 2018
APPENDIX A

FIGURES
X3. USER QUESTIONNAIRE

INTRODUCTION

In order to qualify for one of the Landowner Liability Protections (LLPs)\(^{187}\) offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the “Brownfields Amendments”),\(^{188}\) the user must conduct the following inquiries required by 40 CFR 312.25, 312.28, 312.29, 312.30, and 312.31. These inquiries must also be conducted by EPA Brownfield Assessment and Characterization grantees. The user should provide the following information to the environmental professional. Failure to conduct these inquiries could result in a determination that “all appropriate inquiries” is not complete.

(1.) Environmental liens that are filed or recorded against the property (40 CFR 312.25).

Did a search of recorded land title records (or judicial records where appropriate, see Note 1 below) identify any environmental liens filed or recorded against the property under federal, tribal, state or local law?

<table>
<thead>
<tr>
<th>Environmental Liens</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Known</strong></td>
</tr>
<tr>
<td><strong>Unknown</strong></td>
</tr>
</tbody>
</table>

**Note 1**—In certain jurisdictions, federal, tribal, state, or local statutes, or regulations specify that environmental liens and AULs be filed in judicial records rather than in land title records. In such cases judicial records must be searched for environmental liens and AULs.

(2.) Activity and use limitations that are in place on the property or that have been filed or recorded against the property (40 CFR 312.25(a)(1)(v) and vii)).

Did a search of recorded land title records (or judicial records where appropriate, see Note 1 above) identify any AULs, such as engineering controls, land use restrictions or institutional controls that are in place at the property and/or have been filed or recorded against the property under federal, tribal, state or local law?

<table>
<thead>
<tr>
<th>Activity and Use Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Known</strong></td>
</tr>
<tr>
<td><strong>Unknown</strong></td>
</tr>
</tbody>
</table>

(3.) Specialized knowledge or experience of the person seeking to qualify for the LLP (40 CFR 312.28).

Do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?

I have no prior knowledge of this property or if any chemicals were used on this site.

(4.) Relationship of the purchase price to the fair market value of the property if it were not contaminated (40 CFR 312.29).

Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?

The City paid fair market value and no known contamination existed on site at that time or currently.

(5.) Commonly known or reasonably ascertainable information about the property (40 CFR 312.30).

Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, (a) Do you know the past uses of the property?

<table>
<thead>
<tr>
<th>Office space, restaurant</th>
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</thead>
<tbody>
<tr>
<td><strong>Known</strong></td>
</tr>
<tr>
<td><strong>Unknown</strong></td>
</tr>
</tbody>
</table>

(6.) The degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation (40 CFR 312.31).

Based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of releases at the property?

I have no documentation supporting the presence of contamination on this property.

---

\(^{187}\) **Landowner Liability Protections**, or **LLPs**, is the term used to describe the three types of potential defenses to Superfund liability in EPA's *Interim Guidance Regarding Criteria Landowners Must Meet in Order to Qualify for Bonafide Prospective Purchaser, Contiguous Property Owner, or Innocent Landowner Limitations on CERCLA Liability* ("Common Elements" Guide) issued on March 6, 2003.

\(^{188}\) P.L. 107-118.

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X3.1 In addition, certain information should be collected, if available, and provided to the environmental professional conducting the Phase I Environmental Site Assessment. This information is intended to assist the environmental professional, but is not necessarily required to qualify for one of the LLPs. The information includes:

- (a) the reason why the Phase I is being performed,
- (b) the type of property and type of property transaction, for example, sale, purchase, exchange, etc.,
- (c) the complete and correct address for the property (a map or other documentation showing property location and boundaries is helpful),
<table>
<thead>
<tr>
<th>SECTION</th>
<th>PAGE</th>
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</thead>
<tbody>
<tr>
<td>Executive Summary</td>
<td>ES1</td>
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<tr>
<td>Overview Map</td>
<td>2</td>
</tr>
<tr>
<td>Detail Map</td>
<td>3</td>
</tr>
<tr>
<td>Map Findings Summary</td>
<td>4</td>
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<tr>
<td>Map Findings</td>
<td>8</td>
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<tr>
<td>Orphan Summary</td>
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<td>Government Records Searched/Data Currency Tracking</td>
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</table>

**GEOCHECK ADDENDUM**

| Physical Setting Source Addendum             | A-1  |
| Physical Setting Source Summary             | A-2  |
| Physical Setting SSURGO Soil Map            | A-6  |
| Physical Setting Source Map                 | A-14 |
| Physical Setting Source Map Findings        | A-16 |
| Physical Setting Source Records Searched    | PSGR-1 |

_Thank you for your business._
Please contact EDR at 1-800-352-0050 with any questions or comments.

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TARGET PROPERTY INFORMATION

ADDRESS

12031 NE TOTEM LAKE WAY
KIRKLAND, WA 98034

COORDINATES

Latitude (North): 47.7117510 - 47° 42' 42.30"
Longitude (West): 122.1779200 - 122° 10' 40.51"
Universal Tranverse Mercator: Zone 10
UTM X (Meters): 561666.0
UTM Y (Meters): 5284372.0
Elevation: 134 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 6005535 KIRKLAND, WA
Version Date: 2014

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from: 20150825, 20150807
Source: USDA
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<td>D23</td>
<td>SHELL STATION 12206S45</td>
<td>12221 124TH AVENUE N</td>
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<td>TEXACO STATION CO-OP</td>
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<td>DISCOUNT TIRE PROPER</td>
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<tr>
<td>F26</td>
<td>EVERGREEN HOSPITAL M</td>
<td>12040 NE 128TH ST</td>
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<td>G31</td>
<td>WESCO AUTOBODY SUPPL</td>
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<td>E32</td>
<td>EVERGREEN AUTO REBU</td>
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<td>H33</td>
<td>THURMAN INDUSTRIES I</td>
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<td>34</td>
<td>WANG MANAGEMENT CO</td>
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<td>I35</td>
<td>QUAKER STATE MINIT L</td>
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<tr>
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<tr>
<td>H37</td>
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### Mapped Sites Summary

Target Property Address:  
12031 NE TOTEM LAKE WAY  
KIRKLAND, WA  98034

Click on Map ID to see full detail.

<table>
<thead>
<tr>
<th>MAP ID</th>
<th>SITE NAME</th>
<th>ADDRESS</th>
<th>DATABASE ACRONYMS</th>
<th>RELATIVE ELEVATION</th>
<th>DIST (ft. &amp; mi.)</th>
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</thead>
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<td>WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO</td>
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<td>41</td>
<td>HAVLIK'S RADIATOR SVC</td>
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<td>NELSON'S AUTOMOTIVE SVC</td>
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<td>43</td>
<td>MOSS DOCTORS</td>
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<td>44</td>
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<td>RCRA-LQG, WA CSCSL, WA LUST, WA UST, WA SWRCY, WA manifested</td>
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<td>GTE VEHICLE CENTER</td>
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<td>1660, 0.314, SE</td>
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<td>51</td>
<td>GTE VEHICLE CENTER</td>
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<tr>
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<td>GTE VEHICLE CENTER</td>
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<td>WA INST CONTROL</td>
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<tr>
<td>53</td>
<td>TOTEM SQUARE LP</td>
<td>12063 124TH AVE NE</td>
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<td>Higher</td>
<td>1672, 0.317, SSE</td>
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<tr>
<td>54</td>
<td>FRED MEYER FUEL CENTER</td>
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<td>1720, 0.326, WSW</td>
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<tr>
<td>55</td>
<td>EXXON 72428</td>
<td>12412 116TH AVE NE</td>
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<td>1721, 0.326, West</td>
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<tr>
<td>56</td>
<td>EXXON 72428</td>
<td>12412 116TH NE</td>
<td>WA ICR</td>
<td>Lower</td>
<td>1721, 0.326, West</td>
</tr>
<tr>
<td>57</td>
<td>QUALITY FINISHING IN</td>
<td>12706 NE 124TH ST</td>
<td>WA ALLSITES</td>
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<td>1806, 0.342, East</td>
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<tr>
<td>58</td>
<td>TOTEM LAKE AUTO SVC</td>
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<tr>
<td>59</td>
<td>DAVES AUTO PAINTING</td>
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<td>12528 NE 129TH COURT</td>
<td>12528 NE 129TH COURT</td>
<td>US BROWNFIELDS</td>
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<tr>
<td>61</td>
<td>N GRAVERS INC</td>
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<td>WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO</td>
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<td>1870, 0.354, SSE</td>
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<tr>
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<tr>
<td>64</td>
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<td>1945, 0.368, SSE</td>
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<td>65</td>
<td>ARCO 6031</td>
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<td>WA CSCSL, WA LUST, WA VCP, WA ALLSITES, RCRA manifested</td>
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<td>1963, 0.372, West</td>
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<td>CIR QUICK INCORPORATED</td>
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<td>1969, 0.373, ENE</td>
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<td>68</td>
<td>IMPORT CAR SVC INC</td>
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<td>2056, 0.389, SSE</td>
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<tr>
<td>69</td>
<td>BUCHAN BROS INVESTMENTS</td>
<td>11924 124TH AVE NE</td>
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<td>NORTHWEST CONSTRUCTION</td>
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<tr>
<td>71</td>
<td>EVERGREEN AUTO REBUILDERS</td>
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<td>WASHINGTON ELECTRIC</td>
<td>12815 NE 124TH</td>
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<td>2137, 0.405, East</td>
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<tr>
<td>73</td>
<td>EASTSIDE SPRAYING SE</td>
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<tr>
<td>74</td>
<td>SCOTT'S LAWN SERVICE K</td>
<td>12910 NE 125TH WAY</td>
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<tr>
<td>75</td>
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<td>76</td>
<td>KIRKLAND CHRYSLER PL</td>
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<tr>
<td>77</td>
<td>SPECTRA LUX CORP</td>
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<td>WA ALLSITES, RCRA NonGen / NLR</td>
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<td>78</td>
<td>PREMIUM TUNE N LUBE</td>
<td>11727 124TH AVE NE</td>
<td>WA UST, WA ICR, WA VCP, WA ALLSITES, WA CSCSL NFA, WA manifested</td>
<td>Higher</td>
<td>2249, 0.426, South</td>
</tr>
</tbody>
</table>

5463995.2s  Page 3
### MAPPED SITES SUMMARY

**Target Property Address:**

12031 NE TOTEM LAKE WAY  
KIRKLAND, WA  98034

Click on Map ID to see full detail.

<table>
<thead>
<tr>
<th>MAP ID</th>
<th>SITE NAME</th>
<th>ADDRESS</th>
<th>DATABASE ACRONYMS</th>
<th>RELATIVE ELEVATION</th>
<th>DIST (ft. &amp; mi.) DIRECTION</th>
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<tbody>
<tr>
<td>R79</td>
<td>ROSETTA INPHARMATICS</td>
<td>12040 115TH AVE NE S</td>
<td>WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO, NY...</td>
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<td>2259, 0.428, WSW</td>
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<tr>
<td>Q80</td>
<td>THOMASON FORD TOYOTA</td>
<td>11800 124TH AVE NE</td>
<td>WA UST, WA ALLSITES</td>
<td>Higher</td>
<td>2326, 0.441, SSE</td>
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<tr>
<td>S81</td>
<td>HYUNDAI OF KIRKLAND</td>
<td>11651 SLATER AVE NE</td>
<td>WA ALLSITES</td>
<td>Higher</td>
<td>2339, 0.443, SSW</td>
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<tr>
<td>S82</td>
<td>SAVERS RECYCLING, IN</td>
<td>12515 116TH AVE NE</td>
<td>WA SWRCY, WA SPILLS</td>
<td>Lower</td>
<td>2347, 0.445, West</td>
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<tr>
<td>S83</td>
<td>FOOD &amp; DRUG ADMIN, O</td>
<td>11411 NE 124TH ST G</td>
<td>WA ALLSITES, WA MANIFEST</td>
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<td>S84</td>
<td>NEXTEL PNW 2-3</td>
<td>11710 118TH AVE NE</td>
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<td>R85</td>
<td>SKELETECH INC</td>
<td>12026 115TH AVE NE</td>
<td>WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO</td>
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<tr>
<td>R86</td>
<td>ROSETTA INPHARMATICS</td>
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<tr>
<td>S87</td>
<td>AMERITECH LASER INC</td>
<td>11410 NE 124TH ST 13</td>
<td>WA SWF/LF</td>
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<tr>
<td>S88</td>
<td>LIFEBRIDGE</td>
<td>11725 NE 118TH ST</td>
<td>WA ALLSITES, WA ASBESTOS, WA NPDES</td>
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<td>2451, 0.464, SW</td>
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<tr>
<td>T89</td>
<td>CLARKS WHEEL</td>
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<td>T90</td>
<td>ESCHEN AUTOMOTIVE IN</td>
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<tr>
<td>R91</td>
<td>AT&amp;T WIRELESS JUANIT</td>
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<tr>
<td>T92</td>
<td>ULTRA ONE HOUR CLEAN</td>
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<tr>
<td>R93</td>
<td>STEELFORM CONTRACTING</td>
<td>12230 NE 116TH ST</td>
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<td>R94</td>
<td>405 NE 116TH ST INT</td>
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<tr>
<td>R95</td>
<td>CONOCOPHILLIPS 26031</td>
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<tr>
<td>R96</td>
<td>EASTSIDE PETROLEUM C</td>
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<tr>
<td>R97</td>
<td>MIRACLE DRY CLEANERS</td>
<td>13205 NE 124TH ST ST</td>
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<td>R98</td>
<td>GRAHAM STEEL CORP</td>
<td>13210 N E 124TH ST/P</td>
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<td>R99</td>
<td>WASTE MANAGEMENT SNO</td>
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<td>3632, 0.688, East</td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR’s search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

*Federal NPL site list*
- NPL National Priority List
- Proposed NPL Proposed National Priority List Sites
- NPL LIENS Federal Superfund Liens

*Federal Delisted NPL site list*
- Delisted NPL National Priority List Deletions

*Federal CERCLIS list*
- FEDERAL FACILITY Federal Facility Site Information listing
- SEMS Superfund Enterprise Management System

*Federal CERCLIS NFRAP site list*
- SEMS-ARCHIVE Superfund Enterprise Management System Archive

*Federal RCRA CORRACTS facilities list*
- CORRACTS Corrective Action Report

*Federal RCRA non-CORRACTS TSD facilities list*
- RCRA-TSDF RCRA - Treatment, Storage and Disposal

*Federal institutional controls / engineering controls registries*
- LUCIS Land Use Control Information System
- US ENG CONTROLS Engineering Controls Sites List
- US INST CONTROL Sites with Institutional Controls

*Federal ERNS list*
- ERNS Emergency Response Notification System

*State and tribal leaking storage tank lists*
- INDIAN LUST Leaking Underground Storage Tanks on Indian Land
EXECUTIVE SUMMARY

State and tribal registered storage tank lists
FEMA UST ....................... Underground Storage Tank Listing
WA AST ....................... Aboveground Storage Tank Locations
INDIAN UST .................... Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites
INDIAN VCP ................... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites
WA BROWNFIELDS .............. Brownfields Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Landfill / Solid Waste Disposal Sites
WA SWTIRE ...................... Solid Waste Tire Facilities
INDIAN ODI ..................... Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9 ............. Torres Martinez Reservation Illegal Dump Site Locations
ODI ......................... Open Dump Inventory
IHS OPEN DUMPS ............. Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites
US HIST CDL ................... Delisted National Clandestine Laboratory Register
WA CDL ....................... Clandestine Drug Lab Contaminated Site List
WA HIST CDL ................. List of Sites Contaminated by Clandestine Drug Labs
US CDL ....................... National Clandestine Laboratory Register

Local Land Records
LIENS 2 ....................... CERCLA Lien Information

Records of Emergency Release Reports
HMIRS ......................... Hazardous Materials Information Reporting System
WA SPILLS 90 ................. SPILLS 90 data from FirstSearch

Other Ascertainable Records
FUDS ......................... Formerly Used Defense Sites
DOD ......................... Department of Defense Sites
SCRD DRYCLEANERS ......... State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR ............... Financial Assurance Information
EPA WATCH LIST ............. EPA WATCH LIST
2020 COR ACTION .......... 2020 Corrective Action Program List
TSCA ......................... Toxic Substances Control Act
TRIS ......................... Toxic Chemical Release Inventory System
SSTS ........................ Section 7 Tracking Systems
ROD ........................ Records Of Decision
RMP ........................ Risk Management Plans
RAATS ........................... RCRA Administrative Action Tracking System
PRP .......................... Potentially Responsible Parties
PADS .......................... PCB Activity Database System
ICIS ........................... Integrated Compliance Information System
FTTS .......................... FIFRA/TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS .......................... Material Licensing Tracking System
COAL ASH DOE ......... Steam-Electric Plant Operation Data
COAL ASH EPA .......... Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER ...... PCB Transformer Registration Database
RADINFO ...................... Radiation Information Database
HIST FTTS .................... FIFRA/TSCA Tracking System Administrative Case Listing
CONSENT ..................... Superfund (CERCLA) Consent Decrees
INDIAN RESERV ........... Indian Reservations
FUSRAP ........................ Formerly Utilized Sites Remedial Action Program
UMBRA ........................ Uranium Mill Tailings Sites
LEAD SMELTERS ........... Lead Smelter Sites
US AIRS ........................ Aerometric Information Retrieval System Facility Subsystem
US MINES ..................... Mines Master Index File
ABANDONED MINES ...... Abandoned Mines
UXO .......................... Unexploded Ordnance Sites
DOCKET HWC ................. Hazardous Waste Compliance Docket Listing
FUELS PROGRAM .......... EPA Fuels Program Registered Listing
WA AIRS ....................... Washington Emissions Data System
WA COAL ASH .......... Coal Ash Disposal Site Listing
WA DRYCLEANERS ......... Drycleaner List
WA UIC ........................ Underground Injection Wells Listing

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records
EDR MGP ........................ EDR Proprietary Manufactured Gas Plants

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives
WA RGA HWS ............... Recovered Government Archive State Hazardous Waste Facilities List
WA RGA LF .................. Recovered Government Archive Solid Waste Facilities List
WA RGA LUST .............. Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.

Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in bold italics are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.
STANDARD ENVIRONMENTAL RECORDS

Federal RCRA generators list

RCRA-SQG: RCRAInfo is EPA’s comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 03/01/2018 has revealed that there is 1 RCRA-SQG site within approximately 0.25 miles of the target property.

<table>
<thead>
<tr>
<th>Equal/Higher Elevation</th>
<th>Address</th>
<th>Direction / Distance</th>
<th>Map ID</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVERGREEN HOSPITAL M</td>
<td>12040 NE 128TH ST</td>
<td>N 1/8 - 1/4 (0.200 mi.)</td>
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<td>201</td>
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</tbody>
</table>

RCRA-CESQG: RCRAInfo is EPA’s comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

A review of the RCRA-CESQG list, as provided by EDR, and dated 03/01/2018 has revealed that there are 3 RCRA-CESQG sites within approximately 0.25 miles of the target property.

<table>
<thead>
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<th>Equal/Higher Elevation</th>
<th>Address</th>
<th>Direction / Distance</th>
<th>Map ID</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>RITE AID #5192</td>
<td>12421 TOTEM LAKE BLV</td>
<td>SSE 1/8 - 1/4 (0.148 mi.)</td>
<td>C21</td>
<td>161</td>
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<td>SEATTLE CANCER CARE</td>
<td>12040 NE 128TH ST</td>
<td>N 1/8 - 1/4 (0.200 mi.)</td>
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<td>EVERGREEN AUTO REBUI</td>
<td>12350 124TH AVE NE</td>
<td>SSE 1/8 - 1/4 (0.224 mi.)</td>
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<td>338</td>
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</table>

State- and tribal - equivalent NPL

WA HSL: The Hazardous Sites List is a subset of the CSCSL Report. It includes sites which have been assessed and ranked using the Washington Ranking Method (WARM).

A review of the WA HSL list, as provided by EDR, and dated 08/22/2018 has revealed that there are 2 WA HSL sites within approximately 1 mile of the target property.

<table>
<thead>
<tr>
<th>Equal/Higher Elevation</th>
<th>Address</th>
<th>Direction / Distance</th>
<th>Map ID</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAR WASH ENTERPRISES</td>
<td>12302 NE 124TH ST</td>
<td>SSE 1/8 - 1/4 (0.148 mi.)</td>
<td>C19</td>
<td>143</td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

State- and tribal - equivalent CERCLIS

WA CSCSL: The State Hazardous Waste Sites records are the states’ equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Ecology’s Confirmed & Suspected Contaminated Sites List.

A review of the WA CSCSL list, as provided by EDR, and dated 07/16/2018 has revealed that there are 12 WA CSCSL sites within approximately 1 mile of the target property.

<table>
<thead>
<tr>
<th>Equal/Higher Elevation</th>
<th>Address</th>
<th>Direction / Distance</th>
<th>Map ID</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAR WASH ENTERPRISES</td>
<td>12302 NE 124TH ST</td>
<td>SSE 1/8 - 1/4 (0.148 mi.)</td>
<td>C19</td>
<td>143</td>
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<tr>
<td>SHELL STATION 120565</td>
<td>12221 124TH AVENUE N</td>
<td>S 1/8 - 1/4 (0.194 mi.)</td>
<td>D23</td>
<td>168</td>
</tr>
<tr>
<td>FRED MEYER STORES IN</td>
<td>12221 120TH AVE NE</td>
<td>SW 1/4 - 1/2 (0.308 mi.)</td>
<td>46</td>
<td>432</td>
</tr>
<tr>
<td>ARCO 6031</td>
<td>11450 NE 124TH ST</td>
<td>W 1/4 - 1/2 (0.372 mi.)</td>
<td>65</td>
<td>514</td>
</tr>
<tr>
<td>NORTHWEST CONSTRUCTI</td>
<td>11831 120TH AVE NE</td>
<td>SSW 1/4 - 1/2 (0.396 mi.)</td>
<td>P70</td>
<td>557</td>
</tr>
<tr>
<td>CONOCOPHILLIPS 26031</td>
<td>12235 NE 116TH</td>
<td>S 1/2 - 1 (0.537 mi.)</td>
<td>95</td>
<td>621</td>
</tr>
<tr>
<td>EASTSIDE PETROLEUM C</td>
<td>11520 120TH AVE NE</td>
<td>SSW 1/2 - 1 (0.551 mi.)</td>
<td>96</td>
<td>631</td>
</tr>
<tr>
<td>MIRACLE DRY CLEANERS</td>
<td>13205 NE 124TH ST</td>
<td>E 1/2 - 1 (0.611 mi.)</td>
<td>97</td>
<td>636</td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

Site Status: Cleanup Started
Facility ID: 4915
Clean Up Siteid: 11679

**GRAHAM STEEL CORP**
- Address: 13210 N E 124TH ST/P
- Distance: E 1/2 - 1 (0.658 mi.)
- Map ID: 98
- Page: 639

Facility ID: 37124273
Clean Up Siteid: 5967

**WASTE MANAGEMENT SNO**
- Address: 13225 NE 126TH PL
- Distance: E 1/2 - 1 (0.688 mi.)
- Map ID: 99
- Page: 645

Facility ID: 36181742
Clean Up Siteid: 11817

**TOTEM LAKE DRY CLEAN**
- Address: 12541 120TH AVE NE
- Distance: SW 0 - 1/8 (0.037 mi.)
- Map ID: B4
- Page: 9

Facility ID: 43136797
Clean Up Siteid: 394

**EXXON 72428**
- Address: 12412 116TH AVE NE
- Distance: W 1/4 - 1/2 (0.326 mi.)
- Map ID: M55
- Page: 478

Facility ID: 85348955
Clean Up Siteid: 10813

State and tribal landfill and/or solid waste disposal site lists

WA SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Department of Ecology’s Solid Waste Facilities Handbook.

A review of the WA SWF/LF list, as provided by EDR, has revealed that there is 1 WA SWF/LF site within approximately 0.5 miles of the target property.

**State and tribal leaking storage tank lists**

WA LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Ecology’s Leaking Underground Storage Tanks Site List.

A review of the WA LUST list, as provided by EDR, has revealed that there are 6 WA LUST sites within approximately 0.5 miles of the target property.
EXECUTIVE SUMMARY

Facility Status: Cleanup Started
Cleanup Site ID: 6745
Facility ID: 83988889

**SHELL STATION 120565**  
12221 124TH AVENUE N  
S 1/8 - 1/4 (0.194 mi.)  
D23  
168

Database: LUST, Date of Government Version: 08/10/2018
Facility Status: Cleanup Started
Cleanup Site ID: 9061
Facility ID: 41716978

**FRED MEYER STORES IN**  
12221 120TH AVE NE  
SW 1/4 - 1/2 (0.308 mi.)  
46  
432

Database: LUST, Date of Government Version: 08/10/2018
Facility Status: Cleanup Started
Cleanup Site ID: 9528
Facility ID: 51971957

**ARCO 6031**  
11450 NE 124TH ST  
W 1/4 - 1/2 (0.372 mi.)  
65  
514

Database: LUST, Date of Government Version: 08/10/2018
Facility Status: Monitoring
Cleanup Site ID: 10551
Facility ID: 79226415

**NORTHWEST CONSTRUCTI**  
11831 120TH AVE NE  
SSW 1/4 - 1/2 (0.396 mi.)  
P70  
557

Database: LUST, Date of Government Version: 08/10/2018
Facility Status: Cleanup Started
Cleanup Site ID: 5968
Facility ID: 37172442

---

State and tribal registered storage tank lists

WA UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Ecology's Statewide UST Site/Tank Report.

A review of the WA UST list, as provided by EDR, and dated 05/01/2018 has revealed that there are 10 WA UST sites within approximately 0.25 miles of the target property.

<table>
<thead>
<tr>
<th>Equal/Higher Elevation</th>
<th>Address</th>
<th>Direction / Distance</th>
<th>Map ID</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAR WASH ENTERPRISES</strong></td>
<td>12302 NE 124TH ST</td>
<td>SSE 1/8 - 1/4 (0.148 mi.)</td>
<td>C19</td>
<td>143</td>
</tr>
</tbody>
</table>
| Site Id: 6895  
Facility ID: 83988889 | 
 | 
 | 
 | 
 |
| **SHELL STATION 120565** | 12221 124TH AVENUE N | S 1/8 - 1/4 (0.194 mi.) | D23 | 168 |
| Site Id: 4419  
Facility ID: 41716978 | 
 | 
 | 
 | 
 |
| **DISCOUNT TIRE PROPER** | 12410 NE 124TH ST | SSE 1/8 - 1/4 (0.196 mi.) | E25 | 199 |
| Site Id: 490630 | 
 | 
 | 
 | 
 |
**EXECUTIVE SUMMARY**

Facility ID: 62752569  
**EVERGREEN HOSPITAL M**  
Site Id: 11668  
Facility ID: 77233621  
**RJB WHOLESALE INC**  
Site Id: 10195  
Facility ID: 32459291  
**RUSSELL J BECK**  
Site Id: 8162  
Facility ID: 41585457  
**MINIT-LUBE 1067**  
Site Id: 97536

<table>
<thead>
<tr>
<th>Site Id</th>
<th>Facility ID</th>
<th>Address</th>
<th>Distance</th>
<th>Map ID</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Id</td>
<td>Facility ID</td>
<td>Address</td>
<td>Direction</td>
<td>Distance</td>
<td></td>
</tr>
<tr>
<td>CIRCLE V MANAGEMENT</td>
<td>323998</td>
<td>12632 120TH AVE NE</td>
<td>WNW 0 - 1/8</td>
<td>(0.040 mi.)</td>
<td>A6</td>
</tr>
<tr>
<td>TOTEM LAKE CHEVRON 9</td>
<td>5079</td>
<td>12500 TOTEM LAKE BLV</td>
<td>SW 0 - 1/8</td>
<td>(0.076 mi.)</td>
<td>B13</td>
</tr>
<tr>
<td>THURMAN INDUSTRIES I</td>
<td>4385</td>
<td>12626 NE 124TH ST</td>
<td>ESE 1/8 - 1/4</td>
<td>(0.235 mi.)</td>
<td>H33</td>
</tr>
</tbody>
</table>

**State and tribal institutional control / engineering control registries**

WA INST CONTROL: Sites that have institutional controls.

A review of the WA INST CONTROL list, as provided by EDR, and dated 07/16/2018 has revealed that there is 1 WA INST CONTROL site within approximately 0.5 miles of the target property.

<table>
<thead>
<tr>
<th>Equal/Higer Elevation</th>
<th>Address</th>
<th>Direction / Distance</th>
<th>Map ID</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>GTE VEHICLE CENTER</td>
<td>12055 SLATER AVE NE</td>
<td>SE 1/4 - 1/2</td>
<td>(0.314 mi.)</td>
<td>L52</td>
</tr>
</tbody>
</table>

**State and tribal voluntary cleanup sites**

WA VCP: Sites that have entered either the Voluntary Cleanup Program or its predecessor Independent Remedial Action Program.

A review of the WA VCP list, as provided by EDR, and dated 07/16/2018 has revealed that there are 5 WA VCP sites within approximately 0.5 miles of the target property.

<table>
<thead>
<tr>
<th>Equal/Higer Elevation</th>
<th>Address</th>
<th>Direction / Distance</th>
<th>Map ID</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCO 6031</td>
<td>11450 NE 124TH ST</td>
<td>W 1/4 - 1/2</td>
<td>(0.372 mi.)</td>
<td>65</td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

Facility ID: 79226415
Cleanup Siteid: 10551

**PREMIUM TUNE N LUBE**
Facility ID: 14423498
Cleanup Siteid: 5567

<table>
<thead>
<tr>
<th>Lower Elevation</th>
<th>Address</th>
<th>Direction / Distance</th>
<th>Map ID</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTEM LAKE DRY CLEAN</strong></td>
<td>12541 120TH AVE NE</td>
<td>SW 0 - 1/8 (0.037 mi.)</td>
<td>B4</td>
<td>9</td>
</tr>
<tr>
<td><strong>TOTEM LAKE CHEVRON #9</strong></td>
<td>12500 TOTEM LAKE BLV</td>
<td>SW 0 - 1/8 (0.076 mi.)</td>
<td>B13</td>
<td>23</td>
</tr>
<tr>
<td><strong>EXXON 72428</strong></td>
<td>12412 116TH AVE NE</td>
<td>W 1/4 - 1/2 (0.326 mi.)</td>
<td>M55</td>
<td>478</td>
</tr>
</tbody>
</table>

WA ICR: These are remedial action reports Ecology has received from either the owner or operator of the site. These actions have been conducted without department oversight or approval and are not under an order or decree.

A review of the WA ICR list, as provided by EDR, and dated 12/01/2002 has revealed that there are 10 WA ICR sites within approximately 0.5 miles of the target property.

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**ADDIONAL ENVIRONMENTAL RECORDS**

**Local Brownfield lists**

US BROWNFIELDS: The EPA’s listing of Brownfields properties from the Cleanups in My Community program, which provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

A review of the US BROWNFIELDS list, as provided by EDR, and dated 06/18/2018 has revealed that there
is 1 US BROWNFIELDS site within approximately 0.5 miles of the target property.

<table>
<thead>
<tr>
<th>Equal/Higher Elevation</th>
<th>Address</th>
<th>Direction / Distance</th>
<th>Map ID</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>12528 NE 129TH COURT</td>
<td>12528 NE 129TH COURT</td>
<td>NNE 1/4 - 1/2 (0.352 mi.)</td>
<td>60</td>
<td>497</td>
</tr>
</tbody>
</table>

Local Lists of Landfill / Solid Waste Disposal Sites

WA SWRCY: A listing of recycling center locations.

A review of the WA SWRCY list, as provided by EDR, and dated 07/24/2018 has revealed that there are 2 WA SWRCY sites within approximately 0.5 miles of the target property.

<table>
<thead>
<tr>
<th>Equal/Higher Elevation</th>
<th>Address</th>
<th>Direction / Distance</th>
<th>Map ID</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRED MEYER STORES IN</td>
<td>12221 120TH AVE NE</td>
<td>SW 1/4 - 1/2 (0.308 mi.)</td>
<td>46</td>
<td>432</td>
</tr>
</tbody>
</table>

SAVERS RECYCLING, IN

<table>
<thead>
<tr>
<th>Equal/Higher Elevation</th>
<th>Address</th>
<th>Direction / Distance</th>
<th>Map ID</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12515 116TH AVE NE</td>
<td>W 1/4 - 1/2 (0.445 mi.)</td>
<td>82</td>
<td>589</td>
</tr>
</tbody>
</table>

Local Lists of Hazardous waste / Contaminated Sites

Information on facilities and sites of interest to the Department of Ecology.

A review of the WA ALLSITES list, as provided by EDR, and dated 07/09/2018 has revealed that there are 73 WA ALLSITES sites within approximately 0.5 miles of the target property.

<table>
<thead>
<tr>
<th>Equal/Higher Elevation</th>
<th>Address</th>
<th>Direction / Distance</th>
<th>Map ID</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>JEFFERSON HOUSE MEMO</td>
<td>NNE 1/8 - 1/4 (0.127 mi.)</td>
<td>16</td>
<td>134</td>
<td></td>
</tr>
<tr>
<td>(FORMER DENNYS RESTA</td>
<td>SSW 1/8 - 1/4 (0.132 mi.)</td>
<td>17</td>
<td>134</td>
<td></td>
</tr>
<tr>
<td>Facility Id: 23687</td>
<td>SW 1/8 - 1/4 (0.133 mi.)</td>
<td>18</td>
<td>143</td>
<td></td>
</tr>
<tr>
<td>WA DOT TOTEM LAKE IN</td>
<td>SSE 1/8 - 1/4 (0.148 mi.)</td>
<td>C19</td>
<td>143</td>
<td></td>
</tr>
<tr>
<td>Facility Id: 21859</td>
<td>SSE 1/8 - 1/4 (0.148 mi.)</td>
<td>C20</td>
<td>161</td>
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<tr>
<td>RITE AID 5192</td>
<td>SSE 1/8 - 1/4 (0.148 mi.)</td>
<td>C20</td>
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<td>Facility Id: 83988889</td>
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</tr>
<tr>
<td>SHELL STATION 120565</td>
<td>S 1/8 - 1/4 (0.194 mi.)</td>
<td>D23</td>
<td>168</td>
<td></td>
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<tr>
<td>Facility Id: 41716978</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>DISCOUNT TIRE PROPER</td>
<td>SSE 1/8 - 1/4 (0.196 mi.)</td>
<td>E25</td>
<td>199</td>
<td></td>
</tr>
<tr>
<td>Facility Id: 62752569</td>
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<tr>
<td>EVERGREEN HOSPITAL M</td>
<td>N 1/8 - 1/4 (0.200 mi.)</td>
<td>F26</td>
<td>201</td>
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<td>Facility Id: 77233621</td>
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<tr>
<td>SEATTLE CANCER CARE</td>
<td>N 1/8 - 1/4 (0.200 mi.)</td>
<td>F27</td>
<td>319</td>
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<td>Facility Id: 23717</td>
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<tr>
<td>RJB WHOLESALE INC</td>
<td>SE 1/8 - 1/4 (0.204 mi.)</td>
<td>E29</td>
<td>332</td>
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<tr>
<td>Facility Id: 32459291</td>
<td>12442 NE 124TH ST PO</td>
<td>SE 1/8 - 1/4 (0.213 mi.)</td>
<td>G30</td>
<td>333</td>
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<td>-----------------------</td>
<td>----------------------</td>
<td>--------------------------</td>
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<td>-----</td>
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<tr>
<td><strong>RUSSELL J BECK</strong></td>
<td>12532 NE 124TH ST</td>
<td>ESE 1/8 - 1/4 (0.218 mi.)</td>
<td>G31</td>
<td>334</td>
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<td>Facility Id: 18211813</td>
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<tr>
<td><strong>WESCO AUTOBODY SUPPL</strong></td>
<td>12350 124TH AVE NE</td>
<td>SSE 1/8 - 1/4 (0.224 mi.)</td>
<td>E32</td>
<td>338</td>
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<td>Facility Id: 2396</td>
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<tr>
<td><strong>EVERGREEN AUTO REBUI</strong></td>
<td>12421 124TH AVE NE</td>
<td>S 1/8 - 1/4 (0.237 mi.)</td>
<td>34</td>
<td>365</td>
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<td>Facility Id: 93747955</td>
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<tr>
<td><strong>MINIT-LUBE 1067</strong></td>
<td>12427 NE 124TH ST</td>
<td>SE 1/8 - 1/4 (0.238 mi.)</td>
<td>I36</td>
<td>367</td>
</tr>
<tr>
<td>Facility Id: 41585457</td>
<td></td>
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</tr>
<tr>
<td><strong>TOYOTA OF KIRKLAND</strong></td>
<td>12612 NE 124TH ST</td>
<td>ESE 1/8 - 1/4 (0.245 mi.)</td>
<td>H37</td>
<td>369</td>
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<tr>
<td>Facility Id: 51838333</td>
<td></td>
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</tr>
<tr>
<td><strong>FRANCIS VILLAGE</strong></td>
<td>12601 NE 124TH ST</td>
<td>ESE 1/4 - 1/2 (0.268 mi.)</td>
<td>J38</td>
<td>376</td>
</tr>
<tr>
<td>Facility Id: 14624</td>
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<tr>
<td><strong>CIRCUIT TECHNOLOGY I</strong></td>
<td>12704 NE 124TH ST 25</td>
<td>ESE 1/4 - 1/2 (0.277 mi.)</td>
<td>J39</td>
<td>377</td>
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<tr>
<td>Facility Id: 15877344</td>
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<tr>
<td><strong>OSBORNE SPERRY DENTA</strong></td>
<td>11830 NE 128TH ST</td>
<td>NW 1/4 - 1/2 (0.280 mi.)</td>
<td>40</td>
<td>378</td>
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<td>Facility Id: 4174993</td>
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<tr>
<td><strong>HAVLIKS RADIATOR SVC</strong></td>
<td>11851 124TH AVE NE</td>
<td>SSE 1/4 - 1/2 (0.282 mi.)</td>
<td>K41</td>
<td>380</td>
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<tr>
<td>Facility Id: 93461187</td>
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<tr>
<td><strong>NELSONS AUTOMOTIVE S</strong></td>
<td>11821 124TH AVE NE</td>
<td>SSE 1/4 - 1/2 (0.282 mi.)</td>
<td>K42</td>
<td>384</td>
</tr>
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<td>Facility Id: 71536249</td>
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<tr>
<td><strong>MOSS DOCTORS</strong></td>
<td>11923 124TH AVE NE</td>
<td>SSE 1/4 - 1/2 (0.282 mi.)</td>
<td>K43</td>
<td>386</td>
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<td>Facility Id: 3643838</td>
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<td></td>
</tr>
<tr>
<td><strong>MACRO TECHNOLOGIES L</strong></td>
<td>11815 124TH AVE NE</td>
<td>SSE 1/4 - 1/2 (0.282 mi.)</td>
<td>K44</td>
<td>387</td>
</tr>
<tr>
<td>Facility Id: 22945928</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>LENNAR TOTEM LAKE AP</strong></td>
<td>11811 NE 128TH ST</td>
<td>NW 1/4 - 1/2 (0.290 mi.)</td>
<td>45</td>
<td>432</td>
</tr>
<tr>
<td>Facility Id: 24439</td>
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<td></td>
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</tr>
<tr>
<td><strong>FRED MEYER STORES IN</strong></td>
<td>12221 120TH AVE NE</td>
<td>SW 1/4 - 1/2 (0.308 mi.)</td>
<td>46</td>
<td>432</td>
</tr>
<tr>
<td>Facility Id: 92981559</td>
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<td></td>
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<tr>
<td><strong>NE 120TH STREET ROAD</strong></td>
<td>SLATER AVE AND 124TH</td>
<td>SSE 1/4 - 1/2 (0.309 mi.)</td>
<td>47</td>
<td>458</td>
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<tr>
<td>Facility Id: 7577</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>SHERWIN WILLIAMS CO</strong></td>
<td>12731 NE 124TH ST</td>
<td>ESE 1/4 - 1/2 (0.311 mi.)</td>
<td>48</td>
<td>459</td>
</tr>
<tr>
<td>Facility Id: 5205170</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>VERIZON KIRKLAND GAR</strong></td>
<td>12055 SLATER AVE NE</td>
<td>SE 1/4 - 1/2 (0.314 mi.)</td>
<td>L49</td>
<td>472</td>
</tr>
<tr>
<td>Facility Id: 2555</td>
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</tr>
<tr>
<td><strong>TOTEM SQUARE LP</strong></td>
<td>12063 124TH AVE NE</td>
<td>SSE 1/4 - 1/2 (0.317 mi.)</td>
<td>K53</td>
<td>476</td>
</tr>
<tr>
<td>Facility Id: 47893677</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FRED MEYER FUEL CENT</strong></td>
<td>12301 120TH AVE NE</td>
<td>WSW 1/4 - 1/2 (0.326 mi.)</td>
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<tr>
<td><strong>TOTEM LAKE AUTO SVC</strong></td>
<td>11902 124TH AVE NE</td>
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<td>58</td>
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<td><strong>DAVES AUTO PAINTING</strong></td>
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<td>22666461</td>
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<td>14423498</td>
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EXECUTIVE SUMMARY

Facility Id: 65835863
LIFEBRIDGE 11725 NE 118TH ST SW 1/4 - 1/2 (0.464 mi.) 88 607
Facility Id: 21866
CLARKS WHEEL 12232 NE 116TH ST S 1/4 - 1/2 (0.478 mi.) T89 611
Facility Id: 19979378
ESCHEN AUTOMOTIVE IN 12232 NE 116TH ST S 1/4 - 1/2 (0.478 mi.) T90 612
Facility Id: 3592744
AT&T WIRELESS JUANIT 11616 120TH AVE NE SSW 1/4 - 1/2 (0.481 mi.) 91 612
Facility Id: 5991947
ULTRA ONE HOUR CLEAN 11613 124TH AVE NE S 1/4 - 1/2 (0.482 mi.) T92 613
Facility Id: 72134819
STEELFORM CONTRACTIN 12230 NE 116TH ST S 1/4 - 1/2 (0.494 mi.) 93 619
Facility Id: 21695439
I405 NE 116TH ST INT INTERSECTION OF I405 S 1/4 - 1/2 (0.498 mi.) 94 620
Facility Id: 14958

Facility Id: 43136797
TOTEM LAKE DRY CLEAN 12541 120TH AVE NE SW 0 - 1/8 (0.037 mi.) B4 9
Facility Id: 49465148
CIRCLE V MANAGEMENT 12632 120TH AVE NE WNW 0 - 1/8 (0.040 mi.) A6 15
Facility Id: 12683
THE VILLAGE AT TOTEM 12500 120TH AVE NE - SW 0 - 1/8 (0.066 mi.) B10 19
Facility Id: 43619955
TOTEM LAKE CHEVRON 9 12500 TOTEM LAKE BLV SW 0 - 1/8 (0.076 mi.) B13 23
Facility Id: 43619955
TOTEM LK TWIN-42 IN 120TH AVE NE AND TOT SSW 0 - 1/8 (0.090 mi.) 14 128
Facility Id: 11004
TOTEM LAKE MALL 12600 TOTEM LAKE BLV WNW 0 - 1/8 (0.107 mi.) 15 129
Facility Id: 21126
THURMAN INDUSTRIES I 12626 NE 124TH ST ESE 1/8 - 1/4 (0.235 mi.) H33 364
Facility Id: 96934556
EXXON 72428 12412 116TH AVE NE W 1/4 - 1/2 (0.326 mi.) M55 478
Facility Id: 44568374
US CLEANERS 12547 116TH AVE NE WNW 1/4 - 1/2 (0.367 mi.) 63 505
Facility Id: 65991728
KIRKLAND CHRYSLER PL 12828 NE 124TH ST E 1/4 - 1/2 (0.413 mi.) 76 566
Facility Id: 31669993

WA CSCSCL NFA: The data set contains information about sites previously on the Confirmed and Suspected Contaminated Sites list that have received a No Further Action (NFA) determination. Because it is necessary to maintain historical records of sites that have been investigated and cleaned up, sites are not deleted from the database when cleanup activities are completed. Instead a No Further Action code is entered based upon the type of NFA determination the site received.

A review of the WA CSCSCL NFA list, as provided by EDR, and dated 07/16/2018 has revealed that there
are 7 WA CSCSL NFA sites within approximately 0.5 miles of the target property.

<table>
<thead>
<tr>
<th>Equal/Higher Elevation</th>
<th>Address</th>
<th>Direction / Distance</th>
<th>Map ID</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVERGREEN AUTO REBUI</td>
<td>12350 124TH AVE NE</td>
<td>SSE 1/8 - 1/4 (0.224 mi.)</td>
<td>E32</td>
<td>338</td>
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<tr>
<td>CS Id: 2396</td>
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<td></td>
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<td></td>
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<tr>
<td>CS Id: 2777</td>
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<tr>
<td>MINIT-LUBE 1067</td>
<td>12427 NE 124TH ST</td>
<td>SE 1/8 - 1/4 (0.238 mi.)</td>
<td>I36</td>
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<td>CS Id: 41585457</td>
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<td>CS Id: 9053</td>
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<tr>
<td>GTE VEHICLE CENTER</td>
<td>12055 SLATER AVE NE</td>
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<td>CS Id: 2555</td>
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<td>CS Id: 5147</td>
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<td>I405 NE 116TH ST INT</td>
<td>INTERSECTION OF I405</td>
<td>S 1/4 - 1/2 (0.498 mi.)</td>
<td>94</td>
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<th>Address</th>
<th>Direction / Distance</th>
<th>Map ID</th>
<th>Page</th>
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<tbody>
<tr>
<td>CIRCLE V MANAGEMENT</td>
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<td>CS Id: 9447</td>
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<tr>
<td>TOTEM LAKE CHEVRON 9</td>
<td>12500 TOTEM LAKE BLV</td>
<td>SW 0 - 1/8 (0.076 mi.)</td>
<td>B13</td>
<td>23</td>
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<td>CS Id: 43619955</td>
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<td>CS Id: 6081</td>
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</table>

**Other Ascertainable Records**

RCRA NonGen / NLR: RCRAInfo is EPA’s comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 03/01/2018 has revealed that there are 8 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

<table>
<thead>
<tr>
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<th>Direction / Distance</th>
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<tbody>
<tr>
<td>CAR WASH ENTERPRISES</td>
<td>12302 NE 124TH ST</td>
<td>SSE 1/8 - 1/4 (0.148 mi.)</td>
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<td>143</td>
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<tr>
<td>SHELL STATION 120565</td>
<td>12221 124TH AVENUE N</td>
<td>S 1/8 - 1/4 (0.194 mi.)</td>
<td>D23</td>
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<td>EPA ID:: WAD988502779</td>
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<td>WESCO AUTOBODY SUPPL</td>
<td>12532 NE 124TH ST</td>
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<tr>
<td>WANG MANAGEMENT CO</td>
<td>12421 124TH AVE NE</td>
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<td>TOYOTA OF KIRKLAND</td>
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</table>
WA Inactive Drycleaners: A listing of inactive drycleaner facility locations.

A review of the WA Inactive Drycleaners list, as provided by EDR, and dated 07/17/2018 has revealed that there is 1 WA Inactive Drycleaners site within approximately 0.25 miles of the target property.

<table>
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<th>Lower Elevation</th>
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<th>Direction / Distance</th>
<th>Map ID</th>
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<tr>
<td>TOTEM LAKE DRY CLEAN</td>
<td>12541 120TH AVE NE</td>
<td>SW 0 - 1/8 (0.037 mi.)</td>
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<tr>
<td>HC AUTO CARE INC TOT</td>
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<td>WNW 0 - 1/8 (0.040 mi.)</td>
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</tr>
<tr>
<td>TOTEM LAKE CHEVRON 9</td>
<td>12500 TOTEM LAKE BLV</td>
<td>SW 0 - 1/8 (0.076 mi.)</td>
<td>B13</td>
<td>23</td>
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</table>

WA MANIFEST: Hazardous waste manifest information.

A review of the WA MANIFEST list, as provided by EDR, and dated 12/31/2017 has revealed that there are 7 WA MANIFEST sites within approximately 0.25 miles of the target property.

<table>
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<th>Direction / Distance</th>
<th>Map ID</th>
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<tbody>
<tr>
<td>CAR WASH ENTERPRISES</td>
<td>12302 NE 124TH ST</td>
<td>SSE 1/8 - 1/4 (0.148 mi.)</td>
<td>C19</td>
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<tr>
<td>SHELL STATION 120565</td>
<td>12221 124TH AVENUE N</td>
<td>S 1/8 - 1/4 (0.194 mi.)</td>
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</tr>
<tr>
<td>EVERGREEN HOSPITAL M</td>
<td>12040 NE 128TH ST</td>
<td>N 1/8 - 1/4 (0.200 mi.)</td>
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<tr>
<td>SEATTLE CANCER CARE</td>
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<td>N 1/8 - 1/4 (0.200 mi.)</td>
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<tr>
<td>EVERGREEN AUTO REBUI</td>
<td>12350 124TH AVE NE</td>
<td>SSE 1/8 - 1/4 (0.224 mi.)</td>
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EXECUTIVE SUMMARY

Facility Site ID Number: 2396
Gen Status CD: SQG
EPA ID: WAD070392303

**TOYOTA OF KIRKLAND**
Facility Site ID Number: 51838333
Gen Status CD: SQG
EPA ID: WAR000008052

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<th>Direction / Distance</th>
<th>Map ID</th>
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</thead>
<tbody>
<tr>
<td><strong>TOTEM LAKE CHEVRON 9</strong></td>
<td>12500 TOTEM LAKE BLV</td>
<td>SW 0 - 1/8 (0.076 mi.)</td>
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<td>23</td>
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</tbody>
</table>

**EDR HIGH RISK HISTORICAL RECORDS**

**EDR Exclusive Records**
EDR Hist Auto: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR’s review was limited to those categories of sources that might, in EDR’s opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as “High Risk Historical Records”, or HRHR. EDR’s HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR Hist Auto list, as provided by EDR, has revealed that there is 1 EDR Hist Auto site within approximately 0.125 miles of the target property.

<table>
<thead>
<tr>
<th>Lower Elevation</th>
<th>Address</th>
<th>Direction / Distance</th>
<th>Map ID</th>
<th>Page</th>
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</thead>
<tbody>
<tr>
<td><strong>HOLVE ENTERPRISES IN</strong></td>
<td>12500 TOTEM LAKE BLV</td>
<td>SW 0 - 1/8 (0.059 mi.)</td>
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</table>

EDR Hist Cleaner: EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR’s review was limited to those categories of sources that might, in EDR’s opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as “High Risk Historical Records”, or HRHR. EDR’s HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR Hist Cleaner list, as provided by EDR, has revealed that there are 3 EDR Hist Cleaner sites within approximately 0.125 miles of the target property.

<table>
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<th>Direction / Distance</th>
<th>Map ID</th>
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</thead>
<tbody>
<tr>
<td><strong>TOTEM LAKE CLEANERS</strong></td>
<td>12541 120TH AVE NE</td>
<td>SW 0 - 1/8 (0.037 mi.)</td>
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<tr>
<td>Lower Elevation</td>
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<td>Direction / Distance</td>
<td>Map ID</td>
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</tr>
<tr>
<td>DAC CORP</td>
<td>12521 120TH NE</td>
<td>SW 0 - 1/8 (0.053 mi.)</td>
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<tr>
<td>LEE JANG JAE</td>
<td>12451-120TH AVE NE</td>
<td>SW 0 - 1/8 (0.069 mi.)</td>
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</tbody>
</table>
Due to poor or inadequate address information, the following sites were not mapped. Count: 2 records.

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<td>WA ICR</td>
</tr>
<tr>
<td>WEAVER PROPERTY</td>
<td>WA ICR</td>
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</table>
### MAP FINDINGS SUMMARY

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<th>1/8 - 1/4</th>
<th>1/4 - 1/2</th>
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### EDR RECOVERED GOVERNMENT ARCHIVES

**Exclusive Recovered Govt. Archives**

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- Totals --

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**NOTES:**

- **TP** = Target Property
- **NR** = Not Requested at this Search Distance
- Sites may be listed in more than one database
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### B4
**Facility Name:** TOTEM LAKE DRY CLEANERS  
**Facility ID:** 43136797

#### CSCSL:
- **Facility ID:** 43136797  
- **Region:** Northwest  
- **Lat/Long:** 47.712117255 / -122.17993803  
- **Brownfield Status:** Not reported  
- **Rank Status:** N  
- **Clean Up Siteid:** 394  
- **Site Status:** Cleanup Started  
- **PSI?:** Not reported  
- **Contaminant Name:** Halogenated Organics  
- **Ground Water:** Confirmed Above Cleanup Level  
- **Surface Water:** Not reported  
- **Soil:** Confirmed Above Cleanup Level  
- **Sediment:** Not reported  
- **Air:** Not reported  
- **Bedrock:** Not reported  
- **Responsible Unit:** Headquarters

#### VCP:
- **edr_fstat:** WA  
- **edr_fzip:** 98034  
- **edr_fcnty:** KING  
- **edr_fzip:** Not reported  
- **Facility ID:** 43136797  
- **VCP Status:** Not reported  
- **VOP:** Yes  
- **Ecology Status:** Not reported  
- **NFA Type:** Not reported  
- **Date NFA:** Not reported  
- **Rank:** N  
- **Cleanup Siteid:** 394

#### ALLSITES:
- **Facility Name:** TOTEM LAKE DRY CLEANERS  
- **Facility ID:** 43136797

#### Interaction:
- **Interaction 1:** I  
- **Interaction 2:** HWG  
- **Ecology Program:** HAZWASTE  
- **Program Data:** TURBOWASTE  
- **Facility Alt.:** Not reported  
- **Program ID:** WAD130612336  
- **Date Interaction:** 1987-05-11 00:00:00  
- **Date Interaction 3:** Hazardous Waste Generator  
- **Latitude:** 47.712110858999999  
- **Longitude:** -122.17990291

#### Interaction:
- **Interaction:** 121984
TOTEM LAKE DRY CLEANERS (Continued)

Interaction 1: 44249
Interaction 2: I
Ecology Program: TOXICS
Program Data: ISIS
Facility Alt.: Totem Lake Dry Cleaners
Program ID: NW3120
Date Interaction: 2016-01-22 00:00:00
Date Interaction 3: Voluntary Cleanup Sites
Latitude: 47.712110858999999
Longitude: -122.17990291

Interaction: Not reported
Interaction 1: Not reported
Interaction 2: Not reported
Ecology Program: TOXICS
Program Data: ISIS
Facility Alt.: Not reported
Program ID: Not reported
Date Interaction: 1999-07-26 00:00:00
Date Interaction 3: Voluntary Cleanup Sites
Latitude: 47.712110858999999
Longitude: -122.17990291

RCRA NonGen / NLR:
Date form received by agency: 08/19/1996
Facility name: TOTEM LAKE DRY CLEANERS
Facility address: 12541 120TH AVE NE
KIRKLAND, WA 98034
EPA ID: WAD130612336
Contact: TOTEM LAKE DRY, TOTEM LAKE DRY
Contact address: 12541 120TH AVE NE
KIRKLAND, WA 98034-7501
Contact country: US
Contact telephone: 000-000-0000
Contact email: Not reported
EPA Region: 10
Land type: Private
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: RON G
Owner/operator address: 13473 64TH PL NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-821-1755
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 11/26/1996
Owner/Op end date: Not reported
TOTEM LAKE DRY CLEANERS (Continued)

Owner/operator name: RON G
Owner/operator address: 13473 64TH PL NE
                      KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-821-1755
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 11/26/1996
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 08/19/1996
Site name: TOTEM LAKE DRY CLEANERS
Classification: Not a generator, verified
Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 02/27/1996
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

FINDS:
Registry ID: 110005331444

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.
TC5463995.2s Page 12

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**TOTEM LAKE DRY CLEANERS** (Continued) 1000205631

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

[Click this hyperlink](http://echo.epa.gov/detailed-facility-report?fid=110005331444) while viewing on your computer to access additional FINDS detail in the EDR Site Report.

**ECHO:**
- Envid: 1000205631
- Registry ID: 110005331444
- DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005331444

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CIRCLE V MANAGEMENT PROPERTY (Continued)

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Date Interaction: 1995-11-20 00:00:00
Date Interaction 3: 
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Longitude: -122.180400105

Interaction: 48011
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD988489977
Date Interaction: 1991-06-18 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.711764359999997
Longitude: -122.180400105

CSCSL NFA:
Facility/Site Id: 49465148
CS Id: 9447
NFA Date: 05/02/2012
Rank: Not reported
VCP: No
Latitude: 47.71177
Longitude: -122.180415

RCRA NonGen / NLR: 1000659328
FINDS WAD988489977
ECHO

A7
WNW 12632 120TH AVE NE
< 1/8 12/02/1997
KIRKLAND, WA  98034
Facility name: HC AUTO CARE INC TOTEM LAKE
Contact: HC AUTO CARE IN
Mailing address: 205 RAINIER AVE S
Contact telephone: 000-000-0000
Contact email: Not reported
Contact country: US
EPA ID: WAD988489977
Class: Non-Generator
Date form received by agency: 12/02/1997
1000659328
Frequency: 1
Handler: Non-Generators do not presently generate hazardous waste
### HC AUTO CARE INC TOTEM LAKE (Continued)

#### Owner/Operator Summary:
- **Owner/operator name:** HC AUTO CARE IN H
- **Owner/operator address:** 12632 120TH AVE NE
- **Owner/operator city:** KIRKLAND, WA 98034
- **Owner/operator state:** US
- **Owner/operator phone:** 000-000-0000
- **Owner/operator email:** Not reported
- **Owner/operator fax:** Not reported
- **Owner/operator extension:** Not reported
- **Legal status:** Private
- **Owner/Operator Type:** Owner
- **Owner/Op start date:** 05/02/1996
- **Owner/Op end date:** Not reported

#### Handler Activities Summary:
- **U.S. importer of hazardous waste:** No
- **Mixed waste (haz. and radioactive):** No
- **Recycler of hazardous waste:** No
- **Transporter of hazardous waste:** No
- **Treater, storer or disposer of HW:** No
- **Underground injection activity:** No
- **On-site burner exemption:** No
- **Furnace exemption:** No
- **Used oil fuel burner:** No
- **Used oil processor:** No
- **User oil refiner:** No
- **Used oil fuel marketer to burner:** No
- **Used oil Specification marketer:** No
- **Used oil transfer facility:** No
- **Used oil transporter:** No

#### Historical Generators:
- **Date form received by agency:** 12/02/1997
- **Site name:** HC AUTO CARE INC TOTEM LAKE
- **Classification:** Not a generator, verified
- **Violation Status:** No violations found

**FINDS:**

- **Registry ID:** 110005363551

**Environmental Interest/Information System**

Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.
### HC AUTO CARE INC TOTEM LAKE (Continued)

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

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**Contact:**

17

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TC5463995.2s  Page 20
CHEVRON #9 1144 (Continued)

Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 06/16/94
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 93-30
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 10/19/94
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 93-43
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 02/15/01
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-42
County Code: 17
Contact: Not reported
Report Title: Ground Water Monitoring - December 2000

Date Ecology Received Report: 07/25/96
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 94-32
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 11/20/95
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 94-17
County Code: 17
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Report Title: Not reported
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## Map Findings

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<th>Distance</th>
<th>Elevation</th>
<th>Site</th>
<th>Database(s)</th>
<th>EPA ID Number</th>
<th>EDR ID Number</th>
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**CHEVRON #9 1144 (Continued)**

- **Media Contaminated:** Groundwater, Soil
- **Waste Management:** Tank
- **Region:** North Western
- **Type of Report Ecology Received:** Interim cleanup report
- **Site Register Issue:** 98-47
- **County Code:** 17
- **Contact:** Not reported
- **Report Title:** Environmental Investigation

### B13 TOTEM LAKE CHEVRON 91144 SW 12500 TOTEM LAKE BLVD NE KIRKLAND, WA 98034

- **Distance:** < 1/8
- **Elevation:** 0.076 mi.
- **Relative:** Site 8 of 8 in cluster B
- **Actual:** 402 ft.

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<th>WA VCP</th>
<th>WA ALLSITES</th>
<th>WA CSCS NLFA</th>
<th>FINDS</th>
<th>ECHO</th>
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<th>WA MANIFEST</th>
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- **Facility ID:** 43619955
- **Site Id:** 5079
- **UBI:** Not reported
- **Phone Number:** Not reported
- **Decimal Latitude:** 47.7107592140864
- **Decimal Longitude:** -122.179969442924

- **Tank Name:** 1
- **Tag Number:** A0706, A5661
- **Tank Status:** Removed
- **Tank Status Date:** 08/06/1996
- **Tank Install Date:** 00/31/1964
- **Tank Closure Date:** Not reported
- **Capacity Range:** Not reported
- **Tank Permit Expiration Date:** Not reported
- **Tank Upgrade Date:** Not reported
- **Tank Spill Prevention:** Not reported
- **Tank Overfill Prevention:** Not reported
- **Tank Material:** Steel
- **Tank Construction:** Single Wall Tank
- **Tank Tightness Test:** Not reported
- **Tank Corrosion Protection:** Not reported
- **Tank Manifold:** Not reported
- **Tank Release Detection:** Not reported
- **Tank SFC Type:** Not reported
- **Pipe Material:** Not reported
- **Pipe Construction:** Not reported
- **Pipe Primary Release Detection:** Not reported
- **Pipe Second Release Detection:** Not reported
- **Pipe Corrosion Protection:** Not reported
- **Pipe Pumping System:** Not reported
- **Responsible Unit:** NORTHWEST
- **Dispenser/Pump SFC Type:** Not reported

- **Tank Name:** 1-1R
- **Tag Number:** A0706, A5661
- **Tank Status:** Removed
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<tr>
<td>Tank Closure Date:</td>
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<td>Capacity Range:</td>
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| Tank Install Date: | 00/31/1964 |
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| Dispenser/Pump SFC Type: | Not reported |

| Tag Number: | A0706, A5661 |
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### TOTEM LAKE CHEVRON 91144 (Continued) 1000659281

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### TOTEM LAKE CHEVRON 91144 (Continued)

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<tr>
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<td>Tank Upgrade Date</td>
<td>02/02/1998</td>
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<tr>
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<tr>
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<tr>
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<td>Pipe Construction</td>
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<td>Pipe Primary Release Detection</td>
<td>Automatic Line Leak Detector (ALLD)</td>
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<td>Tank Closure Date</td>
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TOTEM LAKE CHEVRON 91144 (Continued)

Capacity Range: 5,000 to 9,999 Gallons
Tank Permit Expiration Date: 09/30/2015
Tank Upgrade Date: 02/02/1998
Tank Spill Prevention: Spill Bucket/Spill Box
Tank Overfill Prevention: Automatic Shutoff (fill pipe)
Tank Material: Fiberglass Reinforced Plastic
Tank Construction: Double Wall Tank
Tank Tightness Test: Not reported
Tank Corrosion Protection: Corrosion Resistant
Tank Manifold: Not reported
Tank Release Detection: Intersitial Monitoring
Tank SFC Type: Not reported
Pipe Material: Fiberglass
Pipe Construction: Single Wall Pipe
Pipe Primary Release Detection: Automatic Line Leak Detector (ALLD)
Pipe Second Release Detection: Annual Line Tightness Test (LTT)
Pipe Corrosion Protection: Corrosion Resistant
Pipe Pumping System: Pressurized System
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

Tank Name: 5
Tag Number: A0706, A5661
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 00/31/1964
Tank Closure Date: Not reported
Capacity Range: 111 TO 1,100 Gallons
Tank Permit Expiration Date: Not reported
Tank Upgrade Date: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
Tank Material: Steel
Tank Construction: Single Wall Tank
Tank Tightness Test: Not reported
Tank Corrosion Protection: Not reported
Tank Manifold: Not reported
Tank Release Detection: Not reported
Tank SFC Type: Not reported
Pipe Material: Not reported
Pipe Construction: Not reported
Pipe Primary Release Detection: Not reported
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Pipe Pumping System: Not reported
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

Tank Name: 5-5R
Tag Number: A0706, A5661
Tank Status: Exempt - Removed
Tank Status Date: 06/24/2015
Tank Install Date: 00/31/1964
Tank Closure Date: 07/27/2015
Capacity Range: Not reported
TOTEM LAKE CHEVRON 91144 (Continued) 1000659281

Tank Name: 6
Tag Number: A0706, A5661
Tank Status: Removed
Tank Status Date: 08/06/1986
Tank Install Date: 00/31/1964
Tank Closure Date: Not reported
Capacity Range: Not reported
Tank Permit Expiration Date: Not reported
Tank Upgrade Date: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
Tank Material: Steel
Tank Construction: Single Wall Tank
Tank Tightness Test: Not reported
Tank Corrosion Protection: Not reported
Tank Manifold: Not reported
Tank Release Detection: Not reported
Tank SFC Type: Not reported
Pipe Material: Not reported
Pipe Construction: Not reported
Pipe Primary Release Detection: Not reported
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Pipe Pumping System: Not reported
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

Tank Name: 6-6R
Tag Number: A0706, A5661
Tank Status: Removed
Tank Status Date: 06/04/2012
Tank Install Date: 00/05/1990
Tank Closure Date: 02/01/2002
Capacity Range: Not reported
Tank Permit Expiration Date: 09/30/2012
TOTEM LAKE CHEVRON 91144 (Continued)

Facility Name: TOTEM LAKE CHEVRON 91144
Facility Id: 43619955

Interaction: 44566
Interaction 1: 1
Interaction 2: LUST
Ecology Program: TOXICS
Program Data: ISIS
Facility Alt.: Not reported
Program ID: 5079
Date Interaction: 1990-03-27 00:00:00
Date Interaction 3: LUST Facility
Latitude: 47.710753158000003
Longitude: -122.179941304

Interaction: 44570
Interaction 1: 1
Interaction 2: HWOTHER
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
TOTEM LAKE CHEVRON 91144 (Continued)

Program ID: WAD988489506
Date Interaction: 2003-12-31 00:00:00
Date Interaction 3: Haz Waste Management Act
Latitude: 47.710753158000003
Longitude: -122.179941304

Interaction: 44572
Interaction 1: I
Interaction 2: VOLCLNST
Ecology Program: TOXICS
Program Data: ISIS
Facility Alt.: TOTEM LAKE CHEVRON 91144
Program ID: NW1555
Date Interaction: 2006-02-06 00:00:00
Date Interaction 3: Voluntary Cleanup Sites
Latitude: 47.710753158000003
Longitude: -122.179941304

Interaction: 116777
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: TOTEM LAKE CHEVRON 91144
Program ID: WAD988489506
Date Interaction: 2015-01-01 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.710753158000003
Longitude: -122.179941304

Interaction: 44574
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: TOTEM LAKE CHEVRON 91144
Program ID: WAD988489506
Date Interaction: 2008-12-31 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.710753158000003
Longitude: -122.179941304

Interaction: 92576
Interaction 1: I
Interaction 2: HWP
Ecology Program: HAZWASTE
Program Data: HWPPRT
Facility Alt.: TOTEM LAKE CHEVRON 91144
Program ID: WAD988489506
Date Interaction: 2010-05-14 00:00:00
Date Interaction 3: Hazardous Waste Planner
Latitude: 47.710753158000003
Longitude: -122.179941304
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<td>Date Interaction: 2000-03-20 00:00:00</td>
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**TOTEM LAKE CHEVRON 91144 (Continued)**

Interaction: 102127
Interaction 1: I
Interaction 2: LUST
Ecology Program: TOXICS
Program Data: ISIS
### TOTEM LAKE CHEVRON 91144 (Continued)

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| Interaction 2: |  | HWOTHER |
| Ecology Program: |  | HAZWASTE |
| Program Data: |  | TURBOWASTE |
| Facility Alt.: |  | Not reported |
| Program ID: |  | WAD988489506 |
| Date Interaction: |  | 2004-12-31 00:00:00 |
| Date Interaction 3: |  | Hazardous Waste Generator |
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| Longitude: |  | -122.179941304 |

| Interaction: |  | 120872 |
| Interaction 1: |  |  |
| Interaction 2: |  | HWOTHER |
| Ecology Program: |  | HAZWASTE |
| Program Data: |  | TURBOWASTE |
| Facility Alt.: |  | TOTEM LAKE CHEVRON 91144 |
| Program ID: |  | WAD988489506 |
| Date Interaction: |  | 2016-12-31 00:00:00 |
| Date Interaction 3: |  | Haz Waste Management Actl |
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| Longitude: |  | -122.179941304 |

**CSCSL NFA:**

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RCRA NonGen / NLR:
Date form received by agency: 08/13/2015
Facility name: TOTEM LAKE CHEVRON 91144
Facility address: 12500 TOTEM LAKE BLVD NE
KIRKLAND, WA 98034
EPA ID: WAD988489506
Mailing address: PO BOX 6004
SAN RAMON, CA 94583-2324
Contact: KATHY NORRIS
Contact address: PO BOX 6004
SAN RAMON, CA 94583-2324
Contact country: US
Contact telephone: 877-386-6044
Contact email: NAWTDESK@CHEVRON.COM
EPA Region: 10
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: TOTEM LAKE CHEVRON
Owner/operator address: PO BOX 6004
SAN RAMON, CA 94583
Owner/operator country: US
Owner/operator telephone: 925-842-5931
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 03/06/2001
Owner/Op end date: Not reported

Owner/operator name: CHEVRON PRODUCTS CO
Owner/operator address: 12500 TOTEM LAKE BLVD NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-821-1801
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 10/10/1996
Owner/Op end date: Not reported

Owner/operator name: KATHY NORRIS
Owner/operator address: PO BOX 6004
SAN RAMON, CA 94583
Owner/operator country: US
Owner/operator telephone: 877-386-6044
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 03/06/2001
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#### Handler Activities Summary:
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: No
- Treater, storor or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil fuel burner: No
- Used oil processor: No
- User oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No

#### Waste Information:
- **Waste code:** D001
- **Waste name:** IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

- **Waste code:** D018
- **Waste name:** BENZENE

#### Historical Generators:
- **Date form received by agency:** 02/07/2014
- **Site name:** TOTEM LAKE CHEVRON 91144
- **Classification:** Small Quantity Generator

- **Waste code:** D001
- **Waste name:** IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

- **Waste code:** D018
- **Waste name:** BENZENE
TOTEM LAKE CHEVRON 91144 (Continued)

Date form received by agency: 02/21/2012
Site name: TOTEM LAKE CHEVRON 91144
Classification: Small Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D018
. Waste name: BENZENE

Date form received by agency: 02/11/2010
Site name: TOTEM LAKE CHEVRON 91144
Classification: Small Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D018
. Waste name: BENZENE

Date form received by agency: 12/31/2007
Site name: TOTEM LAKE CHEVRON 91144
Classification: Not a generator, verified

Date form received by agency: 12/31/2005
Site name: TOTEM LAKE CHEVRON 91144
Classification: Not a generator, verified

Date form received by agency: 12/31/2003
Site name: TOTEM LAKE CHEVRON 91144
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:

Registry ID: 110005363221

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

Click this hyperlink while viewing on your computer to access additional FINDS detail in the EDR Site Report.

ECHO:
Envid: 1000659281
Registry ID: 110005363221
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005363221

WA Financial Assurance 1:
DOE Site ID: 5079
Financial Resp Type: CHEVRON U.S.A. INC.
Inception Date: 04/23/2012
Expiration Date: 04/26/2014
Address 2: Not reported
Policy Number: 409018069 131200009
Effective Date: 04/26/2013
Liability Limit Type: Not reported
Compliance Method: Not reported
Proof of Responsibility Document Flag: Not reported
Retroactive Date: Not reported
Latitude: 47.710759214
Longitude: -122.17996944

WA MANIFEST:
Facility Site ID Number: 43619955
EPA ID: WAD988489506
NAICS: 44711
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2008
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False

TOTEM LAKE CHEVRON 91144 (Continued) 1000659281

TC5463995.2s Page 37
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 600029388
Business Type: Not reported
Mail Name: Chevron Products Co
Mail addr line1: PO Box 6004
Mail city, st, zip: San Ramon, CA 94583-2324
Mail country: UNITED STATES
Legal org name: Totem Lake Chevron
Legal org type: Private
Legal addr line1: PO Box 6004
Legal city, st, zip: San Ramon, CA 94583-2324
Legal country: UNITED STATES
Legal phone nbr: (925)842-5931
Legal effective date: 03/06/2001
Land org name: Chevron Products Co
Land org type: Private
Land person name: Not reported
Land addr line1: PO Box 6004
Land city, st, zip: San Ramon, CA 94583-2324
Land country: UNITED STATES
Land phone nbr: 925-842-5931
Operator org name: Chevron Products Co
Operator org type: Private
Operator addr line1: 12500 Totem Lake Blvd NE
Operator city, st, zip: Kirkland, WA 98034-7205
Operator country: UNITED STATES
Operator phone nbr: (425)821-1801
Operator effective date: 10/10/1996
Site contact name: Station Manager
Site contact addr line1: 12500 Totem Lake Blvd NE
Site Contact City/State/Zip: Kirkland, WA 98034-7205
Site Contact Country: UNITED STATES
Site Contact Phone #: 425-821-1801
Site Contact EMail: NAWTDesk@chevron.com
Form Contact NAME: Kathy L Norris-Slusher
Form Contact ADDR LINE1: PO Box 6004
Form Contact City, ST, Zip: San Ramon, CA 94583-2324
Form Contact Country: UNITED STATES
Form Contact Phone #: (925)842-5931
Form Contact EMail: NAWTDesk@chevron.com
Gen Status CD: LGQ
Monthly Generation: False
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
Tranports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
TOTEM LAKE CHEVRON 91144 (Continued)

Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:
Facility ID: 43619955
Data Year: 2008
Description: PUMPING UNDER GROUND STORAGE TANKS GAS & WATER
Mix: False
Reported Qty: 50 LB
Kilo Qty: 22.680000390096009
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 150 LB
Kilo Qty: 68.040001170288022
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE
Mix: False
Reported Qty: 8262 LB
Kilo Qty: 3747.6432644594643
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 75 LB
Kilo Qty: 34.020000585144011
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 4131 LB
Kilo Qty: 1873.821632297321
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2010
TOTEM LAKE CHEVRON 91144 (Continued) 1000659281

Description: RAGS/_PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 425 LB
Kilo Qty: 192.78000331581606
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2010
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.60721074324408
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 668 LB
Kilo Qty: 303.004805
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: Spill Pads/Dispenser Fuel Filters/Dispenser Hoses w/Gas
Mix: False
Reported Qty: 230 LB
Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1385 LB
Kilo Qty: 628.236010
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: NA3077, Hazardous Waste Solid, N.O.S. (Benzene DO18), 9, PGIII
Mix: False
Reported Qty: 235 LB
| Kilo Qty: | 106.596001 |
| Density No: | 0 |
| Density Qty: | Not reported |
| Facility ID: | 43619955 |
| Data Year: | 2013 |
| Description: | UN1993, Waste Flammable Liquids, N.O.S. (Gasoline, Diesel Fuel), 3, PGII. |
| Mix: | False |
| Reported Qty: | 95 GAL |
| Kilo Qty: | 359.602746 |
| Density No: | 8.34500000 |
| Density Qty: | PPG |

| Kilo Qty: | 136.080002 |
| Density No: | 300 LB |
| Density Qty: | Not reported |
| Facility ID: | 43619955 |
| Data Year: | 2014 |
| Description: | Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas |
| Mix: | False |
| Kilo Qty: | 136.080002 |
| Density No: | 0 |
| Density Qty: | Not reported |

| Kilo Qty: | 624.607210 |
| Density No: | 0 |
| Density Qty: | Not reported |
| Facility ID: | 43619955 |
| Data Year: | 2014 |
| Description: | Spill Bucket Water Contaminated with Hydrocarbons and benzene |
| Mix: | False |
| Kilo Qty: | 624.607210 |
| Density No: | 0 |
| Density Qty: | Not reported |

| Kilo Qty: | 136.080002 |
| Density No: | 300 LB |
| Density Qty: | Not reported |
| Facility ID: | 43619955 |
| Data Year: | 2014 |
| Description: | Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas |
| Mix: | False |
| Kilo Qty: | 136.080002 |
| Density No: | 0 |
| Density Qty: | Not reported |

<p>| Kilo Qty: | 416.404807 |
| Density No: | 0 |
| Density Qty: | Not reported |
| Facility ID: | 43619955 |
| Data Year: | 2014 |
| Description: | Spill Bucket Water Contaminated with Hydrocarbons and benzene |
| Mix: | False |
| Kilo Qty: | 416.404807 |
| Density No: | 0 |
| Density Qty: | Not reported |</p>
<table>
<thead>
<tr>
<th>Site</th>
<th>Kilo Qty</th>
<th>Data Year</th>
<th>Shipment sent data</th>
<th>Reported Qty</th>
<th>Facility ID</th>
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<th>Shipment sent data</th>
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<th>Data Year</th>
<th>Shipment sent data</th>
<th>Reported Qty</th>
<th>Facility ID</th>
<th>Kilo Qty</th>
<th>Data Year</th>
<th>Shipment sent data</th>
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TOTEM LAKE CHEVRON 91144 (Continued) 1000659281
<table>
<thead>
<tr>
<th>Facility ID</th>
<th>Data Year</th>
<th>Shipment sent data</th>
<th>Reported Qty</th>
<th>Kilo Qty</th>
</tr>
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<tbody>
<tr>
<td>43619955</td>
<td>2010</td>
<td>12/9/2010</td>
<td>75 LB</td>
<td>34.020000585144</td>
</tr>
<tr>
<td>43619955</td>
<td>2010</td>
<td>10/20/2010</td>
<td>100 LB</td>
<td>45.360000780192</td>
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<tr>
<td>43619955</td>
<td>2010</td>
<td>4/12/2010</td>
<td>250 LB</td>
<td>113.400000195048</td>
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<tr>
<td>43619955</td>
<td>2010</td>
<td>12/27/2010</td>
<td>459 LB</td>
<td>208.202403581081</td>
</tr>
<tr>
<td>43619955</td>
<td>2010</td>
<td>7/30/2010</td>
<td>459 LB</td>
<td>208.202403581081</td>
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<tr>
<td>43619955</td>
<td>2010</td>
<td>7/13/2010</td>
<td>459 LB</td>
<td>208.202403581081</td>
</tr>
<tr>
<td>43619955</td>
<td>2011</td>
<td>2011-08-05 00:00:00</td>
<td>135 LB</td>
<td>61.2360010</td>
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<td>100 LB</td>
<td>45.3600007</td>
</tr>
<tr>
<td>43619955</td>
<td>2011</td>
<td>2011-08-05 00:00:00</td>
<td>209 LB</td>
<td>94.8024016</td>
</tr>
</tbody>
</table>

**TOTEM LAKE CHEVRON 91144** (Continued)
TOTEM LAKE CHEVRON 91144 (Continued)

Waste Stream Comments:
- Facility ID: 43619955
  - Data Year: 2008
  - Comments: GAS & WATER MIX

- Facility ID: 43619955
  - Data Year: 2008
  - Comments: SPILL BUCKET WITH BENZENE

- Facility ID: 43619955
  - Data Year: 2009
  - Comments: spill bucket

- Facility ID: 43619955
  - Data Year: 2010
  - Comments: SPILL BUCKET

- Facility ID: 43619955
  - Data Year: 2010
  - Comments: Monthly Scheduled Clean Up

- Facility ID: 43619955
  - Data Year: 2011
  - Comments: Incineration

- Facility ID: 43619955
  - Data Year: 2011
  - Comments: Incineration

- Facility ID: 43619955
  - Data Year: 2013
  - Comments: absorbs/pad

- Facility ID: 43619955
  - Data Year: 2014
  - Comments: absorbs/pad

Facility Site ID Number: 43619955
EPA ID: WAD988489506
NAICS: 447110
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2016
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
<table>
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<tr>
<th>EDR ID Number</th>
<th>Database(s)</th>
<th>EPA ID Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000659281</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTEM LAKE CHEVRON 91144 (Continued)**

- **Smelter deferral:** False
- **Universal waste - batteries - generate:** False
- **Universal waste - thermostats - generate:** False
- **Universal waste - mercury - generate:** False
- **Universal waste - lamps - generate:** False
- **Universal waste - batteries - accumulate:** False
- **Universal waste - thermostats - accumulate:** False
- **Universal waste - mercury - accumulate:** False
- **Universal waste - lamps - accumulate:** False
- **Destination Facility for Universal Waste:** False
- **Off-specification used oil burner - utility boiler:** False
- **Off-specification used oil burner - industrial boiler:** False
- **Off-specification used oil burner - industrial furnace:** False
- **Tax Reg #:** Not reported
- **Business Type:** Not reported
- **Mail Name:** Chevron Products Co
- **Mail addr line1:** PO Box 6004
- **Mail city, st, zip:** San Ramon, CA 94583-2324
- **Mail country:** UNITED STATES
- **Legal org name:** Totem Lake Chevron
- **Legal org type:** Private
- **Legal addr line1:** PO Box 6004
- **Legal city, st, zip:** San Ramon, CA 94583-2324
- **Legal country:** UNITED STATES
- **Legal phone nbr:** 877-386-6044
- **Legal effective date:** 03/06/2001
- **Land org name:** Chevron Products Co
- **Land org type:** Private
- **Land person name:** Not reported
- **Land addr line1:** PO Box 6004
- **Land city, st, zip:** San Ramon, CA 94583-2324
- **Land country:** UNITED STATES
- **Land phone nbr:** 877-386-6044
- **Operator org name:** Chevron Products Co
- **Operator org type:** Private
- **Operator addr line1:** 12500 Totem Lake Blvd NE
- **Operator city, st, zip:** Kirkland, WA 98034-7205
- **Operator country:** UNITED STATES
- **Operator phone nbr:** (425)821-1801
- **Operator effective date:** 10/10/1996
- **Site contact name:** Station Manager
- **Site contact addr line1:** 12500 Totem Lake Blvd NE
- **Site Contact City/State/Zip:** Kirkland, WA 98034-7205
- **Site Contact Country:** UNITED STATES
- **Site Contact Phone #:** 425-821-1801
- **Site Contact EMail:** NAWTDesk@chevron.com
- **Form Contact NAME:** Waste Desk
- **Form Contact ADDR LINE1:** PO Box 6004
- **Form Contact City,ST,Zip:** San Ramon, CA 94583-2324
- **Form Contact Country:** UNITED STATES
- **Form Contact Phone #:** 877-386-6044
- **Form Contact EMail:** NAWTDesk@chevron.com
- **Gen Status CD:** XQG
- **Monthly Generation:** False
- **Batch Generation:** False
- **One Time Generation:** False
- **Transport Own Waste:** False
TOTEM LAKE CHEVRON 91144 (Continued)

- Tranports Other Waste: False
- Recycler Onsite: False
- Transfer Facility: False
- Other Exemption: Not reported
- UW Battery Gen: False
- Used Oil Transporter: False
- Used Oil Transfer Facility: False
- Used Oil Processor: False
- Used Oil Refiner: False
- Used Oil Fuel Marketer Directs Shipments: False
- Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:

1. **Facility ID:** 43619955  
   **Data Year:** 2008  
   **Description:** PUMPING UNDER GROUND STORAGE TANKS GAS & WATER  
   **Mix:** False  
   **Reported Qty:** 50 LB  
   **Kilo Qty:** 22.680000390096009  
   **Density No:** 0  
   **Density Qty:** Not reported

2. **Facility ID:** 43619955  
   **Data Year:** 2008  
   **Description:** RAGS/PADS CONTAMINATED WITH GASOLINE  
   **Mix:** False  
   **Reported Qty:** 150 LB  
   **Kilo Qty:** 68.040001170288022  
   **Density No:** 0  
   **Density Qty:** Not reported

3. **Facility ID:** 43619955  
   **Data Year:** 2008  
   **Description:** SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE  
   **Mix:** False  
   **Reported Qty:** 8262 LB  
   **Kilo Qty:** 3747.6432644594643  
   **Density No:** 0  
   **Density Qty:** Not reported

4. **Facility ID:** 43619955  
   **Data Year:** 2009  
   **Description:** RAGS/PADS CONTAMINATED WITH GASOLINE  
   **Mix:** False  
   **Reported Qty:** 75 LB  
   **Kilo Qty:** 34.020000585144011  
   **Density No:** 0  
   **Density Qty:** Not reported

5. **Facility ID:** 43619955  
   **Data Year:** 2009  
   **Description:** spill bucket water contaminated with hydrocarbons and benzene  
   **Mix:** False  
   **Reported Qty:** 4131 LB  
   **Kilo Qty:** 1873.821632297321  
   **Density No:** 0  
   **Density Qty:** Not reported
<table>
<thead>
<tr>
<th>Map ID</th>
<th>Direction</th>
<th>Distance</th>
<th>Elevation</th>
<th>Site</th>
<th>Database(s)</th>
<th>EPA ID Number</th>
<th>EDR ID Number</th>
<th>MAP FINDINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>43619955</td>
<td>2010</td>
<td>RAGS/PADS CONTAMINATED WITH GASOLINE</td>
<td>False</td>
<td>425 LB</td>
<td>192.78000331581606</td>
<td>0</td>
<td>Not reported</td>
<td></td>
</tr>
</tbody>
</table>

Facility ID: 43619955  
Data Year: 2010  
Description: spill bucket water contaminated with hydrocarbons and benzene  
Mix: False  
Reported Qty: 1377 LB  
Kilo Qty: 624.60721074324408  
Density No: 0  
Density Qty: Not reported

Facility ID: 43619955  
Data Year: 2011  
Description: RAGS/PADS CONTAMINATED WITH GASOLINE  
Mix: False  
Reported Qty: 235 LB  
Kilo Qty: 106.596001  
Density No: 0  
Density Qty: Not reported

Facility ID: 43619955  
Data Year: 2011  
Description: spill bucket water contaminated with hydrocarbons and benzene  
Mix: False  
Reported Qty: 668 LB  
Kilo Qty: 303.004805  
Density No: 0  
Density Qty: Not reported

Facility ID: 43619955  
Data Year: 2012  
Description: Spill Pads/Dispenser Fuel Filters/Dispenser Hoses w/Gas  
Mix: False  
Reported Qty: 230 LB  
Kilo Qty: 104.328001  
Density No: 0  
Density Qty: Not reported

Facility ID: 43619955  
Data Year: 2012  
Description: spill bucket water contaminated with hydrocarbons and benzene  
Mix: False  
Reported Qty: 1385 LB  
Kilo Qty: 628.236010  
Density No: 0  
Density Qty: Not reported

Facility ID: 43619955  
Data Year: 2013  
Description: NA3077, Hazardous Waste Solid, N.O.S. (Benzene DO18), 9, PGIII  
Mix: False  
Reported Qty: 0  
Kilo Qty: 0  
Density No: 0  
Density Qty: 0
TOTEM LAKE CHEVRON 91144 (Continued) 1000659281

Mix: False
Kilo Qty: 235 LB
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: UN1993, Waste Flammable Liquids, N.O.S. (Gasoline, Diesel Fuel), 3, PGII.
Mix: False
Kilo Qty: 359.602746
Density No: 8.34500000
Density Qty: PPG

Facility ID: 43619955
Data Year: 2014
Description: Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix: False
Kilo Qty: 136.080002
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2014
Description: Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix: False
Kilo Qty: 624.607210
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2015
Description: Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix: False
Kilo Qty: 233.150404
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2015
Description: Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix: False
Kilo Qty: 416.404807
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 43619955
Data Year: 2008
Shipments sent data: 5/13/2008
Reported Qty: 50 LB
Kilo Qty: 22.680000390096
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<tr>
<th>Facility ID</th>
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<th>Shipment sent data</th>
<th>Reported Qty</th>
<th>Kilo Qty</th>
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<td>43619955</td>
<td>2008</td>
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<td>60 LB</td>
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TOTEM LAKE CHEVRON 91144 (Continued)

Facility ID: 43619955
Data Year: 2008
Description: PUMPING UNDER GROUND STORAGE TANKS GAS & WATER
Mix: False
Reported Qty: 50 LB
Kilo Qty: 22.680000390096009
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 150 LB
Kilo Qty: 68.040001170288022
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE
Mix: False
Reported Qty: 8262 LB
Kilo Qty: 3747.6432644594643
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 75 LB
Kilo Qty: 34.020000585144011
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 4131 LB
Kilo Qty: 1873.821632297321
Density No: 0
Density Qty: Not reported
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| Facility ID: | 43619955 |
| Data Year: | 2014 |
| Description: | Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas |
| Mix: | False |
| Reported Qty: | 300 LB |
| Kilo Qty: | 136.080002 |
| Density No: | 0 |
| Density Qty: | Not reported |

| Facility ID: | 43619955 |
| Data Year: | 2014 |
| Description: | Spill Bucket Water Contaminated with Hydrocarbons and benzene |
| Mix: | False |
| Reported Qty: | 1377 LB |
| Kilo Qty: | 624.607210 |
| Density No: | 0 |
| Density Qty: | Not reported |

| Facility ID: | 43619955 |
| Data Year: | 2015 |
| Description: | Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas |
| Mix: | False |
| Reported Qty: | 514 LB |
| Kilo Qty: | 233.150404 |
| Density No: | 0 |
| Density Qty: | Not reported |

| Facility ID: | 43619955 |
| Data Year: | 2015 |
| Description: | Spill Bucket Water Contaminated with Hydrocarbons and benzene |
| Mix: | False |
| Reported Qty: | 918 LB |
| Kilo Qty: | 416.404807 |
| Density No: | 0 |
| Density Qty: | Not reported |

**Shipments Sent:**

- **Facility ID:** 43619955
- **Data Year:** 2008
- **Shipment sent data:** 5/13/2008
- **Reported Qty:** 50 LB
- **Kilo Qty:** 22.680000390096
TOTEM LAKE CHEVRON 91144 (Continued) 1000659281

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TOTEM LAKE CHEVRON 91144 (Continued)

Waste Stream Comments:
- Facility ID: 43619955
  - Data Year: 2008
  - Comments: GAS & WATER MIX

- Facility ID: 43619955
  - Data Year: 2008
  - Comments: SPILL BUCKET WITH BENZENE

- Facility ID: 43619955
  - Data Year: 2009
  - Comments: spill bucket

- Facility ID: 43619955
  - Data Year: 2010
  - Comments: SPILL BUCKET

- Facility ID: 43619955
  - Data Year: 2010
  - Comments: Monthly Scheduled Clean Up

- Facility ID: 43619955
  - Data Year: 2011
  - Comments: Incineration

- Facility ID: 43619955
  - Data Year: 2011
  - Comments: Incineration

- Facility ID: 43619955
  - Data Year: 2013
  - Comments: absorbents/pad

- Facility ID: 43619955
  - Data Year: 2014
  - Comments: absorbents/pad

Facility Site ID Number: 43619955
EPA ID: WAD988489506
NAICS: 44711
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: Not reported
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
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<th>Value</th>
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<tbody>
<tr>
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</tr>
<tr>
<td>Site Contact Address</td>
<td>12500 Totem Lake Blvd NE</td>
</tr>
<tr>
<td>Site Contact City/State/Zip</td>
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<tr>
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<td>Site Contact Phone</td>
<td>425-821-1801</td>
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<tr>
<td>Form Contact Name</td>
<td>Kathy L Norris-Slusher</td>
</tr>
<tr>
<td>Form Contact ADDR LINE1</td>
<td>PO Box 6004</td>
</tr>
<tr>
<td>Form Contact City,ST,Zip</td>
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</tr>
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</tr>
<tr>
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### TOTEM LAKE CHEVRON 91144 (Continued)

| Facility ID | 43619955 |
| Data Year | 2013 |
| Description | Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas |
| Mix | False |
| Reported Qty | 50 LB |
| Kilo Qty | 95.000000 |
| Density No | 0.000000 |
| Density Qty | Not reported |

| Facility ID | 43619955 |
| Data Year | 2014 |
| Description | Spill Bucket Water Contaminated with Hydrocarbons and benzene |
| Mix | False |
| Reported Qty | 300 LB |
| Kilo Qty | 136.080002 |
| Density No | 0.000000 |
| Density Qty | Not reported |

| Facility ID | 43619955 |
| Data Year | 2015 |
| Description | Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas |
| Mix | False |
| Reported Qty | 514 LB |
| Kilo Qty | 233.150404 |
| Density No | 0.000000 |
| Density Qty | Not reported |

| Facility ID | 43619955 |
| Data Year | 2015 |
| Description | Spill Bucket Water Contaminated with Hydrocarbons and benzene |
| Mix | False |
| Reported Qty | 918 LB |
| Kilo Qty | 416.404807 |
| Density No | 0.000000 |
| Density Qty | Not reported |

**Shipments Sent:**

| Facility ID | 43619955 |
| Data Year | 2008 |
| Shipment sent data | 5/13/2008 |
| Reported Qty | 50 LB |
| Kilo Qty | 22.680000390096 |
TOTEM LAKE CHEVRON 91144 (Continued)

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<td>43619955</td>
<td>75 LB</td>
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<td>09/20/2010</td>
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<td>75 LB</td>
<td>34.020000585144</td>
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<td>09/20/2010</td>
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<td>43619955</td>
<td>75 LB</td>
<td>34.020000585144</td>
<td>2010</td>
<td>09/20/2010</td>
</tr>
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<td>43619955</td>
<td>75 LB</td>
<td>34.020000585144</td>
<td>2010</td>
<td>09/20/2010</td>
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TOTEM LAKE CHEVRON 91144 (Continued)

Waste Stream Comments:
- Facility ID: 43619955
  - Data Year: 2008
  - Comments: GAS & WATER MIX
- Facility ID: 43619955
  - Data Year: 2008
  - Comments: SPILL BUCKET WITH BENZENE
- Facility ID: 43619955
  - Data Year: 2009
  - Comments: spill bucket
- Facility ID: 43619955
  - Data Year: 2010
  - Comments: SPILL BUCKET
- Facility ID: 43619955
  - Data Year: 2010
  - Comments: Monthly Scheduled Clean Up
- Facility ID: 43619955
  - Data Year: 2011
  - Comments: Incineration
- Facility ID: 43619955
  - Data Year: 2011
  - Comments: Incineration
- Facility ID: 43619955
  - Data Year: 2013
  - Comments: absorbents/pad
- Facility ID: 43619955
  - Data Year: 2014
  - Comments: absorbents/pad

Facility Site ID Number: 43619955
EPA ID: WAD988489506
NAICS: 44711
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: Not reported
Permit by Rule: FALSE
Treatment by Generator: FALSE
Mixed radioactive waste: FALSE
Importer of hazardous waste: FALSE
Immediate recycler: FALSE
Treatment/Storage/Disposal/Recycling Facility: FALSE
Generator of dangerous fuel waste: FALSE
Generator marketing to burner: FALSE
Other marketers (i.e., blender, distributor, etc.): FALSE
Utility boiler burner: FALSE
Industry boiler burner: FALSE
Industrial Furnace: FALSE
TOTEM LAKE CHEVRON 91144 (Continued)

Smelter deferral: FALSE
Universal waste - batteries - generate: FALSE
Universal waste - thermostats - generate: FALSE
Universal waste - mercury - generate: FALSE
Universal waste - lamps - generate: FALSE
Universal waste - batteries - accumulate: FALSE
Universal waste - thermostats - accumulate: FALSE
Universal waste - mercury - accumulate: FALSE
Universal waste - lamps - accumulate: FALSE
Destination Facility for Universal Waste: FALSE
Off-specification used oil burner - utility boiler: FALSE
Off-specification used oil burner - industrial boiler: FALSE
Off-specification used oil burner - industrial furnace: FALSE
Tax Reg #: 600029388
Business Type: Not reported
Mail Name: Chevron Products Co
Mail addr line1: PO Box 6004
Mail city, st, zip: San Ramon, CA 94583-2324
Mail country: UNITED STATES
Legal org name: Totem Lake Chevron
Legal org type: Private
Legal addr line1: PO Box 6004
Legal city, st, zip: San Ramon, CA 94583-2324
Legal country: UNITED STATES
Legal phone nbr: (925)842-5931
Legal effective date: 03/06/2001
Land org name: Chevron Products Co
Land org type: Private
Land person name: Not reported
Land addr line1: PO Box 6004
Land city, st, zip: San Ramon, CA 94583-2324
Land country: UNITED STATES
Land phone nbr: 925-842-5931
Operator org name: Chevron Products Co
Operator org type: Private
Operator addr line1: 12500 Totem Lake Blvd NE
Operator city, st, zip: Kirkland, WA 98034-7205
Operator country: UNITED STATES
Operator phone nbr: (425)821-1801
Operator effective date: 10/10/1996
Site contact name: Station Manager
Site contact addr line1: 12500 Totem Lake Blvd NE
Site Contact City/State/Zip: Kirkland, WA 98034-7205
Site Contact Country: UNITED STATES
Site Contact Phone #: 425-821-1801
Site Contact EMail: Not reported
Form Contact NAME: Kathy L Norris-Slusher
Form Contact ADDR LINE1: PO Box 6004
Form Contact City,ST,Zip: San Ramon, CA 94583-2324
Form Contact Country: UNITED STATES
Form Contact Phone #: (925)842-5931
Form Contact EMail: KNorris@chevron.com
Gen Status CD: XQG
Monthly Generation: FALSE
Batch Generation: FALSE
One Time Generation: FALSE
Transport Own Waste: FALSE

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### TOTEM LAKE CHEVRON 91144 (Continued)

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<tr>
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<td>Data Year:</td>
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<td>Description:</td>
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<tr>
<td>Reported Qty:</td>
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<tr>
<td>Kilo Qty:</td>
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<td>Density No:</td>
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<td>Density Qty:</td>
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</table>

| Facility ID:                      | 43619955 |
| Data Year:                        | 2008     |
| Description:                      | RAGS/PADS CONTAMINATED WITH GASOLINE |
| Mix:                              | False    |
| Reported Qty:                     | 150 LB   |
| Kilo Qty:                         | 68.040001170288022 |
| Density No:                       | 0        |
| Density Qty:                      | Not reported |

| Facility ID:                      | 43619955 |
| Data Year:                        | 2008     |
| Description:                      | SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE |
| Mix:                              | False    |
| Reported Qty:                     | 8262 LB  |
| Kilo Qty:                         | 3747.6432644594643 |
| Density No:                       | 0        |
| Density Qty:                      | Not reported |

| Facility ID:                      | 43619955 |
| Data Year:                        | 2009     |
| Description:                      | RAGS/PADS CONTAMINATED WITH GASOLINE |
| Mix:                              | False    |
| Reported Qty:                     | 75 LB    |
| Kilo Qty:                         | 34.020000585144011 |
| Density No:                       | 0        |
| Density Qty:                      | Not reported |

<p>| Facility ID:                      | 43619955 |
| Data Year:                        | 2009     |
| Description:                      | spill bucket water contaminated with hydrocarbons and benzene |
| Mix:                              | False    |
| Reported Qty:                     | 4131 LB  |
| Kilo Qty:                         | 1873.8216322297321 |
| Density No:                       | 0        |
| Density Qty:                      | Not reported |</p>
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<tr>
<th>Facility ID</th>
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<th>Description</th>
<th>Mix</th>
<th>Reported Qty</th>
<th>Kilo Qty</th>
<th>Density No</th>
<th>Density Qty</th>
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<tr>
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<td>2010</td>
<td>RAGS/PADS CONTAMINATED WITH GASOLINE</td>
<td>False</td>
<td>425 LB</td>
<td>192.78000331581606</td>
<td>0</td>
<td>Not reported</td>
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<tr>
<td>43619955</td>
<td>2011</td>
<td>spill bucket water contaminated with hydrocarbons and benzene</td>
<td>False</td>
<td>1377 LB</td>
<td>624.60721074324408</td>
<td>0</td>
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<td>43619955</td>
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<td>False</td>
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<td>303.004805</td>
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<td>43619955</td>
<td>2012</td>
<td>Spill Pads/Dispenser Fuel Filters/Dispenser Hoses w/Gas</td>
<td>False</td>
<td>230 LB</td>
<td>104.328001</td>
<td>0</td>
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<tr>
<td>43619955</td>
<td>2012</td>
<td>spill bucket water contaminated with hydrocarbons and benzene</td>
<td>False</td>
<td>1385 LB</td>
<td>628.236010</td>
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<td>43619955</td>
<td>2013</td>
<td>NA3077, Hazardous Waste Solid, N.O.S. (Benzene DO18), 9, PGIII</td>
<td>False</td>
<td>Not reported</td>
<td>Not reported</td>
<td>0</td>
<td>Not reported</td>
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### TOTEM LAKE CHEVRON 91144

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<th>Density Qty</th>
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<td>106.596001</td>
<td>0</td>
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- **Facility ID:** 43619955
- **Data Year:** 2013
- **Description:** UN1993, Waste Flammable Liquids, N.O.S. (Gasoline, Diesel Fuel), 3, PGII.

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<th>Density Qty</th>
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<tr>
<td>False</td>
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<td>359.602746</td>
<td>8.34500000</td>
<td>PPG</td>
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- **Facility ID:** 43619955
- **Data Year:** 2014
- **Description:** Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas

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<th>Kilo Qty</th>
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<th>Density Qty</th>
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<tbody>
<tr>
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- **Facility ID:** 43619955
- **Data Year:** 2014
- **Description:** Spill Bucket Water Contaminated with Hydrocarbons and benzene

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<th>Kilo Qty</th>
<th>Density No</th>
<th>Density Qty</th>
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<tbody>
<tr>
<td>False</td>
<td>1377 LB</td>
<td>624.607210</td>
<td>0</td>
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- **Facility ID:** 43619955
- **Data Year:** 2015
- **Description:** Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas

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<th>Kilo Qty</th>
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<tr>
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- **Facility ID:** 43619955
- **Data Year:** 2015
- **Description:** Spill Bucket Water Contaminated with Hydrocarbons and benzene

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<th>Kilo Qty</th>
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<th>Density Qty</th>
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<tr>
<td>False</td>
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- **Facility ID:** 43619955
- **Data Year:** 2015
- **Description:** Spill Bucket Water Contaminated with Hydrocarbons and benzene

- **Shipments Sent:**
  - **Facility ID:** 43619955
  - **Data Year:** 2008
  - **Shipment sent data:** 5/13/2008
  - **Reported Qty:** 50 LB
  - **Kilo Qty:** 22.680000390096
TOTEM LAKE CHEVRON 91144 (Continued)

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/17/2008
Reported Qty: 90 LB
Kilo Qty: 40.8240007021728

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 6/11/2008
Reported Qty: 60 LB
Kilo Qty: 27.2160004681152

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/31/2008
Reported Qty: 3672 LB
Kilo Qty: 1665.61922864865

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 12/12/2008
Reported Qty: 4590 LB
Kilo Qty: 2082.02403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 12/10/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/24/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 4/15/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 2/27/2009
TOTEM LAKE CHEVRON 91144 (Continued) 1000659281

Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/27/2010
Reported Qty: 75 LB
Kilo Qty: 34.02000585144

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 10/20/2010
Reported Qty: 100 LB
Kilo Qty: 45.36000780192

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 4/12/2010
Reported Qty: 250 LB
Kilo Qty: 113.4000195048

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/27/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/30/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/13/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 135 LB
Kilo Qty: 61.2360010

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-05-13 00:00:00
Reported Qty: 100 LB
Kilo Qty: 45.3600007

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 209 LB
Kilo Qty: 94.8024016
TOTEM LAKE CHEVRON 91144 (Continued)  1000659281

Waste Stream Comments:
- Facility ID: 43619955
  - Data Year: 2008
  - Comments: GAS & WATER MIX

- Facility ID: 43619955
  - Data Year: 2008
  - Comments: SPILL BUCKET WITH BENZENE

- Facility ID: 43619955
  - Data Year: 2009
  - Comments: spill bucket

- Facility ID: 43619955
  - Data Year: 2010
  - Comments: SPILL BUCKET

- Facility ID: 43619955
  - Data Year: 2010
  - Comments: Monthly Scheduled Clean Up

- Facility ID: 43619955
  - Data Year: 2011
  - Comments: Incineration

- Facility ID: 43619955
  - Data Year: 2011
  - Comments: Incineration

- Facility ID: 43619955
  - Data Year: 2013
  - Comments: absorbents/pad

- Facility ID: 43619955
  - Data Year: 2014
  - Comments: absorbents/pad

Facility Site ID Number: 43619955
EPA ID: WAD988489506
NAICS: 44711
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: Not reported
Permit by Rule: No
Treatment by Generator: No
Mixed radioactive waste: No
Importer of hazardous waste: No
Immediate recycler: No
Treatment/Storage/Disposal/Recycling Facility: No
Generator of dangerous fuel waste: No
Generator marketing to burner: No
Other marketers (i.e., blender, distributor, etc.): No
Utility boiler burner: No
Industry boiler burner: No
Industrial Furnace: No
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<tr>
<th>Site Contact Name:</th>
<th>Station Manager</th>
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<tbody>
<tr>
<td>Site Contact City/State/Zip:</td>
<td>Kirkland, WA 98034-7205</td>
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<tr>
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<tr>
<td>Site Contact Phone #:</td>
<td>425-821-1801</td>
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<td>Site Contact EMail:</td>
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<tr>
<td>Form Contact NAME:</td>
<td>Diane C Aven</td>
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<td>Form Contact ADDR LINE1:</td>
<td>PO Box 6004</td>
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<tr>
<td>Form Contact City,ST,Zip:</td>
<td>San Ramon, CA 94583-2324</td>
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<td>Form Contact Phone #:</td>
<td>(925)842-3426</td>
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<td><a href="mailto:aven@chevron.com">aven@chevron.com</a></td>
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TOTEM LAKE CHEVRON 91144 (Continued) 1000659281

Waste Streams Generated:

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<th>Density Qty</th>
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<td>1377 LB</td>
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<td>spill bucket water contaminated with hydrocarbons and benzene</td>
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**TOTEM LAKE CHEVRON 91144 (Continued)**

Facility ID: 43619955
Data Year: 2010
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 425 LB
Kilo Qty: 192.7800331581606
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2010
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.60721074324408
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 235 LB
Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 668 LB
Kilo Qty: 303.004805
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: Spill Pads/Dispenser Fuel Filters/Dispenser Hoses w/Gas
Mix: False
Reported Qty: 230 LB
Kilo Qty: 104.328001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1385 LB
Kilo Qty: 628.236010
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: NA3077, Hazardous Waste Solid, N.O.S. (Benzene DO18), 9, PGIII

EDR ID Number: 1000659281
TOTEM LAKE CHEVRON 91144 (Continued) 1000659281

Mix: False
Reported Qty: 235 LB
Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: UN1993, Waste Flammable Liquids, N.O.S. (Gasoline, Diesel Fuel), 3, PGII.
Mix: False
Reported Qty: 95 GAL
Kilo Qty: 359.602746
Density No: 8.34500000
Density Qty: PPG

Facility ID: 43619955
Data Year: 2014
Description: Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix: False
Reported Qty: 300 LB
Kilo Qty: 136.080002
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2014
Description: Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.607210
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2015
Description: Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix: False
Reported Qty: 514 LB
Kilo Qty: 233.150404
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2015
Description: Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix: False
Reported Qty: 918 LB
Kilo Qty: 416.404807
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 43619955
Data Year: 2008
Shipment sent data: 5/13/2008
Reported Qty: 50 LB
Kilo Qty: 22.680000390096
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Reported Qty: 459 LB
Kilo Qty: 208.202403581081
Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/27/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081
Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/13/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081
Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 135 LB
Kilo Qty: 61.2360010
Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-05-13 00:00:00
Reported Qty: 100 LB
Kilo Qty: 45.3600007
Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 209 LB
Kilo Qty: 94.8024016
TOTALS LAKE CHEVRON 91144 (Continued) 1000659281

Waste Stream Comments:
- Facility ID: 43619955
  - Data Year: 2008
  - Comments: GAS & WATER MIX
- Facility ID: 43619955
  - Data Year: 2008
  - Comments: SPILL BUCKET WITH BENZENE
- Facility ID: 43619955
  - Data Year: 2009
  - Comments: spill bucket
- Facility ID: 43619955
  - Data Year: 2010
  - Comments: SPILL BUCKET
- Facility ID: 43619955
  - Data Year: 2010
  - Comments: Monthly Scheduled Clean Up
- Facility ID: 43619955
  - Data Year: 2011
  - Comments: Incineration
- Facility ID: 43619955
  - Data Year: 2011
  - Comments: Incineration
- Facility ID: 43619955
  - Data Year: 2013
  - Comments: absorbents/pad
- Facility ID: 43619955
  - Data Year: 2014
  - Comments: absorbents/pad

Facility Site ID Number: 43619955
EPA ID: WAD988489506
NAICS: 447110
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2009
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
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**TOTEM LAKE CHEVRON 91144 (Continued) 1000659281**

- **Smelter deferral:** False
- **Universal waste - batteries - generate:** False
- **Universal waste - thermostats - generate:** False
- **Universal waste - mercury - generate:** False
- **Universal waste - lamps - generate:** False
- **Universal waste - batteries - accumulate:** False
- **Universal waste - thermostats - accumulate:** False
- **Universal waste - mercury - accumulate:** False
- **Universal waste - lamps - accumulate:** False
- **Destination Facility for Universal Waste:** False
- **Off-specification used oil burner - utility boiler:** False
- **Off-specification used oil burner - industrial boiler:** False
- **Off-specification used oil burner - industrial furnace:** False
- **Tax Reg #:** 409018069
- **Business Type:** Not reported
- **Mail Name:** Chevron Products Co
- **Mail addr line1:** PO Box 6004
- **Mail city, st, zip:** San Ramon, CA 94583-2324
- **Mail country:** UNITED STATES
- **Legal org name:** Totem Lake Chevron
- **Legal org type:** Private
- **Legal addr line1:** PO Box 6004
- **Legal city, st, zip:** San Ramon, CA 94583-2324
- **Legal country:** UNITED STATES
- **Legal phone nbr:** (925)842-5931
- **Legal effective date:** 03/06/2001
- **Land org name:** Chevron Products Co
- **Land org type:** Private
- **Land person name:** Not reported
- **Land addr line1:** PO Box 6004
- **Land city, st, zip:** San Ramon, CA 94583-2324
- **Land country:** UNITED STATES
- **Land phone nbr:** 925-842-5931
- **Operator org name:** Chevron Products Co
- **Operator org type:** Private
- **Operator addr line1:** 12500 Totem Lake Blvd NE
- **Operator city, st, zip:** Kirkland, WA 98034-7205
- **Operator country:** UNITED STATES
- **Operator phone nbr:** (425)821-1801
- **Operator effective date:** 10/10/1996
- **Site Contact name:** Station Manager
- **Site contact addr line1:** 12500 Totem Lake Blvd NE
- **Site Contact City/State/ Zip:** Kirkland, WA 98034-7205
- **Site Contact Country:** UNITED STATES
- **Site Contact Phone #:** 425-821-1801
- **Site Contact EMail:** NAWTDesk@chevron.com
- **Form Contact NAME:** Jocko Rodriguez
- **Form Contact ADDR LINE1:** PO Box 6004
- **Form Contact City,ST,Zip:** San Ramon, CA 94583-2324
- **Form Contact Country:** UNITED STATES
- **Form Contact Phone #:** 925-842-3733
- **Form Contact EMail:** NAWTDesk@chevron.com
- **Gen Status CD:** MQG
- **Monthly Generation:** True
- **Batch Generation:** False
- **One Time Generation:** False
- **Transport Own Waste:** False
TOTEM LAKE CHEVRON 91144 (Continued)

Transport Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:

Facility ID: 43619955
Data Year: 2008
Description: PUMPING UNDER GROUND STORAGE TANKS GAS & WATER
Mix: False
Reported Qty: 50 LB
Kilo Qty: 22.680000390096009
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 150 LB
Kilo Qty: 68.040001170288022
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE
Mix: False
Reported Qty: 8262 LB
Kilo Qty: 3747.6432644594643
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 75 LB
Kilo Qty: 34.020000585144011
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 4131 LB
Kilo Qty: 1873.821632297321
Density No: 0
Density Qty: Not reported
TOTEM LAKE CHEVRON 91144 (Continued)

Facility ID: 43619955
Data Year: 2010
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 425 LB
Kilo Qty: 192.78000331581606
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2010
Description: Spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.60721074324408
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 235 LB
Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: Spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 668 LB
Kilo Qty: 303.004805
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: Spill Pads/Dispenser Fuel Filters/Dispenser Hoses w/Gas
Mix: False
Reported Qty: 230 LB
Kilo Qty: 104.328001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: Spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1385 LB
Kilo Qty: 628.236010
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: NA3077, Hazardous Waste Solid, N.O.S. (Benzene DO18), 9, PGIII

TC54639995.2s  Page 82
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<th>Facility ID</th>
<th>Kilo Qty</th>
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Shipment sent data:
- Facility ID: 43619955
- Date sent: 5/13/2008
- Kilo Qty: 50 LB
- EDR ID Number: 1000659281
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<td>90 LB</td>
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TOTEM LAKE CHEVRON 91144 (Continued)
**TOTEM LAKE CHEVRON 91144 (Continued)**

Waste Stream Comments:
- Facility ID: 43619955
  - Data Year: 2008
  - Comments: GAS & WATER MIX
- Facility ID: 43619955
  - Data Year: 2008
  - Comments: SPILL BUCKET WITH BENZENE
- Facility ID: 43619955
  - Data Year: 2009
  - Comments: spill bucket
- Facility ID: 43619955
  - Data Year: 2010
  - Comments: SPILL BUCKET
- Facility ID: 43619955
  - Data Year: 2010
  - Comments: Monthly Scheduled Clean Up
- Facility ID: 43619955
  - Data Year: 2011
  - Comments: Incineration
- Facility ID: 43619955
  - Data Year: 2011
  - Comments: Incineration
- Facility ID: 43619955
  - Data Year: 2013
  - Comments: absorbents/pad
- Facility ID: 43619955
  - Data Year: 2014
  - Comments: absorbents/pad

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<th>Facility Site ID Number</th>
<th>EPA ID</th>
<th>NAICS</th>
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<th>FWC Desc</th>
<th>Form Comm</th>
<th>Data Year</th>
<th>Permit by Rule</th>
<th>Treatment by Generator</th>
<th>Mixed radioactive waste</th>
<th>Importer of hazardous waste</th>
<th>Immediate recycler</th>
<th>Treatment/Storage/Disposal/Recycling Facility</th>
<th>Generator of dangerous fuel waste</th>
<th>Generator marketing to burner</th>
<th>Other marketers (i.e., blender, distributor, etc.)</th>
<th>Utility boiler burner</th>
<th>Industry boiler burner</th>
<th>Industrial Furnace</th>
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**TOTEM LAKE CHEVRON 91144 (Continued)**

- **Smelter deferral:** False
- **Universal waste - batteries - generate:** False
- **Universal waste - thermostats - generate:** False
- **Universal waste - mercury - generate:** False
- **Universal waste - lamps - generate:** False
- **Universal waste - batteries - accumulate:** False
- **Universal waste - thermostats - accumulate:** False
- **Universal waste - mercury - accumulate:** False
- **Universal waste - lamps - accumulate:** False
- **Destination Facility for Universal Waste:** False
- **Off-specification used oil burner - utility boiler:** False
- **Off-specification used oil burner - industrial boiler:** False
- **Off-specification used oil burner - industrial furnace:** False

- **Tax Reg #:** 409018069
- **Business Type:** Not reported
- **Mail Name:** Chevron Products Co
- **Mail addr line1:** PO Box 6004
- **Mail city, st, zip:** San Ramon, CA 94583-2324
- **Mail country:** UNITED STATES
- **Legal org name:** Totem Lake Chevron
- **Legal org type:** Private
- **Legal addr line1:** PO Box 6004
- **Legal city, st, zip:** San Ramon, CA 94583-2324
- **Legal country:** UNITED STATES
- **Legal phone nbr:** 877-386-6044
- **Legal effective date:** 03/06/2001
- **Land org name:** Chevron Products Co
- **Land org type:** Private
- **Land person name:** Not reported
- **Land addr line1:** PO Box 6004
- **Land city, st, zip:** San Ramon, CA 94583-2324
- **Land country:** UNITED STATES
- **Land phone nbr:** 877-386-6044
- **Operator org name:** Chevron Products Co
- **Operator org type:** Private
- **Operator addr line1:** 12500 Totem Lake Blvd NE
- **Operator city, st, zip:** Kirkland, WA 98034-7205
- **Operator country:** UNITED STATES
- **Operator phone nbr:** (425)821-1801
- **Operator effective date:** 10/10/1996
- **Site contact name:** Station Manager
- **Site contact addr line1:** 12500 Totem Lake Blvd NE
- **Site Contact City/State/Zip:** Kirkland, WA 98034-7205
- **Site Contact Country:** UNITED STATES
- **Site Contact Phone #:** 425-821-1801
- **Site Contact EMail:** NAWTDesk@chevron.com
- **Form Contact NAME:** Jocko Rodriguez
- **Form Contact ADDR LINE1:** PO Box 6004
- **Form Contact City,ST,Zip:** San Ramon, CA 94583-2324
- **Form Contact Country:** UNITED STATES
- **Form Contact Phone #:** 877-386-6044
- **Form Contact EMail:** NAWTDesk@chevron.com
- **Gen Status CD:** MQG
- **Monthly Generation:** True
- **Batch Generation:** False
- **One Time Generation:** False
- **Transport Own Waste:** False
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**Waste Streams Generated:**

- **Facility ID:** 43619955
- **Data Year:** 2008
- **Description:** PUMPING UNDER GROUND STORAGE TANKS GAS & WATER
- **Mix:** False
- **Reported Qty:** 50 LB
- **Kilo Qty:** 22.680000390096009
- **Density No:** 0
- **Density Qty:** Not reported

- **Facility ID:** 43619955
- **Data Year:** 2008
- **Description:** RAGS/PADS CONTAMINATED WITH GASOLINE
- **Mix:** False
- **Reported Qty:** 150 LB
- **Kilo Qty:** 68.040001170288022
- **Density No:** 0
- **Density Qty:** Not reported

- **Facility ID:** 43619955
- **Data Year:** 2008
- **Description:** SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE
- **Mix:** False
- **Reported Qty:** 8262 LB
- **Kilo Qty:** 3747.6432644594643
- **Density No:** 0
- **Density Qty:** Not reported

- **Facility ID:** 43619955
- **Data Year:** 2009
- **Description:** RAGS/PADS CONTAMINATED WITH GASOLINE
- **Mix:** False
- **Reported Qty:** 75 LB
- **Kilo Qty:** 34.020000390096009
- **Density No:** 0
- **Density Qty:** Not reported

- **Facility ID:** 43619955
- **Data Year:** 2009
- **Description:** spill bucket water contaminated with hydrocarbons and benzene
- **Mix:** False
- **Reported Qty:** 4131 LB
- **Kilo Qty:** 1873.8216322297321
- **Density No:** 0
- **Density Qty:** Not reported

**DOT ID:** 1000659281

**Site:** TOTEM LAKE CHEVRON 91144 (Continued)
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**Shipments Sent:**

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| Shipment sent data:      | 5/13/2008                 |
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<td>2011-08-05 00:00:00</td>
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TOTEM LAKE CHEVRON 91144 (Continued)

Waste Stream Comments:
- Facility ID: 43619955
  Data Year: 2008
  Comments: GAS & WATER MIX
- Facility ID: 43619955
  Data Year: 2008
  Comments: SPILL BUCKET WITH BENZENE
- Facility ID: 43619955
  Data Year: 2009
  Comments: spill bucket
- Facility ID: 43619955
  Data Year: 2010
  Comments: SPILL BUCKET
- Facility ID: 43619955
  Data Year: 2010
  Comments: Monthly Scheduled Clean Up
- Facility ID: 43619955
  Data Year: 2011
  Comments: Incineration
- Facility ID: 43619955
  Data Year: 2011
  Comments: Incineration
- Facility ID: 43619955
  Data Year: 2013
  Comments: absorbents/pad
- Facility ID: 43619955
  Data Year: 2014
  Comments: absorbents/pad

Facility Site ID Number: 43619955
EPA ID: WAD988489506
NAICS: 447110
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2017
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
TOTEM LAKE CHEVRON 91144 (Continued)  

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<tr>
<td>Site Contact EMail:</td>
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**TOTEM LAKE CHEVRON 91144 (Continued)**

| Facility ID: | 43619955 |
| Data Year: | 2008 |
| Description: | PUMPING UNDER GROUND STORAGE TANKS GAS & WATER |
| Mix: | False |
| Reported Qty: | 50 LB |
| Kilo Qty: | 22.680000390096009 |
| Density No: | 0 |
| Density Qty: | Not reported |

| Facility ID: | 43619955 |
| Data Year: | 2008 |
| Description: | RAGS/PADS CONTAMINATED WITH GASOLINE |
| Mix: | False |
| Reported Qty: | 150 LB |
| Kilo Qty: | 68.040001170288022 |
| Density No: | 0 |
| Density Qty: | Not reported |

| Facility ID: | 43619955 |
| Data Year: | 2008 |
| Description: | SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE |
| Mix: | False |
| Reported Qty: | 8262 LB |
| Kilo Qty: | 3747.6432644594643 |
| Density No: | 0 |
| Density Qty: | Not reported |

| Facility ID: | 43619955 |
| Data Year: | 2009 |
| Description: | RAGS/PADS CONTAMINATED WITH GASOLINE |
| Mix: | False |
| Reported Qty: | 75 LB |
| Kilo Qty: | 34.020000585144011 |
| Density No: | 0 |
| Density Qty: | Not reported |

<p>| Facility ID: | 43619955 |
| Data Year: | 2009 |
| Description: | spill bucket water contaminated with hydrocarbons and benzene |
| Mix: | False |
| Reported Qty: | 4131 LB |
| Kilo Qty: | 1873.821632297321 |
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<td>235 LB</td>
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TC5463995.2s Page 96
TOTEM LAKE CHEVRON 91144 (Continued)

Mix: False
Reported Qty: 235 LB
Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: UN1993, Waste Flammable Liquids, N.O.S. (Gasoline, Diesel Fuel), 3, PGII.
Mix: False
Reported Qty: 95 GAL
Kilo Qty: 359.602746
Density No: 8.34500000
Density Qty: PPG

Facility ID: 43619955
Data Year: 2014
Description: Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix: False
Reported Qty: 300 LB
Kilo Qty: 136.080002
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2014
Description: Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.607210
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2015
Description: Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix: False
Reported Qty: 514 LB
Kilo Qty: 233.150404
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2015
Description: Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix: False
Reported Qty: 918 LB
Kilo Qty: 416.404807
Density No: 0
Density Qty: Not reported

Shipment sent data:
Facility ID: 43619955
Data Year: 2008
Reported Qty: 50 LB
Kilo Qty: 22.680000390096
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TOTEM LAKE CHEVRON 91144 (Continued)

Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/9/2010
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 10/20/2010
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 4/12/2010
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/27/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/30/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/13/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 135 LB
Kilo Qty: 61.2360010

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-05-13 00:00:00
Reported Qty: 100 LB
Kilo Qty: 45.3600007

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 209 LB
Kilo Qty: 94.8024016

EDR ID Number: 1000659281
Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/9/2010
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 10/20/2010
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 4/12/2010
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/27/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/30/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/13/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 135 LB
Kilo Qty: 61.2360010

Facility ID: 43619955
Data Year: 2011
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Reported Qty: 100 LB
Kilo Qty: 45.3600007

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 209 LB
Kilo Qty: 94.8024016
TOTEM LAKE CHEVRON 91144 (Continued)  1000659281

Waste Stream Comments:
Facility ID: 43619955
Data Year: 2008
Comments: GAS & WATER MIX
Facility ID: 43619955
Data Year: 2008
Comments: SPILL BUCKET WITH BENZENE
Facility ID: 43619955
Data Year: 2009
Comments: spill bucket
Facility ID: 43619955
Data Year: 2010
Comments: SPILL BUCKET
Facility ID: 43619955
Data Year: 2010
Comments: Monthly Scheduled Clean Up
Facility ID: 43619955
Data Year: 2011
Comments: Incineration
Facility ID: 43619955
Data Year: 2011
Comments: Incineration
Facility ID: 43619955
Data Year: 2013
Comments: absorbents/pad
Facility ID: 43619955
Data Year: 2014
Comments: absorbents/pad

Facility Site ID Number: 43619955
EPA ID: WAD988489506
NAICS: 447110
SWC Desc: Not reported
FWC Desc: D001, D018
Form Comm: Not reported
Data Year: 2012
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
TOTEM LAKE CHEVRON 91144 (Continued)

- Smelter deferral: False
- Universal waste - batteries - generate: False
- Universal waste - thermostats - generate: False
- Universal waste - mercury - generate: False
- Universal waste - lamps - generate: False
- Universal waste - batteries - accumulate: False
- Universal waste - thermostats - accumulate: False
- Universal waste - mercury - accumulate: False
- Universal waste - lamps - accumulate: False
- Destination Facility for Universal Waste: False
- Off-specification used oil burner - utility boiler: False
- Off-specification used oil burner - industrial boiler: False
- Off-specification used oil burner - industrial furnace: False

- Tax Reg #: 409018069
- Business Type: Not reported
- Mail Name: Chevron Products Co
- Mail addr line1: PO Box 6004
- Mail city, st, zip: San Ramon, CA 94583-2324
- Mail country: UNITED STATES
- Legal org name: Totem Lake Chevron
- Legal org type: Private
- Legal addr line1: PO Box 6004
- Legal city, st, zip: San Ramon, CA 94583-2324
- Legal country: UNITED STATES
- Legal phone nbr: 877-386-6044
- Legal effective date: 03/06/2001
- Land org name: Chevron Products Co
- Land org type: Private
- Land person name: Not reported
- Land addr line1: PO Box 6004
- Land city, st, zip: San Ramon, CA 94583-2324
- Land country: UNITED STATES
- Land phone nbr: 877-386-6044
- Operator org name: Chevron Products Co
- Operator org type: Private
- Operator addr line1: 12500 Totem Lake Blvd NE
- Operator city, st, zip: Kirkland, WA 98034-7205
- Operator country: UNITED STATES
- Operator phone nbr: (425)821-1801
- Operator effective date: 10/10/1996
- Site contact name: Station Manager
- Site contact addr line1: 12500 Totem Lake Blvd NE
- Site Contact City/State/Zip: Kirkland, WA 98034-7205
- Site Contact Country: UNITED STATES
- Site Contact Phone #: 425-821-1801
- Site Contact EMail: NAWTDesk@chevron.com
- Form Contact NAME: Kathy Norris
- Form Contact ADDR LINE1: PO Box 6004
- Form Contact City, ST, Zip: San Ramon, CA 94583-2324
- Form Contact Country: UNITED STATES
- Form Contact Phone #: 877-386-6044
- Form Contact EMail: NAWTDesk@chevron.com
- Gen Status CD: MOG
- Monthly Generation: False
- Batch Generation: True
- One Time Generation: False
- Transport Own Waste: False
TOTEM LAKE CHEVRON 91144 (Continued) 1000659281

Tranports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:

Facility ID: 43619955
Data Year: 2008
Description: PUMPING UNDER GROUND STORAGE TANKS GAS & WATER
Mix: False
Reported Qty: 50 LB
Kilo Qty: 22.680000390096009
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 150 LB
Kilo Qty: 68.040001170288022
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE
Mix: False
Reported Qty: 8262 LB
Kilo Qty: 3747.6432644594643
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 75 LB
Kilo Qty: 34.020000585144011
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 4131 LB
Kilo Qty: 1873.821632297321
Density No: 0
Density Qty: Not reported
| Facility ID: | 43619955 | 1000659281 |
| Data Year: | 2010 | |
| Description: | RAGS/PAIDS CONTAMINATED WITH GASOLINE | |
| Mix: | False | |
| Reported Qty: | 425 LB | |
| Kilo Qty: | 192.78000331581606 | |
| Density No: | 0 | |
| Density Qty: | Not reported | |
| Facility ID: | 43619955 | |
| Data Year: | 2010 | |
| Description: | spill bucket water contaminated with hydrocarbons and benzene | |
| Mix: | False | |
| Reported Qty: | 1377 LB | |
| Kilo Qty: | 624.60721074324408 | |
| Density No: | 0 | |
| Density Qty: | Not reported | |
| Facility ID: | 43619955 | |
| Data Year: | 2011 | |
| Description: | RAGS/PAIDS CONTAMINATED WITH GASOLINE | |
| Mix: | False | |
| Reported Qty: | 235 LB | |
| Kilo Qty: | 106.596001 | |
| Density No: | 0 | |
| Density Qty: | Not reported | |
| Facility ID: | 43619955 | |
| Data Year: | 2011 | |
| Description: | spill bucket water contaminated with hydrocarbons and benzene | |
| Mix: | False | |
| Reported Qty: | 668 LB | |
| Kilo Qty: | 303.004805 | |
| Density No: | 0 | |
| Density Qty: | Not reported | |
| Facility ID: | 43619955 | |
| Data Year: | 2012 | |
| Description: | Spill Pads/Dispenser Fuel Filters/Dispenser Hoses w/Gas | |
| Mix: | False | |
| Reported Qty: | 230 LB | |
| Kilo Qty: | 104.328001 | |
| Density No: | 0 | |
| Density Qty: | Not reported | |
| Facility ID: | 43619955 | |
| Data Year: | 2012 | |
| Description: | spill bucket water contaminated with hydrocarbons and benzene | |
| Mix: | False | |
| Reported Qty: | 1385 LB | |
| Kilo Qty: | 628.236010 | |
| Density No: | 0 | |
| Density Qty: | Not reported | |
| Facility ID: | 43619955 | |
| Data Year: | 2013 | |
| Description: | NA3077, Hazardous Waste Solid, N.O.S. (Benzene DO18), 9, PGIII | |
TOTEM LAKE CHEVRON 91144 (Continued) 1000659281

Mix: False
Reported Qty: 235 LB
Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: UN1993, Waste Flammable Liquids, N.O.S. (Gasoline, Diesel Fuel), 3, PGII.
Mix: False
Reported Qty: 95 GAL
Kilo Qty: 359.602746
Density No: 8.34500000
Density Qty: PPG

Facility ID: 43619955
Data Year: 2014
Description: Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix: False
Reported Qty: 300 LB
Kilo Qty: 136.080002
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2014
Description: Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.607210
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2015
Description: Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix: False
Reported Qty: 514 LB
Kilo Qty: 233.150408
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2015
Description: Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix: False
Reported Qty: 918 LB
Kilo Qty: 416.404807
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 43619955
Data Year: 2008
Shipment sent data: 5/13/2008
Reported Qty: 50 LB
Kilo Qty: 22.680000390096
## MAP FINDINGS

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<th>Site</th>
<th>Elevation</th>
<th>Database(s)</th>
<th>EPA ID Number</th>
<th>EDR ID Number</th>
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<td>Data Year</td>
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<td>Reported Qty</td>
<td>Kilo Qty</td>
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<td>459 LB</td>
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<td>459 LB</td>
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**TOTEM LAKE CHEVRON 91144 (Continued)**

Reported Qty: 459 LB
Kilo Qty: 208.202403581081
Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/27/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081
Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/13/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081
Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 135 LB
Kilo Qty: 61.2360010
Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-05-13 00:00:00
Reported Qty: 100 LB
Kilo Qty: 45.3600007
Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 209 LB
Kilo Qty: 94.8024016
TOTEM LAKE CHEVRON 91144 (Continued) 1000659281

Waste Stream Comments:
- Facility ID: 43619955
  - Data Year: 2008
  - Comments: GAS & WATER MIX
- Facility ID: 43619955
  - Data Year: 2008
  - Comments: SPILL BUCKET WITH BENZENE
- Facility ID: 43619955
  - Data Year: 2009
  - Comments: spill bucket
- Facility ID: 43619955
  - Data Year: 2010
  - Comments: SPILL BUCKET
- Facility ID: 43619955
  - Data Year: 2010
  - Comments: Monthly Scheduled Clean Up
- Facility ID: 43619955
  - Data Year: 2011
  - Comments: Incineration
- Facility ID: 43619955
  - Data Year: 2011
  - Comments: Incineration
- Facility ID: 43619955
  - Data Year: 2013
  - Comments: absorbents/pad
- Facility ID: 43619955
  - Data Year: 2014
  - Comments: absorbents/pad

Facility Site ID Number: 43619955
EPA ID: WAD988489506
NAICS: 447110
SWC Desc: Not reported
FWC Desc: D001,D018
Form Comm: Not reported
Data Year: 2014
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
TOTEM LAKE CHEVRON 91144 (Continued)

| Smelter deferral: | False |
| Universal waste - batteries - generate: | False |
| Universal waste - thermostats - generate: | False |
| Universal waste - mercury - generate: | False |
| Universal waste - lamps - generate: | False |
| Universal waste - batteries - accumulate: | False |
| Universal waste - thermostats - accumulate: | False |
| Universal waste - mercury - accumulate: | False |
| Universal waste - lamps - accumulate: | False |
| Destination Facility for Universal Waste: | False |
| Off-specification used oil burner - utility boiler: | False |
| Off-specification used oil burner - industrial boiler: | False |
| Off-specification used oil burner - industrial furnace: | False |

| Tax Reg #: | 409018069 |
| Business Type: | Not reported |
| Mail Name: | Chevron Products Co |
| Mail line1: | PO Box 6004 |
| Mail city, st, zip: | San Ramon, CA 94583-2324 |
| Mail country: | UNITED STATES |
| Legal org name: | Totem Lake Chevron |
| Legal org type: | Private |
| Legal line1: | PO Box 6004 |
| Legal city, st, zip: | San Ramon, CA 94583-2324 |
| Legal country: | UNITED STATES |
| Legal phone nbr: | 877-386-6044 |
| Legal effective date: | 03/06/2001 |
| Land org name: | Chevron Products Co |
| Land org type: | Private |
| Land person name: | Not reported |
| Land line1: | PO Box 6004 |
| Land city, st, zip: | San Ramon, CA 94583-2324 |
| Land country: | UNITED STATES |
| Land phone nbr: | 877-386-6044 |
| Operator org name: | Chevron Products Co |
| Operator org type: | Private |
| Operator line1: | 12500 Totem Lake Blvd NE |
| Operator city, st, zip: | Kirkland, WA 98034-7205 |
| Operator country: | UNITED STATES |
| Operator phone nbr: | (425)821-1801 |
| Operator effective date: | 10/10/1996 |
| Site contact name: | Station Manager |
| Site contact line1: | 12500 Totem Lake Blvd NE |
| Site Contact City/State/Zip: | Kirkland, WA 98034-7205 |
| Site Contact Country: | UNITED STATES |
| Site Contact Phone #: | 425-821-1801 |
| Site Contact EMail: | NAWTDesk@chevron.com |
| Form Contact NAME: | Kathy Norris |
| Form Contact ADDR LINE1: | PO Box 6004 |
| Form Contact City, ST, Zip: | San Ramon, CA 94583-2324 |
| Form Contact Country: | UNITED STATES |
| Form Contact Phone #: | 877-386-6044 |
| Form Contact EMail: | NAWTDesk@chevron.com |
| Gen Status CD: | MQG |
| Monthly Generation: | False |
| Batch Generation: | True |
| One Time Generation: | False |
| Transport Own Waste: | False |
TOTEM LAKE CHEVRON 91144 (Continued)

Waste Streams Generated:

Facility ID: 43619955
Data Year: 2008
Description: PUMPING UNDER GROUND STORAGE TANKS GAS & WATER
Mix: False
Reported Qty: 50 LB
Kilo Qty: 22.680000390096009
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 150 LB
Kilo Qty: 68.040001170288022
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE
Mix: False
Reported Qty: 8262 LB
Kilo Qty: 3747.6432644594643
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 75 LB
Kilo Qty: 34.020000585144011
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 4131 LB
Kilo Qty: 1873.821632297321
Density No: 0
Density Qty: Not reported
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<thead>
<tr>
<th>Facility ID</th>
<th>Data Year</th>
<th>Description</th>
<th>Mix</th>
<th>Reported Qty</th>
<th>Kilo Qty</th>
<th>Density No</th>
<th>Density Qty</th>
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<td>1377 LB</td>
<td>624.60721074324408</td>
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<td>False</td>
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<td>303.004805</td>
<td>0</td>
<td>Not reported</td>
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<td>43619955</td>
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TOTEM LAKE CHEVRON 91144 (Continued)
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Mix: False
Reported Qty: 235 LB
Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: UN1993, Waste Flammable Liquids, N.O.S. (Gasoline, Diesel Fuel), 3, PGII.
Mix: False
Reported Qty: 95 GAL
Kilo Qty: 359.602746
Density No: 8.34500000
Density Qty: PPG

Facility ID: 43619955
Data Year: 2014
Description: Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix: False
Reported Qty: 300 LB
Kilo Qty: 136.080002
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2014
Description: Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.607210
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2015
Description: Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix: False
Reported Qty: 514 LB
Kilo Qty: 233.150404
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2015
Description: Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix: False
Reported Qty: 918 LB
Kilo Qty: 416.404807
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 43619955
Data Year: 2008
Shipment sent data: 5/13/2008
Reported Qty: 50 LB
Kilo Qty: 22.680000390096

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TOTEM LAKE CHEVRON 91144 (Continued) 1000659281

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/17/2008
Reported Qty: 90 LB
Kilo Qty: 40.8240007021728

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 6/11/2008
Reported Qty: 60 LB
Kilo Qty: 27.2160004681152

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/31/2008
Reported Qty: 3672 LB
Kilo Qty: 1665.61922864865

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/12/2008
Reported Qty: 4590 LB
Kilo Qty: 2082.02403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 12/10/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
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Reported Qty: 459 LB
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Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 4/15/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 2/27/2009
TOTEM LAKE CHEVRON 91144 (Continued)

Reported Qty: 459 LB
Kilo Qty: 208.202403581081
Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/27/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/30/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 135 LB
Kilo Qty: 61.2360010

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-05-13 00:00:00
Reported Qty: 100 LB
Kilo Qty: 45.3600007

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 209 LB
Kilo Qty: 94.8024016

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 4/12/2010
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 10/20/2010
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 2/9/2010
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 2011-08-05 00:00:00
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<td>Data Year:</td>
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<td>Comments:</td>
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Facility Site ID Number: 43619955
EPA ID: WAD988489506
NAICS: 447110
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2011
 Permit by Rule: False
 Treatment by Generator: False
 Mixed radioactive waste: False
 Importer of hazardous waste: False
 Immediate recycler: False
 Treatment/Storage/Disposal/Recycling Facility: False
 Generator of dangerous fuel waste: False
 Generator marketing to burner: False
 Other marketers (i.e., blender, distributor, etc.): False
 Utility boiler burner: False
 Industry boiler burner: False
 Industrial Furnace: False
### TOTEM LAKE CHEVRON 91144 (Continued)

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<tr>
<td>Universal waste - mercury - generate:</td>
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<tr>
<td>Mail city, st, zip:</td>
<td>San Ramon, CA 94583-2324</td>
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<tr>
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<td>Site Contact EM ail:</td>
<td><a href="mailto:NAWTDdesk@chevron.com">NAWTDdesk@chevron.com</a></td>
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<tr>
<td>Form Contact NAME:</td>
<td>Kathy Norris</td>
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TOTEM LAKE CHEVRON 91144 (Continued) 1000659281

- Tranports Other Waste: False
- Recycler Onsite: False
- Transfer Facility: False
- Other Exemption: Not reported
- UW Battery Gen: False
- Used Oil Transporter: False
- Used Oil Transfer Facility: False
- Used Oil Processor: False
- Used Oil Refiner: False
- Used Oil Fuel Marketer Directs Shipments: False
- Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:

1. Facility ID: 43619955
   - Data Year: 2008
   - Description: PUMPING UNDER GROUND STORAGE TANKS GAS & WATER
   - Mix: False
   - Reported Qty: 50 LB
   - Kilo Qty: 22.680000390096009
   - Density No: 0
   - Density Qty: Not reported

2. Facility ID: 43619955
   - Data Year: 2008
   - Description: RAGS/PADS CONTAMINATED WITH GASOLINE
   - Mix: False
   - Reported Qty: 150 LB
   - Kilo Qty: 68.040001170288022
   - Density No: 0
   - Density Qty: Not reported

3. Facility ID: 43619955
   - Data Year: 2008
   - Description: SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE
   - Mix: False
   - Reported Qty: 8262 LB
   - Kilo Qty: 3747.6432644594643
   - Density No: 0
   - Density Qty: Not reported

4. Facility ID: 43619955
   - Data Year: 2009
   - Description: RAGS/PADS CONTAMINATED WITH GASOLINE
   - Mix: False
   - Reported Qty: 75 LB
   - Kilo Qty: 34.020000585144011
   - Density No: 0
   - Density Qty: Not reported

5. Facility ID: 43619955
   - Data Year: 2009
   - Description: spill bucket water contaminated with hydrocarbons and benzene
   - Mix: False
   - Reported Qty: 4131 LB
   - Kilo Qty: 1873.8216322297321
   - Density No: 0
   - Density Qty: Not reported
TOTEM LAKE CHEVRON 91144 (Continued) 1000659281

Facility ID: 43619955
Data Year: 2010
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 425 LB
Kilo Qty: 192.78000331581606
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2010
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.60721074324408
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 235 LB
Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 668 LB
Kilo Qty: 303.004805
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: Spill Pads/Dispenser Fuel Filters/Dispenser Hoses w/Gas
Mix: False
Reported Qty: 230 LB
Kilo Qty: 104.328001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1385 LB
Kilo Qty: 628.236010
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: NA3077, Hazardous Waste Solid, N.O.S. (Benzene DO18), 9, PGIII

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TOTEM LAKE CHEVRON 91144 (Continued) 1000659281

Mix: False
Reported Qty: 235 LB
Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: UN1993, Waste Flammable Liquids, N.O.S. (Gasoline, Diesel Fuel), 3, PGII.
Mix: False
Reported Qty: 95 GAL
Kilo Qty: 359.602746
Density No: 8.34500000
Density Qty: PPG

Facility ID: 43619955
Data Year: 2014
Description: Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix: False
Reported Qty: 300 LB
Kilo Qty: 136.080002
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2014
Description: Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.607210
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2015
Description: Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix: False
Reported Qty: 514 LB
Kilo Qty: 233.150404
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2015
Description: Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix: False
Reported Qty: 918 LB
Kilo Qty: 416.404807
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 43619955
Data Year: 2008
Shipments sent data: 5/13/2008
Reported Qty: 50 LB
Kilo Qty: 22.680000390096
TOTEM LAKE CHEVRON 91144 (Continued) 1000659281

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<td>Kilo Qty</td>
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TC5463995.2s  Page 120
### TOTEM LAKE CHEVRON 91144 (Continued)

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<tr>
<td>Permit by Rule</td>
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<tr>
<td>Treatment by Generator</td>
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<tr>
<td>Mixed radioactive waste</td>
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</tr>
<tr>
<td>Importer of hazardous waste</td>
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</tr>
<tr>
<td>Immediate recycler</td>
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<tr>
<td>Treatment/Storage/Disposal/Recycling Facility</td>
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<tr>
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<tr>
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</tr>
<tr>
<td>Other marketers (i.e., blender, distributor, etc.)</td>
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<tr>
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**Waste Stream Comments:**

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<tbody>
<tr>
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</tr>
<tr>
<td>Comments</td>
<td>GAS &amp; WATER MIX</td>
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<table>
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<tr>
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<tbody>
<tr>
<td>Data Year</td>
<td>2008</td>
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<tr>
<td>Comments</td>
<td>SPILL BUCKET WITH BENZENE</td>
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<table>
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<tr>
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<tr>
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<tr>
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<tr>
<td>Data Year</td>
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<tbody>
<tr>
<td>Data Year</td>
<td>2010</td>
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<td>Comments</td>
<td>Monthly Scheduled Clean Up</td>
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<tbody>
<tr>
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<tbody>
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<td>Data Year</td>
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<tbody>
<tr>
<td>Data Year</td>
<td>2013</td>
</tr>
<tr>
<td>Comments</td>
<td>absorbents/pad</td>
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<tbody>
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<td>2014</td>
</tr>
<tr>
<td>Comments</td>
<td>absorbents/pad</td>
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<tr>
<td>Smelter deferral:</td>
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<tr>
<td>Universal waste - batteries - generate:</td>
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</tr>
<tr>
<td>Universal waste - thermostats - generate:</td>
<td>False</td>
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<tr>
<td>Universal waste - mercury - generate:</td>
<td>False</td>
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<tr>
<td>Universal waste - lamps - generate:</td>
<td>False</td>
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<tr>
<td>Universal waste - batteries - accumulate:</td>
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</tr>
<tr>
<td>Universal waste - thermostats - accumulate:</td>
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<tr>
<td>Universal waste - mercury - accumulate:</td>
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<tr>
<td>Universal waste - lamps - accumulate:</td>
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</tbody>
</table>

**Destination Facility for Universal Waste:** False

**Off-specification used oil burner - utility boiler:** False

**Off-specification used oil burner - industrial boiler:** False

**Off-specification used oil burner - industrial furnace:** False

**Tax Reg #:**

| 409018069 |

**Business Type:** Not reported

**Mail Name:** Chevron Products Co

**Mail addr line1:** PO Box 6004

**Mail city, st, zip:** San Ramon, CA 94583-2324

**Mail country:** UNITED STATES

**Legal org name:** Totem Lake Chevron

**Legal org type:** Private

**Legal addr line1:** PO Box 6004

**Legal city, st, zip:** San Ramon, CA 94583-2324

**Legal country:** UNITED STATES

**Legal phone nbr:** 877-386-6044

**Legal effective date:** 03/06/2001

**Land org name:** Chevron Products Co

**Land org type:** Private

**Land person name:** Not reported

**Land addr line1:** PO Box 6004

**Land city, st, zip:** San Ramon, CA 94583-2324

**Land country:** UNITED STATES

**Legal phone nbr:** 877-386-6044

**Operator org name:** Chevron Products Co

**Operator org type:** Private

**Operator addr line1:** 12500 Totem Lake Blvd NE

**Operator city, st, zip:** Kirkland, WA 98034-7205

**Operator country:** UNITED STATES

**Operator phone nbr:** (425)821-1801

**Operator effective date:** 10/10/1996

**Site contact name:** Station Manager

**Site contact addr line1:** 12500 Totem Lake Blvd NE

**Site Contact City/State/Zip:** Kirkland, WA 98034-7205

**Site Contact Country:** UNITED STATES

**Site Contact Phone #:** 425-821-1801

**Site Contact EMail:** NAWTDesk@chevron.com

**Form Contact NAME:** Kathy Norris

**Form Contact ADDR LINE1:** PO Box 6004

**Form Contact City,ST,Zip:** San Ramon, CA 94583-2324

**Form Contact Country:** UNITED STATES

**Form Contact Phone #:** 877-386-6044

**Form Contact EMail:** NAWTDesk@chevron.com

**Gen Status CD:** MQG

**Monthly Generation:** False

**Batch Generation:** True

**One Time Generation:** False

**Transport Own Waste:** False
TOTEM LAKE CHEVRON 91144 (Continued) 1000659281

Tranports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:
Facility ID: 43619955
Data Year: 2008
Description: PUMPING UNDER GROUND STORAGE TANKS GAS & WATER
Mix: False
Reported Qty: 50 LB
Kilo Qty: 22.680000390096009
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 150 LB
Kilo Qty: 68.040001170288022
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE
Mix: False
Reported Qty: 8262 LB
Kilo Qty: 3747.6432644594643
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 75 LB
Kilo Qty: 34.020000585144011
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 4131 LB
Kilo Qty: 1873.8216322297321
Density No: 0
Density Qty: Not reported
| Facility ID: | 43619955 |
| Data Year: | 2010 |
| Description: | RAGS/PADS CONTAMINATED WITH GASOLINE |
| Mix: | False |
| Reported Qty: | 425 LB |
| Kilo Qty: | 192.78000331581606 |
| Density No: | 0 |
| Density Qty: | Not reported |

| Facility ID: | 43619955 |
| Data Year: | 2010 |
| Description: | spill bucket water contaminated with hydrocarbons and benzene |
| Mix: | False |
| Reported Qty: | 1377 LB |
| Kilo Qty: | 624.60721074324408 |
| Density No: | 0 |
| Density Qty: | Not reported |

| Facility ID: | 43619955 |
| Data Year: | 2011 |
| Description: | RAGS/PADS CONTAMINATED WITH GASOLINE |
| Mix: | False |
| Reported Qty: | 235 LB |
| Kilo Qty: | 106.596001 |
| Density No: | 0 |
| Density Qty: | Not reported |

| Facility ID: | 43619955 |
| Data Year: | 2011 |
| Description: | spill bucket water contaminated with hydrocarbons and benzene |
| Mix: | False |
| Reported Qty: | 668 LB |
| Kilo Qty: | 303.004805 |
| Density No: | 0 |
| Density Qty: | Not reported |

| Facility ID: | 43619955 |
| Data Year: | 2012 |
| Description: | Spill Pads/Dispenser Fuel Filters/Dispenser Hoses w/Gas |
| Mix: | False |
| Reported Qty: | 230 LB |
| Kilo Qty: | 104.328001 |
| Density No: | 0 |
| Density Qty: | Not reported |

| Facility ID: | 43619955 |
| Data Year: | 2012 |
| Description: | spill bucket water contaminated with hydrocarbons and benzene |
| Mix: | False |
| Reported Qty: | 1385 LB |
| Kilo Qty: | 628.236010 |
| Density No: | 0 |
| Density Qty: | Not reported |

| Facility ID: | 43619955 |
| Data Year: | 2013 |
| Description: | NA3077, Hazardous Waste Solid, N.O.S. (Benzene DO18), 9, PGIII |

TOTEM LAKE CHEVRON 91144 (Continued) 1000659281
TOTEM LAKE CHEVRON 91144 (Continued)  1000659281

Mix: False
Reported Qty: 235 LB
Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: UN1993, Waste Flammable Liquids, N.O.S. (Gasoline, Diesel Fuel), 3, PGII.
Mix: False
Reported Qty: 95 GAL
Kilo Qty: 359.602746
Density No: 8.34500000
Density Qty: PPG

Facility ID: 43619955
Data Year: 2014
Description: Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix: False
Reported Qty: 300 LB
Kilo Qty: 136.080002
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2014
Description: Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.607210
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2015
Description: Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix: False
Reported Qty: 514 LB
Kilo Qty: 233.150404
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2015
Description: Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix: False
Reported Qty: 918 LB
Kilo Qty: 416.404807
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 43619955
Data Year: 2008
Shipment sent data: 5/13/2008
Reported Qty: 50 LB
Kilo Qty: 22.680000390096
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<th>Kilo Qty</th>
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TOTEM LAKE CHEVRON 91144 (Continued) 1000659281
TOTEM LAKE CHEVRON 91144 (Continued)

Waste Stream Comments:
- Facility ID: 43619955
  - Data Year: 2008
  - Comments: GAS & WATER MIX

- Facility ID: 43619955
  - Data Year: 2008
  - Comments: SPILL BUCKET WITH BENZENE

- Facility ID: 43619955
  - Data Year: 2009
  - Comments: spill bucket

- Facility ID: 43619955
  - Data Year: 2010
  - Comments: SPILL BUCKET

- Facility ID: 43619955
  - Data Year: 2010
  - Comments: Monthly Scheduled Clean Up

- Facility ID: 43619955
  - Data Year: 2011
  - Comments: Incineration

- Facility ID: 43619955
  - Data Year: 2011
  - Comments: Incineration

- Facility ID: 43619955
  - Data Year: 2013
  - Comments: absorbents/pad

- Facility ID: 43619955
  - Data Year: 2014
  - Comments: absorbents/pad
TOTEM LK TWIN-42 IN CULVERT REPLACEMENT  (Continued)  

MAP FINDINGS

Latitude: 47.710145713000003  
Longitude: -122.179475293  

---

15  

TOTEM LAKE MALL  

WNW  

12600 TOTEM LAKE BLVD NE  

< 1/8 mi.  

KIRKLAND, WA  98034  

Relative: ALLSITES:  

Lower  

Facility Name: TOTEM LAKE MALL DEVELOPEMENT  

Actual: 132 ft.  

Facility Id: 21126  

Interaction: 114368  

Interaction 1: A  

Interaction 2: CONSTSWGP  

Ecology Program: WATQUAL  

Program Data: PARIS  

Facility Alt.: Totem Lake Mall Development  

Program ID: WAR303348  

Date Interaction: 2015-08-11 00:00:00  

Date Interaction 2: Construction SW GP  

Latitude: 47.711845206  

Longitude: -122.18216942799999  

---

ASBESTOS:  

Facility Type: Mall  

Parent ID: 0  

Form ID: 110790#1511Rhine380674  

Notice Date: 01/18/2016  

Start Date: 01/28/2016  

Completion Date: 05/31/2016  

Initial: 1  

Amended: Not reported  

On Hold: Not reported  

Off Hold: Not reported  

Emergency: Not reported  

Site Hours Start: 7:00am  

Site Hours End: 3:30pm  

Sunday: Not reported  

Monday: 1  

Tuesday: 1  

Wednesday: 1  

Thursday: 1  

Friday: 1  

Saturday: Not reported  

Contractor ID: 1511  

Phone: 253-537-5852  

Job Site CAS: Kenny Bell  

Project Form Email: wendyd@rhinedemolition.com  

Property Owner Name: Not reported  

Property Owner Agent: Robert Minhondo  

Property Owner Company: Center Cal Properties, LLC  

Property Owner Address: 1600 E. Franklin Ave.  

Property Owner City: El Segundo  

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### TOTEM LAKE MALL (Continued)

<table>
<thead>
<tr>
<th>Property Owner State:</th>
<th>CA</th>
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<td>90245</td>
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<tr>
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<td>310-563-6900</td>
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Property Owner Zip4: 90245
Property Owner Phone: 310-563-6900
Job Site Room: Not reported
Facility Age: Not reported
Facility Size: Not reported
Facility Remodel: Not reported
Facility Demo: 1
Facility Repair: Not reported
Facility Maint: Not reported
Removed: 1
Encapsulated: Not reported
Quantity Sq Ft: 39928
Fireproofing: Not reported
Popcorn Ceiling: 1
CAB: Not reported
Sheet Vinyl: 1
Asbestos Paper: Not reported
Boiler Insulation: Not reported
Duct Paper: Not reported
VAT: Not reported
Roofing: 1
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Sq Ft Other Text: floor mastic
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Air Cell Pipe Insulation: Not reported
Ducting Insulation: Not reported
Cement Asbestos Pipe: Not reported
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Duct Tape: Not reported
Lin Ft Other1: Not reported
Lin Ft Other1 Text: Not reported
Lin Ft Other2: Not reported
Lin Ft Other2 Text: Not reported
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Outdoors: 1
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Glove Bag: Not reported
Mini Enclosure: Not reported
Critical Barriers: 1
Wrap And Cut: Not reported
Wet Methods: 1
HEPA Vacuum: 1
MANUALMETHODS: 1
Other CM1: Not reported
Other CM1 Text: Not reported
Other CM2: 1
Other CM2 Text: regulated area
Half Mask APR: 1
Full Face APR: Not reported
PAPR: Not reported
Type C Continuous: Not reported
Type C Pressure: 1
Other Resp Pro: Not reported
Other Resp Pro Text: Not reported
Comments: duct sealant, fire doors, gaskets
TOTEM LAKE MALL (Continued)

Date Time Submitted: 2016-01-18 09:57:54
Submitter IP Address: 23.25.140.105
Region: Not reported
UBI: Not reported
Notice type: Not reported
Project Type: Not reported
Supervisor: Not reported
Supervisor Phone: Not reported
Certificate Status: Not reported

Contractor:
Contractor ID: 1511
Contractor UBI: 603071050
Contractor Priority: M
Contractor Cris Num: RHINEDL893BE
Contractor Name: Rhine Demolition LLC
Contractor Status: Active
Contact Name: Wendy Dennis
Contact Phone: 2535375852
Contact Fax: 2535319548
Contractor Cert Prn Date: 2015-12-22 00:00:00
Contractor Original Date: 01/18/2011
Contractor Effective Date: 01/18/2011
Contractor Renewal Letter Date: 10/20/2016
Contractor Exp Date: 01/03/2017
Contractor Suspended Date: Not reported
Contractor Cnty Code: 27
Contractor Street Address: 1124 112TH ST EAST
Contractor City: TACOMA
Contractor State: WA
Contractor Zip: 984453710
Contractor Phone: 2535375852
Contractor Email: wendyd@rhinedemolition.com
Contractor Web Address: www.rhinedemolition.com
Contractor Mail Street Address: 1124 112TH ST EAST
Contractor Mail City: TACOMA
Contractor Mail State: WA
Contractor Mail Zip: 984453710
Contractor Memo: *Previously licensed as R.W. Rhine Inc, RHINERW346C1, asbestos contractor certificate #1462

Facility Type: Mall
Parent ID: 110790
Form ID: 111286#1511Rhine340035
Notice Date: 01/18/2016
Start Date: 01/28/2016
Completion Date: 05/31/2016
Initial: Not reported
Amended: 1
On Hold: 1
Off Hold: Not reported
Emergency: Not reported
Site Hours Start: 7:00am
Site Hours End: 3:30pm
Sunday: Not reported
Monday: 1
Tuesday: 1
### TOTEM LAKE MALL (Continued)

| Wednesday | Thursday | Friday | Saturday | Contractor ID | Phone | Job Site CAS | Project Form Email | Property Owner Name | Property Owner Agent | Property Owner Company | Property Owner Address | Property Owner City | Property Owner State | Property Owner Zip4 | Property Owner Phone | Job Site Room | Facility Age | Facility Size | Facility Remodel | Facility Demo | Facility Repair | Facility Maint | Removed | Encapsulated | Quantity Sq Ft | Fireproofing | Popcorn Ceiling | CAB | Sheet Vinyl | Asbestos Paper | Boiler Insulation | Duct Paper | VAT | Roofing | Sq Ft Other | Sq Ft Other Text | Quantity Lin Ft | Mag Pipe Insulation | Air Cell Pipe Insulation | Ducting Insulation | Cement Asbestos Pipe | Mudded Pipe Insulation | Duct Tape | Lin Ft Other1 | Lin Ft Other1 Text | Lin Ft Other2 | Lin Ft Other2 Text | Indoors | Outdoors | Neg Pres Enclosure | Glove Bag | Mini Enclosure | Critical Barriers | Wrap And Cut | Wet Methods | HEPA Vacuum |
|-----------|----------|--------|----------|--------------|-------|-------------|-------------------|---------------------|---------------------|----------------------|-----------------------|---------------------|-------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 1         | 1        | 1      | Not reported | 1511         | 253-537-5852 | Kenny Bell | wendyd@rhinedemolition.com | Not reported | Robert Minhondo | Center Cal Properties, LLC | 1600 E. Franklin Ave. | El Segundo | CA | 90245 | 310-563-6900 | Not reported | Not reported | Not reported | 1 | Not reported | 39928 | Not reported | 1 | Not reported | 1 | Not reported | 1 | Not reported | Not reported | floor mastic | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported |
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**Contractor**

- **Contractor ID:** 1511
- **Contractor UBI:** 603071050
- **Contractor Priority:** M
- **Contractor Cris Num:** RHINEDL893BE
- **Contractor Name:** Rhine Demolition LLC
- **Contractor Status:** Active
- **Contact Name:** Wendy Dennis
- **Contact Phone:** 2535375852
- **Contact Fax:** 2535319548
- **Contractor Cert Prn Date:** 2015-12-22 00:00:00
- **Contractor Original Date:** 01/18/2011
- **Contractor Effective Date:** 01/18/2011
- **Contractor Renewal Letter Date:** 10/20/2016
- **Contractor Exp Date:** 01/20/2016
- **Contractor Suspended Date:** Not reported
- **Contractor Cnty Code:** 27
- **Contractor Street Address:** 1124 112TH ST EAST
- **Contractor City:** TACOMA
- **Contractor State:** WA
- **Contractor Zip:** 984453710
- **Contractor Phone:** 2535375852
- **Contractor Email:** wendyd@rhinedemolition.com
- **Contractor Web Address:** www.rhinedemolition.com
- **Contractor Mail Street Address:** 1124 112TH ST EAST
- **Contractor Mail City:** TACOMA
- **Contractor Mail State:** WA
- **Contractor Mail Zip:** 984453710
- **Contractor Memo:** 
  *Previously licensed as R.W. Rhine Inc, RHINERW346C1, asbestos contractor certificate #1462*

**Other CM2 Text:** regulated area

**Type C Pressure:** 1

**Other Resp Pro:** Not reported

**Other Resp Pro Text:** Not reported

**Comments:** duct sealant, fire doors, gaskets

**Date Time Submitted:** 2016-01-29 13:19:51

**Submitter IP Address:** 23.25.140.105

**Contractor:**

- **Contractor:** Rhine Demolition LLC

**Contractor UBI:**

- **Contractor UBI:** 1511

**Contractor Priority:**

- **Contractor Priority:** M

**Contractor Cris Num:**

- **Contractor Cris Num:** RHINEDL893BE

**Contractor Name:**

- **Contractor Name:** Rhine Demolition LLC

**Contractor Status:**

- **Contractor Status:** Active

**Contact Name:**

- **Contact Name:** Wendy Dennis

**Contact Phone:**

- **Contact Phone:** 2535375852

**Contact Fax:**

- **Contact Fax:** 2535319548

**Contractor Cert Prn Date:**

- **Contractor Cert Prn Date:** 2015-12-22 00:00:00

**Contractor Original Date:**

- **Contractor Original Date:** 01/18/2011

**Contractor Effective Date:**

- **Contractor Effective Date:** 01/18/2011

**Contractor Renewal Letter Date:**

- **Contractor Renewal Letter Date:** 10/20/2016

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**Contractor City:**

- **Contractor City:** TACOMA

**Contractor State:**

- **Contractor State:** WA

**Contractor Zip:**

- **Contractor Zip:** 984453710

**Contractor Phone:**

- **Contractor Phone:** 2535375852

**Contractor Email:**

- **Contractor Email:** wendyd@rhinedemolition.com

**Contractor Web Address:**

- **Contractor Web Address:** www.rhinedemolition.com

**Contractor Mail Street Address:**

- **Contractor Mail Street Address:** 1124 112TH ST EAST

**Contractor Mail City:**

- **Contractor Mail City:** TACOMA

**Contractor Mail State:**

- **Contractor Mail State:** WA

**Contractor Mail Zip:**

- **Contractor Mail Zip:** 984453710

**Contractor Memo:**

- **Contractor Memo:** *Previously licensed as R.W. Rhine Inc, RHINERW346C1, asbestos contractor certificate #1462*
### JEFFERSON HOUSE MEMORY CARE

**Location:** KIRKLAND, WA 98034

**Relative:**
- **Higher:** ALLSITES: Facility Name: JEFFERSON HOUSE MEMORY CARE
- **Actual:** Facility Id: 13974

**Interaction Details:**
- Interaction: 118842
- Interaction 1: CONSTSWGP
- Interaction 2: WATQUAL
- Interaction 3: Construction SW GP

**Facility Information:**
- Facility Alt.: Jefferson House Memory Care
- Program ID: WAR304346
- Date Interaction: 2016-07-05 00:00:00
- Longitude: -122.176012716
- Latitude: 47.713707560000003
- Elevation: 669 ft.
- Distance: 0.127 mi.

**Contact Information:**
- Contractor ID: Not reported
- Site Hours Start: Not reported
- Site Hours End: Not reported
- Saturday: Not reported
- Sunday: Not reported
- Friday: 1
- Thursday: 1
- Wednesday: 1
- Tuesday: 1
- Monday: 1

**Additional Information:**
- Project Form Email: debif@ttnw-inc.com
- Property Owner Name: Chick-fil-A, Inc.

### (FORMER DENNYS RESTAURANT; FUTURE CHICK-FIL-A)

**Location:** KIRKLAND, WA 98034

**Relative:**
- **Higher:** ALLSITES: Facility Name: CHICK FIL A KIRKLAND
- **Actual:** Facility Id: 23687

**Type:** ASBESTOS

**Facility Information:**
- Facility Type: Restaurant
- Parent ID: 0
- Form ID: 134545#1210Therm070419
- Notice Date: 11/04/2016
- Start Date: 11/14/2016
- Completion Date: 12/30/2016

**Contact Information:**
- Contractor ID: 1210
- Phone: 253-984-1818
- Job Site CAS: Branton Watkins
- Project Form Email: debif@ttnw-inc.com
- Property Owner Name: Chick-fil-A, Inc.

**Site Details:**
- Elevation: 696 ft.
- Distance: 0.132 mi.

**Emergency Information:**
- Off Hold: Not reported
- On Hold: Not reported
- Emergency: Not reported
- Site Hours Start: 7:00 a.m.
- Site Hours End: 3:30 p.m.
- Saturday: Not reported
- Sunday: Not reported
### (FORMER DENNYSRESTAURANT;FUTURE CHICK-FIL-A) (Continued)

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### (FORMER DENNYS RESTAURANT; FUTURE CHICK-FIL-A) (Continued)

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<td><a href="http://www.thermatechnorthwestinc.com">www.thermatechnorthwestinc.com</a></td>
</tr>
<tr>
<td>Contractor Mail Street Address</td>
<td>10312 SALES RD S</td>
</tr>
<tr>
<td>Contractor Mail City</td>
<td>LAKEWOOD</td>
</tr>
<tr>
<td>Contractor Mail State</td>
<td>WA</td>
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<tr>
<td>Contractor Mail Zip</td>
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<td>Contractor Memo</td>
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<td>Facility Type</td>
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<td>Off Hold</td>
<td>Not reported</td>
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<td>Emergency</td>
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<tr>
<td>Site Hours Start</td>
<td>7:00 a.m.</td>
</tr>
<tr>
<td>Site Hours End</td>
<td>3:30 p.m.</td>
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</table>
MAP FINDINGS

Sunday: Not reported
Monday: 1
Tuesday: 1
Wednesday: Not reported
Thursday: Not reported
Friday: Not reported
Saturday: Not reported
Contractor ID: 1210
Phone: 253-984-1818
Job Site CAS: Branton Watkins
Project Form Email: debif@ttnw-inc.com
Property Owner Name: Chick-fil-A, Inc.
Property Owner Agent: David York
Property Owner Company: Not reported
Property Owner Address: 5200 Bluffington Rd
Property Owner City: Atlanta
Property Owner State: GA
Property Owner Zip4: 30349
Property Owner Phone: 858-231-0100
Job Site Room: throughout the structure
Facility Age: 1978
Facility Size: 5508 sq.ft.
Facility Remodel: Not reported
Facility Demo: 1
Facility Repair: Not reported
Facility Maint: Not reported
Removed: 1
Encapsulated: Not reported
Quantity Sq Ft: 1370
Fireproofing: Not reported
Popcorn Ceiling: Not reported
CAB: Not reported
Sheet Vinyl: 1
Asbestos Paper: Not reported
Boiler Insulation: Not reported
Duct Paper: Not reported
VAT: Not reported
Roofing: Not reported
Sq Ft Other: Not reported
Sq Ft Other Text: built up roofing, sealant
Quantity Lin Ft: 10
Mag Pipe Insulation: Not reported
Air Cell Pipe Insulation: Not reported
Ducting Insulation: Not reported
Cement Asbestos Pipe: Not reported
Muddied Pipe Insulation: Not reported
Duct Tape: Not reported
Lin Ft Other1: 1
Lin Ft Other1 Text: muddied elbow joints
Lin Ft Other2: Not reported
Lin Ft Other2 Text: Not reported
Indoors: 1
Outdoors: 1
Neg Pres Enclosure: Not reported
Glove Bag: Not reported
Mini Enclosure: Not reported
Critical Barriers: 1

TC5463995.2s  Page 137
(FORMER DENNYS RESTAURANT;FUTURE CHICK-FIL-A) (Continued)

Wrap And Cut: 1
Wet Methods: 1
HEPA Vacuum: 1
MANUALMETHODS: 1
Other CM1: Not reported
Other CM1 Text: Not reported
Other CM2: Not reported
Other CM2 Text: Not reported
Half Mask APR: 1
Full Face APR: Not reported
PAPR: Not reported
Type C Continuous: Not reported
Type C Pressure: Not reported
Other Resp Pro: Not reported
Other Resp Pro Text: Not reported
Comments: Completed Tuesday 11-22-16.
Date Time Submitted: 2016-11-23 06:43:43
Submitter IP Address: 75.151.101.37
Region: Not reported
UBI: Not reported
Notice type: Not reported
Project Type: Not reported
Supervisor: Not reported
Supervisor Phone: Not reported
Certificate Status: Not reported

Contractor:
Contractor ID: 1210
Contractor UBI: 601725020
Contractor Priority: L
Contractor Cris Num: THERMNI044NT
Contractor Name: Thermatech Northwest Inc
Contractor Status: Active
Contact Name: SANDRA GUILEY
Contact Phone: 2539841818
Contact Fax: 2539841886
Contractor Cert Prn Date: 2016-04-04 00:00:00
Contractor Original Date: 08/30/1996
Contractor Effective Date: 04/08/2009
Contractor Renewal Letter Date: 01/22/2016
Contractor Exp Date: 04/01/2017
Contractor Suspended Date: Not reported
Contractor Cnty Code: 27
Contractor Street Address: 10312 SALES RD S
Contractor City: LAKEWOOD
Contractor State: WA
Contractor Zip: 98499
Contractor Phone: 2539841818
Contractor Email: sandrag@ttnw-inc.com
Contractor Web Address: www.thermatechnorthwestinc.com
Contractor Mail Street Address: 10312 SALES RD S
Contractor Mail City: LAKEWOOD
Contractor Mail State: WA
Contractor Mail Zip: 98499
Contractor Memo: Not reported

Facility Type: Restaurant
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<td>11/14/2016</td>
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<td>Initial</td>
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<tr>
<td>On Hold</td>
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</tr>
<tr>
<td>Off Hold</td>
<td>Not reported</td>
</tr>
<tr>
<td>Emergency</td>
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</tr>
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<td>Site Hours Start</td>
<td>7:00 a.m.</td>
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<tr>
<td>Site Hours End</td>
<td>3:30 p.m.</td>
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<td>Sunday</td>
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<td>Not reported</td>
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<td>Contractor ID</td>
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<td>Phone</td>
<td>253-984-1818</td>
</tr>
<tr>
<td>Job Site CAS</td>
<td>Branton Watkins</td>
</tr>
<tr>
<td>Project Form Email</td>
<td><a href="mailto:debil@ttnw-inc.com">debil@ttnw-inc.com</a></td>
</tr>
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<tr>
<td>Property Owner Agent</td>
<td>David York</td>
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<td>Property Owner Company</td>
<td>Not reported</td>
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<tr>
<td>Property Owner Address</td>
<td>5200 Bluffington Rd</td>
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<tr>
<td>Property Owner City</td>
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<td>Property Owner Zip4</td>
<td>30349</td>
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<td>Job Site Room</td>
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<td>Facility Age</td>
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<td>Facility Size</td>
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<tr>
<td>Facility Remodel</td>
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<tr>
<td>Facility Demo</td>
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</tr>
<tr>
<td>Facility Repair</td>
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</tr>
<tr>
<td>Facility Maint</td>
<td>Not reported</td>
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<tr>
<td>Removed</td>
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<tr>
<td>Encapsulated</td>
<td>Not reported</td>
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<tr>
<td>Quantity Sq Ft</td>
<td>1370</td>
</tr>
<tr>
<td>Fireproofing</td>
<td>Not reported</td>
</tr>
<tr>
<td>Popcorn Ceiling</td>
<td>Not reported</td>
</tr>
<tr>
<td>CAB</td>
<td>Not reported</td>
</tr>
<tr>
<td>Sheet Vinyl</td>
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</tr>
<tr>
<td>Asbestos Paper</td>
<td>Not reported</td>
</tr>
<tr>
<td>Boiler Insulation</td>
<td>Not reported</td>
</tr>
<tr>
<td>Duct Paper</td>
<td>Not reported</td>
</tr>
<tr>
<td>VAT</td>
<td>Not reported</td>
</tr>
<tr>
<td>Roofing</td>
<td>Not reported</td>
</tr>
<tr>
<td>Sq Ft Other</td>
<td>Not reported</td>
</tr>
<tr>
<td>Sq Ft Other Text</td>
<td>builtin roofing, sealant</td>
</tr>
<tr>
<td>Quantity Lin Ft</td>
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</tr>
<tr>
<td>Mag Pipe Insulation</td>
<td>Not reported</td>
</tr>
<tr>
<td>Air Cell Pipe Insulation</td>
<td>Not reported</td>
</tr>
<tr>
<td>Ducting Insulation</td>
<td>Not reported</td>
</tr>
<tr>
<td>Cement Asbestos Pipe</td>
<td>Not reported</td>
</tr>
</tbody>
</table>

**Property Owner**

- **Phone:** 30349
- **Address:** 5200 Bluffington Rd, Atlanta, GA
- **Company:** David York
- **Agent:** Chick-fil-A, Inc.
- **Email:** debil@ttnw-inc.com

**Contractor**

- **Name:** Branton Watkins
- **Phone:** 253-984-1818
- **Email:** debil@ttnw-inc.com

**Additional Information**

- **Job Site Room:** throughout the structure
- **Facility Age:** 1978
- **Facility Size:** 5508 sq.ft.
- **Facility Remodel:** Not reported
- **Facility Demo:** 1
- **Facility Repair:** Not reported
- **Facility Maint:** Not reported
- **Encapsulated:** Not reported
- **Quantity Sq Ft:** 1370
- **Fireproofing:** Not reported
- **Popcorn Ceiling:** Not reported
- **CAB:** Not reported
- **Sheet Vinyl:** 1
- **Asbestos Paper:** Not reported
- **Boiler Insulation:** Not reported
- **Duct Paper:** Not reported
- **VAT:** Not reported
- **Roofing:** Not reported
- **Sq Ft Other:** Not reported
- **Sq Ft Other Text:** builtin roofing, sealant
- **Quantity Lin Ft:** 10
- **Mag Pipe Insulation:** Not reported
- **Air Cell Pipe Insulation:** Not reported
- **Ducting Insulation:** Not reported
- **Cement Asbestos Pipe:** Not reported
(FORMER DENNYS RESTAURANT;FUTURE CHICK-FIL-A) (Continued) S118821145

Mudded Pipe Insulation: Not reported
Duct Tape: Not reported
Lin Ft Other1: 1
Lin Ft Other1 Text: mudded elbow joints
Lin Ft Other2: Not reported
Lin Ft Other2 Text: Not reported
Indoors: 1
Outdoors: 1
Neg Pres Enclosure: Not reported
Glove Bag: Not reported
Mini Enclosure: Not reported
Critical Barriers: 1
Wrap And Cut: 1
Wet Methods: 1
HEPA Vacuum: 1
MANUALMETHODS : 1
Other CM1: Not reported
Other CM1 Text: Not reported
Other CM2: Not reported
Other CM2 Text: Not reported
Half Mask APR: 1
Full Face APR: Not reported
PAPR: Not reported
Type C Continuous: Not reported
Type C Pressure: Not reported
Other Resp Pro: Not reported
Other Resp Pro Text: Not reported
Comments: ON HOLD Monday 11-14-16 at 730am
Date Time Submitted: 2016-11-14 07:41:30
Submitter IP Address: 75.151.101.37
Region: Not reported
UBI: Not reported
Notice type: Not reported
Project Type: Not reported
Supervisor: Not reported
Supervisor Phone: Not reported
Certificate Status: Not reported

Contractor:
Contractor ID: 1210
Contractor UBI: 601725020
Contractor Priority: L
Contractor Cris Num: THERMNI044NT
Contractor Name: Thermatech Northwest Inc
Contractor Status: Active
Contact Name: SANDRA GUILEY
Contact Phone: 2539841818
Contact Fax: 2539841886
Contractor Cert Prn Date: 2016-04-04 00:00:00
Contractor Original Date: 08/30/1996
Contractor Effective Date: 04/08/2009
Contractor Renewal Letter Date: 01/22/2016
Contractor Exp Date: 04/01/2017
Contractor Suspended Date: Not reported
Contractor Cnty Code: 27
Contractor Street Address: 10312 SALES RD S
Contractor City: LAKewood
Contractor State: WA
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<th>Distance</th>
<th>Elevation</th>
<th>Site</th>
<th>Elevations</th>
<th>Distance</th>
<th>Elevation</th>
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### Contractor Information
- **Contractor Zip:** 98499
- **Contractor Phone:** 2539841818
- **Contractor Email:** sandra@ttnw-inc.com
- **Contractor Web Address:** www.thermatechnorthwestinc.com
- **Contractor Mail Street Address:** 10312 SALES RD S
- **Contractor Mail City:** LAKEWOOD
- **Contractor Mail State:** WA
- **Contractor Mail Zip:** 98499
- **Contractor Memo:** Not reported

### Facility Information
- **Facility Type:** Restaurant
- **Parent ID:** 134545
- **Form ID:** 134926###1210Therm289042
- **Notice Date:** 11/16/2016
- **Start Date:** 11/21/2016
- **Completion Date:** 12/30/2016
- **Initial:** Not reported
- **Amended:** 1
- **On Hold:** Not reported
- **Off Hold:** 1
- **Emergency:** Not reported
- **Site Hours Start:** 7:00 a.m.
- **Site Hours End:** 3:30 p.m.
- **Sunday:** Not reported
- **Monday:** 1
- **Tuesday:** 1
- **Wednesday:** 1
- **Thursday:** 1
- **Friday:** 1
- **Saturday:** Not reported
- **Contractor ID:** 1210
- **Contractor Phone:** 253-984-1818
- **Job Site CAS:** Branton Watkins
- **Project Form Email:** debif@ttnw-inc.com
- **Property Owner Name:** Chick-fil-A, Inc.
- **Property Owner Agent:** David York
- **Property Owner Company:** Not reported
- **Property Owner Address:** 5200 Bluffington Rd
- **Property Owner City:** Atlanta
- **Property Owner State:** GA
- **Property Owner Zip:** 30349
- **Property Owner Phone:** 858-231-0100
- **Job Site Room:** throughout the structure
- **Facility Age:** 1978
- **Facility Size:** 5508 sq.ft.
- **Facility Remodel:** Not reported
- **Facility Demo:** 1
- **Facility Repair:** Not reported
- **Facility Maint:** Not reported
- **Removed:** 1
- **Encapsulated:** Not reported
- **Quantity Sq Ft:** 1370
- **Fireproofing:** Not reported
- **Popcorn Ceiling:** Not reported
- **CAB:** Not reported
- **Sheet Vinyl:** 1
Asbestos Paper: Not reported
Boiler Insulation: Not reported
Duct Paper: Not reported
VAT: Not reported
Roofing: Not reported
Sq Ft Other: Not reported
Sq Ft Other Text: built up roofing, sealant
Quantity Lin Ft: 10
Mag Pipe Insulation: Not reported
Air Cell Pipe Insulation: Not reported
Ducting Insulation: Not reported
Cement Asbestos Pipe: Not reported
Mudded Pipe Insulation: Not reported
Duct Tape: Not reported
Lin Ft Other 1: 1
Lin Ft Other 1 Text: mudded elbow joints
Lin Ft Other 2: Not reported
Lin Ft Other 2 Text: Not reported
Indoors: 1
Outdoors: 1
Neg Pres Enclosure: Not reported
Glove Bag: Not reported
Mini Enclosure: Not reported
Critical Barriers: 1
Wrap And Cut: 1
Wet Methods: 1
HEPA Vacuum: 1
MANUALMETHODS: 1
Other CM1: Not reported
Other CM1 Text: Not reported
Other CM2: Not reported
Other CM2 Text: Not reported
Half Mask APR: 1
Full Face APR: Not reported
PAPR: Not reported
Type C Continuous: Not reported
Type C Pressure: Not reported
Other Resp Pro: Not reported
Other Resp Pro Text: Not reported
Comments: OFF HOLD and Amend start date to Monday 11-21-16
Date Time Submitted: 2016-11-16 09:01:03
Submitter IP Address: 75.151.101.37
Region: Not reported
UBI: Not reported
Notice type: Not reported
Project Type: Not reported
Supervisor: Not reported
Supervisor Phone: Not reported
Certificate Status: Not reported
Contractor:
Contractor ID: 1210
Contractor UBI: 601725020
Contractor Priority: L
Contractor Cris Num: THERMNI044NT
Contractor Name: Thermotech Northwest Inc
Contractor Status: Active
Contact Name: SANDRA GUILEY
(FORMER DENNYS RESTAURANT;FUTURE CHICK-FIL-A) (Continued)

Contact Phone: 2539841818
Contact Fax: 2539841886
Contractor Cert Prn Date: 2016-04-04 00:00:00
Contractor Original Date: 08/30/1996
Contractor Effective Date: 04/08/2009
Contractor Renewal Letter Date: 01/22/2016
Contractor Exp Date: 04/01/2017
Contractor Suspended Date: Not reported
Contractor Cnty Code: 27
Contractor Street Address: 10312 SALES RD S
Contractor City: LAKEWOOD
Contractor State: WA
Contractor Zip: 98499
Contractor Phone: 2539841818
Contractor Email: sandrag@ttnw-inc.com
Contractor Web Address: www.thermatechnorthwestinc.com
Contractor Mail Street Address: 10312 SALES RD S
Contractor Mail City: LAKEWOOD
Contractor Mail State: WA
Contractor Mail Zip: 98499
Contractor Memo: Not reported

18 SW WA DOT TOTEM LAKE INTERCHANGE
I405 BETWEEN NE 118TH ST & NE 137T
1/8-1/4
0.133 mi.
702 ft.
Relative: ALLSITES:
Higher: Facility Name: WA DOT TOTEM LAKE INTERCHANGE
Actual: Facility Id: 21859
144 ft.
Interaction: 83905
Interaction 1: I
Interaction 2: CONSTSWGP
Ecology Program: WATQUAL
Program Data: PARIS
Facility Alt.: WA DOT TOTEM LAKE INTERCHANGE
Program ID: WAR005933
Date Interaction: 2004-11-08 00:00:00
Date Interaction 3: Construction SW GP
Latitude: 47.709994361
Longitude: -122.1809851059999

C19 SSE CAR WASH ENTERPRISES CWE
12302 NE 124TH ST
1/8-1/4
0.148 mi.
779 ft.
Site 1 of 4 in cluster C
Relative: ALLSITES:
Higher: Facility Name: WA HSL
Actual: Facility Id: 1000838825
137 ft.
Interaction: WA CSCSL
Interaction 1: WA LUST
Interaction 2: WA UST
Program Data: WATQUAL
Facility Alt.: RCRA NonGen / NLR
Program ID: FINDS
Date Interaction: 2004-11-08 00:00:00
Date Interaction 3: Construction SW GP
Latitude: 47.709994361
Longitude: -122.1809851059999

WA MANIFEST
ECHO
FINDS
RCRA NonGen / NLR
WA HSL
WA CSCSL
WA LUST
WA UST
WA ALLSITES
WA MANIFEST
### CAR WASH ENTERPRISES CWE (Continued)

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<tr>
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<th>Direction</th>
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<th>Elevation</th>
<th>Site</th>
<th>Database(s)</th>
<th>EPA ID Number</th>
<th>EDR ID Number</th>
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**HSL:**
- edr_fstat: WA
- edr_fzip: Not reported
- edr_fcnty: KING
- edr_zip: Not reported
- **Facility Type:** Hazardous Sites List
- Facility Status: Cleanup Started
- FSID Number: 83988889
- Rank: 4
- Region: NW
- EDR Link ID: 83988889
- Region Decode: NORTHWEST REGIONAL OFFICE

**CSCSL:**
- Facility ID: 83988889
- Region: Northwest
- Lat/Long: 47.709141992 / -122.17714461
- Brownfield Status: Not reported
- Rank Status: 4
- Clean Up Siteid: 6745
- Site Status: Cleanup Started
- PSI?: Not reported
- Contaminant Name: Benzene
- Ground Water: Confirmed Above Cleanup Level
- Surface Water: Not reported
- Soil: Confirmed Above Cleanup Level
- Sediment: Not reported
- Air: Not reported
- Bedrock: Not reported
- Responsible Unit: Northwest

**Additional Site:**
- Facility ID: 83988889
- Region: Northwest
- Lat/Long: 47.709141992 / -122.17714461
- Brownfield Status: Not reported
- Rank Status: 4
- Clean Up Siteid: 6745
- Site Status: Cleanup Started
- PSI?: Not reported
- Contaminant Name: Lead
- Ground Water: Confirmed Above Cleanup Level
- Surface Water: Not reported
- Soil: Confirmed Above Cleanup Level
- Sediment: Not reported
- Air: Not reported
- Bedrock: Not reported
- Responsible Unit: Northwest
CAR WASH ENTERPRISES CWE  (Continued)  1000838825

Contaminant Name: Metals Priority Pollutants
Ground Water: Confirmed Above Cleanup Level
Surface Water: Not reported
Soil: Not reported
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

Facility ID: 83988889
Region: Northwest
Lat/Long: 47.709141992 / -122.17714461
Brownfield Status: Not reported
Rank Status: 4
Clean Up Siteid: 6745
Site Status: Cleanup Started
PSI?: Not reported
Contaminant Name: Petroleum-Diesel
Ground Water: Not reported
Surface Water: Not reported
Soil: Remediated-Below Cleanup Level
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

Facility ID: 83988889
Region: Northwest
Lat/Long: 47.709141992 / -122.17714461
Brownfield Status: Not reported
Rank Status: 4
Clean Up Siteid: 6745
Site Status: Cleanup Started
PSI?: Not reported
Contaminant Name: Petroleum-Gasoline
Ground Water: Confirmed Above Cleanup Level
Surface Water: Not reported
Soil: Confirmed Above Cleanup Level
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

Facility ID: 83988889
Region: Northwest
Lat/Long: 47.709141992 / -122.17714461
Brownfield Status: Not reported
Rank Status: 4
Clean Up Siteid: 6745
Site Status: Cleanup Started
PSI?: Not reported
Contaminant Name: Petroleum-Other
Ground Water: Confirmed Above Cleanup Level
Surface Water: Not reported
Soil: Confirmed Above Cleanup Level
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest
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<td>Single Wall Tank</td>
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CAR WASH ENTERPRISES CWE (Continued) 1000838825

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Tank Overfill Prevention: Not reported
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Tank Construction: Single Wall Tank
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Tank Corrosion Protection: Not reported
Tank Manifold: Not reported
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Pipe Material: Steel
Pipe Construction: Not reported
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Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Pipe Pumping System: Not reported
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

Tank Name: 3SUPER
Tag Number: A8445
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 00/31/1964
Tank Closure Date: Not reported
Capacity Range: Not reported
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Tank Upgrade Date: Not reported
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Tank Overfill Prevention: Not reported
Tank Material: Steel
Tank Construction: Single Wall Tank
Tank Tightness Test: Not reported
Tank Corrosion Protection: Not reported
Tank Manifold: Not reported
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Pipe Material: Steel
Pipe Construction: Not reported
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Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Pipe Pumping System: Not reported
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

Tank Name: DSL
Tag Number: A8445
Tank Status: Removed
Tank Status Date: 06/01/2010
Tank Install Date: 00/28/1990
Tank Closure Date: 04/01/2005
Capacity Range: 5,000 to 9,999 Gallons
### CAR WASH ENTERPRISES CWE (Continued)

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CAR WASH ENTERPRISES CWE  (Continued)

Program ID: 6895
Date Interaction: 1990-08-17 00:00:00
Date Interaction 3: LUST Facility
Latitude: 47.709137575
Longitude: -122.177128078

Interaction: 67536
Interaction 1: I
Interaction 2: TIER2
Ecology Program: HAZWASTE
Program Data: EPCRA
Facility Alt.: Not reported
Program ID: WAD988516290
Date Interaction: 1992-01-01 00:00:00
Date Interaction 3: Emergency/Haz Chem Rpt T
Latitude: 47.709137575
Longitude: -122.177128078

Interaction: 67538
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD988516290
Date Interaction: 1993-01-06 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.709137575
Longitude: -122.177128078

Interaction: 67537
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD988516290
Date Interaction: 1993-01-06 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.709137575
Longitude: -122.177128078

Interaction: 67539
Interaction 1: A
Interaction 2: UST
Ecology Program: TOXICS
Program Data: UST
Facility Alt.: Not reported
Program ID: 6895
Date Interaction: 2000-03-20 00:00:00
Date Interaction 3: Underground Storage Tank
Latitude: 47.709137575
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**RCRA NonGen / NLR:**

Date form received by agency: 05/02/2005

Facility name: CAR WASH ENTERPRISES CWE

Facility address: 12302 NE 124TH ST
KIRKLAND, WA 98034

EPA ID: WAD988516290

Mailing address: 3977 LEARY WAY NW
SEATTLE, WA 98107

Contact: CAR WASH ENTERP  CAR WASH ENTERP

Contact address: 3977 LEARY WAY NW
SEATTLE, WA 98107

Contact country: US

Contact telephone: 000-000-0000

Contact email: Not reported

EPA Region: 10

Classification: Non-Generator

Description: Handler: Non-Generators do not presently generate hazardous waste

**Owner/Operator Summary:**

Owner/operator name: CAR WASH ENTERP C

Owner/operator address: 3977 LEARY WAY NW
SEATTLE, WA 98107

Owner/operator country: US

Owner/operator telephone: 281-293-1000

Owner/operator email: Not reported

Owner/operator fax: Not reported

Owner/operator extension: Not reported

Legal status: Private

Owner/Operator Type: Owner

Owner/Op start date: 03/02/1997
CAR WASH ENTERPRISES CWE (Continued)

Owner/Op end date: Not reported
Owner/operator name: TOM N
Owner/operator address: 3977 LEARY WAY NW
                      SEATTLE, WA 98107
Owner/operator country: US
Owner/operator telephone: 206-789-3700
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/01/1900
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 12/31/2003
Site name: CIRCLE K STORE 5495 BP OIL
Classification: Not a generator, verified

Date form received by agency: 02/26/2003
Site name: CIRCLE K STORE 5495 BP OIL
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:
Registry ID: 110005382870

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a
means to query and display data maintained by the Washington
Department of Ecology. This system contains key information for each
facility/site that is currently, or has been, of interest to the Air
Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water
Quality Programs.

RCRAInfo is a national information system that supports the Resource
Conservation and Recovery Act (RCRA) program through the tracking of
### CAR WASH ENTERPRISES CWE (Continued)

<table>
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<th>Elevation</th>
<th>Site</th>
<th>Database(s)</th>
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<th>EDR ID Number</th>
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</table>

 events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

**ECHO:**
- Envid: 1000838825
- Registry ID: 110005382870

**WA MANIFEST:**
- Facility Site ID Number: 22463
- EPA ID: WAH000039734
- NAICS: 446110
- SWC Desc: WP01,WT02
- FWC Desc: D001,D002,D007,D009,D010,D011,D024,D026,P001,P075,U165
- Form Comm: Not reported
- Data Year: 2017
- Permit by Rule: False
- Treatment by Generator: False
- Mixed radioactive waste: False
- Importer of hazardous waste: False
- Immediate recycler: False
- Treatment/Storage/Disposal/Recycling Facility: False
- Generator of dangerous fuel waste: False
- Generator marketing to burner: False
- Other marketers (i.e., blender, distributor, etc.): False
- Utility boiler burner: False
- Industry boiler burner: False
- Industrial Furnace: False
- Smelter deferral: False
- Universal waste - batteries - generate: False
- Universal waste - thermostats - generate: False
- Universal waste - mercury - generate: False
- Universal waste - lamps - generate: False
- Universal waste - batteries - accumulate: False
- Universal waste - thermostats - accumulate: False
- Universal waste - mercury - accumulate: False
- Universal waste - lamps - accumulate: False
- Destination Facility for Universal Waste: False
- Off-specification used oil burner - utility boiler: False
- Off-specification used oil burner - industrial boiler: False
- Off-specification used oil burner - industrial furnace: False
- Tax Reg #: 601637571
- Business Type: Retail
- Mail Name: Rite Aid Corp
- Mail addr line1: 30 Hunter Lane
- Mail city, st, zip: Camp Hill, PA 17011
- Mail country: UNITED STATES
- Legal org name: Thrifty Payless Inc

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CAR WASH ENTERPRISES CWE (Continued)

Data Year: 2016
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 601637571
Business Type: Retail
Mail Name: Rite Aid Corp
Mail addr line1: 30 Hunter Lane
Mail city, st, zip: Camp Hill, PA 17011
Mail country: UNITED STATES
Legal org name: Thrifty Payless Inc
Legal org type: Private
Legal addr line1: 30 Hunter Lane
Legal city, st, zip: Camp Hill, PA 17011
Legal country: UNITED STATES
Legal phone nbr: 717-761-2633
Legal effective date: 11/16/2006
Land org name: Kirkland Totem Lake VI, LLC
Land org type: Private
Land person name: Bruce Cowgill
Land addr line1: 2760 E Spring Street,
Land addr line2: Suite 200
Land city, st, zip: Longbeach, CA 90806
Land country: UNITED STATES
Land phone nbr: (562) 490-0098
Operator org name: Rite Aid Corp
Operator org type: Private
Operator addr line1: 30 Hunter Lane
Operator city, st, zip: Camp Hill, PA 17011
Operator country: UNITED STATES
Operator phone nbr: 717-761-2633
Operator effective date: 11/16/2006
Site contact name: Store Manager
Site contact addr line1: 12421 Totem Lake Blvd NE
Site Contact City/State/ Zip: Kirkland, WA 98034

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<table>
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<td>Form Contact NAME:</td>
<td>David W Crozier</td>
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<tr>
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Facility Site ID Number: 22463
EPA ID: WAH000039734
NAICS: 446110
SWC Desc: WT02, WP01
FWC Desc: D001, D002, D007, D010, D011, D024, D009, D026, P001, P075
Form Comm: Not reported
Data Year: 2015
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
CAR WASH ENTERPRISES CWE (Continued) 1000838825

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<td>Mail Name:</td>
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<td>Mail addr line1:</td>
<td>30 Hunter Lane</td>
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TC5463995.2s Page 157
CAR WASH ENTERPRISES CWE  (Continued)

Used Oil Fuel Marketer Meets Specs: False

Facility Site ID Number: 22463
EPA ID: WAH000039734
NAICS: 446110
SWC Desc: WP01
FWC Desc: D001, D002, P001, P075, D007, D010
Form Comm: Not reported
Data Year: 2013
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 601637571
Business Type: Retail
Mail Name: Rite Aid Corp
Mail addr line1: 30 Hunter Lane
Mail city, st, zip: Camp Hill, PA 17011
Mail country: UNITED STATES
Legal org name: Thrifty Payless Inc
Legal org type: Private
Legal addr line1: 30 Hunter Lane
Legal city, st, zip: Camp Hill, PA 17011
Legal country: UNITED STATES
Legal phone nbr: 717-761-2633
Legal effective date: 06/13/1997
Land org name: Centry II DDR Totem Lake LLC
Land org type: Private
Land person name: Not reported
Land addr line1: 3300 Enterprise Parkway
Land addr line2: Attn: General Counsel
Land city, st, zip: Beachwood, OH 44122
Land country: UNITED STATES
Land phone nbr: 216-755-5500
Operator org name: Rite Aid Corp
### CAR WASH ENTERPRISES CWE (Continued)

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- **Facility Site ID Number:** 22463
- **EPA ID:** WAH000039734
- **NAICS:** 446110
- **SWC Desc:** WP01, WT02
- **FWC Desc:** D001, D002, D007, D009, D010, D011, D024, D026, P001, P075
- **Form Comm:** Not reported
- **Data Year:** 2014
- **Permit by Rule:** False
- **Treatment by Generator:** False
- **Mixed radioactive waste:** False
- **Importer of hazardous waste:** False
- **Immediate recycler:** False
- **Treatment/Storage/Disposal/Recycling Facility:** False
- **Generator of dangerous fuel waste:** False
- **Generator marketing to burner:** False
- **Other marketers (i.e., blender, distributor, etc.):** False
- **Utility boiler burner:** False
- **Industry boiler burner:** False
- **Industrial Furnace:** False
- **Smelter deferral:** False
- **Universal waste - batteries - generate:** False
CAR WASH ENTERPRISES CWE (Continued)  1000838825

Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 601637571
Business Type: Retail
Mail Name: Rite Aid Corp
Mail addr line1: 30 Hunter Lane
Mail city,st,zip: Camp Hill, PA 17011
Mail country: UNITED STATES
Legal org name: Thrifty Payless Inc
Legal org type: Private
Legal addr line1: 30 Hunter Lane
Legal city,st,zip: Camp Hill, PA 17011
Legal country: UNITED STATES
Legal phone nbr: 717-761-2633
Legal effective date: 11/16/2006
Land org name: Kirkland Totem Lake VI, LLC
Land org type: Private
Land person name: Bruce Cowgill
Land addr line1: 2760 E. Spring Street, Suite 200
Land city,st,zip: Longbeach, CA 90806
Land country: UNITED STATES
Land phone nbr: (562) 490-0098
Operator org name: Rite Aid Corp
Operator org type: Private
Operator addr line1: 30 Hunter Lane
Operator city,st,zip: Camp Hill, PA 17011
Operator country: UNITED STATES
Operator phone nbr: 717-761-2633
Operator effective date: 11/16/2006
Site contact name: Store Manager
Site contact addr line1: 12421 Totem Lake Blvd NE
Site Contact City/State/ Zip: Kirkland, WA 98034
Site Contact Country: UNITED STATES
Site Contact Phone #: 425-821-1500
Site Contact EMail: Not reported
Form Contact NAME: Stephanie A Caiati
Form Contact ADDR LINE1: 30 Hunter Lane
Form Contact City,ST,Zip: Camp Hill, PA 17011
Form Contact Country: UNITED STATES
Form Contact Phone #: 717-975-8643
Form Contact EMail: rsksafe@riteaid.com
Gen Status CD: SQG
Monthly Generation: True
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
Transport Other Waste: False
Recycler Onsite: False
CAR WASH ENTERPRISES CWE (Continued)

Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

C20 RITE AID 5192 WA ALLSITES S111413942 SSE 12421 TOTEM LAKE BLVD NE KIRKLAND, WA 98034 1/8-1/4 0.148 mi. 779 ft. Site 2 of 4 in cluster C Relative: Higher Actual: 137 ft.
ALLSITES:
Facility Name: RITE AID 5192
Facility Id: 22463

C21 RITE AID #5192 RCRA-CESQG 1014928316 SSE 12421 TOTEM LAKE BLVD NE KIRKLAND, WA 98034 1/8-1/4 0.148 mi. 779 ft. Site 3 of 4 in cluster C Relative: Higher Actual: 137 ft.
RCRA-CESQG:
Date form received by agency: 09/14/2015
Facility name: RITE AID #5192
Facility address: 12421 TOTEM LAKE BLVD NE
KIRKLAND, WA 98034
EPA ID: WAH000039734
Mailing address: 30 HUNTER LANE
CAMP HILL, PA 17011
Contact: DAVID W CROZIER
Contact address: 30 HUNTER LANE
CAMP HILL, PA 17011
Contact country: US
Contact telephone: 717-975-8643
Contact email: EHS@RITEAID.COM
EPA Region: 10
Classification: Conditionally Exempt Small Quantity Generator
Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste
RITE AID #5192  (Continued)

hazardous waste

Owner/Operator Summary:
Owner/operator name: CENTRY II DDR TOTEM LAKE LLC
Owner/operator address: 3300 ENTERPRISE PARKWAY ATTN: GENERAL COUNSEL
BEACHWOOD, OH 44122
Owner/operator country: US
Owner/operator telephone: 216-755-5500
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: KIRKLAND TOTEM LAKE VI, LLC
Owner/operator address: 2760 E SPRING STREET, SUITE 200
LONGBEACH, CA 90806
Owner/operator country: US
Owner/operator telephone: 562-490-0098
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: THRIFTY PAYLESS INC
Owner/operator address: 30 HUNTER LANE
CAMP HILL, PA 17011
Owner/operator country: US
Owner/operator telephone: 717-761-2633
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

CHROMIUM
MERCURY
SELENIUM
SILVER
CHLOROFORM
M-CRESOL
CRESOL
2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%
NICOTINE, & SALTS
CHLOROFORM
WT02
RITE AID #5192 (Continued)

Historical Generators:
  Date form received by agency: 12/07/2011
  Site name: RITE AID #5192
  Classification: Conditionally Exempt Small Quantity Generator

- Waste code: D001
  Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF
  LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS
  CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE
  FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET,
  WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE
  MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT
  WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

- Waste code: D002
  Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS
  CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A
  CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN
  OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS
  USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN
  THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE
  DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

- Waste code: D007
  Waste name: CHROMIUM

- Waste code: D009
  Waste name: MERCURY

- Waste code: D010
  Waste name: SELENIUM

- Waste code: D024
  Waste name: M-CRESOL

- Waste code: P001
  Waste name: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLIBUTYL)-, & SALTS,
  WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

- Waste code: P075
  Waste name: NICOTINE, & SALTS

Date form received by agency: 12/07/2011
Site name: RITE AID #5192
Classification: Conditionally Exempt Small Quantity Generator
Violation Status: No violations found
CAR WASH ENTERPRISES (Continued)  S103503394

<table>
<thead>
<tr>
<th>Waste Management:</th>
<th>Tank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region:</td>
<td>North Western</td>
</tr>
<tr>
<td>Type of Report Ecology Received:</td>
<td>Interim cleanup report</td>
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<td>Site Register Issue:</td>
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<td>Contact:</td>
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<td>Report Title:</td>
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<tr>
<td>Date Ecology Received Report:</td>
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</tr>
<tr>
<td>Contaminants Found at Site:</td>
<td>Petroleum products</td>
</tr>
<tr>
<td>Media Contaminated:</td>
<td>Groundwater, Soil</td>
</tr>
<tr>
<td>Waste Management:</td>
<td>Tank</td>
</tr>
<tr>
<td>Region:</td>
<td>North Western</td>
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<tr>
<td>Type of Report Ecology Received:</td>
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<tr>
<td>Site Register Issue:</td>
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<td>Type of Report Ecology Received:</td>
<td>Interim cleanup report</td>
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<td>Site Register Issue:</td>
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<td>Waste Management:</td>
<td>Tank</td>
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<tr>
<td>Date Ecology Received Report:</td>
<td>03/18/98</td>
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<td>Waste Management:</td>
<td>Tank</td>
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<td>Region:</td>
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<td>Contact:</td>
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<td>Report Title:</td>
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<td>Date Ecology Received Report:</td>
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<td>Contaminants Found at Site:</td>
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<tr>
<td>Waste Management:</td>
<td>Tank</td>
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<td>Region:</td>
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</tbody>
</table>
CAR WASH ENTERPRISES (Continued)

Site Register Issue: 98-17
Report Title: Final cleanup report
Location: North Western
Region: Tank
Type of Report Ecology Received: Interim cleanup report
Date Ecology Received Report: 07/18/00
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: North Western
County Code: 17
Contact: Not reported
Report Title: Not reported

Site Register Issue: 98-28
Report Title: Sampling - May 2000
Location: North Western
Region: Tank
Type of Report Ecology Received: Interim cleanup report
Date Ecology Received Report: 02/02/00
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: North Western
County Code: 17
Contact: Not reported
Report Title: Not reported

Site Register Issue: 98-25
Report Title: Not reported
Location: North Western
Region: Tank
Type of Report Ecology Received: Interim cleanup report
Date Ecology Received Report: 04/07/00
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: North Western
County Code: 17
Contact: Not reported
Report Title: Not reported

Site Register Issue: 94-13
Report Title: Not reported
Location: North Western
Region: Tank
Type of Report Ecology Received: Interim cleanup report
Date Ecology Received Report: 10/03/95
Contaminants Found at Site: Petroleum products
Media Contaminated: Soil
Waste Management: North Western
County Code: 17
Contact: Not reported
Report Title: Not reported

Site Register Issue: 90-17
Report Title: Final cleanup report
Location: North Western
Region: Tank
Type of Report Ecology Received: Final cleanup report
Date Ecology Received Report: 12/03/90
Contaminants Found at Site: Petroleum products
Media Contaminated: Soil
Waste Management: North Western
County Code: 17
Contact: Not reported
Report Title: Not reported
<table>
<thead>
<tr>
<th>County Code:</th>
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<tbody>
<tr>
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<td>Date Ecology Received Report:</td>
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<tr>
<td>Contaminants Found at Site:</td>
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<td>Tank</td>
<td>Region:</td>
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<tr>
<td>Type of Report Ecology Received:</td>
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<td>10/26/99</td>
<td>Contaminants Found at Site:</td>
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<td>Date Ecology Received Report:</td>
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<td>Tank</td>
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<td>Media Contaminated:</td>
<td>Groundwater, Soil</td>
<td>Region:</td>
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<td>Date Ecology Received Report:</td>
<td>01/04/01</td>
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<td>07/12/01</td>
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<td>Contact:</td>
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<td>Report Title:</td>
<td>Third Quartet Ground Water Monitoring - August 2001</td>
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### CAR WASH ENTERPRISES (Continued)

<table>
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<tr>
<th>Site Register Issue</th>
<th>County Code</th>
<th>Contact</th>
<th>Report Title</th>
<th>Date Ecology Received Report</th>
<th>Media Contaminated</th>
<th>Waste Management</th>
<th>Region</th>
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<th>Waste Management</th>
<th>Region</th>
<th>Type of Report Ecology Received</th>
<th>Site Register Issue</th>
<th>County Code</th>
<th>Contact</th>
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<tbody>
<tr>
<td>Interim cleanup report</td>
<td>95-13</td>
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<td>Groundwater, Soil</td>
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<td>Interim cleanup report</td>
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<td>17</td>
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**D23 SHELL STATION 120565**

<table>
<thead>
<tr>
<th>South 12221 124TH AVENUE NORTHEAST KIRKLAND, WA 98034</th>
<th>Relative</th>
<th>Actual</th>
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<tbody>
<tr>
<td>1/8-1/4 0.194 mi. 1024 ft. Site 1 of 2 in cluster D</td>
<td>Higher</td>
<td>148 ft.</td>
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</table>

**CSCSL:**

- Facility ID: 41716978
- Region: Northwest
- Lat/Long: 47.70809 / -122.17712
- Brownfield Status: Not reported
- Rank Status: N
- Clean Up Siteid: 9061
- Site Status: Cleanup Started
- PSI?: Not reported
- Contaminant Name: Benzene
- Ground Water: Below MTCA Cleanup Level After Assessment
- Surface Water: Not reported
- Soil: Below MTCA Cleanup Level After Assessment

**EPA ID Number:** S103503394
## SHELL STATION 120565 (Continued)

<table>
<thead>
<tr>
<th>Site</th>
<th>Sediment: Not reported</th>
<th>Air: Not reported</th>
<th>Bedrock: Not reported</th>
<th>Responsible Unit: Northwest</th>
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<tbody>
<tr>
<td>Facility ID:</td>
<td>41716978</td>
<td>Region: Northwest</td>
<td>Lat/Long: 47.70809 / -122.17712</td>
<td>Clean Up Siteid: 9061</td>
</tr>
<tr>
<td>Brownfield Status:</td>
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<td>Rank Status: N</td>
<td>Site Status: Cleanup Started</td>
<td>PSI?: Not reported</td>
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<tr>
<td>Contaminant Name:</td>
<td>Petroleum-Diesel</td>
<td>Ground Water: Below MTCA Cleanup Level After Assessment</td>
<td>Surface Water: Not reported</td>
<td>Soil: Confirmed Above Cleanup Level</td>
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<tr>
<td>Site Status:</td>
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<td>Contaminant Name: Petroleum-Gasoline</td>
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<tr>
<td>Site Status:</td>
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<td>Site Status:</td>
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<td>PSI?: Not reported</td>
<td>Contaminant Name: Petroleum-Other</td>
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<tr>
<td>Site Status:</td>
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<td>PSI?: Not reported</td>
<td>Contaminant Name: Petroleum-Other</td>
<td>Ground Water: Below MTCA Cleanup Level After Assessment</td>
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<tr>
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<td>PSI?: Not reported</td>
<td>Contaminant Name: Petroleum-Other</td>
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<td>Contaminant Name: Petroleum-Other</td>
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<td>Site Status:</td>
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<td>PSI?: Not reported</td>
<td>Contaminant Name: Petroleum-Other</td>
<td>Ground Water: Below MTCA Cleanup Level After Assessment</td>
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</table>
SHELL STATION 120565 (Continued)

LUST:
- Facility ID: 41716978
- Lust Status Type: Cleanup Started
- Cleanup Site ID: 9061
- Cleanup Unit Type: Upland
- Process Type: Independent Action
- Cleanup Unit Name: Texaco 632320059
- Lust Status Date: 07/01/2011
- Response Section: Northwest
- Lat/Long: 47.70809 / -122.17712

UST:
- Facility ID: 41716978
- Site Id: 4419
- UBI: Not reported
- Phone Number: Not reported
- Decimal Latitude: 47.70809
- Decimal Longitude: -122.17712
- Tank Name: 1
- Tag Number: A0434
- Tank Status: Removed
- Tank Status Date: 08/06/1996
- Tank Install Date: 08/06/1996
- Tank Closure Date: Not reported
- Capacity Range: 10,000 to 19,999 Gallons
- Tank Permit Expiration Date: 07/01/1993
- Tank Upgrade Date: 02/09/1998
- Tank Spill Prevention: Spill Bucket/Spill Box
- Tank Overfill Prevention: Overfill Alarm
- Tank Material: Fiberglass Reinforced Plastic
- Tank Construction: Double Wall Tank
- Tank Tightness Test: Not reported
- Tank Corrosion Protection: Corrosion Resistant
- Tank Manifold: Not reported
- Tank Release Detection: Interstitial Monitoring
- Tank SFC Type: Not reported
- Pipe Material: Fiberglass
- Pipe Construction: Double Wall Pipe
- Pipe Primary Release Detection: Interstitial Monitoring (or Sump Sensor)
- Pipe Second Release Detection: Not reported
- Pipe Corrosion Protection: Corrosion Resistant
- Pipe Pumping System: Pressurized System
- Responsible Unit: NORTHWEST
- Dispenser/Pump SFC Type: Not reported

- Tank Name: 10
- Tag Number: A0434
- Tank Status: Operational
- Tank Status Date: 08/06/1996
- Tank Install Date: 08/01/1992
- Tank Closure Date: Not reported
- Capacity Range: 10,000 to 19,999 Gallons
- Tank Permit Expiration Date: 08/31/2018
- Tank Upgrade Date: 02/09/1998
### SHELL STATION 120565 (Continued)

**Tank Spill Prevention:** Spill Bucket/Spill Box  
**Tank Overfill Prevention:** Overfill Alarm  
**Tank Material:** Fiberglass Reinforced Plastic  
**Tank Construction:** Double Wall Tank  
**Tank Tightness Test:** Part of Automatic Tank Gauging (ATG) System  
**Tank Corrosion Protection:** Corrosion Resistant  
**Tank Manifold:** Not reported  
**Tank Release Detection:** Statistical Inventory Reconciliation  
**Tank SFC Type:** Not reported  
**Pipe Material:** Fiberglass  
**Pipe Construction:** Double Wall Pipe  
**Pipe Primary Release Detection:** Statistical Inventory Reconciliation  
**Pipe Second Release Detection:** Interstitial Monitoring (or Sump Sensor)  
**Pipe Corrosion Protection:** Corrosion Resistant  
**Pipe Pumping System:** Pressurized System  
**Responsible Unit:** NORTHWEST  
**Dispenser/Pump SFC Type:** Not reported

| Tank Name | 2  | Tag Number | A0434 | Tank Status | Removed | Tank Status Date | 08/06/1996 | Tank Install Date | 00/01/1991 | Tank Closure Date | Not reported | Tank Permit Expiration Date | 07/01/1993 | Tank Upgrade Date | Not reported | Tank Spill Prevention | Spill Bucket/Spill Box | Tank Overfill Prevention | Overfill Alarm | Tank Material | Fiberglass Reinforced Plastic | Tank Construction | Double Wall Tank | Not reported | Tank Tightness Test | Not reported | Tank Corrosion Protection | Corrosion Resistant | Tank Manifold | Not reported | Tank Release Detection | Not reported | Tank SFC Type | Not reported | Pipe Material | Fiberglass | Pipe Construction | Double Wall Pipe | Pipe Primary Release Detection | Interstitial Monitoring (or Sump Sensor) | Pipe Second Release Detection | Not reported | Pipe Corrosion Protection | Corrosion Resistant | Pipe Pumping System | Pressurized System | Responsible Unit | NORTHWEST | Dispenser/Pump SFC Type | Not reported |
|----------|----|------------|------|-------------|---------|------------------|------------|------------------|-----------|------------------|-------------|-----------------------|------------|------------------|-----------|-------------------|-------------------|-------------------|--------|------------------|------------------|-----------------------------|------------------|-------------------|--------|------------------|------------------|---------------------|----------------|------------------|------------------|------------------|------------------|----------------|------------------|------------------|----------------|----------------|------------------|------------------|------------------|

**Tank Name:** 3  
**Tag Number:** A0434  
**Tank Status:** Removed  
**Tank Status Date:** 08/06/1996  
**Tank Install Date:** 00/01/1991  
**Tank Closure Date:** Not reported  
**Capacity Range:** Not reported  
**Tank Permit Expiration Date:** 07/01/1993  
**Tank Upgrade Date:** Not reported  
**Tank Spill Prevention:** Spill Bucket/Spill Box
<table>
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<tr>
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<tr>
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<td>Tank Material</td>
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</tr>
<tr>
<td>Tank Construction</td>
<td>Double Wall Tank</td>
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<tr>
<td>Tank Tightness Test</td>
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<tr>
<td>Tank Corrosion Protection</td>
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<td>Tank Manifold</td>
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<td>Tank Release Detection</td>
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<tr>
<td>Pipe Material</td>
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<td>Pipe Construction</td>
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<td>Pipe Corrosion Protection</td>
<td>Corrosion Resistant</td>
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<td>Pipe Pumping System</td>
<td>Pressurized System</td>
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<td>Responsible Unit</td>
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</tr>
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<td>Dispenser/Pump SFC Type</td>
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Tank Name: 4  
Tag Number: A0434  
Tank Status: Removed  
Tank Status Date: 08/06/1996  
Tank Install Date: 01/01/1991  
Tank Closure Date: Not reported  
Capacity Range: Not reported  
Tank Permit Expiration Date: 07/01/1993  
Tank Upgrade Date: Not reported  
Tank Spill Prevention: Spill Bucket/Spill Box  

Tank Name: 5  
Tag Number: A0434  
Tank Status: Removed - No Site Assessment Found  
Tank Status Date: 01/01/1991  
Tank Install Date: 00/31/1964  
Tank Closure Date: Not reported  
Capacity Range: 111 TO 1,100 Gallons  
Tank Permit Expiration Date: 07/29/1992  
Tank Upgrade Date: Not reported  
Tank Spill Prevention: Not reported  
Tank Overfill Prevention: Not reported
### SHELL STATION 120565 (Continued)

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<tr>
<td>Tank Tightness Test:</td>
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<tr>
<td>Tank Corrosion Protection:</td>
<td>Impressed Current</td>
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<td>Tank Release Detection:</td>
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<tr>
<td>Tank SFC Type:</td>
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<td>Pipe Material:</td>
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<td>Pipe Construction:</td>
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<td>Pipe Primary Release Detection:</td>
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<td>Pipe Second Release Detection:</td>
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<td>Pipe Corrosion Protection:</td>
<td>Not reported</td>
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<td>Pipe Pumping System:</td>
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<td>Responsible Unit:</td>
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<td>Capacity Range:</td>
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<td>Tank Upgrade Date:</td>
<td>Not reported</td>
</tr>
<tr>
<td>Tank Spill Prevention:</td>
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<td>Pipe Material:</td>
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<td>Pipe Construction:</td>
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<td>Pipe Primary Release Detection:</td>
<td>Not reported</td>
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<td>Pipe Second Release Detection:</td>
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<tr>
<td>Pipe Corrosion Protection:</td>
<td>Not reported</td>
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<td>Pipe Pumping System:</td>
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<td>Responsible Unit:</td>
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<td>Dispenser/Pump SFC Type:</td>
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<td>Tank Upgrade Date:</td>
<td>02/06/1998</td>
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<td>Tank Spill Prevention:</td>
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SHELL STATION 120565 (Continued)

Tank Construction: Double Wall Tank
Tank Tightness Test: Part of Automatic Tank Gauging (ATG) System
Tank Corrosion Protection: Corrosion Resistant
Tank Manifold: Not reported
Tank Release Detection: Statistical Inventory Reconciliation
Tank SFC Type: Not reported
Pipe Material: Fiberglass
Pipe Construction: Double Wall Pipe
Pipe Primary Release Detection: Statistical Inventory Reconciliation
Pipe Second Release Detection: Interstitial Monitoring (or Sump Sensor)
Pipe Corrosion Protection: Corrosion Resistant
Pipe Pumping System: Pressurized System
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

Tank Name: 8
Tag Number: A0434
Tank Status: Operational
Tank Status Date: 08/06/1996
Tank Install Date: 08/06/1996
Tank Closure Date: Not reported
Capacity Range: 10,000 to 19,999 Gallons
Tank Permit Expiration Date: 08/31/2018
Tank Upgrade Date: 02/06/1996
Tank Spill Prevention: Spill Bucket/Spill Box
Tank Overfill Prevention: Overfill Alarm
Tank Material: Fiberglass Reinforced Plastic
Tank Construction: Double Wall Tank
Tank Tightness Test: Part of Automatic Tank Gauging (ATG) System
Tank Corrosion Protection: Corrosion Resistant
Tank Manifold: Not reported
Tank Release Detection: Statistical Inventory Reconciliation
Tank SFC Type: Not reported
Pipe Material: Fiberglass
Pipe Construction: Double Wall Pipe
Pipe Primary Release Detection: Statistical Inventory Reconciliation
Pipe Second Release Detection: Interstitial Monitoring (or Sump Sensor)
Pipe Corrosion Protection: Corrosion Resistant
Pipe Pumping System: Pressurized System
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

Tank Name: 9
Tag Number: A0434
Tank Status: Operational
Tank Status Date: 08/06/1996
Tank Install Date: 08/01/1992
Tank Closure Date: Not reported
Capacity Range: 10,000 to 19,999 Gallons
Tank Permit Expiration Date: 08/31/2018
Tank Upgrade Date: 02/06/1998
Tank Spill Prevention: Spill Bucket/Spill Box
Tank Overfill Prevention: Overfill Alarm
Tank Material: Fiberglass Reinforced Plastic
Tank Construction: Double Wall Tank
### SHELL STATION 120565 (Continued)

<table>
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**Interaction:** 43312

**Interaction 1:** I

**Interaction 2:** LUST

**Ecology Program:** TOXICS

**Program Data:** ISIS

**Facility Alt.:** Not reported

**Program ID:** 4419

**Date Interaction:** 1991-11-15 00:00:00

**Latitude:** 47.70808436000001

**Longitude:** -122.177105107

**Interaction:** 43313

**Interaction 1:** I

**Interaction 2:** HWG

**Ecology Program:** HAZWASTE

**Program Data:** TURBOWASTE

**Facility Alt.:** Not reported

**Program ID:** WAD988502779

**Date Interaction:** 1992-03-09 00:00:00

**Latitude:** 47.70808436000001

**Longitude:** -122.177105107

**Interaction:** 43315

**Interaction 1:** I

**Interaction 2:** HWOTHER

**Ecology Program:** HAZWASTE

**Program Data:** TURBOWASTE

**Facility Alt.:** Not reported

**Program ID:** WAD988502779

**Date Interaction:** 2002-12-31 00:00:00

**Latitude:** 47.70808436000001

**Longitude:** -122.177105107
SHELL STATION 120565 (Continued)

Interaction: 43316
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD988502779
Date Interaction: 2005-10-20 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.708084360000001
Longitude: -122.177105107

Interaction: 43311
Interaction 1: I
Interaction 2: TIER2
Ecology Program: HAZWASTE
Program Data: EPCRA
Facility Alt.: Not reported
Program ID: WAD988502779
Date Interaction: 1991-01-01 00:00:00
Date Interaction 3: Emergency/Haz Chem Rpt TI
Latitude: 47.708084360000001
Longitude: -122.177105107

Interaction: 43314
Interaction 1: A
Interaction 2: UST
Ecology Program: TOXICS
Program Data: UST
Facility Alt.: JACKSONS 619
Program ID: Not reported
Date Interaction: 2000-03-20 00:00:00
Date Interaction 3: Underground Storage Tank
Latitude: 47.708084360000001
Longitude: -122.177105107

Interaction: 95846
Interaction 1: I
Interaction 2: HWOTHER
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: SHELL STATION 120565
Program ID: WAD988502779
Date Interaction: 2010-12-31 00:00:00
Date Interaction 3: Haz Waste Management Act
Latitude: 47.708084360000001
Longitude: -122.177105107

Interaction: 43317
Interaction 1: I
Interaction 2: HWOTHER
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
### SHELL STATION 120565 (Continued)

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<tr>
<td>Longitude:</td>
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**Handler:** Non-Generators do not presently generate hazardous waste

**Description:**

- **ECology Program:** HAZWASTE
- **Facility Alt.:** Not reported
- **Facility Alt:** Not reported
- **Program ID:** WAD988502779
- **Date Interaction:** 2006-12-31 00:00:00
- **Date Interaction 3:** Hazardous Waste Generator
- **Latitude:** 47.708084360000001
- **Longitude:** -122.177105107

**RCRA NonGen / NLR:**

- **Date form received by agency:** 07/27/2011
- **Facility name:** SHELL STATION 120565
- **Facility address:** 12221 124TH AVE NE KIRKLAND, WA 98033
- **EPA ID:** WAD988502779
- **Mailing address:** 12700 NORTHBOROUGH DR 300G04 HOUSTON, TX 77067-2508
- **Contact:** SHELL OIL PRODU SHELL OIL PRODU
- **Contact address:** 12700 NORTHBOROUGH DR 300G04 HOUSTON, TX 77067-2508
- **EPA Region:** 10
- **Classification:** Non-Generator

**Description:** Handler: Non-Generators do not presently generate hazardous waste

**Owner/Operator Summary:**

- **Owner/operator name:** EQUILION ENTERP E
- **Owner/operator address:** 12700 NORTHBOROUGH DR 300G04 HOUSTON, TX 77067
- **Owner/operator country:** US
- **Owner/operator telephone:** 281-874-2224
- **Owner/operator email:** Not reported
- **Owner/operator fax:** Not reported
- **Legal status:** Private
- **Owner/Operator Type:** Operator
- **Owner/Op start date:** 08/01/1996
- **Owner/Op end date:** Not reported

**Owner/operator name:** EQUILION ENTERP E
**Owner/operator address:** PO BOX 2099 NOB 300G04
SHELL STATION 120565 (Continued)

Owner/operator country: US
Owner/operator telephone: 281-874-2224
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 08/01/1998
Owner/Op end date: Not reported

Owner/operator name: EQUILION ENTERPRISES LLC DBA SHELL OIL P
Owner/operator address: PO BOX 2099 NOB 300G03 - RACHEL HULL
HOUSTON, TX 77252

Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 08/01/1998
Owner/Op end date: Not reported

Owner/operator name: EQUILION ENTERPRISES LLC DBA SHELL OIL P
Owner/operator address: 12700 NORTHBOROUGH DR 300G03
HOUSTON, TX 77067

Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 08/01/1998
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/27/2010
## SHELL STATION 120565 (Continued)

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**FINDS:**

| Registry ID: 110005372961 |

**Environmental Interest/Information System**

Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

**RCRAInfo** is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

**HAZARDOUS WASTE BIENNIAL REPORTER**

[Click this hyperlink](http://echo.epa.gov/detailed-facility-report?fid=110005372961) while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

**ECHO:**

| Envid: 1004794300 |
| Registry ID: 110005372961 |

**WA Financial Assurance 1:**

| DOE Site ID: 4419 |
| Financial Resp Type: GREAT AMERICAN E&S INSURANCE CO |
SHELL STATION 120565 (Continued)

Inception Date: 11/09/2017
Expiration Date: 11/09/2018
Address 2: Not reported
Policy Number: BTA 9986598-08
Effective Date: 11/09/2017
Liability Limit Type: Not reported
Compliance Method: Not reported
Proof of Responsibility Document Flag: Not reported
Retroactive Date: Not reported
Latitude: 47.70809
Longitude: -122.17712

DOE Site ID: 4419
Financial Resp Type: GREAT AMERICAN E&S INSURANCE CO
Inception Date: 11/09/2015
Expiration Date: 11/09/2016
Address 2: Not reported
Policy Number: BTA 9986598-06
Effective Date: 11/09/2015
Liability Limit Type: Not reported
Compliance Method: Not reported
Proof of Responsibility Document Flag: Not reported
Retroactive Date: Not reported
Latitude: 47.70809
Longitude: -122.17712

DOE Site ID: 4419
Financial Resp Type: GREAT AMERICAN E&S INSURANCE CO
Inception Date: 11/09/2016
Expiration Date: 11/09/2017
Address 2: Not reported
Policy Number: BTA 9986598-07
Effective Date: 11/09/2016
Liability Limit Type: Not reported
Compliance Method: Not reported
Proof of Responsibility Document Flag: Not reported
Retroactive Date: Not reported
Latitude: 47.70809
Longitude: -122.17712

WA MANIFEST:
Facility Site ID Number: 41716978
EPA ID: WAD988502779
NAICS: 44711
SWC Desc: Not reported
FWC Desc: D001
Form Comm: NO RCRA HAZARDOUS WASTE GENERATED IN 2005
Data Year: Not reported
 Permit by Rule: FALSE
Treatment by Generator: FALSE
Mixed radioactive waste: FALSE
Importer of hazardous waste: FALSE
Immediate recycler: FALSE
Treatment/Storage/Disposal/Recycling Facility: FALSE
Generator of dangerous fuel waste: FALSE
Generator marketing to burner: FALSE
Other marketers (i.e., blender, distributor, etc.): FALSE
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SHELL STATION 120565 (Continued) 1004794300

| Utility boiler burner | FALSE |
| Industry boiler burner | FALSE |
| Industrial Furnace | FALSE |
| Smelter deferral | FALSE |
| Universal waste - batteries - generate | FALSE |
| Universal waste - thermostats - generate | FALSE |
| Universal waste - mercury - generate | FALSE |
| Universal waste - lamps - generate | FALSE |
| Universal waste - batteries - accumulate | FALSE |
| Universal waste - thermostats - accumulate | FALSE |
| Universal waste - mercury - accumulate | FALSE |
| Universal waste - lamps - accumulate | FALSE |
| Destination Facility for Universal Waste | FALSE |
| Off-specification used oil burner - utility boiler | FALSE |
| Off-specification used oil burner - industrial boiler | FALSE |
| Off-specification used oil burner - industrial furnace | FALSE |

Tax Reg #: 601238698
Business Type: SERVICE STATION
Mail Name: Shell Oil Products US
Mail addr line1: 12700 NORTHBOROUGH DR
Mail addr line2: 300G04
Mail city, st, zip: HOUSTON, TX 77067-2508
Mail country: UNITED STATES
Legal org name: Equilon Enterprises LLC dba Shell Oil P
Legal org type: Private
Legal addr line1: PO BOX 2099
Legal addr line2: NOB 300G04
Legal city, st, zip: HOUSTON, TX 77252-2099
Legal country: UNITED STATES
Legal phone nbr: 281-874-2224
Legal effective date: 08/01/1998
Land org name: Equilon Enterprises LLC dba Shell Oil P
Land org type: Private
Land person name: Not reported
Land addr line1: PO BOX 2099
Land addr line2: NOB 300G04
Land city, st, zip: HOUSTON, TX 77252-2099
Land country: UNITED STATES
Land phone nbr: 281-874-2224
Operator org name: Equilon Enterprises LLC dba Shell Oil P
Operator org type: Private
Operator addr line1: 12700 NORTHBOROUGH DR
Operator addr line2: 300G04
Operator city, st, zip: HOUSTON, TX 77067-2058
Operator country: UNITED STATES
Operator phone nbr: (281)874-2224
Operator effective date: 08/01/1998
Site contact name: DON F WISDOM
Site contact addr line1: 12700 NORTHBOROUGH DR
Site contact addr line2: 300F07
Site Contact City/State/Zip: HOUSTON, TX 77067-2058
Site Contact Country: UNITED STATES
Site Contact Phone #: (281) 874-2238
Site Contact EMail: DON.F.WISDOM@SHELL.COM
Form Contact NAME: RACHEL HULL
Form Contact ADDR LINE1: 12700 NORTHBOROUGH DRIVE
Form Contact ADDR LINE2: NOB 300G04
SHELL STATION 120565 (Continued)

Form Contact City, ST, Zip: HOUSTON, TX 77067-2508
Form Contact Country: UNITED STATES
Form Contact Phone #: (281)874-2224
Form Contact Email: RACHEL.HULL@SHELL.COM
Gen Status CD: MQG
Monthly Generation: FALSE
Batch Generation: FALSE
One Time Generation: TRUE
Transport Own Waste: FALSE
Transports Other Waste: FALSE
Recycler Onsite: FALSE
Transfer Facility: FALSE
Other Exemption: Not reported
UW Battery Gen: FALSE
Used Oil Transporter: FALSE
Used Oil Transfer Facility: FALSE
Used Oil Processor: FALSE
Used Oil Refiner: FALSE
Used Oil Fuel Marketer Directs Shipments: FALSE
Used Oil Fuel Marketer Meets Specs: FALSE

Waste Streams Generated:
Facility ID: 41716978
Data Year: 2008
Description: RINSATE - GASOLINE
Mix: False
Reported Qty: 3210.9000000000001 LB
Kilo Qty: 1456.4626505115855
Density No: 0
Density Qty: Not reported

Facility ID: 41716978
Data Year: 2008
Description: ABSORBENT MAT. W/GASOLINE
Mix: False
Reported Qty: 205 LB
Kilo Qty: 92.988001599393627
Density No: 0
Density Qty: Not reported

Facility ID: 41716978
Data Year: Not reported
Description: ABSORBENT MATERIAL WITH GASOLINE
Mix: No
Reported Qty: 300 LB
Kilo Qty: 136.080002340576
Density No: 0
Density Qty: Not reported

Shipment Sent:
Facility ID: 41716978
Data Year: 2008
Shipment sent data: 7/30/2008
Reported Qty: 55 LB
Kilo Qty: 24.9480004291056
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<td>Generator marketing to burner:</td>
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<td>Other marketers (i.e., blender, distributor, etc.):</td>
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<td>Utility boiler burner:</td>
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<td>Destination Facility for Universal Waste</td>
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<td>Mail city, st, zip:</td>
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<td>(281) 874-2247</td>
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</tr>
<tr>
<td>Form Contact NAME:</td>
<td>Jeanne Traylor</td>
</tr>
<tr>
<td>Form Contact ADDR LINE1:</td>
<td>12700 NORTHBOROUGH DRIVE</td>
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<tr>
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<td>One Time Generation:</td>
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<td>Transport Own Waste:</td>
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<tr>
<td>Transports Other Waste:</td>
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SHELL STATION 120565 (Continued) 1004794300

Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:
Facility ID: 41716978
Data Year: 2008
Description: RINSATE - GASOLINE
Mix: False
Reported Qty: 3218.900000000001 LB
Kilo Qty: 1456.4642650511855
Density No: 0
Density Qty: Not reported

Facility ID: 41716978
Data Year: 2008
Description: ABSORBENT MAT. W/GASOLINE
Mix: False
Reported Qty: 205 LB
Kilo Qty: 92.988001599393627
Density No: 0
Density Qty: Not reported

Facility ID: 41716978
Data Year: Not reported
Description: ABSORBENT MATERIAL WITH GASOLINE
Mix: No
Reported Qty: 300 LB
Kilo Qty: 136.08002340576
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 41716978
Data Year: 2008
Shipment sent data: 7/30/2008
Reported Qty: 55 LB
Kilo Qty: 24.9480004291056

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 4/14/2008
Reported Qty: 40 LB
Kilo Qty: 18.1440003120768

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 4/2/2008
Reported Qty: 110 LB
SHELL STATION 120565 (Continued)

Kilo Qty: 49.8960068582112
Facility ID: 41716978
Data Year: 2008
Shipment sent data: 9/18/2008
Reported Qty: 3210.9 LB
Kilo Qty: 1456.46426505119

Facility ID: 41716978
Data Year: Not reported
Shipment sent data: 7/18/2006
Reported Qty: 150 LB
Kilo Qty: 68.040001170288

Facility ID: 41716978
Data Year: Not reported
Shipment sent data: 2/10/2006
Reported Qty: 150 LB
Kilo Qty: 68.040001170288

Facility Site ID Number: 41716978
EPA ID: WAD988502779
NAICS: 447110
SWC Desc: Not reported
FWC Desc: D001
Form Comm: Not reported
Data Year: 2009
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 601238898
Business Type: SERVICE STATION
Mail Name: Shell Oil Products US
Mail addr line1: 12700 NORTHBOROUGH DR
### SHELL STATION 120565 (Continued)

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<td>Legal org name:</td>
<td>Equilon Enterprises LLC dba Shell Oil P</td>
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## SHELL STATION 120565 (Continued)

### Waste Streams Generated:

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<th>Kilo Qty</th>
<th>Density No</th>
<th>Density Qty</th>
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<th>Reported Qty</th>
<th>Kilo Qty</th>
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<td>55 LB</td>
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<td>2008</td>
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<td>3210.9 LB</td>
<td>1456.46426505119</td>
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<tr>
<td>41716978</td>
<td>2008</td>
<td>7/18/2006</td>
<td>3210.9 LB</td>
<td>1456.46426505119</td>
</tr>
</tbody>
</table>
SHELL STATION 120565 (Continued)  1004794300

Reported Qty:  150 LB
Kilo Qty:  68.040001170288

Facility ID:  41716978
Data Year:  Not reported
Shipment sent data:  2/10/2006
Reported Qty:  150 LB
Kilo Qty:  68.040001170288

Facility Site ID Number:  41716978
EPA ID:  WAD988502779
NAICS:  447110
SWC Desc:  Not reported
FWC Desc:  Not reported
Form Comm:  Not reported
Data Year:  2010
Permit by Rule:  False
Treatment by Generator:  False
Mixed radioactive waste:  False
Importer of hazardous waste:  False
Immediate recycler:  False
Treatment/Storage/Disposal/Recycling Facility:  False
Generator of dangerous fuel waste:  False
Generator marketing to burner:  False
Other marketers (i.e., blender, distributor, etc.):  False
Utility boiler burner:  False
Industry boiler burner:  False
Industrial Furnace:  False
Smelter defferal:  False
Universal waste - batteries - generate:  False
Universal waste - thermostats - generate:  False
Universal waste - mercury - generate:  False
Universal waste - lamps - generate:  False
Universal waste - batteries - accumulate:  False
Universal waste - thermostats - accumulate:  False
Universal waste - mercury - accumulate:  False
Universal waste - lamps - accumulate:  False
Destination Facility for Universal Waste:  False
Off-specification used oil burner - utility boiler:  False
Off-specification used oil burner - industrial boiler:  False
Off-specification used oil burner - industrial furnace:  False
Tax Reg #:  601238698
Business Type:  SERVICE STATION
Mail Name:  Shell Oil Products US
Mail addr line1:  12700 NORTHBOROUGH DR
Mail addr line2:  300G04
Mail city,st,zip:  HOUSTON, TX 77067-2508
Mail country:  UNITED STATES
Legal org name:  Equillion Enterprises LLC dba Shell Oil P
Legal org type:  Private
Legal addr line1:  PO BOX 2099
Legal addr line2:  NOB 300G04
Legal city,st,zip:  HOUSTON, TX 77252-2099
Legal country:  UNITED STATES
Legal phone nbr:  281-874-2224
Legal effective date:  08/01/1998

Kilo Qty:  68.040001170288
Reported Qty:  150 LB
Facility ID:  41716978
Data Year:  Not reported
Shipment sent data:  2/10/2006
Reported Qty:  150 LB
Kilo Qty:  68.040001170288

Facility Site ID Number:  41716978
EPA ID:  WAD988502779
NAICS:  447110
SWC Desc:  Not reported
FWC Desc:  Not reported
Form Comm:  Not reported
Data Year:  2010
Permit by Rule:  False
Treatment by Generator:  False
Mixed radioactive waste:  False
Importer of hazardous waste:  False
Immediate recycler:  False
Treatment/Storage/Disposal/Recycling Facility:  False
Generator of dangerous fuel waste:  False
Generator marketing to burner:  False
Other marketers (i.e., blender, distributor, etc.):  False
Utility boiler burner:  False
Industry boiler burner:  False
Industrial Furnace:  False
Smelter defferal:  False
Universal waste - batteries - generate:  False
Universal waste - thermostats - generate:  False
Universal waste - mercury - generate:  False
Universal waste - lamps - generate:  False
Universal waste - batteries - accumulate:  False
Universal waste - thermostats - accumulate:  False
Universal waste - mercury - accumulate:  False
Universal waste - lamps - accumulate:  False
Destination Facility for Universal Waste:  False
Off-specification used oil burner - utility boiler:  False
Off-specification used oil burner - industrial boiler:  False
Off-specification used oil burner - industrial furnace:  False
Tax Reg #:  601238698
Business Type:  SERVICE STATION
Mail Name:  Shell Oil Products US
Mail addr line1:  12700 NORTHBOROUGH DR
Mail addr line2:  300G04
Mail city,st,zip:  HOUSTON, TX 77067-2508
Mail country:  UNITED STATES
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Legal org type:  Private
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Legal addr line2:  NOB 300G04
Legal city,st,zip:  HOUSTON, TX 77252-2099
Legal country:  UNITED STATES
Legal phone nbr:  281-874-2224
Legal effective date:  08/01/1998

Kilo Qty:  68.040001170288
Reported Qty:  150 LB
Facility ID:  41716978
Data Year:  Not reported
Shipment sent data:  2/10/2006
Reported Qty:  150 LB
Kilo Qty:  68.040001170288

Facility Site ID Number:  41716978
EPA ID:  WAD988502779
NAICS:  447110
SWC Desc:  Not reported
FWC Desc:  Not reported
Form Comm:  Not reported
Data Year:  2010
Permit by Rule:  False
Treatment by Generator:  False
Mixed radioactive waste:  False
Importer of hazardous waste:  False
Immediate recycler:  False
Treatment/Storage/Disposal/Recycling Facility:  False
Generator of dangerous fuel waste:  False
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Industrial Furnace:  False
Smelter defferal:  False
Universal waste - batteries - generate:  False
Universal waste - thermostats - generate:  False
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Universal waste - lamps - generate:  False
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Universal waste - lamps - accumulate:  False
Destination Facility for Universal Waste:  False
Off-specification used oil burner - utility boiler:  False
Off-specification used oil burner - industrial boiler:  False
Off-specification used oil burner - industrial furnace:  False
Tax Reg #:  601238698
Business Type:  SERVICE STATION
Mail Name:  Shell Oil Products US
Mail addr line1:  12700 NORTHBOROUGH DR
Mail addr line2:  300G04
Mail city,st,zip:  HOUSTON, TX 77067-2508
Mail country:  UNITED STATES
Legal org name:  Equillion Enterprises LLC dba Shell Oil P
Legal org type:  Private
Legal addr line1:  PO BOX 2099
Legal addr line2:  NOB 300G04
Legal city,st,zip:  HOUSTON, TX 77252-2099
Legal country:  UNITED STATES
Legal phone nbr:  281-874-2224
Legal effective date:  08/01/1998
SHELL STATION 120565 (Continued)

Land org name: Equilon Enterprises LLC dba Shell Oil P.
Land org type: Private
Land person name: Not reported
Land addr line1: PO BOX 2099
Land addr line2: NOB 300G04
Land city, st, zip: HOUSTON, TX 77252-2099
Land country: UNITED STATES
Land phone nbr: 281-874-2224
Operator org name: Equilon Enterprises LLC dba Shell Oil P
Operator org type: Private
Operator addr line1: 12700 NORTHBOROUGH DR
Operator addr line2: 300G04
Operator city, st, zip: HOUSTON, TX 77067-2058
Operator country: UNITED STATES
Operator phone nbr: (281)874-2224
Operator effective date: 08/01/1998
Site contact name: RAY E WALDING
Site contact addr line1: 12700 NORTHBOROUGH DR
Site contact addr line2: 300F08
Site Contact City/State/Zip: HOUSTON, TX 77067-2058
Site Contact Country: UNITED STATES
Site Contact Phone #: (281) 874-2247
Site Contact EMail: RAY.WALDING@SHELL.COM
Form Contact NAME: Jeanne Taylor
Form Contact ADDR LINE1: P O Box 3127, Rm 669B
Form Contact City, ST, Zip: HOUSTON, TX 77253
Form Contact Country: UNITED STATES
Form Contact Phone #: 713-241-6992
Form Contact EMail: jeanne.traylor@shell.com
Gen Status CD: XQG
Monthly Generation: False
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
Transport Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:
Facility ID: 41716978
Data Year: 2008
Description: RINSATE - GASOLINE
Mix: False
Reported Qty: 3210.9000000000001 LB
Kilo Qty: 1456.4642650511855
Density No: 0
Density Qty: Not reported

Facility ID: 41716978
**SHELL STATION 120565 (Continued)**

Data Year: 2008  
**Description:** ABSORBENT MAT. W/GASOLINE  
Mix: False  
Reported Qty: 205 LB  
Kilo Qty: 92.988001599393627  
Density No: 0  
Density Qty: Not reported

Facility ID: 41716978  
Data Year: Not reported  
**Description:** ABSORBENT MATERIAL WITH GASOLINE  
Mix: No  
Reported Qty: 300 LB  
Kilo Qty: 136.080002340576  
Density No: 0  
Density Qty: Not reported

**Shipments Sent:**

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<th>Facility ID</th>
<th>Data Year</th>
<th>Shipment sent data</th>
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<th>Kilo Qty</th>
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<tr>
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<td>2008</td>
<td>7/30/2008</td>
<td>55 LB</td>
<td>24.9480004291056</td>
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<tr>
<td>41716978</td>
<td>2008</td>
<td>4/14/2008</td>
<td>40 LB</td>
<td>18.1440003120768</td>
</tr>
<tr>
<td>41716978</td>
<td>2008</td>
<td>4/2/2008</td>
<td>110 LB</td>
<td>49.8960008582112</td>
</tr>
<tr>
<td>41716978</td>
<td>2008</td>
<td>9/18/2008</td>
<td>3210.9 LB</td>
<td>1456.46426505119</td>
</tr>
<tr>
<td>41716978</td>
<td>Not reported</td>
<td>7/18/2006</td>
<td>150 LB</td>
<td>68.040001170288</td>
</tr>
<tr>
<td>41716978</td>
<td>Not reported</td>
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<td>150 LB</td>
<td>68.040001170288</td>
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</table>

Facility Site ID Number: 41716978  
EPA ID: WAD988502779
SHELL STATION 120565 (Continued)

NAICS: 44711
SWG Desc: Not reported
FWC Desc: D001
Form Comm: NO RCRA HAZARDOUS WASTE GENERATED IN 2005
Data Year: Not reported
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 601238698
Business Type: SERVICE STATION
Mail Name: Shell Oil Products US
Mail addr line1: 12700 NORTHBOROUGH DR
Mail addr line2: 300G04
Mail city, st, zip: HOUSTON, TX 77067-2508
Mail country: UNITED STATES
Legal org name: Equilion Enterprises LLC dba Shell Oil P
Legal org type: Private
Legal addr line1: PO BOX 2099
Legal addr line2: NOB 300G04
Legal city, st, zip: HOUSTON, TX 77252-2099
Legal country: UNITED STATES
Legal phone nbr: 281-874-2224
Legal effective date: 08/01/1998
Land org name: Equilion Enterprises LLC dba Shell Oil P.
Land org type: Private
Land person name: Not reported
Land addr line1: PO BOX 2099
Land addr line2: NOB 300G04
Land city, st, zip: HOUSTON, TX 77252-2099
Land country: UNITED STATES
Land phone nbr: 281-874-2224
Operator org name: Equilion Enterprises LLC dba Shell Oil P
Operator org type: Private
Operator addr line1: 12700 NORTHBOROUGH DR
Operator addr line2: 300G04
SHELL STATION 120565 (Continued) 1004794300

Operator city, st, zip: HOUSTON, TX 77067-2058
Operator country: UNITED STATES
Operator phone nbr: (281)874-2224
Operator effective date: 08/01/1998
Site contact name: RAY E WALDING
Site contact addr line1: 12700 NORTHBOROUGH DR
Site contact addr line2: 300F08
Site Contact City/State/ Zip: HOUSTON, TX 77067-2058
Site Contact Country: UNITED STATES
Site Contact Phone #: (281) 874-2247
Site Contact EMail: RAY.WALDING@SHELL.COM
Form Contact NAME: RACHEL HULL
Form Contact ADDR LINE1: 12700 NORTHBOROUGH DRIVE
Form Contact ADDR LINE2: NOB 300G04
Form Contact City, ST, Zip: HOUSTON, TX 77067-2508
Form Contact Country: UNITED STATES
Form Contact Phone #: (281)874-2224
Form Contact EMail: RACHEL.HULL@SHELL.COM
Gen Status CD: SQG
Monthly Generation: False
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
Transports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:
Facility ID: 41716978
Data Year: 2008
Description: RINSATE - GASOLINE
Mix: False
Reported Qty: 3210.900000000001 LB
Kilo Qty: 1456.4642650511855
Density No: 0
Density Qty: Not reported

Facility ID: 41716978
Data Year: 2008
Description: ABSORBENT MAT. W/GASOLINE
Mix: False
Reported Qty: 205 LB
Kilo Qty: 92.988001599393627
Density No: 0
Density Qty: Not reported

Facility ID: 41716978
Data Year: Not reported
Description: ABSORBENT MATERIAL WITH GASOLINE
SHELL STATION 120565 (Continued)

Mix: No
Reported Qty: 300 LB
Kilo Qty: 136.080002340576
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 41716978
Data Year: 2008
Shipment sent data: 7/30/2008
Reported Qty: 55 LB
Kilo Qty: 24.9480004291056

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 4/14/2008
Reported Qty: 40 LB
Kilo Qty: 18.1440003120768

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 4/2/2008
Reported Qty: 110 LB
Kilo Qty: 49.8960008582112

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 9/18/2008
Reported Qty: 3210.9 LB
Kilo Qty: 1456.46426505119

Facility ID: 41716978
Data Year: Not reported
Shipment sent data: 7/18/2006
Reported Qty: 150 LB
Kilo Qty: 68.040001170288

Facility ID: 41716978
Data Year: Not reported
Shipment sent data: 2/10/2006
Reported Qty: 150 LB
Kilo Qty: 68.040001170288

Facility Site ID Number: 41716978
EPA ID: WAD988502779
NAICS: 44711
SWC Desc: Not reported
FWC Desc: D001
Form Comm: NO RCRA HAZARDOUS WASTE GENERATED IN 2005
Data Year: Not reported
Permit by Rule: No
Treatment by Generator: No
Mixed radioactive waste: No
Importer of hazardous waste: No
Immediate recycler: No
Treatment/Storage/Disposal/Recycling Facility: No
### SHELL STATION 120565 (Continued)

| Generator of dangerous fuel waste: | No |
| Generator marketing to burner: | No |
| Other marketers (i.e., blender, distributor, etc.): | No |
| Utility boiler burner: | No |
| Industry boiler burner: | No |
| Industrial Furnace: | No |
| Snellter deferral: | No |
| Universal waste - batteries - generate: | No |
| Universal waste - thermostats - generate: | No |
| Universal waste - mercury - generate: | No |
| Universal waste - lamps - generate: | No |
| Universal waste - batteries - accumulate: | No |
| Universal waste - thermostats - accumulate: | No |
| Universal waste - mercury - accumulate: | No |
| Universal waste - lamps - accumulate: | No |
| Destination Facility for Universal Waste: | No |
| Off-specification used oil burner - utility boiler: | No |
| Off-specification used oil burner - industrial boiler: | No |
| Off-specification used oil burner - industrial furnace: | No |
| Tax Reg #: | 601238698 |
| Business Type: | SERVICE STATION |
| Mail Name: | Shell Oil Products US |
| Mail addr line1: | 12700 NORTHBOROUGH DR |
| Mail addr line2: | 300G03 |
| Mail city, st, zip: | HOUSTON, TX 77067-2508 |
| Mail country: | UNITED STATES |
| Legal org name: | Equilion Enterprises LLC dba Shell Oil P |
| Legal org type: | Private |
| Legal addr line1: | PO BOX 2099 |
| Legal addr line2: | NOB 300G03 - RACHEL HULL |
| Legal city, st, zip: | HOUSTON, TX 77252-2099 |
| Legal country: | UNITED STATES |
| Legal phone nbr: | 281-874-2224 |
| Legal effective date: | 08/01/1998 |
| Land org name: | Equilion Enterprises LLC dba Shell Oil P |
| Land org type: | Private |
| Land person name: | Not reported |
| Land addr line1: | PO BOX 2099 |
| Land addr line2: | NOB 300G03 |
| Land city, st, zip: | HOUSTON, TX 77252-2099 |
| Land country: | UNITED STATES |
| Land phone nbr: | 281-874-2224 |
| Operator org name: | Equilion Enterprises LLC dba Shell Oil P |
| Operator org type: | Private |
| Operator addr line1: | 12700 NORTHBOROUGH DR |
| Operator addr line2: | 300G03 |
| Operator city, st, zip: | HOUSTON, TX 77067-2058 |
| Operator country: | UNITED STATES |
| Operator phone nbr: | (281)874-2224 |
| Operator effective date: | 08/01/1998 |
| Site contact name: | DON F WISDOM |
| Site contact addr line1: | 12700 NORTHBOROUGH DR |
| Site contact addr line2: | 300F07 |
| Site Contact City/State/Zip: | HOUSTON, TX 77067-2058 |
| Site Contact Country: | UNITED STATES |
| Site Contact Phone #: | (281) 874-2238 |
| Site Contact EMail: | DON.F.WISDOM@SHELL.COM |

EDR ID Number: 1004794300
SHELL STATION 120565 (Continued)

Form Contact NAME: RACHEL HULL
Form Contact ADDR LINE1: 12700 NORTHBOROUGH DRIVE
Form Contact ADDR LINE2: NOB 300G03
Form Contact City,ST,Zip: HOUSTON, TX 77067-2508
Form Contact Country: UNITED STATES
Form Contact Phone #: (281)874-2224
Form Contact EMail: RACHEL.HULL@SHELL.COM
Gen Status CD: XQG
Monthly Generation: No
Batch Generation: No
One Time Generation: No
Transport Own Waste: No
Transports Other Waste: No
Recycler Onsite: No
Transfer Facility: No
Other Exemption: Not reported
UW Battery Gen: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Fuel Marketer Directs Shipments: No
Used Oil Fuel Marketer Meets Specs: No

Waste Streams Generated:
Facility ID: 41716978
Data Year: 2008
Description: RINSATE - GASOLINE
Mix: False
Reported Qty: 3210.9000000000001 LB
Kilo Qty: 1456.4642650511855
Density No: 0
Density Qty: Not reported

Facility ID: 41716978
Data Year: 2008
Description: ABSORBENT MAT. W/GASOLINE
Mix: False
Reported Qty: 205 LB
Kilo Qty: 92.988001599393627
Density No: 0
Density Qty: Not reported

Facility ID: 41716978
Data Year: Not reported
Description: ABSORBENT MATERIAL WITH GASOLINE
Mix: No
Reported Qty: 300 LB
Kilo Qty: 136.080002340576
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 41716978
Data Year: 2008
Shipment sent data: 7/30/2008

Form Contact EMail: RACHEL.HULL@SHELL.COM
Form Contact Phone #: (281)874-2224
Form Contact ADDR LINE1: 12700 NORTHBOROUGH DRIVE
Form Contact ADDR LINE2: NOB 300G03
Form Contact City,ST,Zip: HOUSTON, TX 77067-2508
Form Contact Country: UNITED STATES
Form Contact Phone #: (281)874-2224
Form Contact EMail: RACHEL.HULL@SHELL.COM
Gen Status CD: XQG
SHELL STATION 120565 (Continued)

Reported Qty: 55 LB
Kilo Qty: 24.9480004291056

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 4/14/2008
Reported Qty: 40 LB
Kilo Qty: 18.1440003120768

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 4/2/2008
Reported Qty: 110 LB
Kilo Qty: 49.8960008582112

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 9/18/2008
Reported Qty: 3210.9 LB
Kilo Qty: 1456.46426505119

Facility ID: 41716978
Data Year: Not reported
Shipment sent data: 7/18/2006
Reported Qty: 150 LB
Kilo Qty: 68.040001170288

Facility ID: 41716978
Data Year: Not reported
Shipment sent data: 2/10/2006
Reported Qty: 150 LB
Kilo Qty: 68.040001170288

D24
TEXACO STATION CO-OP
South
12221 NE 124TH
KIRKLAND, WA  98034

0.194 mi.
1024 ft. Site 2 of 2 in cluster D

Relative: Higher
Actual: 148 ft.

ICR:
Date Ecology Received Report: 11/04/93
Contaminants Found at Site: Petroleum products
Media Contaminated: Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 93-13
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 11/08/93
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
**TEXACO STATION CO-OP (Continued)**

<table>
<thead>
<tr>
<th>Site Register Issue</th>
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<tr>
<td>County Code</td>
<td>17</td>
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<tr>
<td>Contact</td>
<td>Not reported</td>
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<tr>
<td>Report Title</td>
<td>Not reported</td>
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<tr>
<td>Date Ecology Received Report</td>
<td>01/24/95</td>
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<tr>
<td>Contaminants Found at Site</td>
<td>Petroleum products</td>
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<td>Media Contaminated</td>
<td>Groundwater, Soil</td>
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<tr>
<td>Waste Management</td>
<td>Tank</td>
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<tr>
<td>Region</td>
<td>North Western</td>
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<tr>
<td>Type of Report Ecology Received</td>
<td>Final cleanup report</td>
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<td>Site Register Issue</td>
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<td>County Code</td>
<td>17</td>
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<tr>
<td>Contact</td>
<td>Not reported</td>
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<tr>
<td>Report Title</td>
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<td>Contaminants Found at Site</td>
<td>Petroleum products</td>
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<tr>
<td>Media Contaminated</td>
<td>Groundwater, Soil</td>
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<tr>
<td>Waste Management</td>
<td>Tank</td>
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<tr>
<td>Region</td>
<td>North Western</td>
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<tr>
<td>Type of Report Ecology Received</td>
<td>Interim cleanup report</td>
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<td>Site Register Issue</td>
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<tr>
<td>County Code</td>
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<td>Contact</td>
<td>Not reported</td>
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<tr>
<td>Report Title</td>
<td>Not reported</td>
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**SPILLS:**

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<td>Material Desc</td>
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<td>Material Units</td>
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<tr>
<td>Contact Name</td>
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<tr>
<td>Incident Date</td>
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</tr>
<tr>
<td>Incident Category Type</td>
<td>Not reported</td>
</tr>
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<td>Incident Category</td>
<td>Not reported</td>
</tr>
<tr>
<td>Latitude</td>
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<td>Source</td>
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<tr>
<td>Vessel Facility Name2</td>
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</tr>
<tr>
<td>Recovered Quantity</td>
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</tr>
<tr>
<td>Resp Party Contact</td>
<td>Not reported</td>
</tr>
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<td>Cause Type</td>
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</tr>
<tr>
<td>Resp Party Name</td>
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<tr>
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<th>554726</th>
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<tbody>
<tr>
<td>Medium</td>
<td>Not reported</td>
</tr>
<tr>
<td>Material Desc</td>
<td>PETROLEUM - DIESEL FUEL</td>
</tr>
<tr>
<td>Material Qty</td>
<td>5</td>
</tr>
<tr>
<td>Material Units</td>
<td>GALLON</td>
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<tr>
<td>Date Received</td>
<td>04/26/2006</td>
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<tr>
<td>Contact Name</td>
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<tr>
<td>Incident Date</td>
<td>Not reported</td>
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TEXACO STATION CO-OP (Continued)  S103510090

Incident Category Type: Not reported
Incident Category: Not reported
Latitude: Not reported
Longitude: Not reported
Source Type: Not reported
Source: Not reported
Vessel Facility Name2: Not reported
Recovered Quantity: Not reported
Resp Party Contact: Not reported
Cause: Not reported
Cause Type: Not reported
Resp Party Name: Not reported

Facility ID: 555023
Medium: Not reported
Material Desc: PETROLEUM - GASOLINE
Material Qty: 4
Material Units: CUP
Date Received: 05/10/2006
Contact Name: Not reported
Incident Date: Not reported
Incident Category Type: Not reported
Incident Category: Not reported
Latitude: Not reported
Longitude: Not reported
Source Type: Not reported
Source: Not reported
Vessel Facility Name2: Not reported
Recovered Quantity: Not reported
Resp Party Contact: Not reported
Cause: Not reported
Cause Type: Not reported
Resp Party Name: Not reported

E25   DISCOUNT TIRE PROPERTY   WA UST U003604675
SSE   12410 NE 124TH ST   WA ALLSITES N/A
1/8-1/4  KIRKLAND, WA  98034
0.196 mi.  Site 1 of 3 in cluster E
1037 ft. Relative: Higher
Actual: 142 ft.

UST:
Facility ID: 62752569
Site Id: 490630
UBI: Not reported
Phone Number: Not reported
Decimal Latitude: 47.7092125273972
Decimal Longitude: -122.175182486301

Tank Name: 1
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 12/10/1999
Tank Install Date: 00/01/1900
Tank Closure Date: Not reported
Capacity Range: Not reported
Tank Permit Expiration Date: Not reported
Tank Upgrade Date: Not reported
Tank Spill Prevention: Not reported
### DISCOUNT TIRE PROPERTY (Continued)

- Tank Overfill Prevention: Not reported
- Tank Material: Not reported
- Tank Construction: Not reported
- Tank Tightness Test: Not reported
- Tank Corrosion Protection: Not reported
- Tank Manifold: Not reported
- Tank Release Detection: Not reported
- Tank SFC Type: Not reported
- Pipe Material: Not reported
- Pipe Construction: Not reported
- Pipe Primary Release Detection: Not reported
- Pipe Second Release Detection: Not reported
- Pipe Corrosion Protection: Not reported
- Pipe Pumping System: Not reported
- Responsible Unit: NORTHWEST
- Dispenser/Pump SFC Type: Not reported

- Tank Name: 2
- Tag Number: Not reported
- Tank Status: Removed
- Tank Status Date: 12/10/1999
- Tank Install Date: 00/01/1900
- Tank Closure Date: Not reported
- Capacity Range: Not reported
- Tank Permit Expiration Date: Not reported
- Tank Upgrade Date: Not reported
- Tank Spill Prevention: Not reported
- Tank Overfill Prevention: Not reported
- Tank Material: Not reported
- Tank Construction: Not reported
- Tank Tightness Test: Not reported
- Tank Corrosion Protection: Not reported
- Tank Manifold: Not reported
- Tank Release Detection: Not reported
- Tank SFC Type: Not reported
- Pipe Material: Not reported
- Pipe Construction: Not reported
- Pipe Primary Release Detection: Not reported
- Pipe Second Release Detection: Not reported
- Pipe Corrosion Protection: Not reported
- Pipe Pumping System: Not reported
- Responsible Unit: NORTHWEST
- Dispenser/Pump SFC Type: Not reported

### ALL SITES:

- Facility Name: DISCOUNT TIRE PROPERTY
- Facility Id: 62792569
- Interaction: 55372
- Interaction 1: I
- Interaction 2: UST
- Ecology Program: TOXICS
- Program Data: UST
- Facility Alt.: Not reported
- Program ID: 490630
- Date Interaction: 1999-03-29 00:00:00
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<th>Map ID</th>
<th>Direction</th>
<th>Distance</th>
<th>Elevation</th>
<th>Site</th>
<th>Database(s)</th>
<th>EDR ID Number</th>
<th>EPA ID Number</th>
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<tbody>
<tr>
<td></td>
<td></td>
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<td>FINDS</td>
<td>U003604675</td>
<td>1004793242</td>
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</table>

**DISCOUNT TIRE PROPERTY (Continued)**

Date Interaction 3: Underground Storage Tank
Latitude: 47.709206639000001
Longitude: -122.175180438

**F26**

**EVERGREEN HOSPITAL MEDICAL CTR**

<table>
<thead>
<tr>
<th>North</th>
<th>Distance</th>
<th>Site</th>
<th>Relative</th>
<th>Actual</th>
</tr>
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<tbody>
<tr>
<td>12040 NE 128TH ST</td>
<td>0.200 mi.</td>
<td>Site 1 of 3 in cluster F</td>
<td>Higher</td>
<td>189 ft.</td>
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</table>

**RCRA-SQG:**

Date form received by agency: 03/16/2015
Facility name: EVERGREEN HOSPITAL MEDICAL CTR
Facility address: 12040 NE 128TH ST
KIRKLAND, WA 98034
EPA ID: WA0000345306
Contact: JEFF KLENOVIC
Contact address: 12040 NE 128TH ST
KIRKLAND, WA 98034-3013
Contact country: US
Contact telephone: 425-899-1783
Contact email: JAKLENOVIC@EVERGREENHEALTH.COM
EPA Region: 10
Land type: District
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

**Owner/Operator Summary:**

Owner/operator name: KING CNTY
Owner/operator address: 12040 NE 128TH ST
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: County
Owner/Operator Type: Owner
Owner/Op start date: 08/15/1996
Owner/Op end date: Not reported

Owner/operator name: KING COUNTY HOSPITAL DISTRICT #2
Owner/operator address: 12040 NE 128TH ST
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-899-1783
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: District
Owner/Operator Type: Owner
**EVERGREEN HOSPITAL MEDICAL CTR (Continued)**

| Owner/Op start date: | Not reported |
| Owner/Op end date: | Not reported |
| Owner/operator name: | KING CNTY |
| Owner/operator address: | 12040 NE 128TH ST KIRKLAND, WA 98034 |
| Owner/operator country: | US |
| Owner/operator telephone: | 425-899-1783 |
| Owner/operator email: | Not reported |
| Owner/operator fax: | Not reported |
| Owner/operator extension: | Not reported |
| Legal status: | District |
| Owner/Operator Type: | Operator |
| Owner/Op start date: | 08/15/1996 |
| Owner/Op end date: | Not reported |

| Owner/operator name: | KING CNTY |
| Owner/operator address: | 12040 NE 128TH ST KIRKLAND, WA 98034 |
| Owner/operator country: | US |
| Owner/operator telephone: | Not reported |
| Owner/operator email: | Not reported |
| Owner/operator fax: | Not reported |
| Owner/operator extension: | Not reported |
| Legal status: | County |
| Owner/Operator Type: | Operator |
| Owner/Op start date: | 08/15/1996 |
| Owner/Op end date: | Not reported |

| Owner/operator name: | KING CNTY |
| Owner/operator address: | 12040 NE 128TH ST KIRKLAND, WA 98034 |
| Owner/operator country: | US |
| Owner/operator telephone: | 425-899-1783 |
| Owner/operator email: | Not reported |
| Owner/operator fax: | Not reported |
| Owner/operator extension: | Not reported |
| Legal status: | District |
| Owner/Operator Type: | Owner |
| Owner/Op start date: | 08/15/1996 |
| Owner/Op end date: | Not reported |

| Owner/operator name: | KING CNTY |
| Owner/operator address: | 12040 NE 128TH ST KIRKLAND, WA 98034 |
| Owner/operator country: | US |
| Owner/operator telephone: | 425-899-1778 |
| Owner/operator email: | Not reported |
| Owner/operator fax: | Not reported |
| Owner/operator extension: | Not reported |
| Legal status: | District |
| Owner/Operator Type: | Operator |
| Owner/Op start date: | 08/15/1996 |
| Owner/Op end date: | Not reported |

**Handler Activities Summary:**

**U.S. importer of hazardous waste:** No
EVERGREEN HOSPITAL MEDICAL CTR  (Continued) 1004793242

Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

- Waste code: D001
- Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

- Waste code: U002
- Waste name: ACETONE (I)

- Waste code: WT02
- Waste name: WT02

Historical Generators:

Date form received by agency: 01/26/2012
Site name: EVERGREEN HOSPITAL MEDICAL CTR
Classification: Conditionally Exempt Small Quantity Generator

- Waste code: W SQG
- Waste name: W SQG

Date form received by agency: 02/22/2011
Site name: EVERGREEN HOSPITAL MEDICAL CTR
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 03/10/2010
Site name: EVERGREEN HOSPITAL MEDICAL CTR
Classification: Conditionally Exempt Small Quantity Generator

- Waste code: W SQG
- Waste name: W SQG

Date form received by agency: 12/31/2007
Site name: EVERGREEN HOSPITAL MEDICAL CTR
Classification: Not a generator, verified

Date form received by agency: 12/31/2005
Site name: EVERGREEN HOSPITAL MEDICAL CTR
Classification: Not a generator, verified
EVERGREEN HOSPITAL MEDICAL CTR (Continued)  1004793242

Date form received by agency: 12/31/2003
Site name: EVERGREEN HOSPITAL MEDICAL CTR
Classification: Not a generator, verified

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: Generators - Manifest
Date violation determined: 05/02/2017
Date achieved compliance: 08/09/2017
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 07/12/2017
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 05/02/2017
Date achieved compliance: 08/09/2017
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 07/12/2017
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: State Statute or Regulation
Date violation determined: 05/02/2017
Date achieved compliance: 08/09/2017
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 07/12/2017
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 05/02/2017
Date achieved compliance: 08/09/2017
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 07/12/2017
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State

Facility Has Received Notices of Violations:
EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 05/02/2017
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 08/09/2017
Evaluation lead agency: State

Evaluation date: 05/02/2017
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Manifest
Date achieved compliance: 08/09/2017
Evaluation lead agency: State

Evaluation date: 05/02/2017
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: State Statute or Regulation
Date achieved compliance: 08/09/2017
Evaluation lead agency: State

Evaluation date: 09/23/2009
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

UST:
Facility ID: 77233621
Site Id: 11668
UBI: Not reported
Phone Number: Not reported
Decimal Latitude: 47.71472
Decimal Longitude: -122.19077
Tank Name: 1OLD
Tag Number: Not reported
Tank Status: Exempt
Tank Status Date: 08/06/1996
Tank Install Date: 00/31/1964
Tank Closure Date: Not reported
Capacity Range: Not reported
Tank Permit Expiration Date: 07/11/1992
Tank Upgrade Date: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
Tank Material: Steel
Tank Construction: Not reported
Tank Tightness Test: Not reported
### EVERGREEN HOSPITAL MEDICAL CTR (Continued)

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<td>Hazardous Waste Planner</td>
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<td>TIER2</td>
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<td>Not reported</td>
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<td>Underground Storage Tank</td>
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<td>I</td>
<td>UST</td>
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<th>Date Interaction 3:</th>
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EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Interaction 1: A
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Evergreen Hospital Medical Ctr
Program ID: WA0000345306
Date Interaction: 1994-06-09 00:00:00
Date Interaction 2: Hazardous Waste Generator
Latitude: 47.714714360000002
Longitude: -122.180755105

FINDS:
Registry ID: 110005305231

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

AIR MINOR

ICIS (Integrated Compliance Information System) is the Integrated Compliance Information System and provides a database that, when complete, will contain integrated Enforcement and Compliance information across most of EPA's programs. The vision for ICIS is to replace EPA's independent databases that contain Enforcement data with a single repository for that information. Currently, ICIS contains all Federal Administrative and Judicial enforcement actions. This information is maintained in ICIS by EPA in the Regional offices and it Headquarters. A future release of ICIS will replace the Permit Compliance System (PCS) which supports the NPDES and will integrate
EVERGREEN HOSPITAL MEDICAL CTR (Continued)  

that information with Federal actions already in the system. ICIS also
has the capability to track other activities occurring in the Region
that support Compliance and Enforcement programs. These include;
Incident Tracking, Compliance Assistance, and Compliance Monitoring.

Click this hyperlink while viewing on your computer to access
additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1004793242
Registry ID: 110005305231
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005305231

WA MANIFEST:
Facility Site ID Number: 77233621
EPA ID: WA0000345306
NAICS: 62211
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: Not reported
Permit by Rule: FALSE
Treatment by Generator: FALSE
Mixed radioactive waste: FALSE
Importer of hazardous waste: FALSE
Immediate recycler: FALSE
Treatment/Storage/Disposal/Recycling Facility: FALSE
Generator of dangerous fuel waste: FALSE
Generator marketing to burner: FALSE
Other marketers (i.e., blender, distributor, etc.): FALSE
Utility boiler burner: FALSE
Industry boiler burner: FALSE
Industrial Furnace: FALSE
Smelter deferral: FALSE
Universal waste - batteries - generate: FALSE
Universal waste - thermostats - generate: FALSE
Universal waste - mercury - generate: FALSE
Universal waste - lamps - generate: FALSE
Universal waste - batteries - accumulate: FALSE
Universal waste - thermostats - accumulate: FALSE
Universal waste - mercury - accumulate: FALSE
Universal waste - lamps - accumulate: FALSE
Destination Facility for Universal Waste: FALSE
Off-specification used oil burner - utility boiler: FALSE
Off-specification used oil burner - industrial boiler: FALSE
Off-specification used oil burner - industrial furnace: FALSE
Tax Reg #: 600062259
Business Type: Acute Care Hospital
Mail Name: Evergreen Hospital Medical Ctr
Mail addr line1: 12040 NE 128TH ST
Mail city, st, zip: KIRKLAND, WA 98034-3013
Mail country: UNITED STATES
Legal org name: King Cnty
Legal org type: District
Legal addr line1: 12040 NE 128TH ST
EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Legal city, st, zip: KIRKLAND, WA 98034-3013
Legal country: UNITED STATES
Legal phone nbr: (425)899-1783
Legal effective date: 08/15/1996
Land org name: King County Hospital District #2
Land org type: District
Land person name: Not reported
Land addr line1: 12040 NE 128TH ST
Land city, st, zip: KIRKLAND, WA 98034-3013
Land country: UNITED STATES
Land phone nbr: (425)899-1783
Operator org name: King Cnty
Operator org type: District
Operator addr line1: 12040 NE 128TH ST
Operator city, st, zip: KIRKLAND, WA 98034-3013
Operator country: UNITED STATES
Operator phone nbr: (425) 899-1778
Operator effective date: 08/15/1996
Site contact name: Chuck Thorell
Site contact addr line1: 12040 NE 128th St
Site Contact City/State/Zip: KIRKLAND, WA 98034-3013
Site Contact Country: UNITED STATES
Site Contact Phone #: (425)899-1783
Site Contact EMail: cthorell@evergreenhealthcare.org
Form Contact NAME: Chuck Thorell
Form Contact ADDR LINE1: 12040 NE 128th St
Form Contact City, ST, Zip: KIRKLAND, WA 98034-3013
Form Contact Country: UNITED STATES
Form Contact Phone #: (425)899-1783
Form Contact EMail: cthorell@evergreenhealthcare.org
Gen Status CD: SQG
Monthly Generation: FALSE
Batch Generation: TRUE
One Time Generation: FALSE
Transport Own Waste: FALSE
Transport Other Waste: FALSE
Recycler Onsite: FALSE
Transfer Facility: FALSE
Other Exemption: Not reported
UW Battery Gen: FALSE
Used Oil Transporter: FALSE
Used Oil Processor: FALSE
Used Oil Refiner: FALSE
Used Oil Fuel Marketer Directs Shipments: FALSE
Used Oil Fuel Marketer Meets Specs: FALSE

Waste Streams Generated:
Facility ID: 77233621
Data Year: 2014
Description: CLASS 9 LABPACK
Mix: False
Reported Qty: 32 LB
Kilo Qty: 14.5152002
Density No: 0
Density Qty: Not reported
### EVERGREEN HOSPITAL MEDICAL CTR (Continued)

| Facility ID | 77233621 |
| Data Year | 2014 |
| Description | CLASS B (ALKALINE) LABPACK (DW) |
| Mix | False |
| Reported Qty | 108 LB |
| Kilo Qty | 48.9888008 |
| Density No | 0 |
| Density Qty | Not reported |

| Facility ID | 77233621 |
| Data Year | 2014 |
| Description | CLASS 8 (ACID) LABPACK (DW) |
| Mix | False |
| Reported Qty | 54 LB |
| Kilo Qty | 24.4944004 |
| Density No | 0 |
| Density Qty | Not reported |

| Facility ID | 77233621 |
| Data Year | 2014 |
| Description | CLASS 6.1 POISON LABPACK (DW) |
| Mix | False |
| Reported Qty | 110 LB |
| Kilo Qty | 49.8960008 |
| Density No | 0 |
| Density Qty | Not reported |

| Facility ID | 77233621 |
| Data Year | 2014 |
| Description | CLASS 3 LABPACK (DW) |
| Mix | False |
| Reported Qty | 100 LB |
| Kilo Qty | 45.3600007 |
| Density No | 0 |
| Density Qty | Not reported |

| Facility ID | 77233621 |
| Data Year | 2015 |
| Description | Drum #1 1X5DF |
| Mix | False |
| Reported Qty | 15 LB |
| Kilo Qty | 6.80400011 |
| Density No | 0 |
| Density Qty | Not reported |

| Facility ID | 77233621 |
| Data Year | 2015 |
| Description | Methanol and xylene solvent waste |
| Mix | False |
| Reported Qty | 75.0600000 LB |
| Kilo Qty | 34.0472165 |
| Density No | 0 |
| Density Qty | Not reported |

| Facility ID | 77233621 |
| Data Year | 2015 |
| Description | Corroxy - #2 55CF |
EVERGREEN HOSPITAL MEDICAL CTR (Continued) 1004793242

Mix: False
Reported Qty: 60 LB
Kilo Qty: 27.216004
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Merc #1 5DF
Mix: False
Reported Qty: 5 LB
Kilo Qty: 2.26800003
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Loose Pack Stain Waste
Mix: False
Reported Qty: 175 LB
Kilo Qty: 79.3800013
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Toxic Buffers
Mix: False
Reported Qty: 11 LB
Kilo Qty: 4.98960008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Formalin, Neutralized
Mix: False
Reported Qty: 287.100000 GAL
Kilo Qty: 1086.10620
Density No: 8.33999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: Formalin, Recycled
Mix: False
Reported Qty: 49.5 GAL
Kilo Qty: 187.259691
Density No: 8.33999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: Spent OPA
Mix: False
Reported Qty: 137 GAL
Kilo Qty: 518.274296
<table>
<thead>
<tr>
<th>Facility ID</th>
<th>77233621</th>
<th>Data Year</th>
<th>2015</th>
<th>Description</th>
<th>Waste Aerosols</th>
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<tbody>
<tr>
<td>Mix</td>
<td>False</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reported Qty</td>
<td>276 GAL</td>
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<tr>
<td>Density Qty</td>
<td>PPG</td>
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<td>Facility ID</td>
<td>77233621</td>
<td>Data Year</td>
<td>2015</td>
<td>Description</td>
<td>Spent Rapacide</td>
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<td>Mix</td>
<td>False</td>
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<tr>
<td>Reported Qty</td>
<td>316 GAL</td>
<td>Kilo Qty</td>
<td>1195.43560</td>
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<td>8.339999999</td>
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<td>Density Qty</td>
<td>PPG</td>
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<td></td>
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<tr>
<td>Facility ID</td>
<td>77233621</td>
<td>Data Year</td>
<td>2015</td>
<td>Description</td>
<td>CLASS 8 (ALKALINE) LABPACK (DW)</td>
</tr>
<tr>
<td>Mix</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reported Qty</td>
<td>20 LB</td>
<td>Kilo Qty</td>
<td>9.07200015</td>
<td>Density No</td>
<td>0</td>
</tr>
<tr>
<td>Density Qty</td>
<td>Not reported</td>
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<tr>
<td>Facility ID</td>
<td>77233621</td>
<td>Data Year</td>
<td>2016</td>
<td>Description</td>
<td>Waste Sulfuric Acid</td>
</tr>
<tr>
<td>Mix</td>
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<tr>
<td>Reported Qty</td>
<td>20 LB</td>
<td>Kilo Qty</td>
<td>9.07200015</td>
<td>Density No</td>
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<tr>
<td>Facility ID</td>
<td>77233621</td>
<td>Data Year</td>
<td>2016</td>
<td>Description</td>
<td>Waste Hydrochloric Acid</td>
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<td></td>
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</tr>
<tr>
<td>Reported Qty</td>
<td>15 LB</td>
<td>Kilo Qty</td>
<td>6.80400011</td>
<td>Density No</td>
<td>0</td>
</tr>
<tr>
<td>Density Qty</td>
<td>Not reported</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Facility ID</td>
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<td>Data Year</td>
<td>2016</td>
<td>Description</td>
<td>Spent Rapacide</td>
</tr>
<tr>
<td>Mix</td>
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</tr>
<tr>
<td>Reported Qty</td>
<td>8 LB</td>
<td>Kilo Qty</td>
<td>3.62880006</td>
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EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Shipments Sent:

- Facility ID: 77233621
  - Data Year: 2015
  - Shipment sent data: 2015-05-27 00:00:00
  - Reported Qty: 15 LB
  - Kilo Qty: 6.80400011

- Facility ID: 77233621
  - Data Year: 2015
  - Shipment sent data: 2015-06-03 00:00:00
  - Reported Qty: 75.0600000 LB
  - Kilo Qty: 34.0472165

- Facility ID: 77233621
  - Data Year: 2015
  - Shipment sent data: 2015-12-23 00:00:00
  - Reported Qty: 60 LB
  - Kilo Qty: 27.2160004

- Facility ID: 77233621
  - Data Year: 2015
  - Shipment sent data: 2015-12-23 00:00:00
  - Reported Qty: 5 LB
  - Kilo Qty: 2.2680003

- Facility ID: 77233621
  - Data Year: 2015
  - Shipment sent data: 2015-12-23 00:00:00
  - Reported Qty: 175 LB
  - Kilo Qty: 79.3800013

- Facility ID: 77233621
  - Data Year: 2015
  - Shipment sent data: 2015-07-29 00:00:00
  - Reported Qty: 11 LB
  - Kilo Qty: 4.98960008

- Facility ID: 77233621
  - Data Year: 2015
  - Shipment sent data: 2015-03-17 00:00:00
  - Reported Qty: 20 LB
  - Kilo Qty: 9.07200015

- Facility ID: 77233621
  - Data Year: 2017
  - Shipment sent data: 2017-12-18 00:00:00
  - Reported Qty: 900 LB
  - Kilo Qty: 408.240007

- Facility ID: 77233621
  - Data Year: 2017
  - Shipment sent data: 2017-11-20 00:00:00
  - Reported Qty: 1600 LB
  - Kilo Qty: 725.760012

- Facility ID: 77233621
  - Data Year: 2017
<table>
<thead>
<tr>
<th>Facility ID</th>
<th>Data Year</th>
<th>Shipment sent data</th>
<th>Reported Qty</th>
<th>Kilo Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>77233621</td>
<td>2017</td>
<td>2017-06-20 00:00:00</td>
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<tr>
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<td>2017</td>
<td>2017-07-11 00:00:00</td>
<td>200 LB</td>
<td>90.7200015</td>
</tr>
<tr>
<td>77233621</td>
<td>2017</td>
<td>2017-07-25 00:00:00</td>
<td>200 LB</td>
<td>113.400001</td>
</tr>
<tr>
<td>77233621</td>
<td>2017</td>
<td>2017-07-29 00:00:00</td>
<td>200 LB</td>
<td>226.800003</td>
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<tr>
<td>77233621</td>
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<td>200 LB</td>
<td>226.800003</td>
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<tr>
<td>77233621</td>
<td>2017</td>
<td>2017-08-15 00:00:00</td>
<td>250 LB</td>
<td>113.400001</td>
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<tr>
<td>77233621</td>
<td>2017</td>
<td>2017-08-29 00:00:00</td>
<td>250 LB</td>
<td>108.864001</td>
</tr>
<tr>
<td>77233621</td>
<td>2017</td>
<td>2017-09-12 00:00:00</td>
<td>200 LB</td>
<td>113.400001</td>
</tr>
<tr>
<td>77233621</td>
<td>2017</td>
<td>2017-09-26 00:00:00</td>
<td>200 LB</td>
<td>113.400001</td>
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<tr>
<td>77233621</td>
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<td>200 LB</td>
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<tr>
<td>77233621</td>
<td>2017</td>
<td>2017-10-24 00:00:00</td>
<td>200 LB</td>
<td>113.400001</td>
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<tr>
<td>77233621</td>
<td>2017</td>
<td>2017-10-25 00:00:00</td>
<td>240 LB</td>
<td>108.864001</td>
</tr>
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</table>

**EVERGREEN HOSPITAL MEDICAL CTR (Continued)**

Shipments:
- **Facility ID**: 77233621
- **Data Year**: 2017
- **Shipment sent data**: 2017-06-20 00:00:00
- **Reported Qty**: 200 LB
- **Kilo Qty**: 90.7200015
- **Facility ID**: 77233621
- **Data Year**: 2017
- **Shipment sent data**: 2017-07-11 00:00:00
- **Reported Qty**: 200 LB
- **Kilo Qty**: 90.7200015
- **Facility ID**: 77233621
- **Data Year**: 2017
- **Shipment sent data**: 2017-07-25 00:00:00
- **Reported Qty**: 250 LB
- **Kilo Qty**: 113.400001
- **Facility ID**: 77233621
- **Data Year**: 2017
- **Shipment sent data**: 2017-07-29 00:00:00
- **Reported Qty**: 250 LB
- **Kilo Qty**: 226.800003
- **Facility ID**: 77233621
- **Data Year**: 2017
- **Shipment sent data**: 2017-08-01 00:00:00
- **Reported Qty**: 500 LB
- **Kilo Qty**: 226.800003
- **Facility ID**: 77233621
- **Data Year**: 2017
- **Shipment sent data**: 2017-08-15 00:00:00
- **Reported Qty**: 250 LB
- **Kilo Qty**: 113.400001
- **Facility ID**: 77233621
- **Data Year**: 2017
- **Shipment sent data**: 2017-08-29 00:00:00
- **Reported Qty**: 250 LB
- **Kilo Qty**: 108.864001
- **Facility ID**: 77233621
- **Data Year**: 2017
- **Shipment sent data**: 2017-09-12 00:00:00
- **Reported Qty**: 200 LB
- **Kilo Qty**: 113.400001
- **Facility ID**: 77233621
- **Data Year**: 2017
- **Shipment sent data**: 2017-09-26 00:00:00
- **Reported Qty**: 200 LB
- **Kilo Qty**: 113.400001
- **Facility ID**: 77233621
- **Data Year**: 2017
- **Shipment sent data**: 2017-10-10 00:00:00
- **Reported Qty**: 200 LB
- **Kilo Qty**: 113.400001
- **Facility ID**: 77233621
- **Data Year**: 2017
- **Shipment sent data**: 2017-10-24 00:00:00
- **Reported Qty**: 200 LB
- **Kilo Qty**: 113.400001
- **Facility ID**: 77233621
- **Data Year**: 2017
- **Shipment sent data**: 2017-10-25 00:00:00
- **Reported Qty**: 240 LB
- **Kilo Qty**: 108.864001
- **Facility ID**: 77233621
- **Data Year**: 2017
- **Shipment sent data**: 2017-06-20 00:00:00
- **Reported Qty**: 240 LB
- **Kilo Qty**: 108.864001

**EDR ID Number**: 1004793242

**Database(s)**: 77233621
### EVERGREEN HOSPITAL MEDICAL CTR (Continued)

<table>
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<th>Facility ID:</th>
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<tbody>
<tr>
<td>Data Year:</td>
<td>2017</td>
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<tr>
<td>Shipment sent data:</td>
<td>2017-06-06 00:00:00</td>
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<tr>
<td>Reported Qty:</td>
<td>125 LB</td>
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<tr>
<td>Kilo Qty:</td>
<td>56.700009</td>
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</table>

**Waste Stream Comments:**

<table>
<thead>
<tr>
<th>Facility ID:</th>
<th>77233621</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Year:</td>
<td>2014</td>
</tr>
<tr>
<td>Comments:</td>
<td>ITEMS FROM LAB</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Facility ID:</th>
<th>77233621</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Year:</td>
<td>2014</td>
</tr>
<tr>
<td>Comments:</td>
<td>SOURCE - LAB</td>
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<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Data Year:</td>
<td>2014</td>
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<tr>
<td>Comments:</td>
<td>SOURCE - LAB</td>
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<table>
<thead>
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</thead>
<tbody>
<tr>
<td>Data Year:</td>
<td>2014</td>
</tr>
<tr>
<td>Comments:</td>
<td>SOURCE - LAB</td>
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<table>
<thead>
<tr>
<th>Facility ID:</th>
<th>77233621</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Year:</td>
<td>2015</td>
</tr>
<tr>
<td>Comments:</td>
<td>A-7: mercury debris disposal - outdated equipment</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facility ID:</th>
<th>77233621</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Year:</td>
<td>2015</td>
</tr>
<tr>
<td>Comments:</td>
<td>Out of spec or outdated chemicals from Lab</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facility ID:</th>
<th>77233621</th>
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</thead>
<tbody>
<tr>
<td>Data Year:</td>
<td>2015</td>
</tr>
<tr>
<td>Comments:</td>
<td>Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facility ID:</th>
<th>77233621</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Year:</td>
<td>2015</td>
</tr>
<tr>
<td>Comments:</td>
<td>Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Facility ID:</th>
<th>77233621</th>
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</thead>
<tbody>
<tr>
<td>Data Year:</td>
<td>2015</td>
</tr>
<tr>
<td>Comments:</td>
<td>SOURCE - LAB</td>
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### EVERGREEN HOSPITAL MEDICAL CTR (Continued)

<table>
<thead>
<tr>
<th>Facility ID</th>
<th>Data Year</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>77233621</td>
<td>2015</td>
<td>This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, but when mixed with Part B, a buffer, and used for its intended purpose, yields a waste effluent with a pH near neutral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles generate a waste that has an unacceptable pH (4.7-4.1)</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>This product was used in CPC (subsequently discontinued) to disinfect endoscopes.</td>
</tr>
<tr>
<td>77233621</td>
<td>2016</td>
<td>A-7: Disposal of mercury filled Blood Pressure cuff no longer used</td>
</tr>
<tr>
<td>77233621</td>
<td>2016</td>
<td>A-7: Outdated chemical from Laboratory</td>
</tr>
<tr>
<td>77233621</td>
<td>2016</td>
<td>A-7: Outdated laboratory chemical</td>
</tr>
<tr>
<td>77233621</td>
<td>2016</td>
<td>Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.</td>
</tr>
<tr>
<td>77233621</td>
<td>2016</td>
<td>Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.</td>
</tr>
</tbody>
</table>

Facility Site ID Number: 77233621
EPA ID: WA0000345306
NAICS: 62211
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2008
Permit by Rule: False
Treatment by Generator: False
## EVERGREEN HOSPITAL MEDICAL CTR (Continued)

<table>
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<th>Category</th>
<th>Value</th>
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<tbody>
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<td>Mixed radioactive waste</td>
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<tr>
<td>Importer of hazardous waste</td>
<td>False</td>
</tr>
<tr>
<td>Immediate recycler</td>
<td>False</td>
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<tr>
<td>Treatment/Storage/Disposal/Recycling Facility</td>
<td>False</td>
</tr>
<tr>
<td>Generator of dangerous fuel waste</td>
<td>False</td>
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<tr>
<td>Generator marketing to burner</td>
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<tr>
<td>Other marketers (i.e., blender, distributor, etc.)</td>
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<tr>
<td>Utility boiler burner</td>
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<tr>
<td>Industry boiler burner</td>
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<tr>
<td>Industrial Furnace</td>
<td>False</td>
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<tr>
<td>Smelter deferral</td>
<td>False</td>
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<tr>
<td>Universal waste - batteries - generate</td>
<td>False</td>
</tr>
<tr>
<td>Universal waste - thermostats - generate</td>
<td>False</td>
</tr>
<tr>
<td>Universal waste - mercury - generate</td>
<td>False</td>
</tr>
<tr>
<td>Universal waste - lamps - generate</td>
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EVERGREEN HOSPITAL MEDICAL CTR (Continued)

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Form Contact City,ST,Zip: KIRKLAND, WA 98034-3013
Form Contact Country: UNITED STATES
Form Contact Phone #: (425) 899-1783
Form Contact EMail: cthorell@evergreenhealthcare.org
Gen Status CD: SGQ
Monthly Generation: False
Batch Generation: True
One Time Generation: False
Transport Own Waste: False
Tranports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:
Facility ID: 77233621
Data Year: 2014
Description: CLASS 9 LABPACK
Mix: False
Reported Qty: 32 LB
Kilo Qty: 14.5152002
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS B (ALKALINE) LABPACK (DW)
Mix: False
Reported Qty: 108 LB
Kilo Qty: 48.9888008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 8 (ACID) LABPACK (DW)
Mix: False
Reported Qty: 54 LB
Kilo Qty: 24.4944004
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 6.1 POISON LABPACK (DW)
Mix: False
Reported Qty: 110 LB
Kilo Qty: 49.8960008
Density No: 0
### EVERGREEN HOSPITAL MEDICAL CTR (Continued)

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| Facility ID: | 77233621 |
| Data Year: | 2017 |
| Shipment sent data: | 2017-08-01 00:00:00 |
| Reported Qty: | 500 LB |
| Kilo Qty: | 226.800003 |

| Facility ID: | 77233621 |
| Data Year: | 2017 |
| Shipment sent data: | 2017-07-25 00:00:00 |
| Reported Qty: | 240 LB |
| Kilo Qty: | 108.864001 |

| Facility ID: | 77233621 |
| Data Year: | 2017 |
| Shipment sent data: | 2017-07-11 00:00:00 |
| Reported Qty: | 250 LB |
| Kilo Qty: | 113.400001 |

| Facility ID: | 77233621 |
| Data Year: | 2017 |
| Shipment sent data: | 2017-06-20 00:00:00 |
| Reported Qty: | 240 LB |
| Kilo Qty: | 108.864001 |

| Facility ID: | 77233621 |
| Data Year: | 2017 |
| Shipment sent data: | 2017-06-06 00:00:00 |
| Reported Qty: | 125 LB |
| Kilo Qty: | 56.700009 |

Waste Stream Comments:
- Facility ID: 77233621
  - Data Year: 2014
  - Comments: ITEMS FROM LAB

- Facility ID: 77233621
  - Data Year: 2014
  - Comments: SOURCE - LAB

- Facility ID: 77233621
  - Data Year: 2014
  - Comments: SOURCE - LAB

- Facility ID: 77233621
  - Data Year: 2014
  - Comments: SOURCE - LAB

- Facility ID: 77233621
EVERGREEN HOSPITAL MEDICAL CTR (Continued)  1004793242

Data Year:  2014  
Comments:  SOURCE - LAB  
Facility ID:  77233621  
Data Year:  2015  
Comments:  A-7: mercury debries disposal - outdated equipment  
Facility ID:  77233621  
Data Year:  2015  
Comments:  A-6: Spill clean-up material  
Facility ID:  77233621  
Data Year:  2015  
Comments:  Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.  
Facility ID:  77233621  
Data Year:  2015  
Comments:  Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.  
Facility ID:  77233621  
Data Year:  2015  
Comments:  Out of spec or outdated chemicals from Lab  
Facility ID:  77233621  
Data Year:  2015  
Comments:  SOURCE - LAB  
Facility ID:  77233621  
Data Year:  2015  
Comments:  Part A is acidic, but when mixed with Part B, a buffer, and used for its intended purpose, yields a waste effluent with a pH near neutral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles generate a waste that has an unacceptable pH (4.7-4.1)  
Facility ID:  77233621  
Data Year:  2015  
Comments:  This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde. King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.  
Facility ID:  77233621  
Data Year:  2015  
Comments:  This product was used in CPC (subsequently discontinued) to disinfect endoscopes.
<table>
<thead>
<tr>
<th>Facility ID:</th>
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<tbody>
<tr>
<td>Data Year:</td>
<td>2016</td>
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<tr>
<td>Comments:</td>
<td>A-7: Disposal of mercury filled Blood Pressure cuff no longer used</td>
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- **Facility ID:** 77233621
- **Data Year:** 2016
- **Comments:** A-7: Disposal of mercury filled Blood Pressure cuff no longer used

- **Facility ID:** 77233621
- **Data Year:** 2016
- **Comments:** A-7: Outdated chemical from Laboratory

- **Facility ID:** 77233621
- **Data Year:** 2016
- **Comments:** A-7: Out dated labortory chemical

- **Facility ID:** 77233621
- **Data Year:** 2016
- **Comments:** Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

- **Facility ID:** 77233621
- **Data Year:** 2016
- **Comments:** Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

**Facility Site ID Number:** 77233621
**EPA ID:** 77233621
**NAICS:** 622110
**SWC Desc:** WT02
**FWC Desc:** D001,D002,D035,F003,F005,D011,D024,U002,U162
**Form Comm:** 10 A-7: Elementary neutralization
**Data Year:** 2016
**Permit by Rule:** False
**Treatment by Generator:** True
**Mixed radioactive waste:** False
**Importer of hazardous waste:** False
**Immediate recycler:** False
**Treatment/Storage/Disposal/Recycling Facility:** False
**Generator of dangerous fuel waste:** False
**Generator marketing to burner:** False
**Other marketers (i.e., blender, distributor, etc.):** False
**Utility boiler burner:** False
**Industry boiler burner:** False
**Industrial Furnace:** False
**Smelter deferral:** False
**Universal waste - batteries - generate:** False
**Universal waste - thermostats - generate:** False
**Universal waste - mercury - generate:** False
**Universal waste - lamps - generate:** False
**Universal waste - batteries - accumulate:** False
**Universal waste - thermostats - accumulate:** False
**Universal waste - mercury - accumulate:** False
**Universal waste - lamps - accumulate:** False
**Destination Facility for Universal Waste:** False
**Off-specification used oil burner - utility boiler:** False
**Off-specification used oil burner - industrial boiler:** False
**Off-specification used oil burner - industrial furnace:** False
**Tax Reg #:** 600066426
EVERGREEN HOSPITAL MEDICAL CTR (Continued) 1004793242

Business Type: Acute Care Hospital
Mail Name: Evergreen Hospital Medical Ctr
Mail addr line1: 12040 NE 128TH ST
Mail city, st, zip: KIRKLAND, WA 98034-3013
Mail country: UNITED STATES
Legal org name: King Cnty
Legal org type: District
Legal addr line1: 12040 NE 128TH ST
Legal city, st, zip: KIRKLAND, WA 98034-3013
Legal country: UNITED STATES
Legal phone nbr: (425) 899-1783
Legal effective date: 08/15/1996
Land org name: King County Hospital District #2
Land org type: District
Land person name: Not reported
Land addr line1: 12040 NE 128TH ST
Land city, st, zip: KIRKLAND, WA 98034-3013
Land country: UNITED STATES
Land phone nbr: (425) 899-1783
Operator org name: King Cnty
Operator org type: District
Operator addr line1: 12040 NE 128TH ST
Operator city, st, zip: KIRKLAND, WA 98034-3013
Operator country: UNITED STATES
Operator phone nbr: (425) 899-1778
Operator effective date: 08/15/1996
Site contact name: Jeff A Klenovic
Site contact addr line1: 12040 NE 128th St
Site Contact City/State/ Zip: KIRKLAND, WA 98034-3013
Site Contact Country: UNITED STATES
Site Contact Phone #: (425) 899-1783
Site Contact EMail: jaklenovic@evergreenhealth.com
Form Contact NAME: Jeff Klenovic
Form Contact ADDR LINE1: 12040 NE 128th St
Form Contact City,ST,Zip: KIRKLAND, WA 98034-3013
Form Contact Country: UNITED STATES
Form Contact Phone #: (425) 899-1783
Form Contact EMail: jaklenovic@evergreenhealth.com
Gen Status CD: MQG
Monthly Generation: False
Batch Generation: True
One Time Generation: False
Transport Own Waste: False
Transports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:
Facility ID: 77233621
EVERGREEN HOSPITAL MEDICAL CTR  (Continued)  1004793242

Data Year: 2014
Description: CLASS 9 LABPACK
Mix: False
Reported Qty: 32 LB
Kilo Qty: 14.5152002
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS B (ALKALINE) LABPACK (DW)
Mix: False
Reported Qty: 108 LB
Kilo Qty: 48.9888008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 8 (ACID) LABPACK (DW)
Mix: False
Reported Qty: 54 LB
Kilo Qty: 24.4944004
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 6.1 POISON LABPACK (DW)
Mix: False
Reported Qty: 110 LB
Kilo Qty: 49.8960008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 3 LABPACK (DW)
Mix: False
Reported Qty: 100 LB
Kilo Qty: 45.3600007
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Drum #1 1X5DF
Mix: False
Reported Qty: 15 LB
Kilo Qty: 6.80400011
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Methanol and xylene solvent waste
Mix: False
### EVERGREEN HOSPITAL MEDICAL CTR (Continued)

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<td>Waste Hydrochloric Acid</td>
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**EVERGREEN HOSPITAL MEDICAL CTR (Continued)**

Density Qty: PPG
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EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Reported Qty: 250 LB
Kilo Qty: 113.40
Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-20 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.86
Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-06 00:00:00
Reported Qty: 125 LB
Kilo Qty: 56.70

Waste Stream Comments:

Facility ID: 77233621
Data Year: 2014
Comments: ITEMS FROM LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: A-7: Mercury debris disposal - outdated equipment

Facility ID: 77233621
Data Year: 2015
Comments: Out of spec or outdated chemicals from Lab

Facility ID: 77233621
Data Year: 2015
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.
<table>
<thead>
<tr>
<th>Facility ID</th>
<th>Data Year</th>
<th>Comments</th>
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<tbody>
<tr>
<td>77233621</td>
<td>2015</td>
<td>Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>SOURCE - LAB</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, but when mixed with Part B, a buffer, and used for its intended purpose, yields a waste effluent with a pH near neutral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles generate a waste that has an unacceptable pH (4.7-4.1).</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde. King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.</td>
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<tr>
<td>77233621</td>
<td>2015</td>
<td>This product was used in CPC (subsequently discontinued) to disinfect endoscopes.</td>
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<tr>
<td>77233621</td>
<td>2016</td>
<td>A-7: Disposal of mercury filled Blood Pressure cuff no longer used</td>
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<tr>
<td>77233621</td>
<td>2016</td>
<td>Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.</td>
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<td>77233621</td>
<td>2016</td>
<td>Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.</td>
</tr>
<tr>
<td>Facility Site ID Number</td>
<td>77233621</td>
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<td>Immediate recycler</td>
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<td>Treatment/Storage/Disposal/Recycling Facility</td>
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<td>Generator marketing to burner</td>
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<td>Other marketers (i.e., blender, distributor, etc.)</td>
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<td>Utility boiler burner</td>
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<td>Smelter deferral</td>
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<td>Universal waste - batteries - generate</td>
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<tr>
<td>Universal waste - thermostats - generate</td>
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<tr>
<td>Universal waste - mercury - generate</td>
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<tr>
<td>Universal waste - lamps - generate</td>
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<td>Universal waste - batteries - accumulate</td>
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<tr>
<td>Mail addr line1</td>
<td>12040 NE 128TH ST</td>
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<tr>
<td>Mail city, st, zip</td>
<td>KIRKLAND, WA 98034-3013</td>
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<tr>
<td>Legal phone nbr</td>
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EVERGREEN HOSPITAL MEDICAL CTR (Continued) 1004793242

Operator phone nbr: (425) 899-1778
Operator effective date: 08/15/1996
Site contact name: Chuck Thorell
Site contact addr line1: 12040 NE 128th St
Site Contact City/State/ Zip: KIRKLAND, WA 98034-3013
Site Contact Country: UNITED STATES
Site Contact EMail: cthorell@evergreenhealthcare.org
Form Contact NAME: Chuck Thorell
Form Contact ADOR LINE1: 12040 NE 128th St
Form Contact City,ST,Zip: KIRKLAND, WA 98034-3013
Form Contact Country: UNITED STATES
Form Contact Phone #: (425) 899-1783
Form Contact EMail: cthorell@evergreenhealthcare.org
Gen Status CD: SQG
Monthly Generation: False
Batch Generation: True
One Time Generation: False
Transport Own Waste: False
Tranports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marker Meets Specs: False

Waste Streams Generated:
Facility ID: 77233621
Data Year: 2014
Description: CLASS 9 LABPACK
Mix: False
Reported Qty: 32 LB
Kilo Qty: 14.5152002
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS B (ALKALINE) LABPACK (DW)
Mix: False
Reported Qty: 108 LB
Kilo Qty: 48.9888008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 8 (ACID) LABPACK (DW)
Mix: False
Reported Qty: 54 LB
Kilo Qty: 24.4944004
Density No: 0
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<tr>
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<tr>
<td>Description:</td>
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<td>Reported Qty:</td>
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<tr>
<td>Kilo Qty:</td>
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<td>Kilo Qty:</td>
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<td>Density Qty:</td>
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EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Data Year: 2015
Description: Loose Pack Stain Waste
Mix: False
Reported Qty: 175 LB
Kilo Qty: 79.3800013
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Toxic Buffers
Mix: False
Reported Qty: 11 LB
Kilo Qty: 4.98960008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Formalin, Neutralized
Mix: False
Reported Qty: 287.100000 GAL
Kilo Qty: 1086.10620
Density No: 8.33999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: Formalin, Recycled
Mix: False
Reported Qty: 49.5 GAL
Kilo Qty: 187.259691
Density No: 8.33999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: Spent OPA
Mix: False
Reported Qty: 137 GAL
Kilo Qty: 518.274296
Density No: 8.33999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: Spent Rapacide
Mix: False
Reported Qty: 276 GAL
Kilo Qty: 1044.11464
Density No: 8.33999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: Spent Rapacide
Mix: False
EVERGREEN HOSPITAL MEDICAL CTR (Continued) 1004793242

Reported Qty: 316 GAL
Kilo Qty: 1195.43560
Density No: 8.33999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: CLASS 8 (ALKALINE) LABPACK (DW)
Mix: False
Reported Qty: 20 LB
Kilo Qty: 9.07200015
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Sulfuric Acid
Mix: False
Reported Qty: 20 LB
Kilo Qty: 9.07200015
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Hydrochloric Acid
Mix: False
Reported Qty: 15 LB
Kilo Qty: 6.80400011
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Aerosols
Mix: False
Reported Qty: 8 LB
Kilo Qty: 3.62880006
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-05-27 00:00:00
Reported Qty: 15 LB
Kilo Qty: 6.80400011

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-06-03 00:00:00
Reported Qty: 75.06000000 LB
Kilo Qty: 34.0472165

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
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<th>Kilo Qty</th>
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**EVERGREEN HOSPITAL MEDICAL CTR (Continued)**
### EVERGREEN HOSPITAL MEDICAL CTR (Continued)

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<tr>
<td>Kilo Qty:</td>
<td>108.864001</td>
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<tr>
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<tr>
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<td>125 LB</td>
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<td>Kilo Qty:</td>
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#### Waste Stream Comments:

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<th>77233621</th>
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<tr>
<td>Data Year:</td>
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<tr>
<td>Comments:</td>
<td>ITEMS FROM LAB</td>
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<tbody>
<tr>
<td>Data Year:</td>
<td>2014</td>
</tr>
<tr>
<td>Comments:</td>
<td>SOURCE - LAB</td>
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EVERGREEN HOSPITAL MEDICAL CTR (Continued) 1004793242

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: A- & Spill clean-up material

Facility ID: 77233621
Data Year: 2015
Comments: spill clean-up debries.

Facility ID: 77233621
Data Year: 2015
Comments: A-7: mercury debries disposal - outdated equipment

Facility ID: 77233621
Data Year: 2015
Comments: Out of spec or outdated chemicals from Lab

Facility ID: 77233621
Data Year: 2015
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2015
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility ID: 77233621
Data Year: 2015
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, but when mixed with Part B, a buffer, and used for its intended purpose, yields a waste effluent with a pH near neutral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles generate a waste that has an unacceptable pH (4.7-4.1)

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde.
EVERGREEN HOSPITAL MEDICAL CTR  (Continued)  1004793242

King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.

Facility ID: 77233621
Data Year: 2015
Comments: This product was used in CPC (subsequently discontinued) to disinfect endoscopes.

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Disposal of mercury filled Blood Pressure cuff no longer used

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Outdated chemical from Laboratory

Facility ID: 77233621
Data Year: 2016
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2016
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.
EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Universal waste - lamps - generate: No
Universal waste - batteries - accumulate: No
Universal waste - mercury - accumulate: No
Universal waste - lamps - accumulate: No
Destination Facility for Universal Waste: No
Off-specification used oil burner - utility boiler: No
Off-specification used oil burner - industrial boiler: No
Off-specification used oil burner - industrial furnace: No
Tax Reg #: 600062259
Business Type: Not reported
Mail Name: Evergreen Hospital Medical Ctr
Mail addr line1: 12040 NE 128TH ST
Mail city, st, zip: KIRKLAND, WA 98034-3013
Mail country: UNITED STATES
Legal org name: King Cnty
Legal org type: County
Legal addr line1: 12040 NE 128TH ST
Legal city, st, zip: KIRKLAND, WA 98034-3013
Legal country: UNITED STATES
Legal phone nbr: (425)899-1783
Legal effective date: 08/15/1996
Land org name: King Cnty
Land org type: County
Land person name: Not reported
Land addr line1: 12040 NE 128TH ST
Land city, st, zip: KIRKLAND, WA 98034-3013
Land country: UNITED STATES
Land phone nbr: (425)899-1783
Operator org name: King Cnty
Operator org type: County
Operator addr line1: 12040 NE 128TH ST
Operator city, st, zip: KIRKLAND, WA 98034-3013
Operator country: UNITED STATES
Operator phone nbr: (425) 899-1778
Operator effective date: 08/15/1996
Site contact name: Chuck Thorell
Site contact addr line1: 12040 NE 128th St
Site Contact City/State/Zip: KIRKLAND, WA 98034-3013
Site Contact Country: UNITED STATES
Site Contact Phone #: (425)899-1783
Site Contact EMail: cthorell@evergreenhealthcare.org
Form Contact NAME: Chuck Thorell
Form Contact ADDR LINE1: 12040 NE 128th St
Form Contact City,ST,Zip: KIRKLAND, WA 98034-3013
Form Contact Country: UNITED STATES
Form Contact Phone #: (425)899-1783
Form Contact EMail: cthorell@evergreenhealthcare.org
Gen Status CD: SQG
Monthly Generation: No
Batch Generation: Yes
One Time Generation: No
Transport Own Waste: No
Tranports Other Waste: No
Recycler Onsite: No
Transfer Facility: No
Other Exemption: Not reported
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<thead>
<tr>
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<th>77233621</th>
<th>77233621</th>
<th>77233621</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>CLASS 9 LABPACK</td>
<td>CLASS B (ALKALINE) LABPACK (DW)</td>
<td>CLASS 8 (ACID) LABPACK (DW)</td>
<td>CLASS 6.1 POISON LABPACK (DW)</td>
</tr>
<tr>
<td>Mix</td>
<td>False</td>
<td>False</td>
<td>False</td>
<td>False</td>
</tr>
<tr>
<td>Reported Qty</td>
<td>32 LB</td>
<td>108 LB</td>
<td>54 LB</td>
<td>110 LB</td>
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<tr>
<td>Kilo Qty</td>
<td>14.5152002</td>
<td>48.9888008</td>
<td>24.4944004</td>
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<tr>
<td>Density No</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Density Qty</td>
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<td>Not reported</td>
<td>Not reported</td>
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<table>
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<tr>
<td>Description</td>
<td>Drum #1 1X5DF</td>
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<td>Data Year</td>
<td>2015</td>
</tr>
<tr>
<td>EDR ID Number</td>
<td>1004793242</td>
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EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Mix: False
Reported Qty: 15 LB
Kilo Qty: 6.80400011
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Methanol and xylene solvent waste
Mix: False
Reported Qty: 75.06000000 LB
Kilo Qty: 34.0472165
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Corroxy - #2 55CF
Mix: False
Reported Qty: 60 LB
Kilo Qty: 27.2160004
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Merc #1 5DF
Mix: False
Reported Qty: 5 LB
Kilo Qty: 2.26800003
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Loose Pack Stain Waste
Mix: False
Reported Qty: 175 LB
Kilo Qty: 79.3800013
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Toxic Buffers
Mix: False
Reported Qty: 11 LB
Kilo Qty: 4.98960008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Formalin, Neutralized
Mix: False
Reported Qty: 287.100000 GAL
Kilo Qty: 1086.10620
EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Density No: 8.33999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: Formalin, Recycled
Mix: False
Reported Qty: 49.5 GAL
Kilo Qty: 187.259691
Density No: 8.33999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: Spent OPA
Mix: False
Reported Qty: 137 GAL
Kilo Qty: 518.274296
Density No: 8.33999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: Spent Rapacide
Mix: False
Reported Qty: 276 GAL
Kilo Qty: 1044.11464
Density No: 8.33999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: Spent Rapacide
Mix: False
Reported Qty: 316 GAL
Kilo Qty: 1195.43560
Density No: 8.33999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: CLASS 8 (ALKALINE) LABPACK (DW)
Mix: False
Reported Qty: 20 LB
Kilo Qty: 9.07200015
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Sulfuric Acid
Mix: False
Reported Qty: 20 LB
Kilo Qty: 9.07200015
Density No: 0
Density Qty: Not reported
### EVERGREEN HOSPITAL MEDICAL CTR (Continued)

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<tr>
<td>Description:</td>
<td>Waste Hydrochloric Acid</td>
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<td>Reported Qty:</td>
<td>15 LB</td>
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<tr>
<td>Density No:</td>
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**Shipment Sent:**

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<td>Density No:</td>
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- **Shipments Sent:**
  - Facility ID: 77233621, Data Year: 2015, Shipment sent data: 2015-05-27 00:00:00, Reported Qty: 15 LB, Kilo Qty: 6.80400011
  - Facility ID: 77233621, Data Year: 2015, Shipment sent data: 2015-06-03 00:00:00, Reported Qty: 75.0600000 LB, Kilo Qty: 34.0472165
  - Facility ID: 77233621, Data Year: 2015, Shipment sent data: 2015-12-23 00:00:00, Reported Qty: 60 LB, Kilo Qty: 27.2160004
  - Facility ID: 77233621, Data Year: 2015, Shipment sent data: 2015-12-23 00:00:00, Reported Qty: 5 LB, Kilo Qty: 2.26800003
  - Facility ID: 77233621, Data Year: 2015, Shipment sent data: 2015-12-23 00:00:00, Reported Qty: 175 LB, Kilo Qty: 79.3800013
  - Facility ID: 77233621, Data Year: 2015, Shipment sent data: 2015-07-29 00:00:00, Reported Qty: 11 LB, Kilo Qty: 4.98960008
  - Facility ID: 77233621, Data Year: 2015

**ERROR:**

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EVERGREEN HOSPITAL MEDICAL CTR (Continued) 1004793242

Shipments sent:
2015-03-17 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-12-18 00:00:00
Reported Qty: 900 LB
Kilo Qty: 408.2400007

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-11-20 00:00:00
Reported Qty: 1600 LB
Kilo Qty: 725.760012

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-10 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-24 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-26 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-12 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-29 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-15 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-01 00:00:00
Reported Qty: 500 LB
Kilo Qty: 226.800003
## EVERGREEN HOSPITAL MEDICAL CTR (Continued)

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<td>Kilo Qty: 108.864001</td>
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<td>Reported Qty: 125 LB</td>
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<tr>
<td>Kilo Qty: 56.7000009</td>
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### Waste Stream Comments:

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<tr>
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<th>Data Year: 2014</th>
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<tr>
<td>Comments: ITEMS FROM LAB</td>
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<tr>
<th>Facility ID: 77233621</th>
<th>Data Year: 2015</th>
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<tbody>
<tr>
<td>Comments: A &amp; Spill clean-up material</td>
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</table>

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<thead>
<tr>
<th>Facility ID: 77233621</th>
<th>Data Year: 2015</th>
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<tbody>
<tr>
<td>Comments: spill clean-up debries.</td>
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<table>
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<tr>
<th>Facility ID: 77233621</th>
<th>Data Year: 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comments: A-7: mercury debries disposal - outdated equipment</td>
<td></td>
</tr>
</tbody>
</table>
Facility ID: 77233621
Data Year: 2015
Comments: Out of spec or outdated chemicals from Lab

Facility ID: 77233621
Data Year: 2015
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2015
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility ID: 77233621
Data Year: 2015
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, but when mixed with Part B, a buffer, and used for its intended purpose, yields a waste effluent with a pH near neutral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles generate a waste that has an unacceptable pH (4.7-4.1)

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde. King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.

Facility ID: 77233621
Data Year: 2015
Comments: This product was used in CPC (subsequently discontinued) to disinfect endoscopes.

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Disposal of mercury filled Blood Pressure cuff no longer used

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Outdated chemical from Laboratory

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Outdated laboratory chemical

Facility ID: 77233621
Data Year: 2016
EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2016
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility Site ID Number: 77233621
EPA ID: WA0000345306
NAICS: 62211
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: Not reported
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 600068426
Business Type: Acute Care Hospital
Mail Name: Evergreen Hospital Medical Ctr
Mail addr line1: 12040 NE 128TH ST
Mail city, st, zip: KIRKLAND, WA 98034-3013
Mail country: UNITED STATES
Legal org name: King Cnty
Legal org type: District
Legal addr line1: 12040 NE 128TH ST
Legal city, st, zip: KIRKLAND, WA 98034-3013
Legal country: UNITED STATES
Legal phone nbr: (425)899-1783
Legal effective date: 08/15/1996
Land org name: King County Hospital District #2
Land org type: District

Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.
MAP FINDINGS

 EVERGREEN HOSPITAL MEDICAL CTR  (Continued)  1004793242

Land person name: Not reported
Land addr line1: 12040 NE 128TH ST
Land city, st, zip: KIRKLAND, WA 98034-3013
Land country: UNITED STATES
Land phone nbr: (425)899-1783
Operator org name: King Cnty
Operator org type: District
Operator addr line1: 12040 NE 128TH ST
Operator city, st, zip: KIRKLAND, WA 98034-3013
Operator country: UNITED STATES
Operator phone nbr: (425) 899-1778
Operator effective date: 08/15/1996
Site contact name: Chuck Thorell
Site contact addr line1: 12040 NE 128th St
Site Contact City/State/Zip: KIRKLAND, WA 98034-3013
Site Contact Country: UNITED STATES
Site Contact Phone #: (425)899-1783
Site Contact EMail: cthorell@evergreenhealthcare.org
Form Contact NAME: Chuck Thorell
Form Contact ADDR LINE1: 12040 NE 128th St
Form Contact City,ST,Zip: KIRKLAND, WA 98034-3013
Form Contact Country: UNITED STATES
Form Contact Phone #: (425)899-1783
Form Contact EMail: cthorell@evergreenhealthcare.org
Gen Status CD: SOQ
Monthly Generation: False
Batch Generation: True
One Time Generation: False
Transport Own Waste: False
Transports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False
Waste Streams Generated:
Facility ID: 77233621
Data Year: 2014
Description: CLASS 9 LABPACK
Mix: False
Reported Qty: 32 LB
Kilo Qty: 14.5152002
Density No: 0
Density Qty: Not reported
Facility ID: 77233621
Data Year: 2014
Description: CLASS B (ALKALINE) LABPACK (DW)
Mix: False
Reported Qty: 108 LB
Kilo Qty: 48.9888008

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### EVERGREEN HOSPITAL MEDICAL CTR (Continued)

<table>
<thead>
<tr>
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**EVERGREEN HOSPITAL MEDICAL CTR** (Continued)  

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<th>Kilo Qty</th>
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<th>Density Qty</th>
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<td>2015</td>
<td>Formalin, Neutralized</td>
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<td>287.100000 GAL</td>
<td>1086.10620</td>
<td>8.33999999</td>
<td>PPG</td>
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<td>2015</td>
<td>Formalin, Recycled</td>
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<td>49.5 GAL</td>
<td>187.259691</td>
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<td>PPG</td>
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<td>77233621</td>
<td>2015</td>
<td>Spent OPA</td>
<td>False</td>
<td>137 GAL</td>
<td>518.274296</td>
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<td>PPG</td>
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<td>77233621</td>
<td>2015</td>
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EVERGREEN HOSPITAL MEDICAL CTR  (Continued)

Mix: False
Reported Qty: 276 GAL
Kilo Qty: 1044.11464
Density No: 8.339999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: Spent Rapacide
Mix: False
Reported Qty: 316 GAL
Kilo Qty: 1195.43560
Density No: 8.339999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: CLASS 8 (ALKALINE) LABPACK (DW)
Mix: False
Reported Qty: 20 LB
Kilo Qty: 9.07200015
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Sulfuric Acid
Mix: False
Reported Qty: 20 LB
Kilo Qty: 9.07200015
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Hydrochloric Acid
Mix: False
Reported Qty: 15 LB
Kilo Qty: 6.80400011
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Aerosols
Mix: False
Reported Qty: 8 LB
Kilo Qty: 3.62880006
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-05-27 00:00:00
Reported Qty: 15 LB
Kilo Qty: 6.80400011
EVERGREEN HOSPITAL MEDICAL CTR (Continued)  1004793242

Facility ID:  77233621  
Data Year:  2015  
Shipment sent data:  2015-06-03 00:00:00  
Reported Qty:  75.0600000 LB  
Kilo Qty:  34.0472165

Facility ID:  77233621  
Data Year:  2015  
Shipment sent data:  2015-12-23 00:00:00  
Reported Qty:  60 LB  
Kilo Qty:  27.2160004

Facility ID:  77233621  
Data Year:  2015  
Shipment sent data:  2015-12-23 00:00:00  
Reported Qty:  5 LB  
Kilo Qty:  2.2680003

Facility ID:  77233621  
Data Year:  2015  
Shipment sent data:  2015-12-23 00:00:00  
Reported Qty:  175 LB  
Kilo Qty:  79.3800013

Facility ID:  77233621  
Data Year:  2015  
Shipment sent data:  2015-07-29 00:00:00  
Reported Qty:  11 LB  
Kilo Qty:  4.9896008

Facility ID:  77233621  
Data Year:  2015  
Shipment sent data:  2015-03-17 00:00:00  
Reported Qty:  20 LB  
Kilo Qty:  9.0720015

Facility ID:  77233621  
Data Year:  2017  
Shipment sent data:  2017-12-18 00:00:00  
Reported Qty:  900 LB  
Kilo Qty:  408.240007

Facility ID:  77233621  
Data Year:  2017  
Shipment sent data:  2017-11-20 00:00:00  
Reported Qty:  1600 LB  
Kilo Qty:  725.760012

Facility ID:  77233621  
Data Year:  2017  
Shipment sent data:  2017-10-24 00:00:00  
Reported Qty:  200 LB  
Kilo Qty:  90.7200015

Facility ID:  77233621  
Data Year:  2017  
Shipment sent data:  2017-10-10 00:00:00
EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Reported Qty: 200 LB
Kilo Qty: 90.7200015
Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-26 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015
Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-12 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015
Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-29 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015
Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-15 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001
Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-01 00:00:00
Reported Qty: 500 LB
Kilo Qty: 226.800003
Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-25 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001
Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-11 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001
Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-20 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001
Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-06 00:00:00
Reported Qty: 125 LB
Kilo Qty: 56.7000009
A is acidic, but when mixed with Part B, a buffer, and used for its

Part A and Part B, which are mixed in the disinfection machine. Part

A is acidic, but when mixed with Part B, a buffer, and used for its
intended purpose, yields a waste effluent with a pH near neutral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles generate a waste that has an unacceptable pH (4.7-4.1)

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde. King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.

Facility ID: 77233621
Data Year: 2015
Comments: This product was used in CPC (subsequently discontinued) to disinfect endoscopes.

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Disposal of mercury filled Blood Pressure cuff no longer used

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Outdated chemical from Laboratory

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Outdated chemical from Laboratory

Facility ID: 77233621
Data Year: 2016
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2016
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility Site ID Number: 77233621
EPA ID: WA0000345306
NAICS: 622110
SWG Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2009
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 600068426
Business Type: Acute Care Hospital
Mail Name: Evergreen Hospital Medical Ctr
Mail addr line1: 12040 NE 128TH ST
Mail city, st, zip: KIRKLAND, WA 98034-3013
Mail country: UNITED STATES
Legal org name: King Cnty
Legal org type: District
Legal org addr line1: 12040 NE 128TH ST
Legal city, st, zip: KIRKLAND, WA 98034-3013
Legal country: UNITED STATES
Legal phone nbr: (425) 999-1783
Legal effective date: 08/15/1996
Land org name: King County Hospital District #2
Land org type: District
Land person name: Not reported
Land addr line1: 12040 NE 128TH ST
Land city, st, zip: KIRKLAND, WA 98034-3013
Land country: UNITED STATES
Land phone nbr: (425) 899-1783
Operator org name: King Cnty
Operator org type: District
Operator org addr line1: 12040 NE 128TH ST
Operator city, st, zip: KIRKLAND, WA 98034-3013
Operator country: UNITED STATES
Operator phone nbr: (425) 899-1778
Operator effective date: 08/15/1996
Site contact name: Chuck Thorell
Site contact addr line1: 12040 NE 128th St
Site Contact City/State/Zip: KIRKLAND, WA 98034-3013
Site Contact Country: UNITED STATES
Site Contact Phone #: (425) 899-1783
Site Contact EMail: cthorell@evergreenhealthcare.org
Form Contact NAME: Chuck Thorell
Form Contact ADDR LINE1: 12040 NE 128th St
Form Contact City, ST, Zip: KIRKLAND, WA 98034-3013
Form Contact Country: UNITED STATES
Form Contact Phone #: (425) 899-1783
Form Contact EMail: cthorell@evergreenhealthcare.org
### EVERGREEN HOSPITAL MEDICAL CTR (Continued)

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</tr>
<tr>
<td>Mix:</td>
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<td>Kilo Qty:</td>
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<tr>
<td>Density No:</td>
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EVERGREEN HOSPITAL MEDICAL CTR (Continued) 1004793242
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<th>Reported Qty</th>
<th>Kilo Qty</th>
<th>Density No</th>
<th>Density Qty</th>
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<td>287.100000 GAL</td>
<td>1086.10620</td>
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<td>PPG</td>
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<tr>
<td>77233621</td>
<td>2015</td>
<td>Formalin, Recycled</td>
<td>False</td>
<td>49.5 GAL</td>
<td>187.259691</td>
<td>8.339999999</td>
<td>PPG</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>Spent OPA</td>
<td>False</td>
<td>137 GAL</td>
<td>518.274296</td>
<td>8.339999999</td>
<td>PPG</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>Spent Rapacide</td>
<td>False</td>
<td>276 GAL</td>
<td>1044.11464</td>
<td>8.339999999</td>
<td>PPG</td>
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<td>77233621</td>
<td>2015</td>
<td>Spent Rapacide</td>
<td>False</td>
<td>316 GAL</td>
<td>1195.43560</td>
<td>8.339999999</td>
<td>PPG</td>
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<tr>
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<td>2015</td>
<td>CLASS 8 (ALKALINE) LABPACK (DW)</td>
<td>False</td>
<td>20 LB</td>
<td>9.07200015</td>
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<td>Not reported</td>
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**EVERGREEN HOSPITAL MEDICAL CTR (Continued)**

Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Formalin, Neutralized
Mix: False
Reported Qty: 287.100000 GAL
Kilo Qty: 1086.10620
Density No: 8.339999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: Formalin, Recycled
Mix: False
Reported Qty: 49.5 GAL
Kilo Qty: 187.259691
Density No: 8.339999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: Spent OPA
Mix: False
Reported Qty: 137 GAL
Kilo Qty: 518.274296
Density No: 8.339999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: Spent Rapacide
Mix: False
Reported Qty: 276 GAL
Kilo Qty: 1044.11464
Density No: 8.339999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: Spent Rapacide
Mix: False
Reported Qty: 316 GAL
Kilo Qty: 1195.43560
Density No: 8.339999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: CLASS 8 (ALKALINE) LABPACK (DW)
Mix: False
Reported Qty: 20 LB
Kilo Qty: 9.07200015
Density No: 0
Density Qty: Not reported
EVERGREEN HOSPITAL MEDICAL CTR  (Continued)  1004793242

Facility ID: 77233621
Data Year: 2016
Description: Waste Sulfuric Acid
Mix: False
Reported Qty: 20 LB
Kilo Qty: 9.07200015
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Hydrochloric Acid
Mix: False
Reported Qty: 15 LB
Kilo Qty: 6.80400011
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Aerosols
Mix: False
Reported Qty: 8 LB
Kilo Qty: 3.62880006
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-05-27 00:00:00
Reported Qty: 15 LB
Kilo Qty: 6.80400011

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-06-03 00:00:00
Reported Qty: 75.0600000 LB
Kilo Qty: 34.0472165

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 60 LB
Kilo Qty: 27.216004

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 5 LB
Kilo Qty: 2.26800003

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 175 LB
Kilo Qty: 79.3800013
## EVERGREEN HOSPITAL MEDICAL CTR (Continued)

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<td>Kilo Qty:</td>
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<td>Kilo Qty:</td>
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<tr>
<td>Kilo Qty:</td>
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### EVERGREEN HOSPITAL MEDICAL CTR (Continued)

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<td>77233621</td>
<td>2017</td>
<td>2017-07-25 00:00:00</td>
<td>240 LB</td>
<td>108.864001</td>
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<td>2017</td>
<td>2017-07-11 00:00:00</td>
<td>250 LB</td>
<td>113.400001</td>
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<td>77233621</td>
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#### Waste Stream Comments:
- **Facility ID:** 77233621
- **Data Year:** 2014
- **Comments:** ITEMS FROM LAB

- **Facility ID:** 77233621
- **Data Year:** 2014
- **Comments:** SOURCE - LAB

- **Facility ID:** 77233621
- **Data Year:** 2014
- **Comments:** SOURCE - LAB

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- **Data Year:** 2014
- **Comments:** SOURCE - LAB

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- **Data Year:** 2014
- **Comments:** SOURCE - LAB

- **Facility ID:** 77233621
- **Data Year:** 2015
- **Comments:** A-\& Spill clean-up material
### EVERGREEN HOSPITAL MEDICAL CTR (Continued)

<table>
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<td>spill clean-up debries.</td>
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<tr>
<td>77233621</td>
<td>2015</td>
<td>A-7: mercury debries disposal - outdated equipment</td>
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<tr>
<td>77233621</td>
<td>2015</td>
<td>Out of spec or outdated chemicals from Lab</td>
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<tr>
<td>77233621</td>
<td>2015</td>
<td>Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>SOURCE - LAB</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, but when mixed with Part B, a buffer, and used for its intended purpose, yields a waste effluent with a pH near neutral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles generate a waste that has an unacceptable pH (4.7-4.1)</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde. King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>This product was used in CPC (subsequently discontinued) to disinfect endoscopes.</td>
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<tr>
<td>77233621</td>
<td>2016</td>
<td>A-7: Disposal of mercury filled Blood Pressure cuff no longer used</td>
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TC5463995.2s Page 267
EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Comments: A-7: Outdated chemical from Laboratory

Facility ID: 77233621
Data Year: 2016
Comments: Out dated laboratory chemical

Facility ID: 77233621
Data Year: 2016
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2016
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility Site ID Number: 77233621
EPA ID: WA0000345306
NAICS: 622110
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2010
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 600068426
Business Type: Acute Care Hospital
Mail Name: Evergreen Hospital Medical Ctr
Mail addr line1: 12040 NE 128TH ST
Mail city,st,zip: KIRKLAND, WA 98034-3013
Mail country: UNITED STATES
Legal org name: King Cnty
Evergreen Hospital Medical Ctr (Continued)

Legal org type: District
Legal addr line1: 12040 NE 128th St
Legal city, st, zip: Kirkland, WA 98034-3013
Legal country: United States
Legal phone nbr: (425) 899-1783
Legal effective date: 08/15/1996
Land org name: King County Hospital District #2
Land org type: District
Land person name: Not reported
Land addr line1: 12040 NE 128th St
Land city, st, zip: Kirkland, WA 98034-3013
Land country: United States
Land phone nbr: (425) 899-1783
Operator org name: King Cnty
Operator org type: District
Operator addr line1: 12040 NE 128th St
Operator city, st, zip: Kirkland, WA 98034-3013
Operator country: United States
Operator phone nbr: (425) 899-1778
Operator effective date: 08/15/1996
Site contact name: Chuck Thorell
Site contact addr line1: 12040 NE 128th St
Site Contact City/State/Zip: Kirkland, WA 98034-3013
Site Contact Country: United States
Site Contact Phone #: (425) 899-1783
Site Contact EMail: cthorell@evergreenhealthcare.org
Form Contact NAME: Chuck Thorell
Form Contact ADDR LINE1: 12040 NE 128th St
Form Contact City, ST, Zip: Kirkland, WA 98034-3013
Form Contact Country: United States
Form Contact Phone #: (425) 899-1783
Form Contact EMail: cthorell@evergreenhealthcare.org
Gen Status CD: SOG
Monthly Generation: False
Batch Generation: True
One Time Generation: False
Transport Own Waste: False
Transport Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:
Facility ID: 77233621
Data Year: 2014
Description: CLASS 9 LABPACK
Mix: False
Reported Qty: 32 LB
Kilo Qty: 14,5152002
Density No: 0
### EVERGREEN HOSPITAL MEDICAL CTR (Continued)

#### Facility ID: 77233621
- **Data Year:** 2014
- **Description:** CLASS 3 LABPACK (DW)
- **Mix:** False
- **Kilo Qty:** 110 LB
- **Density No:** 49.8960008
- **Density Qty:** Not reported

#### Facility ID: 77233621
- **Data Year:** 2014
- **Description:** CLASS 6.1 POISON LABPACK (DW)
- **Mix:** False
- **Kilo Qty:** 100 LB
- **Density No:** 45.3600007
- **Density Qty:** Not reported

#### Facility ID: 77233621
- **Data Year:** 2014
- **Description:** CLASS 8 (ACID) LABPACK (DW)
- **Mix:** False
- **Kilo Qty:** 110 LB
- **Density No:** 45.3600007
- **Density Qty:** Not reported

#### Facility ID: 77233621
- **Data Year:** 2015
- **Description:** Drum /#1 1X5DF
- **Mix:** False
- **Kilo Qty:** 6.80400011
- **Density No:** 24.4944004
- **Density Qty:** Not reported

#### Facility ID: 77233621
- **Data Year:** 2015
- **Description:** Methanol and xylene solvent waste
- **Mix:** False
- **Kilo Qty:** 75.0600000 LB
- **Density No:** 34.0472165
- **Density Qty:** Not reported
EVERGREEN HOSPITAL MEDICAL CTR (Continued) 1004793242

Data Year: 2015
Description: Corroxy - #2 55CF
Mix: False
Reported Qty: 60 LB
Kilo Qty: 27.2160004
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Formalin, Recycled
Mix: False
Reported Qty: 49.5 GAL
Kilo Qty: 187.259691
Density No: 8.33999999
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Toxic Buffers
Mix: False
Reported Qty: 11 LB
Kilo Qty: 4.98960008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Loose Pack Stain Waste
Mix: False
Reported Qty: 175 LB
Kilo Qty: 79.3800013
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Merc #1 5DF
Mix: False
Reported Qty: 5 LB
Kilo Qty: 2.26800003
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Formalin, Neutralized
Mix: False
Reported Qty: 287.100000 GAL
Kilo Qty: 1086.10620
Density No: 8.33999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: Spent OPA
Mix: False
Reported Qty: Not reported
Kilo Qty: Not reported
Density No: Not reported
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Toxic Buffers
Mix: False
Reported Qty: 11 LB
Kilo Qty: 4.98960008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Merc #1 5DF
Mix: False
Reported Qty: 5 LB
Kilo Qty: 2.26800003
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Formalin, Recycled
Mix: False
Reported Qty: 49.5 GAL
Kilo Qty: 187.259691
Density No: 8.33999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: Spent OPA
Mix: False
Reported Qty: Not reported
Kilo Qty: Not reported
Density No: Not reported
Density Qty: Not reported
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- Facility ID: 77233621, Data Year: 2014, Comments: iTEMS FROM LAB
- Facility ID: 77233621, Data Year: 2014, Comments: SOURCE - LAB
- Facility ID: 77233621, Data Year: 2014, Comments: SOURCE - LAB
- Facility ID: 77233621, Data Year: 2014, Comments: SOURCE - LAB
- Facility ID: 77233621, Data Year: 2015, Comments: A-7: mercury debries disposal - outdated equipment
- Facility ID: 77233621, Data Year: 2015, Comments: Out of spec or outdated chemicals from Lab
- Facility ID: 77233621, Data Year: 2015, Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.
- Facility ID: 77233621, Data Year: 2015, Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.
EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Facility ID: 77233621
Data Year: 2015
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, but when mixed with Part B, a buffer, and used for its intended purpose, yields a waste effluent with a pH near neutral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles generate a waste that has an unacceptable pH (4.7-4.1)

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde. King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Disposal of mercury filled Blood Pressure cuff no longer used

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Outdated chemical from Laboratory

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Outdated laboratory chemical

Facility ID: 77233621
Data Year: 2016
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2016
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility Site ID Number: 77233621
EPA ID: WA0000345306
NAICS: 622110
SWC Desc: WT02
FWC Desc: D001,U002
EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Form Comm: Not reported
Data Year: 2014
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 600068426
Business Type: Acute Care Hospital
Mail Name: Evergreen Hospital Medical Ctr
Mail addr line1: 12040 NE 128TH ST
Mail city, st, zip: KIRKLAND, WA 98034-3013
Mail country: UNITED STATES
Legal org name: King Cnty
Legal org type: District
Legal addr line1: 12040 NE 128TH ST
Legal city, st, zip: KIRKLAND, WA 98034-3013
Legal country: UNITED STATES
Legal phone nbr: (425) 899-1783
Legal effective date: 08/15/1996
Land org name: King County Hospital District #2
Land org type: District
Land person name: Not reported
Land addr line1: 12040 NE 128TH ST
Land city, st, zip: KIRKLAND, WA 98034-3013
Land country: UNITED STATES
Land phone nbr: (425) 899-1783
Operator org name: King Cnty
Operator org type: District
Operator addr line1: 12040 NE 128TH ST
Operator city, st, zip: KIRKLAND, WA 98034-3013
Operator country: UNITED STATES
Operator phone nbr: (425) 899-1778
Operator effective date: 08/15/1996
Site contact name: Jeff A Klenovic
Site contact addr line1: 12040 NE 128th St
Site Contact City/State/Zip: KIRKLAND, WA 98034-3013
## EVERGREEN HOSPITAL MEDICAL CTR (Continued)

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**MAP FINDINGS**

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### CLASS 6.1 POISON LABPACK (DW)

**Description:**
2014
**Data Year:**
77233621
**Facility ID:**
Not reported
**Density Qty:**
0
**Density No:**
24.4944004
**Kilo Qty:**
54 LB
**Reported Qty:**
False
**Mix:**
CLASS 6.1 POISON LABPACK (DW)
**Gen Status CD:**
MOG
**Monthly Generation:**
False
**Batch Generation:**
True
**One Time Generation:**
False
**Transport Own Waste:**
False
**Tranports Other Waste:**
False
**Recycler Onsite:**
False
**Transfer Facility:**
False
**Other Exemption:**
Not reported
**UW Battery Gen:**
False
**Used Oil Transporter:**
False
**Used Oil Transfer Facility:**
False
**Used Oil Processor:**
False
**Used Oil Refiner:**
False
**Used Oil Fuel Marketer Directs Shipments:**
False
**Used Oil Fuel Marketer Meets Specs:**
False

### CLASS 8 (ACID) LABPACK (DW)

**Description:**
2014
**Data Year:**
77233621
**Facility ID:**
Not reported
**Density Qty:**
0
**Density No:**
48.9888008
**Kilo Qty:**
108 LB
**Reported Qty:**
False
**Mix:**
CLASS 8 (ACID) LABPACK (DW)
**Gen Status CD:**
MOG
**Monthly Generation:**
False
**Batch Generation:**
True
**One Time Generation:**
False
**Transport Own Waste:**
False
**Tranports Other Waste:**
False
**Recycler Onsite:**
False
**Transfer Facility:**
False
**Other Exemption:**
Not reported
**UW Battery Gen:**
False
**Used Oil Transporter:**
False
**Used Oil Transfer Facility:**
False
**Used Oil Processor:**
False
**Used Oil Refiner:**
False
**Used Oil Fuel Marketer Directs Shipments:**
False
**Used Oil Fuel Marketer Meets Specs:**
False

### CLASS B (ALKALINE) LABPACK (DW)

**Description:**
2014
**Data Year:**
77233621
**Facility ID:**
Not reported
**Density Qty:**
0
**Density No:**
14.5152002
**Kilo Qty:**
32 LB
**Reported Qty:**
False
**Mix:**
CLASS B (ALKALINE) LABPACK (DW)
**Gen Status CD:**
MOG
**Monthly Generation:**
False
**Batch Generation:**
True
**One Time Generation:**
False
**Transport Own Waste:**
False
**Tranports Other Waste:**
False
**Recycler Onsite:**
False
**Transfer Facility:**
False
**Other Exemption:**
Not reported
**UW Battery Gen:**
False
**Used Oil Transporter:**
False
**Used Oil Transfer Facility:**
False
**Used Oil Processor:**
False
**Used Oil Refiner:**
False
**Used Oil Fuel Marketer Directs Shipments:**
False
**Used Oil Fuel Marketer Meets Specs:**
False

### Waste Streams Generated:

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EVERGREEN HOSPITAL MEDICAL CTR (Continued)

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<td>False</td>
<td>15 LB</td>
<td>6.80400011</td>
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<td>Methanol and xylene solvent waste</td>
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<td>34.0472165</td>
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<td>Corroxy - #2 55CF</td>
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<td>Loose Pack Stain Waste</td>
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### EVERGREEN HOSPITAL MEDICAL CTR (Continued)

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<td>Kilo Qty</td>
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<th>Description</th>
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<td>Kilo Qty</td>
<td>187.259691</td>
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<td>Kilo Qty</td>
<td>518.274296</td>
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EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Facility ID: 77233621
Data Year: 2015
Description: CLASS 8 (ALKALINE) LABPACK (DW)
Mix: False
Reported Qty: 20 LB
Kilo Qty: 9.07200015
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Sulfuric Acid
Mix: False
Reported Qty: 20 LB
Kilo Qty: 9.07200015
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Hydrochloric Acid
Mix: False
Reported Qty: 15 LB
Kilo Qty: 6.80400011
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Aerosols
Mix: False
Reported Qty: 8 LB
Kilo Qty: 3.62880006
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-05-27 00:00:00
Reported Qty: 15 LB
Kilo Qty: 6.80400011

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-06-03 00:00:00
Reported Qty: 75.06000000 LB
Kilo Qty: 34.0472165

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 60 LB
Kilo Qty: 27.2160004

Facility ID: 77233621
Data Year: 2015
EVERGREEN HOSPITAL MEDICAL CTR (Continued) 1004793242

| Facility ID: | 77233621 |
| Data Year:   | 2015     |
| Shipment sent data: | 2015-09-12 00:00:00 |
| Reported Qty: | 200 LB |
| Kilo Qty:    | 2.26800003 |

| Facility ID: | 77233621 |
| Data Year:   | 2015     |
| Shipment sent data: | 2015-09-26 00:00:00 |
| Reported Qty: | 200 LB |
| Kilo Qty:    | 90.7200015 |

| Facility ID: | 77233621 |
| Data Year:   | 2015     |
| Shipment sent data: | 2015-10-10 00:00:00 |
| Reported Qty: | 200 LB |
| Kilo Qty:    | 90.7200015 |

| Facility ID: | 77233621 |
| Data Year:   | 2015     |
| Shipment sent data: | 2015-10-24 00:00:00 |
| Reported Qty: | 200 LB |
| Kilo Qty:    | 90.7200015 |

| Facility ID: | 77233621 |
| Data Year:   | 2015     |
| Shipment sent data: | 2015-11-20 00:00:00 |
| Reported Qty: | 200 LB |
| Kilo Qty:    | 90.7200015 |

| Facility ID: | 77233621 |
| Data Year:   | 2015     |
| Shipment sent data: | 2015-12-08 00:00:00 |
| Reported Qty: | 200 LB |
| Kilo Qty:    | 90.7200015 |
EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-29 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-15 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-01 00:00:00
Reported Qty: 500 LB
Kilo Qty: 226.800003

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-25 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-11 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-20 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-06 00:00:00
Reported Qty: 125 LB
Kilo Qty: 56.7000009

Waste Stream Comments:
Facility ID: 77233621
Data Year: 2014
Comments: ITEMS FROM LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
### EVERGREEN HOSPITAL MEDICAL CTR (Continued)

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#### Facility ID: 77233621

**Data Year:** 2015

**Comments:** Spill clean-up material

**Data Year:** 2015

**Comments:** Spill clean-up debries.

**Data Year:** 2015

**Comments:** A-7: mercury debries disposal - outdated equipment

**Data Year:** 2015

**Comments:** Out of spec or outdated chemicals from Lab

**Data Year:** 2015

**Comments:** Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

**Data Year:** 2015

**Comments:** Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

**Data Year:** 2015

**Comments:** SOURCE - LAB

**Data Year:** 2015

**Comments:** This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, but when mixed with Part B, a buffer, and used for its intended purpose, yields a waste effluent with a pH near neutral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles generate a waste that has an unacceptable pH (4.7-4.1).

**Data Year:** 2015

**Comments:** This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde. King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.

**Facility ID:** 77233621
**EVERGREEN HOSPITAL MEDICAL CTR** (Continued)

<table>
<thead>
<tr>
<th>Data Year</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>This product was used in CPC (subsequently discontinued) to disinfect endoscopes.</td>
</tr>
</tbody>
</table>

Facility ID: 77233621  
Data Year: 2016  
Comments: A-7: Disposal of mercury filled Blood Pressure cuff no longer used

Facility ID: 77233621  
Data Year: 2016  
Comments: A-7: Outdated chemical from Laboratory

Facility ID: 77233621  
Data Year: 2016  
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621  
Data Year: 2016  
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility Site ID Number: 77233621  
EPA ID: WA0000345306  
NAICS: 622110  
SWG Desc: WT02  
FWC Desc: D001,D002,F003,D009  
Form Comm: 10-A-7: Treatment by generator includes neutralization of spent OPA and formalin.

<table>
<thead>
<tr>
<th>Data Year</th>
<th>Permit by Rule</th>
<th>Treatment by Generator</th>
<th>Mixed radioactive waste</th>
<th>Importer of hazardous waste</th>
<th>Immediate recycler</th>
<th>Treatment/Storage/Disposal/Recycling Facility</th>
<th>Generator of dangerous fuel waste</th>
<th>Generator marketing to burner</th>
<th>Other marketers (i.e., blender, distributor, etc.)</th>
<th>Utility boiler burner</th>
<th>Industry boiler burner</th>
<th>Industrial Furnace</th>
<th>Smelter deferral</th>
<th>Universal waste - batteries - generate</th>
<th>Universal waste - thermostats - generate</th>
<th>Universal waste - mercury - generate</th>
<th>Universal waste - lamps - generate</th>
<th>Universal waste - batteries - accumulate</th>
<th>Universal waste - thermostats - accumulate</th>
<th>Universal waste - mercury - accumulate</th>
<th>Universal waste - lamps - accumulate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>False</td>
<td>True</td>
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<td>False</td>
<td>False</td>
<td>False</td>
<td>False</td>
<td>False</td>
<td>False</td>
<td>False</td>
</tr>
</tbody>
</table>
## EVERGREEN HOSPITAL MEDICAL CTR (Continued)

| Destination Facility for Universal Waste: | False |
| Off-specification used oil burner - utility boiler: | False |
| Off-specification used oil burner - industrial boiler: | False |
| Off-specification used oil burner - industrial furnace: | False |

**Tax Reg #:** 600068426

**Business Type:** Acute Care Hospital

**Mail Name:** Evergreen Hospital Medical Ctr

**Mail addr line1:** 12040 NE 128TH ST

**Mail city, st, zip:** KIRKLAND, WA 98034-3013

**Mail country:** UNITED STATES

**Legal org name:** King Cnty

**Legal org type:** District

**Legal addr line1:** 12040 NE 128TH ST

**Legal city, st, zip:** KIRKLAND, WA 98034-3013

**Legal country:** UNITED STATES

**Legal phone nbr:** (425) 899-1783

**Legal effective date:** 08/15/1996

**Land org name:** King County Hospital District #2

**Land org type:** District

**Land person name:** Not reported

**Land addr line1:** 12040 NE 128TH ST

**Land city, st, zip:** KIRKLAND, WA 98034-3013

**Land country:** UNITED STATES

**Land phone nbr:** (425) 899-1783

**Operator org name:** King Cnty

**Operator org type:** District

**Operator addr line1:** 12040 NE 128TH ST

**Operator city, st, zip:** KIRKLAND, WA 98034-3013

**Operator country:** UNITED STATES

**Operator phone nbr:** (425) 899-1778

**Operator effective date:** 08/15/1996

**Site contact name:** Jeff A Klenovic

**Site contact addr line1:** 12040 NE 128th St

**Site Contact City/State/Zip:** KIRKLAND, WA 98034-3013

**Site Contact Country:** UNITED STATES

**Site Contact Phone #:** (425) 899-1783

**Site Contact EMail:** jaklenovic@evergreenhealth.com

**Form Contact NAME:** Jeff Klenovic

**Form Contact ADDR LINE1:** 12040 NE 128th St

**Form Contact City,ST,Zip:** KIRKLAND, WA 98034-3013

**Form Contact Country:** UNITED STATES

**Form Contact Phone #:** (425) 899-1783

**Form Contact EMail:** jaklenovic@evergreenhealth.com

**Gen Status CD:** MQG

**Monthly Generation:** False

**Batch Generation:** True

**One Time Generation:** False

**Transport Own Waste:** False

**Transport Other Waste:** False

**Recycler Onsite:** False

**Transfer Facility:** False

**Other Exemption:** Not reported

**UW Battery Gen:** False

**Used Oil Transporter:** False

**Used Oil Transfer Facility:** False

**Used Oil Processor:** False

**Used Oil Refiner:** False
Evergreen Hospital Medical CTR (Continued)

Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:
Facility ID: 77233621
Data Year: 2014
Description: CLASS 9 LABPACK
Mix: False
Reported Qty: 32 LB
Kilo Qty: 14.5152002
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS B (ALKALINE) LABPACK (DW)
Mix: False
Reported Qty: 108 LB
Kilo Qty: 48.9888008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 8 (ACID) LABPACK (DW)
Mix: False
Reported Qty: 54 LB
Kilo Qty: 24.4944004
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 6.1 POISON LABPACK (DW)
Mix: False
Reported Qty: 110 LB
Kilo Qty: 49.8960008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 3 LABPACK (DW)
Mix: False
Reported Qty: 100 LB
Kilo Qty: 45.3600007
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Drum #1 1X5DF
Mix: False
Reported Qty: 15 LB
Kilo Qty: 6.80400011
Density No: 0
Density Qty: Not reported

EPA ID Number: 1004793242
Database(s): Not reported
Facility ID: Not reported
Data Year: Not reported
Description: Not reported
Mix: Not reported
Reported Qty: Not reported
Kilo Qty: Not reported
Density No: Not reported
Density Qty: Not reported

Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False
### EVERGREEN HOSPITAL MEDICAL CTR (Continued)

<table>
<thead>
<tr>
<th>Facility ID:</th>
<th>77233621</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Year:</td>
<td>2015</td>
</tr>
<tr>
<td>Description:</td>
<td>Methanol and xylene solvent waste</td>
</tr>
<tr>
<td>Mix:</td>
<td>False</td>
</tr>
<tr>
<td>Reported Qty:</td>
<td>75.06000000 LB</td>
</tr>
<tr>
<td>Kilo Qty:</td>
<td>34.0472165</td>
</tr>
<tr>
<td>Density No:</td>
<td>0</td>
</tr>
<tr>
<td>Density Qty:</td>
<td>Not reported</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facility ID:</th>
<th>77233621</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Year:</td>
<td>2015</td>
</tr>
<tr>
<td>Description:</td>
<td>Corroxy - #2 55CF</td>
</tr>
<tr>
<td>Mix:</td>
<td>False</td>
</tr>
<tr>
<td>Reported Qty:</td>
<td>60 LB</td>
</tr>
<tr>
<td>Kilo Qty:</td>
<td>27.2160004</td>
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<tr>
<td>Density No:</td>
<td>0</td>
</tr>
<tr>
<td>Density Qty:</td>
<td>Not reported</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facility ID:</th>
<th>77233621</th>
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</thead>
<tbody>
<tr>
<td>Data Year:</td>
<td>2015</td>
</tr>
<tr>
<td>Description:</td>
<td>Merc #1 5DF</td>
</tr>
<tr>
<td>Mix:</td>
<td>False</td>
</tr>
<tr>
<td>Reported Qty:</td>
<td>5 LB</td>
</tr>
<tr>
<td>Kilo Qty:</td>
<td>2.26800003</td>
</tr>
<tr>
<td>Density No:</td>
<td>0</td>
</tr>
<tr>
<td>Density Qty:</td>
<td>Not reported</td>
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</table>

<table>
<thead>
<tr>
<th>Facility ID:</th>
<th>77233621</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Year:</td>
<td>2015</td>
</tr>
<tr>
<td>Description:</td>
<td>Loose Pack Stain Waste</td>
</tr>
<tr>
<td>Mix:</td>
<td>False</td>
</tr>
<tr>
<td>Reported Qty:</td>
<td>175 LB</td>
</tr>
<tr>
<td>Kilo Qty:</td>
<td>79.3800013</td>
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<tr>
<td>Density No:</td>
<td>0</td>
</tr>
<tr>
<td>Density Qty:</td>
<td>Not reported</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Facility ID:</th>
<th>77233621</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Year:</td>
<td>2015</td>
</tr>
<tr>
<td>Description:</td>
<td>Toxic Buffers</td>
</tr>
<tr>
<td>Mix:</td>
<td>False</td>
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<tr>
<td>Reported Qty:</td>
<td>11 LB</td>
</tr>
<tr>
<td>Kilo Qty:</td>
<td>4.98960008</td>
</tr>
<tr>
<td>Density No:</td>
<td>0</td>
</tr>
<tr>
<td>Density Qty:</td>
<td>Not reported</td>
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</table>

<table>
<thead>
<tr>
<th>Facility ID:</th>
<th>77233621</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Year:</td>
<td>2015</td>
</tr>
<tr>
<td>Description:</td>
<td>Formalin, Neutralized</td>
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<tr>
<td>Mix:</td>
<td>False</td>
</tr>
<tr>
<td>Reported Qty:</td>
<td>287.100000 GAL</td>
</tr>
<tr>
<td>Kilo Qty:</td>
<td>1086.10620</td>
</tr>
<tr>
<td>Density No:</td>
<td>8.33999999</td>
</tr>
<tr>
<td>Density Qty:</td>
<td>PPG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facility ID:</th>
<th>77233621</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Year:</td>
<td>2015</td>
</tr>
<tr>
<td>Description:</td>
<td>Formalin, Recycled</td>
</tr>
<tr>
<td>Mix:</td>
<td>False</td>
</tr>
<tr>
<td>Reported Qty:</td>
<td></td>
</tr>
<tr>
<td>Kilo Qty:</td>
<td></td>
</tr>
<tr>
<td>Density No:</td>
<td></td>
</tr>
<tr>
<td>Density Qty:</td>
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### EVERGREEN HOSPITAL MEDICAL CTR (Continued)

<table>
<thead>
<tr>
<th>Facility ID</th>
<th>Data Year</th>
<th>Description</th>
<th>Mix</th>
<th>Reported Qty</th>
<th>Kilo Qty</th>
<th>Density No</th>
<th>Density Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>77233621</td>
<td>2015</td>
<td>Spent OPA</td>
<td>False</td>
<td>276 GAL</td>
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<td>77233621</td>
<td>2015</td>
<td>Spent Rapacide</td>
<td>False</td>
<td>316 GAL</td>
<td>1195.43560</td>
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<td>PPG</td>
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<tr>
<td>77233621</td>
<td>2016</td>
<td>CLASS 8 (ALKALINE) LABPACK (DW)</td>
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<td>20 LB</td>
<td>9.07200015</td>
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<tr>
<td>77233621</td>
<td>2016</td>
<td>Waste Sulfuric Acid</td>
<td>False</td>
<td>20 LB</td>
<td>9.07200015</td>
<td>0</td>
<td>Not reported</td>
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<tr>
<td>77233621</td>
<td>2016</td>
<td>Waste Hydrochloric Acid</td>
<td>False</td>
<td>15 LB</td>
<td>6.80400011</td>
<td>0</td>
<td>Not reported</td>
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</tbody>
</table>
EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Density No: 0
Density Qty: Not reported
Facility ID: 77233621
Data Year: 2016
Description: Waste Aerosols
Mix: False
Reported Qty: 8 LB
Kilo Qty: 3.62880006
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-05-27 00:00:00
Reported Qty: 15 LB
Kilo Qty: 6.80400011

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-06-03 00:00:00
Reported Qty: 75.0600000 LB
Kilo Qty: 34.0472165

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 60 LB
Kilo Qty: 27.2160004

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 5 LB
Kilo Qty: 2.26800003

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 175 LB
Kilo Qty: 79.3800013

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-07-29 00:00:00
Reported Qty: 11 LB
Kilo Qty: 4.98960008

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-03-17 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 77233621
Data Year: 2017

MAP FINDINGS

Map ID  Direction  Distance  Elevation
Site  Database(s)  EDR ID Number  EPA ID Number

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EVERGREEN HOSPITAL MEDICAL CTR (Continued)

<table>
<thead>
<tr>
<th>Kilo Qty</th>
<th>Reported Qty</th>
<th>Shipment sent data</th>
<th>Data Year</th>
<th>Facility ID</th>
<th>Reported Qty</th>
<th>Shipment sent data</th>
<th>Kilo Qty</th>
<th>Reported Qty</th>
<th>Shipment sent data</th>
<th>Kilo Qty</th>
<th>Reported Qty</th>
<th>Shipment sent data</th>
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</thead>
<tbody>
<tr>
<td>408.240007</td>
<td>900 LB</td>
<td>2017-12-18 00:00:00</td>
<td>2017</td>
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<td>2017-10-24 00:00:00</td>
<td>90.7200015</td>
<td>200 LB</td>
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<tr>
<td>408.240007</td>
<td>900 LB</td>
<td>2017-12-18 00:00:00</td>
<td>2017</td>
<td>77233621</td>
<td>200 LB</td>
<td>2017-09-26 00:00:00</td>
<td>90.7200015</td>
<td>200 LB</td>
<td>2017-09-12 00:00:00</td>
<td>90.7200015</td>
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<td>2017</td>
<td>77233621</td>
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<td>113.400001</td>
<td>250 LB</td>
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<tr>
<td>408.240007</td>
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<td>2017-12-18 00:00:00</td>
<td>2017</td>
<td>77233621</td>
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<td>108.864001</td>
<td>240 LB</td>
<td>2017-07-25 00:00:00</td>
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</tbody>
</table>

TC5463995.2s Page 291
<table>
<thead>
<tr>
<th>Facility ID</th>
<th>Data Year</th>
<th>Shipment sent data</th>
<th>Reported Qty</th>
<th>Kilo Qty</th>
</tr>
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<tr>
<td>77233621</td>
<td>2017</td>
<td>2017-07-11 00:00:00</td>
<td>250 LB</td>
<td>113.400001</td>
</tr>
<tr>
<td>77233621</td>
<td>2017</td>
<td>2017-06-20 00:00:00</td>
<td>240 LB</td>
<td>108.864001</td>
</tr>
<tr>
<td>77233621</td>
<td>2017</td>
<td>2017-06-06 00:00:00</td>
<td>125 LB</td>
<td>56.7000009</td>
</tr>
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</table>

Waste Stream Comments:
- Facility ID: 77233621  
  Data Year: 2014  
  Comments: ITEMS FROM LAB
- Facility ID: 77233621  
  Data Year: 2014  
  Comments: SOURCE - LAB
- Facility ID: 77233621  
  Data Year: 2014  
  Comments: SOURCE - LAB
- Facility ID: 77233621  
  Data Year: 2014  
  Comments: SOURCE - LAB
- Facility ID: 77233621  
  Data Year: 2015  
  Comments: A-7: mercury debris disposal - outdated equipment
- Facility ID: 77233621  
  Data Year: 2015  
  Comments: Out of spec or outdated chemicals from Lab
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2015
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility ID: 77233621
Data Year: 2015
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, but when mixed with Part B, a buffer, and used for its intended purpose, yields a waste effluent with a pH near neutral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles generate a waste that has an unacceptable pH (4.7-4.1)

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde. King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.

Facility ID: 77233621
Data Year: 2015
Comments: This product was used in CPC (subsequently discontinued) to disinfect endoscopes.

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Disposal of mercury filled Blood Pressure cuff no longer used

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Outdated chemical from Laboratory

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Outdated labortory chemical

Facility ID: 77233621
Data Year: 2016
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2016
Comments: Waste formalin is occasionally recycled by Pathology staff when it...
EVERGREEN HOSPITAL MEDICAL CTR (Continued)

meets certain quality criteria. The formalin is reused to preserve specimens.

| Facility Site ID Number | EPA ID | NAICS | SWC Desc | FWC Desc | Form Comm | Data Year | Permit by Rule | Treatment by Generator | Mixed radioactive waste | Importer of hazardous waste | Immediate recycler | Treatment/Storage/Disposal/Recycling Facility | Generator of dangerous fuel waste | Generator marketing to burner | Other marketers (i.e., blender, distributor, etc.) | Utility boiler burner | Industry boiler burner | Industrial Furnace | Smelter deferral | Universal waste - batteries - generate | Universal waste - thermostats - generate | Universal waste - mercury - generate | Universal waste - lamps - generate | Universal waste - batteries - accumulate | Universal waste - thermostats - accumulate | Universal waste - mercury - accumulate | Universal waste - lamps - accumulate | Destination Facility for Universal Waste | Off-specification used oil burner - utility boiler | Off-specification used oil burner - industrial boiler | Off-specification used oil burner - industrial furnace | Tax Reg #: | Business Type: | Mail Name: | Mail addr line1: | Mail city, st, zip: | Mail country: | Legal org name: | Legal org type: | Legal addr line1: | Legal city, st, zip: | Legal country: | Legal phone nbr: | Legal effective date: | Land org name: | Land org type: | Land person name: | Land addr line1: | Land city, st, zip: | Land country: | Land phone nbr: | Operator org name: |
|------------------------|--------|-------|----------|----------|-----------|-----------|----------------|------------------------|------------------------|------------------------|----------------|-----------------------------------------------|---------------------------------|-----------------|-----------------------------------------------|----------------|----------------|----------------|----------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| 77233621               | WA0000345306 | 622110     | Not reported     | SQG     | Not reported     | 2013     | False     | False     | False     | False     | False     | False     | False     | False     | False     | False     | False     | False     | False     | False     | False     | False     | False     | False     | False     | False     | False     | False     | True     | False     | (425) 899-1783 | 08/15/1996 | King Cnty | District | 12040 NE 128TH ST | KIRKLAND, WA 98034-3013 | UNITED STATES | King Cnty | District | Not reported | 12040 NE 128TH ST | KIRKLAND, WA 98034-3013 | UNITED STATES | (425)899-1783 | King Cnty |
### EVERGREEN HOSPITAL MEDICAL CTR (Continued)

- **Operator org type:** District
- **Operator addr line1:** 12040 NE 128TH ST
- **Operator city, st, zip:** KIRKLAND, WA 98034-3013
- **Operator country:** UNITED STATES
- **Operator phone nbr:** (425) 899-1778
- **Operator effective date:** 08/15/1996
- **Site contact name:** Jeff A Klenovic
- **Site contact addr line1:** 12040 NE 128th St
- **Site Contact City/State/ Zip:** KIRKLAND, WA 98034-3013
- **Site Contact Country:** UNITED STATES
- **Site Contact Phone #:** (425) 899-1783
- **Site Contact EMail:** jaklenovic@evergreenhealth.com
- **Form Contact NAME:** Jeff Klenovic
- **Form Contact ADDR LINE1:** 12040 NE 128th St
- **Form Contact City,ST,Zip:** KIRKLAND, WA 98034-3013
- **Form Contact Country:** UNITED STATES
- **Form Contact Phone #:** (425) 899-1783
- **Form Contact EMail:** jaklenovic@evergreenhealth.com
- **Gen Status CD:** SQG
- **Monthly Generation:** False
- **Batch Generation:** True
- **One Time Generation:** False
- **Transport Own Waste:** False
- **Tranports Other Waste:** False
- **Recycler Onsite:** False
- **Transfer Facility:** False
- **Other Exemption:** Not reported
- **UW Battery Gen:** False
- **Used Oil Transporter:** False
- **Used Oil Transfer Facility:** False
- **Used Oil Processor:** False
- **Used Oil Refiner:** False
- **Used Oil Fuel Marketer Directs Shipments:** False
- **Used Oil Fuel Marketer Meets specs:** False

#### Waste Streams Generated:

1. **Facility ID:** 77233621  
   **Data Year:** 2014  
   **Description:** CLASS 9 LABPACK  
   **Mix:** False  
   **Reported Qty:** 32 LB  
   **Kilo Qty:** 14.5152002  
   **Density No:** 0  
   **Density Qty:** Not reported

2. **Facility ID:** 77233621  
   **Data Year:** 2014  
   **Description:** CLASS B (ALKALINE) LABPACK (DW)  
   **Mix:** False  
   **Reported Qty:** 108 LB  
   **Kilo Qty:** 48.9888008  
   **Density No:** 0  
   **Density Qty:** Not reported

3. **Facility ID:** 77233621  
   **Data Year:** 2014  
   **Description:** CLASS 8 (ACID) LABPACK (DW)
EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Mix: False
Reported Qty: 54 LB
Kilo Qty: 24.4944004
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 6.1 POISON LABPACK (DW)
Mix: False
Reported Qty: 110 LB
Kilo Qty: 49.8960008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 3 LABPACK (DW)
Mix: False
Reported Qty: 100 LB
Kilo Qty: 45.3600007
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Drum #1 1X5DF
Mix: False
Reported Qty: 15 LB
Kilo Qty: 6.80400011
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Methanol and xylene solvent waste
Mix: False
Reported Qty: 75.0600000 LB
Kilo Qty: 34.0472165
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Corroxy - #2 55CF
Mix: False
Reported Qty: 60 LB
Kilo Qty: 27.2160004
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Merc #1 5DF
Mix: False
Reported Qty: 5 LB
Kilo Qty: 2.26800003
<table>
<thead>
<tr>
<th>Facility ID</th>
<th>Data Year</th>
<th>Description</th>
<th>Mix</th>
<th>Reported Qty</th>
<th>Kilo Qty</th>
<th>Density No</th>
<th>Density Qty</th>
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<td>77233621</td>
<td>2015</td>
<td>Spent Rapacide</td>
<td>True</td>
<td>False</td>
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<td>PPG</td>
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<td>Toxic Buffers</td>
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<td>77233621</td>
<td>2015</td>
<td>Formalin, Neutralized</td>
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<td>287.100000</td>
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<td>Spent Rapacide</td>
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<td>False</td>
<td>276</td>
<td>8.33999999</td>
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</tbody>
</table>
EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Facility ID: 77233621
Data Year: 2015
Description: Spent Rapacide
Mix: False
Reported Qty: 316 GAL
Kilo Qty: 1195.43560
Density No: 8.33999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: CLASS 8 (ALKALINE) LABPACK (DW)
Mix: False
Reported Qty: 20 LB
Kilo Qty: 9.07200015
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Sulfuric Acid
Mix: False
Reported Qty: 20 LB
Kilo Qty: 9.07200015
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Hydrochloric Acid
Mix: False
Reported Qty: 15 LB
Kilo Qty: 6.80400011
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Aerosols
Mix: False
Reported Qty: 8 LB
Kilo Qty: 3.62880006
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-05-27 00:00:00
Reported Qty: 15 LB
Kilo Qty: 6.80400011

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-06-03 00:00:00
Reported Qty: 75.06000000 LB
Kilo Qty: 34.0472165
EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 60 LB
Kilo Qty: 27.2160004

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 5 LB
Kilo Qty: 2.26800003

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 175 LB
Kilo Qty: 79.3800013

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-07-29 00:00:00
Reported Qty: 11 LB
Kilo Qty: 4.98960008

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-03-17 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-12-18 00:00:00
Reported Qty: 900 LB
Kilo Qty: 408.240007

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-11-20 00:00:00
Reported Qty: 1600 LB
Kilo Qty: 725.760012

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-24 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-10 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-26 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-08 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-21 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-12 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2015-03-17 00:00:00
Reported Qty: 11 LB
Kilo Qty: 4.98960008
<table>
<thead>
<tr>
<th>Facility ID</th>
<th>Kilo Qty:</th>
<th>Reported Qty:</th>
<th>Data Year:</th>
<th>Shipment sent data:</th>
<th>Comments:</th>
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<tbody>
<tr>
<td>77233621</td>
<td>90.7200015</td>
<td>200 LB</td>
<td>2017</td>
<td>2017-09-12 00:00:00</td>
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<tr>
<td>77233621</td>
<td>90.7200015</td>
<td>200 LB</td>
<td>2017</td>
<td>2017-08-29 00:00:00</td>
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<tr>
<td>77233621</td>
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<td>108.864001</td>
<td>240 LB</td>
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<td>56.7000009</td>
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</table>

Waste Stream Comments:
- Facility ID: 77233621
- Data Year: 2014
- Comments: ITEMS FROM LAB

Facility ID: 77233621
### EVERGREEN HOSPITAL MEDICAL CTR (Continued)

<table>
<thead>
<tr>
<th>Facility ID</th>
<th>Data Year</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>77233621</td>
<td>2014</td>
<td>SOURCE - LAB</td>
</tr>
<tr>
<td>77233621</td>
<td>2014</td>
<td>SOURCE - LAB</td>
</tr>
<tr>
<td>77233621</td>
<td>2014</td>
<td>SOURCE - LAB</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>A &amp; Spill clean-up material</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>spill clean-up debries.</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>A-7: mercury debries disposal - outdated equipment</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>Out of spec or outdated chemicals from Lab</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>SOURCE - LAB</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, but when mixed with Part B, a buffer, and used for its intended purpose, yields a waste effluent with a pH near neutral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles generate a waste that has an unacceptable pH (4.7-4.1)</td>
</tr>
</tbody>
</table>
EVERGREEN HOSPITAL MEDICAL CTR (Continued)  1004793242

Data Year: 2015
Comments: This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde. King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.

Facility ID: 77233621
Data Year: 2015
Comments: This product was used in CPC (subsequently discontinued) to disinfect endoscopes.

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Disposal of mercury filled Blood Pressure cuff no longer used

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Outdated chemical from Laboratory

Facility ID: 77233621
Data Year: 2016
Comments: A-7: out dated laboratory chemical

Facility ID: 77233621
Data Year: 2016
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2016
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.
EVERGREEN HOSPITAL MEDICAL CTR (Continued)  1004793242

Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 600068426
Business Type: Acute Care Hospital
Mail Name: Evergreen Hospital Medical Ctr
Mail addr line1: 12040 NE 128TH ST
Mail city, st, zip: KIRKLAND, WA 98034-3013
Mail country: UNITED STATES
Legal org name: King Cnty
Legal org type: District
Legal addr line1: 12040 NE 128TH ST
Legal city, st, zip: KIRKLAND, WA 98034-3013
Legal country: UNITED STATES
Legal phone nbr: (425) 899-1783
Legal effective date: 08/15/1996
Land org name: King County Hospital District #2
Land org type: District
Land person name: Not reported
Land addr line1: 12040 NE 128TH ST
Land city, st, zip: KIRKLAND, WA 98034-3013
Land country: UNITED STATES
Land phone nbr: (425) 899-1783
Operator org name: King Cnty
Operator org type: District
Operator addr line1: 12040 NE 128TH ST
Operator city, st, zip: KIRKLAND, WA 98034-3013
Operator country: UNITED STATES
Operator phone nbr: (425) 899-1778
Operator effective date: 08/15/1996
Site contact name: Jeff A Klenovic
Site contact addr line1: 12040 NE 128th St
Site Contact City/State/Zip: KIRKLAND, WA 98034-3013
Site Contact Country: UNITED STATES
Site Contact Phone #: (425) 899-1783
Site Contact EMail: jaklenovic@evergreenhealth.com
Form Contact NAME: Jeff A Klenovic
Form Contact ADDR LINE1: 12040 NE 128th St
Form Contact City,ST,Zip: KIRKLAND, WA 98034-3013
Form Contact Country: UNITED STATES
Form Contact Phone #: (425) 899-1783
Form Contact EMail: jaklenovic@evergreenhealth.com
Gen Status CD: MQG
Monthly Generation: False
Batch Generation: True
One Time Generation: False
Transport Own Waste: False
Transports Other Waste: False
### EVERGREEN HOSPITAL MEDICAL CTR (Continued)

<table>
<thead>
<tr>
<th>Recycler Onsite:</th>
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<td>Transfer Facility:</td>
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<tr>
<td>Other Exemption:</td>
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<td>UW Battery Gen:</td>
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<tr>
<td>Used Oil Transporter:</td>
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<td>Used Oil Fuel Marketer Meets Specs:</td>
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#### Waste Streams Generated:

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<tr>
<td>Data Year:</td>
<td>2014</td>
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<tr>
<td>Description:</td>
<td>CLASS 9 LABPACK</td>
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<td>Mix:</td>
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<tr>
<td>Reported Qty:</td>
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<tr>
<td>Kilo Qty:</td>
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<td>Density No:</td>
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<table>
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</thead>
<tbody>
<tr>
<td>Data Year:</td>
<td>2014</td>
</tr>
<tr>
<td>Description:</td>
<td>CLASS B (ALKALINE) LABPACK (DW)</td>
</tr>
<tr>
<td>Mix:</td>
<td>False</td>
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<tr>
<td>Reported Qty:</td>
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<td>Kilo Qty:</td>
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<tr>
<td>Density Qty:</td>
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<table>
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<th>Facility ID:</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Data Year:</td>
<td>2014</td>
</tr>
<tr>
<td>Description:</td>
<td>CLASS 8 (ACID) LABPACK (DW)</td>
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<tr>
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<tr>
<td>Density Qty:</td>
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<tbody>
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<td>Data Year:</td>
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<tr>
<td>Description:</td>
<td>CLASS 6.1 POISON LABPACK (DW)</td>
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<tr>
<td>Density No:</td>
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</tr>
<tr>
<td>Density Qty:</td>
<td>Not reported</td>
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<tbody>
<tr>
<td>Data Year:</td>
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</tr>
<tr>
<td>Description:</td>
<td>CLASS 3 LABPACK (DW)</td>
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<tr>
<td>Mix:</td>
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</tr>
<tr>
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<tr>
<td>Kilo Qty:</td>
<td>45.3600007</td>
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<tr>
<td>Density No:</td>
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<tr>
<td>Data Year:</td>
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<tr>
<td>Description:</td>
<td>Drum #1 1X5DF</td>
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<tr>
<td>Mix:</td>
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</tr>
<tr>
<td>Reported Qty:</td>
<td>15 LB</td>
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<tr>
<td>Kilo Qty:</td>
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<td>Density No:</td>
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<tr>
<td>Data Year:</td>
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<tr>
<td>Description:</td>
<td>Methanol and xylene solvent waste</td>
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<td>Mix:</td>
<td>False</td>
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<tr>
<td>Reported Qty:</td>
<td>75.0600000 LB</td>
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<tr>
<td>Kilo Qty:</td>
<td>34.0472165</td>
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<tr>
<td>Density No:</td>
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<td>Density Qty:</td>
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<tr>
<td>Data Year:</td>
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<td>Description:</td>
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<td>Density Qty:</td>
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<tr>
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Shipments Sent:

Facility ID: 77233621
Data Year: 2015
Shipments sent data: 2015-05-27 00:00:00
Reported Qty: 15 LB
Kilo Qty: 6.80400011

Facility ID: 77233621
Data Year: 2015
Shipments sent data: 2015-06-03 00:00:00
Reported Qty: 75.06000000 LB
Kilo Qty: 34.0472165

Facility ID: 77233621
Data Year: 2015
Shipments sent data: 2015-12-23 00:00:00
Reported Qty: 60 LB
Kilo Qty: 27.2160004

Facility ID: 77233621
Data Year: 2015
Shipments sent data: 2015-12-23 00:00:00
Reported Qty: 5 LB
Kilo Qty: 2.26800003

Facility ID: 77233621
Data Year: 2015
Shipments sent data: 2015-12-23 00:00:00
Reported Qty: 175 LB
Kilo Qty: 79.3800013

Facility ID: 77233621
Data Year: 2015
Shipments sent data: 2015-07-29 00:00:00
Reported Qty: 11 LB
Kilo Qty: 4.98960008
EVERGREEN HOSPITAL MEDICAL CTR (Continued)  1004793242

Facility ID:  77233621
Data Year:  2015
Shipment sent data:  2015-03-17 00:00:00
Reported Qty:  20 LB
Kilo Qty:  9.07200015

Facility ID:  77233621
Data Year:  2017
Shipment sent data:  2017-12-18 00:00:00
Reported Qty:  900 LB
Kilo Qty:  408.240007

Facility ID:  77233621
Data Year:  2017
Shipment sent data:  2017-11-20 00:00:00
Reported Qty:  1600 LB
Kilo Qty:  725.760012

Facility ID:  77233621
Data Year:  2017
Shipment sent data:  2017-10-24 00:00:00
Reported Qty:  200 LB
Kilo Qty:  90.7200015

Facility ID:  77233621
Data Year:  2017
Shipment sent data:  2017-10-10 00:00:00
Reported Qty:  200 LB
Kilo Qty:  90.7200015

Facility ID:  77233621
Data Year:  2017
Shipment sent data:  2017-09-26 00:00:00
Reported Qty:  200 LB
Kilo Qty:  90.7200015

Facility ID:  77233621
Data Year:  2017
Shipment sent data:  2017-09-12 00:00:00
Reported Qty:  200 LB
Kilo Qty:  90.7200015

Facility ID:  77233621
Data Year:  2017
Shipment sent data:  2017-08-29 00:00:00
Reported Qty:  200 LB
Kilo Qty:  90.7200015

Facility ID:  77233621
Data Year:  2017
Shipment sent data:  2017-08-15 00:00:00
Reported Qty:  250 LB
Kilo Qty:  113.400001

Facility ID:  77233621
Data Year:  2017
Shipment sent data:  2017-08-01 00:00:00
### EVERGREEN HOSPITAL MEDICAL CTR (Continued)

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<tr>
<th>Facility ID</th>
<th>Data Year</th>
<th>Shipment sent data</th>
<th>Reported Qty</th>
<th>Kilo Qty</th>
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<tbody>
<tr>
<td>77233621</td>
<td>2017</td>
<td>2017-07-25 00:00:00</td>
<td>240 LB</td>
<td>108.864001</td>
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<tr>
<td>77233621</td>
<td>2017</td>
<td>2017-07-11 00:00:00</td>
<td>250 LB</td>
<td>113.400001</td>
</tr>
<tr>
<td>77233621</td>
<td>2017</td>
<td>2017-06-20 00:00:00</td>
<td>240 LB</td>
<td>108.864001</td>
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<tr>
<td>77233621</td>
<td>2017</td>
<td>2017-06-06 00:00:00</td>
<td>125 LB</td>
<td>56.7000009</td>
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Waste Stream Comments:
- Facility ID: 77233621, Data Year: 2014, Comments: ITEMS FROM LAB
- Facility ID: 77233621, Data Year: 2014, Comments: SOURCE - LAB
- Facility ID: 77233621, Data Year: 2014, Comments: SOURCE - LAB
- Facility ID: 77233621, Data Year: 2014, Comments: SOURCE - LAB
- Facility ID: 77233621, Data Year: 2015, Comments: A & Spill clean-up material
- Facility ID: 77233621, Data Year: 2015, Comments: spill clean-up debriss.
- Facility ID: 77233621
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<thead>
<tr>
<th>Facility ID</th>
<th>Data Year</th>
<th>Comments</th>
</tr>
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<tbody>
<tr>
<td>77233621</td>
<td>2015</td>
<td>Out of spec or outdated chemicals from Lab</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>SOURCE - LAB</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>This waste stream is generated from the use of a two-part product. Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, but when mixed with Part B, a buffer, and used for its intended purpose, yields a waste effluent with a pH near neutral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles generate a waste that has an unacceptable pH (4.7-4.1)</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde. King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.</td>
</tr>
<tr>
<td>77233621</td>
<td>2015</td>
<td>This product was used in CPC (subsequently discontinued) to disinfect endoscopes.</td>
</tr>
<tr>
<td>77233621</td>
<td>2016</td>
<td>A-7: Disposal of mercury filled Blood Pressure cuff no longer used</td>
</tr>
<tr>
<td>77233621</td>
<td>2016</td>
<td>A-7: Outdated chemical from Laboratory</td>
</tr>
<tr>
<td>77233621</td>
<td>2016</td>
<td>A-7: Out dated laboratory chemical</td>
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EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Facility ID: 77233621
Data Year: 2016
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2016
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility Site ID Number: 77233621
EPA ID: WA0000345306
NAICS: 622110
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2012
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 600068426
Business Type: Acute Care Hospital
Mail Name: Evergreen Hospital Medical Ctr
Mail addr line1: 12040 NE 128TH ST
Mail city, st, zip: KIRKLAND, WA 98034-3013
Mail country: UNITED STATES
Legal org name: King Cnty
Legal org type: District
Legal addr line1: 12040 NE 128TH ST
Legal city, st, zip: KIRKLAND, WA 98034-3013
Legal country: UNITED STATES
Legal phone nbr: (425) 899-1783
Legal effective date: 08/15/1996
EVERGREEN HOSPITAL MEDICAL CTR (Continued)

Land org name: King County Hospital District #2
Land org type: District
Land person name: Not reported
Land addr line1: 12040 NE 128TH ST
Land city, st, zip: KIRKLAND, WA 98034-3013
Land country: UNITED STATES
Land phone nbr: (425)/899-1783
Operator org name: King Cnty
Operator org type: District
Operator addr line1: 12040 NE 128TH ST
Operator city, st, zip: KIRKLAND, WA 98034-3013
Operator country: UNITED STATES
Operator phone nbr: (425) 899-1778
Operator effective date: 08/15/1996
Site contact name: Chuck Thorell
Site contact addr line1: 12040 NE 128th St
Site Contact City/State/ Zip: KIRKLAND, WA 98034-3013
Site Contact Country: UNITED STATES
Site Contact Phone #: (425) 899-1783
Site Contact EMail: cthorell@evergreenhealthcare.org
Form Contact NAME: Chuck Thorell
Form Contact ADDR LINE1: 12040 NE 128th St
Form Contact City,ST,Zip: KIRKLAND, WA 98034-3013
Form Contact Country: UNITED STATES
Form Contact Phone #: (425) 899-1783
Form Contact EMail: cthorell@evergreenhealthcare.org
Gen Status CD: SQG
Monthly Generation: False
Batch Generation: True
One Time Generation: False
Transport Own Waste: False
Transport Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:
Facility ID: 77233621
Data Year: 2014
Description: CLASS 9 LABPACK
Mix: False
Reported Qty: 32 LB
Kilo Qty: 14.5152002
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS B (ALKALINE) LABPACK (DW)
Mix: False
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<td>Methanol and xylene solvent waste</td>
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<td>34.0472165</td>
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<td>Corrox - #2 55CF</td>
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## EVERGREEN HOSPITAL MEDICAL CTR (Continued)

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<td>Data Year:</td>
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<td>Description:</td>
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<tr>
<td>Mix:</td>
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### EVERGREEN HOSPITAL MEDICAL CTR (Continued)

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<th>Facility ID</th>
<th>Data Year</th>
<th>Description</th>
<th>Mix</th>
<th>Reported Qty</th>
<th>Kilo Qty</th>
<th>Density No</th>
<th>Density Qty</th>
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<td>2015</td>
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<tr>
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<td>CLASS 8 (ALKALINE) LABPACK (DW)</td>
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<tr>
<td>77233621</td>
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<td>77233621</td>
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<td>Waste Hydrochloric Acid</td>
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#### Shipment Sent Data:
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- **Shipment sent data:** 2015-05-27 00:00:00
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<td>1600 LB</td>
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**EVERGREEN HOSPITAL MEDICAL CTR** (Continued)
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**EVERGREEN HOSPITAL MEDICAL CTR** (Continued)

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<tbody>
<tr>
<td>Data Year:</td>
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<tr>
<td>Comments:</td>
<td>ITEMS FROM LAB</td>
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**Waste Stream Comments:**

- **Facility ID:** 77233621  
  **Data Year:** 2014  
  **Comments:** SOURCE - LAB

- **Facility ID:** 77233621  
  **Data Year:** 2014  
  **Comments:** SOURCE - LAB

- **Facility ID:** 77233621  
  **Data Year:** 2014  
  **Comments:** SOURCE - LAB

- **Facility ID:** 77233621  
  **Data Year:** 2014  
  **Comments:** SOURCE - LAB

- **Facility ID:** 77233621  
  **Data Year:** 2015  
  **Comments:** A- & Spill clean-up material

- **Facility ID:** 77233621  
  **Data Year:** 2015  
  **Comments:** spill clean-up debries.

- **Facility ID:** 77233621  
  **Data Year:** 2015  
  **Comments:** A-7: mercury debries disposal - outdated equipment

- **Facility ID:** 77233621  
  **Data Year:** 2015  
  **Comments:** Out of spec or outdated chemicals from Lab

- **Facility ID:** 77233621  
  **Data Year:** 2015  
  **Comments:** Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

- **Facility ID:** 77233621  
  **Data Year:** 2015  
  **Comments:** Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

- **Facility ID:** 77233621  
  **Data Year:** 2015  
  **Comments:** SOURCE - LAB
EVERGREEN HOSPITAL MEDICAL CTR  (Continued)

Comments: This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, but when mixed with Part B, a buffer, and used for its intended purpose, yields a waste effluent with a pH near neutral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles generate a waste that has an unacceptable pH (4.7-4.1).

Facility ID: 77233621  
Data Year: 2015  
Comments: This product was used in CPC (subsequently discontinued) to disinfect endoscopes.

Facility ID: 77233621  
Data Year: 2016  
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621  
Data Year: 2016  
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.
<table>
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<tr>
<th>Interaction 2:</th>
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<td>Program Data:</td>
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<td>Date Interaction:</td>
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**SEATTLE CANCER CARE ALLIANCE** (Continued)

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<td>EPA ID:</td>
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<td>NAICS:</td>
<td>621498</td>
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<td>SWC Desc:</td>
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<td>FWG Desc:</td>
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<tr>
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<td>Sections 5, 7: Other = Non-profit corporation</td>
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<tr>
<td>Data Year:</td>
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<td>Permit by Rule:</td>
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<tr>
<td>Treatment by Generator:</td>
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<tr>
<td>Mixed radioactive waste:</td>
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<tr>
<td>Importer of hazardous waste:</td>
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<tr>
<td>Immediate recycler:</td>
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<tr>
<td>Treatment/Storage/Disposal/Recycling Facility:</td>
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<tr>
<td>Generator of dangerous fuel waste:</td>
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<td>Generator marketing to burner:</td>
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<tr>
<td>Other marketers (i.e., blender, distributor, etc.):</td>
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<tr>
<td>Utility boiler burner:</td>
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<td>Industry boiler burner:</td>
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</tr>
<tr>
<td>Smelter deferral:</td>
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</tr>
<tr>
<td>Universal waste - batteries - generate:</td>
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<tr>
<td>Universal waste - thermostats - generate:</td>
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</tr>
<tr>
<td>Universal waste - mercury - generate:</td>
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<td>Universal waste - lamps - accumulate:</td>
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<td>Destination Facility for Universal Waste:</td>
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<tr>
<td>Off-specification used oil burner - utility boiler:</td>
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<td>Tax Reg #:</td>
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<tr>
<td>Business Type:</td>
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<tr>
<td>Mail Name:</td>
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<tr>
<td>Mail addr line1:</td>
<td>825 Eastlake Ave E</td>
</tr>
<tr>
<td>Mail city, st, zip:</td>
<td>Seattle, WA 98109</td>
</tr>
<tr>
<td>Mail country:</td>
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<td>Legal org name:</td>
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<tr>
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SEATTLE CANCER CARE ALLIANCE  (Continued)

Land org name: King County Public Hospital Dist No 2
Land org type: Private
Land person name: Not reported
Land addr line1: 12040 NE 128th St
Land city, st, zip: Kirkland, WA 98034
Land country: UNITED STATES
Land phone rbr: 425-899-1000
Operator org name: Not reported
Operator org type: Other
Operator addr line1: 12040 NE 128th St Ste 1600
Operator city, st, zip: Kirkland, WA 98034
Operator country: UNITED STATES
Operator phone rbr: 206-681-5216
Operator effective date: 01/01/2012
Site contact name: Jason Good
Site contact addr line1: 1100 Fairview Ave. N.
Site Contact City/State/Zip: Seattle, WA 98109-1024
Site Contact Country: UNITED STATES
Site Contact Phone #: (206)667-4250
Site Contact EMail: jgood@fhcrc.org
Form Contact NAME: Jason Good
Form Contact ADDR LINE1: 1100 Fairview Ave N
Form Contact City, ST, Zip: Seattle, WA 98109-1024
Form Contact Country: UNITED STATES
Form Contact Phone #: (206)667-4250
Form Contact EMail: jgood@fhcrc.org
Gen Status CD: SQG
Monthly Generation: True
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
Tranports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Facility Site ID Number: 23717
EPA ID: WAH000042102
NAICS: 621498
SWC Desc: Not reported
FWC Desc: P001,P042,U010,U058
Form Comm: Sections 5, 7: Other = Non-profit corporation
Data Year: 2016
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
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<td>Other marketers (i.e., blender, distributor, etc.):</td>
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<td>Off-specification used oil burner - utility boiler:</td>
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<tr>
<td>Site contact name:</td>
<td>Jason Good</td>
</tr>
<tr>
<td>Site contact addr line1:</td>
<td>1100 Fairview Ave N</td>
</tr>
<tr>
<td>Site Contact City/State/Zip:</td>
<td>Seattle, WA 98109-1024</td>
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<td>Site Contact Country:</td>
<td>UNITED STATES</td>
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<tr>
<td>Site Contact Phone #:</td>
<td>(206)667-4250</td>
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<td>Site Contact EMail:</td>
<td><a href="mailto:jgood@fhcrc.org">jgood@fhcrc.org</a></td>
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<td>Form Contact NAME:</td>
<td>Jason Good</td>
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## Map Findings

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### SEATTLE CANCER CARE ALLIANCE (Continued)

- **Form Contact Email:** jgood@fhcrc.org
- **Gen Status CD:** SQG
- **Monthly Generation:** True
- **Batch Generation:** False
- **One Time Generation:** False
- **Transport Own Waste:** False
- **Tranports Other Waste:** False
- **Recycler Onsite:** False
- **Transfer Facility:** False
- **Other Exemption:** Not reported
- **UW Battery Gen:** False
- **Used Oil Transporter:** False
- **Used Oil Transfer Facility:** False
- **Used Oil Processor:** False
- **Used Oil Refiner:** False
- **Used Oil Fuel Marketer Directs Shipments:** False
- **Used Oil Fuel Marketer Meets Specs:** False
- **Facility Site ID Number:** 23717
- **EPA ID:** WAH0000042102
- **NAICS:** 621498
- **SWC Desc:** Not reported
- **FWC Desc:** U010, U058, P001, P042
- **Form Comm:** Sections 5, 7: Other = Non-profit corporation
- **Data Year:** 2013
- **Permit by Rule:** False
- **Treatment by Generator:** False
- **Importer of hazardous waste:** False
- **Immediate recycler:** False
- **Treatment/Storage/Disposal/Recycling Facility:** False
- **Generator of dangerous fuel waste:** False
- **Generator marketing to burner:** False
- **Other marketers (i.e., blender, distributor, etc.):** False
- **Utility boiler burner:** False
- **Industry boiler burner:** False
- **Industrial Furnace:** False
- **Smelter deferal:** False
- **Universal waste - batteries - generate:** False
- **Universal waste - thermostats - generate:** False
- **Universal waste - mercury - generate:** False
- **Universal waste - lamps - generate:** False
- **Universal waste - batteries - accumulate:** False
- **Universal waste - thermostats - accumulate:** False
- **Universal waste - mercury - accumulate:** False
- **Universal waste - lamps - accumulate:** False
- **Destination Facility for Universal Waste:** False
- **Off-specification used oil burner - utility boiler:** False
- **Off-specification used oil burner - industrial boiler:** False
- **Off-specification used oil burner - industrial furnace:** False
- **Tax Reg #:** 601883375
- **Business Type:** Cancer Outpatient Clinic
- **Mail Name:** Seattle Cancer Care Alliance
- **Mail addr line1:** 825 Eastlake Ave E
- **Mail city, st, zip:** Seattle, WA 98109
- **Mail country:** UNITED STATES

---

**TC5463995.2s Page 323**
SEATTLE CANCER CARE ALLIANCE  (Continued)  S112209403

Legal org name: Seattle Cancer Care Alliance
Legal org type: Other
Legal addr line1: 825 Eastlake Ave E
Legal city, st, zip: Seattle, WA 98109
Legal country: UNITED STATES
Legal phone nbr: 206-288-7222
Legal effective date: 11/05/2012
Land org name: King County Public Hospital Dist No 2
Land org type: Private
Land addr line1: 12040 NE 128th St
Land city, st, zip: Kirkland, WA 98034
Land country: UNITED STATES
Land phone nbr: 425-899-1000
Operator org name: Not reported
Operator org type: Other
Operator addr line1: 12040 NE 128th St Ste 1600
Operator city, st, zip: Kirkland, WA 98034
Operator country: UNITED STATES
Operator phone nbr: 206-681-5216
Operator effective date: 01/01/2012
Site contact name: Jason Good
Site contact addr line1: 1100 Fairview Ave. N.
Site Contact City/State/ Zip: Seattle, WA 98109-1024
Site Contact Country: UNITED STATES
Site Contact Phone #: (206)667-4250
Site Contact EMail: jgood@fhcrc.org
Form Contact NAME: Jason Good
Form Contact ADDR LINE1: 1100 Fairview Ave N
Form Contact City, ST, Zip: Seattle, WA 98109-1024
Form Contact Country: UNITED STATES
Form Contact Phone #: (206)667-4250
Form Contact EMail: jgood@fhcrc.org
Gen Status CD: SQG
Monthly Generation: True
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
Transport Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Facility Site ID Number: 23717
EPA ID: WAH000042102
NAICS: 621498
SWC Desc: Not reported
FWC Desc: P001,P042,U010,U058
Form Comm: Sections 5, 7: Other = Non-profit corporation
SEATTLE CANCER CARE ALLIANCE  (Continued)

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<tr>
<th>Permit by Rule:</th>
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<tr>
<td>Treatment by Generator:</td>
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<td>Generator marketing to burner:</td>
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<td>Other marketers (i.e., blender, distributor, etc.):</td>
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<tr>
<td>Tax Reg #:</td>
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</table>

**Business Type:** Cancer Outpatient Clinic

**Mail Name:** Seattle Cancer Care Alliance

**Mail addr line1:** 825 Eastlake Ave E

**Mail city, st, zip:** Seattle, WA 98109

**Mail country:** UNITED STATES

**Legal org name:** Seattle Cancer Care Alliance

**Legal org type:** Other

**Legal addr line1:** 825 Eastlake Ave E

**Legal city, st, zip:** Seattle, WA 98109

**Legal country:** UNITED STATES

**Legal phone nbr:** 206-288-7222

**Legal effective date:** 11/05/2012

**Land org name:** King County Public Hospital Dist No 2

**Land org type:** Private

**Land person name:** Not reported

**Land addr line1:** 12040 NE 128th St

**Land city, st, zip:** Kirkland, WA 98034

**Land country:** UNITED STATES

**Land phone nbr:** 425-899-1000

**Operator org name:** Not reported

**Operator org type:** Other

**Operator addr line1:** 12040 NE 128th St Ste 1600

**Operator city, st, zip:** Kirkland, WA 98034

**Operator country:** UNITED STATES

**Operator phone nbr:** 206-681-5216

**Operator effective date:** 01/01/2012

**Site contact name:** Jason Good

**Site contact addr line1:** 1100 Fairview Ave. N.

**Site Contact City/State/ Zip:** Seattle, WA 98109-1024

**Site Contact Country:** UNITED STATES
### SEATTLE CANCER CARE ALLIANCE (Continued)

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<thead>
<tr>
<th>Site Contact Phone #:</th>
<th>(206)667-4250</th>
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<tbody>
<tr>
<td>Site Contact EMail:</td>
<td><a href="mailto:jgood@fhcrc.org">jgood@fhcrc.org</a></td>
</tr>
<tr>
<td>Form Contact NAME:</td>
<td>Jason Good</td>
</tr>
<tr>
<td>Form Contact ADDR LINE1:</td>
<td>1100 Fairview Ave N</td>
</tr>
<tr>
<td>Form Contact City,ST,Zip:</td>
<td>Seattle, WA 98109-1024</td>
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- **Facility Site ID Number:** 23717
- **EPA ID:** WAH000042102
- **NAICS:** 621498
- **SWC Desc:** Not reported
- **FWC Desc:** P001,P042,U010,U058
- **Form Comm:** Sections 5, 7: Other = Non-profit corporation
- **Data Year:** 2014
- **Permit by Rule:** False
- **Treatment by Generator:** False
- **Mixed radioactive waste:** False
- **Importer of hazardous waste:** False
- **Immediate recycler:** False
- **Treatment/Storage/Disposal/Recycling Facility:** False
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SEATTLE CANCER CARE ALLIANCE (Continued)

Property and Impoundment Data:
- Tax Reg #: 601883375
- Business Type: Cancer Outpatient Clinic
- Mail Name: Seattle Cancer Care Alliance
- Mail addr line1: 825 Eastlake Ave E
- Mail city, st, zip: Seattle, WA 98109
- Mail country: UNITED STATES
- Legal org name: Seattle Cancer Care Alliance
- Legal org type: Other
- Legal addr line1: 825 Eastlake Ave E
- Legal city, st, zip: Seattle, WA 98109
- Legal country: UNITED STATES
- Legal phone nbr: 206-288-7222
- Legal effective date: 11/05/2012
- Land org name: King County Public Hospital Dist No 2
- Land org type: Private
- Land person name: Not reported
- Land addr line1: 12040 NE 128th St
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- Land country: UNITED STATES
- Land phone nbr: 425-899-1000
- Operator org name: Not reported
- Operator org type: Other
- Operator addr line1: 12040 NE 128th St Ste 1600
- Operator city, st, zip: Kirkland, WA 98034
- Operator country: UNITED STATES
- Operator phone nbr: 206-681-5216
- Operator effective date: 01/01/2012
- Site contact name: Jason Good
- Site contact addr line1: 1100 Fairview Ave. N.
- Site Contact City/State/Zip: Seattle, WA 98109-1024
- Site Contact Country: UNITED STATES
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- Form Contact City,ST,ZIP: Seattle, WA 98109-1024
- Form Contact Country: UNITED STATES
- Form Contact Phone #: (206)667-4250
- Form Contact EMail: jgood@fhcrc.org
- Gen Status CD: SOG
- Monthly Generation: True
- Batch Generation: False
- One Time Generation: False
- Transport Own Waste: False
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- Transfer Facility: False
- Other Exemption: Not reported
- UW Battery Gen: False
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<td>Mail addr line1:</td>
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### SEATTLE CANCER CARE ALLIANCE (Continued)

Operator phone nbr: 206-681-5216  
Operator effective date: 01/01/2012  
Site contact name: Jason Good  
Site contact addr line1: 1100 Fairview Ave. N.  
Site Contact City/State/ Zip: Seattle, WA 98109-1024  
Site Contact Country: UNITED STATES  
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Form Contact City,ST,Zip: Seattle, WA 98109-1024  
Form Contact Country: UNITED STATES  
Form Contact Phone #: (206)667-4250  
Form Contact EMail: jgood@fhcrc.org  
Gen Status CD: SQG  
Monthly Generation: True  
Batch Generation: False  
One Time Generation: False  
Transport Own Waste: False  
Tranports Other Waste: False  
Recycler Onsite: False  
Transfer Facility: False  
Other Exemption: Not reported  
UW Battery Gen: False  
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Used Oil Transfer Facility: False  
Used Oil Processor: False  
Used Oil Refiner: False  
Used Oil Fuel Marketer Directs Shipments: False  
Used Oil Fuel Marketer Meets Specs: False

---

**F28**  
**SEATTLE CANCER CARE ALLIANCE**  
RCRA-CESQG 1016977435  
North 12040 NE 128TH ST STE 1600  
KIRKLAND, WA 98034  
0,200 mi.  
0,200 mi.  
1055 ft.  
Site 3 of 3 in cluster F  
Relative: Higher  
Actual: 189 ft.

RCRA-CESQG:  
Date form received by agency: 01/12/2016  
Facility name: SEATTLE CANCER CARE ALLIANCE  
Facility address: 12040 NE 128TH ST STE 1600  
KIRKLAND, WA 98034  
EPA ID: WAH000042102  
Mailing address: 825 EASTLAKE AVE E  
SEATTLE, WA 98109  
Contact: JASON GOOD  
Contact address: 1100 FAIRVIEW AVE N  
SEATTLE, WA 98109-1024  
Contact country: US  
Contact telephone: 206-667-4250  
Contact email: JGOOD@FHCRC.ORG  
EPA Region: 10  
Classification: Conditionally Exempt Small Quantity Generator  
Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous
SEATTLE CANCER CARE ALLIANCE (Continued)

waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:
Owner/operator name: KING COUNTY PUBLIC HOSPITAL DIST NO 2
Owner/operator address: 12040 NE 128TH ST
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-899-1000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 01/12/2016
Owner/Op end date: Not reported

Owner/operator name: KING COUNTY PUBLIC HOSPITAL DIST NO 2
Owner/operator address: 12040 NE 128TH ST
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 206-681-5216
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/12/2016
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Waste code: P001
Waste name: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLIBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

Waste code: P042

Waste name: 1,2-BENZENEDIOL, 4-{1-HYDROXY-2-(METHYLAMINO)ETHYL}-, (R)-

Waste code: U010

Waste name: AZIRINO[2',3':3,4]PYRROLO[1,2-A]INDOLE-4,7-DIONE, 6-AMINO-8-[[[AMINOCARBONYL]OXY]METHYL]-1,1A,2,8A,8B-HEXAHYDRO-8A-METHOXY-5-METHYL-, [1AS-(1AALPHA, 8BETA,8AALPHA,8BALPHA)];

Waste code: U058

Waste name: CYCLOPHOSPHAMIDE

Date form received by agency: 01/21/2015

Site name: SEATTLE CANCER CARE ALLIANCE

Classification: Conditionally Exempt Small Quantity Generator

Waste code: P001

Waste name: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLIBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

Waste code: U042

Waste name: 1,2-BENZENEDIOL, 4-{1-HYDROXY-2-(METHYLAMINO)ETHYL}-, (R)-

Waste code: U010

Waste name: AZIRINO[2',3':3,4]PYRROLO[1,2-A]INDOLE-4,7-DIONE, 6-AMINO-8-[[[AMINOCARBONYL]OXY]METHYL]-1,1A,2,8A,8B-HEXAHYDRO-8A-METHOXY-5-METHYL-, [1AS-(1AALPHA, 8BETA,8AALPHA,8BALPHA)];

Waste code: U058

Waste name: CYCLOPHOSPHAMIDE

Date form received by agency: 10/01/2012

Site name: SEATTLE CANCER CARE ALLIANCE AT EVERGREEN

Classification: Conditionally Exempt Small Quantity Generator

Waste code: D001

Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: P001

Waste name: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLIBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

Waste code: P042

Waste name: 1,2-BENZENEDIOL, 4-{1-HYDROXY-2-(METHYLAMINO)ETHYL}-, (R)-

Waste code: U010
SEATTLE CANCER CARE ALLIANCE (Continued)

- Waste name: AZIRIN[2',3',4']PYRROLO[1,2-A]INDOLE-4,7-DIONE, 6-AMINO-8-[(AMINOCARBONYL)OXY]METHYL]-1,1A,2,8A,8B-HEXAHYDRO-8A-METHOXY-5-METHYL-, [1AS-(1AALPHA, 8BETA,8AALPHA,8BALPHA)]-

- Waste code: U058
- Waste name: CYCLOPHOSPHAMIDE

Violation Status: No violations found

E29 SEB WHOLESALE INC
12418 NE 124TH ST
KIRKLAND, WA  98034
1/8-1/4
0.204 mi.
1077 ft.
Site 2 of 3 in cluster E

Relative: UST:
Higher Facility ID: 32459291
Actual: Site Id: 10195
142 ft. UBI: Not reported
Phone Number: Not reported
Decimal Latitude: 47.70854
Decimal Longitude: -122.177135

Tank Name: 1
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 00/31/1964
Tank Closure Date: Not reported
Capacity Range: Not reported
Tank Permit Expiration Date: Not reported
Tank Upgrade Date: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
Tank Material: Steel
Tank Construction: Not reported
Tank Tightness Test: Not reported
Tank Corrosion Protection: Not reported
Tank Manifold: Not reported
Tank Release Detection: Not reported
Tank SFC Type: Not reported
Pipe Material: Steel
Pipe Construction: Not reported
Pipe Primary Release Detection: Not reported
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Pipe Pumping System: Not reported
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

Tank Name: 2
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 00/31/1964
Tank Closure Date: Not reported
Capacity Range: Not reported
RJB WHOLESALE INC (Continued) U001126235

Tank Permit Expiration Date: Not reported
Tank Upgrade Date: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
Tank Material: Steel
Tank Construction: Not reported
Tank Tightness Test: Not reported
Tank Corrosion Protection: Not reported
Tank Manifold: Not reported
Tank Release Detection: Not reported
Tank SFC Type: Not reported
Pipe Material: Steel
Pipe Construction: Not reported
Pipe Primary Release Detection: Not reported
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Pipe Pumping System: Not reported
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

ALLSITES:
Facility Name: RJB WHOLESALE INC
Facility Id: 32459291

Interaction: 37934
Interaction 1: I
Interaction 2: UST
Ecology Program: TOXICS
Program Data: UST
Facility Alt.: Not reported
Program ID: 10195
Date Interaction: 2000-02-29 00:00:00
Date Interaction 3: Underground Storage Tank
Latitude: 47.708534360000002
Longitude: -122.177120106

G30 RUSSELL J BECK WA UST U000800881
SE 12442 NE 124TH ST PO BOX 583 WA ALLSITES N/A
1/8-1/4 KIRKLAND, WA 98083 0.213 mi.
1127 ft. Site 1 of 2 in cluster G

Relative: UST:
Higher Actual: 136 ft.
Facility ID: 11122758
Site Id: 8162
UBI: Not reported
Phone Number: Not reported
Decimal Latitude: 47.70854
Decimal Longitude: -122.176805

Tank Name: UNLEADED GAS
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 08/06/1996
Tank Closure Date: Not reported
RUSSELL J BECK (Continued)

Capacity Range: Not reported
Tank Permit Expiration Date: Not reported
Tank Upgrade Date: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
Tank Material: Not reported
Tank Construction: Not reported
Tank Tightness Test: Not reported
Tank Corrosion Protection: Not reported
Tank Manifold: Not reported
Tank Release Detection: Not reported
Tank SFC Type: Not reported
Pipe Material: Not reported
Pipe Construction: Not reported
Pipe Primary Release Detection: Not reported
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Pipe Pumping System: Not reported
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

ALLSITES:
Facility Name: RUSSELL J BECK
Facility Id: 11122758

Interaction: 25893
Interaction 1: I
Interaction 2: UST
Ecology Program: TOXICS
Program Data: UST
Facility Alt.: Not reported
Program ID: 8162
Date Interaction: 2000-02-29 00:00:00
Date Interaction 3: Underground Storage Tank
Latitude: 47.708534360000002
Longitude: -122.176790107

G31 WESCO AUTOBODY SUPPLY INCORPORATED KIRKLAND WA ALLSITES 1001491362
ESE 12532 NE 124TH ST KIRKLAND, WA 98034 RCRA NonGen / NLR WA0000049692
1/8-1/4 1153 ft. Site 2 of 2 in cluster G FINDS ECHO
0.218 mi.

Relative:
Higher:
Actual:
135 ft.

interaction: 30416
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WA0000049692
Date Interaction: 1993-11-05 00:00:00
Date Interaction 3: Hazardous Waste Generator

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WESCO AUTOBODY SUPPLY INCORPORATED KIRKLAND (Continued)

Latitude: 47.70988837600002
Longitude: -122.17333296

RCRA NonGen / NLR:
Date form received by agency: 03/21/1996
Facility name: WESCO AUTOBODY SUPPLY INC KIRKLAND
Facility address: 12532 NE 124TH ST
                      KIRKLAND, WA 98033
EPA ID: WA0000049692
Contact: BERNIE PLETSCHET
Contact address: PO BOX 5003
                     LYNWOOD, WA 98046
Contact country: US
Contact telephone: 206-771-0926
Contact email: Not reported
EPA Region: 10
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: WESCO AUTOBODY SUPPLY INC
Owner/operator address: PO BOX 5003
                      LYNWOOD, WA 98046
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: BUCHAN BROS
Owner/operator address: 11555 NORTHRUP WAY
                      BELLEVUE, WA 98004
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 10/19/1995
Site name: WESCO AUTOBODY SUPPLY INC KIRKLAND
Classification: Conditionally Exempt Small Quantity Generator

- Waste code: F003
  Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

- Waste code: F005
  Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 01/12/1994
Site name: WESCO AUTOBODY SUPPLY INC KIRKLAND
Classification: Not a generator, verified

- Waste code: D001
  Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

- Waste code: D035
  Waste name: METHYL ETHYL KETONE

- Waste code: F003
  Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED
SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

- Waste code: F005
- Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

- Waste code: WT02
- Waste name: WT02

Date form received by agency: 10/06/1993
Site name: WESCO AUTOBODY SUPPLY INC KIRKLAND
Classification: Small Quantity Generator

- Waste code: D001
- Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

- Waste code: D035
- Waste name: METHYL ETHYL KETONE

- Waste code: F003
- Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

- Waste code: F005
- Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

- Waste code: WT02
- Waste name: WT02
### Environmental Interest/Information System

Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

#### ECHO:
- EnvId: 1001491362
- Registry ID: 110005301869

#### RCRA-CESQG:
- Date form received by agency: 01/06/2012
- Facility name: EVERGREEN AUTO REBUILD INC
- Facility address: 12350 124TH AVE NE
  KIRKLAND, WA 98034
- EPA ID: WAD070392303
- Mailing address: 12350 124TH AVE NE STE A
  KIRKLAND, WA 98034
- Contact: DON G WHITCHER
- Contact address: 12350 124TH AVE NE STE A
  KIRKLAND, WA 98034
- Contact country: US
- Contact telephone: 425-823-8888
- Contact email: Not reported
- EPA Region: 10
- Land type: Private
- Classification: Conditionally Exempt Small Quantity Generator
- Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous
### Owner/Operator Summary:

**Owner/operator name:** EVERGREEN AUTO REBUILD INC

**Owner/operator address:** 12350 124TH AVE NE STE A
KIRKLAND, WA 98034

**Owner/operator country:** US

**Owner/operator telephone:** 425-823-8888

**Owner/operator email:** Not reported

**Owner/operator fax:** Not reported

**Owner/operator extension:** Not reported

**Legal status:** Private

**Owner/Operator Type:** Owner

**Owner/Op start date:** 09/04/1996

**Owner/Op end date:** Not reported

---

**Owner/operator name:** DON WHITCHER

**Owner/operator address:** 12350 124TH AVE NE STE A
KIRKLAND, WA 98034

**Owner/operator country:** US

**Owner/operator telephone:** 425-823-8888

**Owner/operator email:** Not reported

**Owner/operator fax:** Not reported

**Owner/operator extension:** Not reported

**Legal status:** Private

**Owner/Operator Type:** Operator

**Owner/Op start date:** 09/04/1996

**Owner/Op end date:** Not reported

---

**Owner/operator name:** DON WHITCHER

**Owner/operator address:** 12350 124TH AVE NE STE A
KIRKLAND, WA 98034

**Owner/operator country:** US

**Owner/operator telephone:** Not reported

**Owner/operator email:** Not reported

**Owner/operator fax:** Not reported

**Owner/operator extension:** Not reported

**Legal status:** Private

**Owner/Operator Type:** Operator

**Owner/Op start date:** 09/04/1996

**Owner/Op end date:** Not reported

---

**Owner/operator name:** DON W

**Owner/operator address:** 12350 124TH AVE NE STE A
KIRKLAND, WA 98034

**Owner/operator country:** US

**Owner/operator telephone:** 425-823-8888

**Owner/operator email:** Not reported
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<th>Property</th>
<th>Value</th>
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<tr>
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<td>Legal status</td>
<td>Private</td>
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<td>09/04/1996</td>
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<td>Owner/operator name</td>
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<tr>
<td>Owner/operator address</td>
<td>12350 124TH AVE NE STE A</td>
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<tr>
<td>Owner/operator country</td>
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<tr>
<td>Owner/operator telephone</td>
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<td>Owner/Op start date</td>
<td>09/04/1996</td>
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<tr>
<td>Owner/Op end date</td>
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Handler Activities Summary:

- U.S. importer of hazardous waste: **No**
- Mixed waste (haz. and radioactive): **No**
- Recycler of hazardous waste: **No**
- Transporter of hazardous waste: **No**
- Treater, storer or disposer of HW: **No**
- Underground injection activity: **No**
- On-site burner exemption: **No**
- Furnace exemption: **No**
- Used oil fuel burner: **No**
- Used oil processor: **No**
- User oil refiner: **No**
- Used oil fuel marketer to burner: **No**
- Used oil Specification marketer: **No**
- Used oil transfer facility: **No**
- Used oil transporter: **No**

- Waste code: WSGG
- Waste name: WSGG

Historical Generators:

Date form received by agency: **03/09/2011**
Site name: EVERGREEN AUTO REBUILD INC
**EVERGREEN AUTO REBUILD INC** (Continued) 1000357893

<table>
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<th>Classification:</th>
<th>Conditionally Exempt Small Quantity Generator</th>
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<tr>
<td>Date form received by agency:</td>
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<tr>
<td>Site name:</td>
<td>EVERGREEN AUTO REBUILD INC</td>
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<tr>
<td>Classification:</td>
<td>Conditionally Exempt Small Quantity Generator</td>
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</tbody>
</table>

- **Waste code:** WSQG
- **Waste name:** WSQG

| Date form received by agency: | 12/31/2007 |
| Site name: | EVERGREEN AUTO REBUILD INC |
| Classification: | Not a generator, verified |

- **Waste code:** D001
- **Waste name:** IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

- **Waste code:** D005
- **Waste name:** BARIUM

- **Waste code:** D035
- **Waste name:** METHYL ETHYL KETONE

- **Waste code:** F001
- **Waste name:** THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLOROETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE, AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

- **Waste code:** F003
- **Waste name:** THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

| Date form received by agency: | 04/26/2006 |
| Site name: | EVERGREEN AUTO REBUILD INC |
| Classification: | Not a generator, verified |

- **Waste code:** D035
- **Waste name:** METHYL ETHYL KETONE

- **Waste code:** F001
- **Waste name:** THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

- **Waste code:** F003
- **Waste name:** THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

| Date form received by agency: | 01/12/2010 |
| Site name: | EVERGREEN AUTO REBUILD INC |
| Classification: | Not a generator, verified |

- **Waste code:** D005
- **Waste name:** BARIUM

- **Waste code:** D035
- **Waste name:** METHYL ETHYL KETONE

- **Waste code:** F001
- **Waste name:** THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLOROETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE, AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

- **Waste code:** F003
- **Waste name:** THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
EVERGREEN AUTO REBUILD INC (Continued)

Date form received by agency: 12/31/2003
Site name: EVERGREEN AUTO REBUILD INC
Classification: Small Quantity Generator
Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 01/11/2005
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

ALL SITES:
Facility Name: EVERGREEN AUTO REBUILD INC
Facility Id: 2396

Interaction: 4362
Interaction 1: I
Interaction 2: SCS
Ecology Program: TOXICS
Program Data: ISIS
Facility Alt.: Evergreen Auto Rebuild Inc
Program ID: Not reported
Date Interaction: 1992-02-05 00:00:00
Date Interaction 3: State Cleanup Site
Latitude: 47.703912819999999
Longitude: -122.176679157

Interaction: 4361
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Evergreen Auto Rebuild Inc
Program ID: WAD070392303
Date Interaction: 1986-06-23 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.703912819999999
Longitude: -122.176679157

Interaction: 105044
Interaction 1: A
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: ABRA Auto Body & Glass Kirkland
Program ID: WAD070392303
Date Interaction: 2013-05-14 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.703912819999999
Longitude: -122.176679157
EVERGREEN AUTO REBUILD INC  (Continued)  

CSCSL NFA:

Facility/Site Id: 2396  
CS Id: 2777

NFA Date: 12/20/1996 
Rank: Not reported 
VCP: No 
Latitude: 47.703918  
Longitude: -122.176697

FINDS:

Registry ID: 110005325549

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid: 1000357893  
Registry ID: 110005325549 
DFR URL: http://echo.epa.gov/detailed-facility-report?id=110005325549

WA MANIFEST:

Facility Site ID Number: 2396  
EPA ID: WAD070392303  
NAICS: 811112  
SWC Desc: WT02  
FWC Desc: D001D005D035F001F003  
Form Comm: Not reported  
Data Year: 2013 
Permit by Rule: False  
Treatment by Generator: False 
Mixed radioactive waste: False  
Importer of hazardous waste: False  
Immediate recycler: False  
Treatment/Storage/Disposal/Recycling Facility: False 
Generator of dangerous fuel waste: False  
Generator marketing to burner: False
EVERGREEN AUTO REBUILD INC (Continued) 1000357893

Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 603283211
Business Type: auto body repair
Mail Name: Team Safety LLC
Mail addr line1: 6801 W 121st St
Mail addr line2: #110
Mail city, st, zip: Overland Park, KS 66209
Mail country: UNITED STATES
Legal org name: ABRA Inc
Legal org type: Private
Legal addr line1: 7225 Northland Drive
Legal addr line2: #210
Legal city, st, zip: Brooklyn Park, MN 55428
Legal country: UNITED STATES
Legal phone nbr: 763-585-6253
Legal effective date: 05/14/2013
Land org name: Colin W Radford, Merlyna M Radford
Land org type: Private
Land person name: Foster Radford
Land addr line1: 10423 MAIN ST STE 4
Land city, st, zip: BELLEVUE, WA 98004
Land country: UNITED STATES
Land phone nbr: (425)823-8880
Operator org name: ABRA Inc
Operator org type: Private
Operator addr line1: 7225 Northland Drive
Operator addr line2: #210
Operator city, st, zip: Brooklyn Park, MN 55428
Operator country: UNITED STATES
Operator phone nbr: 763-585-6253
Operator effective date: 05/14/2013
Site contact name: Scott Schilperoort
Site contact addr line1: 12350 124th Ave NE
Site Contact City/State/ Zip: Kirkland, WA 98034
Site Contact Country: UNITED STATES
Site Contact Phone #: 425-823-8880
Site Contact EMail: Not reported
Form Contact NAME: Greg Wright
Form Contact ADDR LINE1: 7225 Northland Drive
Form Contact ADDR LINE2: #210
Form Contact City, ST, Zip: Brooklyn Park, MN 55428
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EVERGREEN AUTO REBUILD INC (Continued) 1000357893

Mail city, st, zip: Overland Park, KS 66085
Mail country: UNITED STATES
Legal org name: ABRA Inc
Legal org type: Private
Legal addr line1: 7225 Northland Drive
Legal addr line2: #210
Legal city, st, zip: Brooklyn Park, MN 55428
Legal country: UNITED STATES
Legal phone nbr: 763-585-6253
Legal effective date: 05/14/2013
Land org name: Colin W Radford, Merlyna M Radford
Land org type: Private
Land person name: Foster Radford
Land addr line1: 10423 MAIN ST STE 4
Land city, st, zip: BELLEVUE, WA 98004
Land country: UNITED STATES
Land phone nbr: (425)823-8880
Operator org name: ABRA Inc
Operator org type: Private
Operator addr line1: 7225 Northland Drive
Operator addr line2: #210
Operator city, st, zip: Brooklyn Park, MN 55428
Operator country: UNITED STATES
Operator phone nbr: 763-585-6253
Operator effective date: 05/14/2013
Site contact name: Scott Schilperoort
Site contact addr line1: 12350 124th Ave NE
Site Contact City/State/ Zip: Kirkland, WA 98034
Site Contact Country: UNITED STATES
Site Contact Phone #: 425-823-8880
Site Contact EMail: sschilperoort@abraauto.com
Form Contact NAME: Kevin Caruso
Form Contact ADDR LINE1: 7225 Northland Drive
Form Contact ADDR LINE2: #210
Form Contact City,ST,Zip: Brooklyn Park, MN 55428
Form Contact Country: UNITED STATES
Form Contact Phone #: 763-585-6253
Form Contact EMail: kcaruso@abraauto.com
Gen Status CD: SQG
Monthly Generation: True
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
Transports Other Waste: False
Recycler Onsite: True
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Facility Site ID Number: 2396
### EVERGREEN AUTO REBUILD INC (Continued)

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**EVERGREEN AUTO REBUILD INC** (Continued)

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<td>Generator marketing to burner</td>
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</tr>
<tr>
<td>Other marketers (i.e., blender, distributor, etc.)</td>
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<tr>
<td>Utility boiler burner</td>
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<tr>
<td>Industry boiler burner</td>
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</tr>
<tr>
<td>Industrial Furnace</td>
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</tr>
<tr>
<td>Smelter deferral</td>
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</tr>
<tr>
<td>Universal waste - batteries - generate</td>
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<tr>
<td>Universal waste - thermostats - generate</td>
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<tr>
<td>Universal waste - mercury - generate</td>
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<tr>
<td>Universal waste - lamps - generate</td>
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<tr>
<td>Universal waste - batteries - accumulate</td>
<td>False</td>
</tr>
<tr>
<td>Universal waste - thermostats - accumulate</td>
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EVERGREEN AUTO REBUILD INC (Continued) 1000357893

Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 603283211
Business Type: auto body repair
Mail Name: Team Safety LLC
Mail addr line1: 6801 W 121st St
Mail addr line2: #110
Mail city, st, zip: Overland Park, KS 66209
Mail country: UNITED STATES
Legal org name: ABRA Inc
Legal org type: Private
Legal addr line1: 7225 Northland Drive
Legal addr line2: #210
Legal city, st, zip: Brooklyn Park, MN 55428
Legal country: UNITED STATES
Legal phone nbr: 763-585-6253
Legal effective date: 05/14/2013
Land org name: Colin W Radford, Merlyna M Radford
Land org type: Private
Land person name: Foster Radford
Land addr line1: 10423 MAIN ST STE 4
Land city, st, zip: BELLEVUE, WA 98004
Land country: UNITED STATES
Land phone nbr: (425)823-8880
Operator org name: ABRA Inc
Operator org type: Private
Operator addr line1: 7225 Northland Drive
Operator addr line2: #210
Operator city, st, zip: Brooklyn Park, MN 55428
Operator country: UNITED STATES
Operator phone nbr: 763-585-6253
Operator effective date: 05/14/2013
Site contact name: Scott Schilperoort
Site contact addr line1: 12350 124th Ave NE
Site Contact City/State/ Zip: Kirkland, WA 98034
Site Contact Country: UNITED STATES
Site Contact Phone #: 425-823-8880
Site Contact EMail: Not reported
Form Contact NAME: Greg Wright
Form Contact ADDR LINE1: 7225 Northland Drive
Form Contact ADDR LINE2: #210
Form Contact City,ST,Zip: Brooklyn Park, MN 55428
Form Contact Country: UNITED STATES
Form Contact Phone #: 763-585-6253
Form Contact EMail: gwright@abraauto.com
Gen Status CD: SQG
Monthly Generation: True
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
Tranports Other Waste: False
Recycler Onsite: True
Transfer Facility: False
### EVERGREEN AUTO REBUILD INC (Continued)

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- **Facility Site ID Number**: 2396
- **EPA ID**: WAD070392303
- **NAICS**: 811121
- **SWC Desc**: Not reported
- **FWC Desc**: Not reported
- **Form Comm**: Not reported
- **Data Year**: Not reported
- **Permit by Rule**: False
- **Treatment by Generator**: False
- **Mixed radioactive waste**: False
- **Importer of hazardous waste**: False
- **Immediate recycler**: False
- **Treatment/Storage/Disposal/Recycling Facility**: False
- **Generator of dangerous fuel waste**: False
- **Generator marketing to burner**: False
- **Other marketers (i.e., blender, distributor, etc.)**: False
- **Utility boiler burner**: False
- **Industry boiler burner**: False
- **Industrial Furnace**: False
- **Smelter deferral**: False
- **Universal waste - batteries - generate**: False
- **Universal waste - thermostats - generate**: False
- **Universal waste - mercury - generate**: False
- **Universal waste - lamps - generate**: False
- **Universal waste - batteries - accumulate**: False
- **Universal waste - thermostats - accumulate**: False
- **Universal waste - mercury - accumulate**: False
- **Universal waste - lamps - accumulate**: False
- **Destination Facility for Universal Waste**: False
- **Off-specification used oil burner - utility boiler**: False
- **Off-specification used oil burner - industrial boiler**: False
- **Off-specification used oil burner - industrial furnace**: False
- **Tax Reg #**: 601090863
- **Business Type**: Not reported
- **Mail Name**: Evergreen Auto Rebuild Inc
- **Mail addr line1**: 12350 124TH AVE NE STE A
- **Mail city, st, zip**: KIRKLAND, WA 98034-8217
- **Mail country**: UNITED STATES
- **Legal org name**: Evergreen Auto Rebuild Inc
- **Legal org type**: Private
- **Legal addr line1**: 12350 124TH AVE NE STE A
- **Legal city, st, zip**: KIRKLAND, WA 98034-8217
- **Legal country**: UNITED STATES
- **Legal phone nbr**: (425)823-8888
- **Legal effective date**: 09/04/1996
- **Land org name**: Radford & Co
- **Land org type**: Private
EVERGREEN AUTO REBUILD INC  (Continued)

Land person name: Not reported
Land addr line1: 10423 MAIN ST STE 4
Land city, st, zip: BELLEVUE, WA 98004-5925
Land country: UNITED STATES
Land phone nbr: (425)454-4200
Operator org name: Not reported
Operator org type: Private
Operator addr line1: 12350 124TH AVE NE STE A
Operator city, st, zip: KIRKLAND, WA 98034-8217
Operator country: UNITED STATES
Operator phone nbr: (425)823-8888
Operator effective date: 09/04/1996
Site contact name: Don G Whitcher
Site contact addr line1: 12350 124TH AVE NE STE A
Site Contact City/State/ Zip: KIRKLAND, WA 98034-8217
Site Contact Country: UNITED STATES
Site Contact Phone #: 425823-8888
Site Contact EMail: Not reported
Form Contact NAME: Don G Whitcher
Form Contact ADDR LINE1: 12350 124TH AVE NE STE A
Form Contact City,ST,Zip: KIRKLAND, WA 98034-8217
Form Contact Country: UNITED STATES
Form Contact Phone #: 425823-8888
Form Contact EMail: 97HDSOFT@MSN.COM
Gen Status CD: SQG
Monthly Generation: True
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
Transports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Facility Site ID Number: 2396
EPA ID: WAD070392303
NAICS: 811121
SWG Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2011
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
EVERGREEN AUTO REBUILD INC  (Continued) 1000357893

Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 601090863
Business Type: Not reported
Mail Name: Evergreen Auto Rebuild Inc
Mail addr line1: 12350 124TH AVE NE STE A
Mail city, st, zip: KIRKLAND, WA 98034-8217
Mail country: UNITED STATES
Legal org name: Evergreen Auto Rebuild Inc
Legal org type: Private
Legal addr line1: 12350 124TH AVE NE STE A
Legal city, st, zip: KIRKLAND, WA 98034-8217
Legal country: UNITED STATES
Legal phone nbr: (425)823-8888
Legal effective date: 09/04/1996
Land org name: Radford & Co
Land org type: Private
Land person name: Not reported
Land addr line1: 10423 MAIN ST STE 4
Land city, st, zip: BELLEVUE, WA 98004-5925
Land country: UNITED STATES
Land phone nbr: (425)454-4200
Operator org name: Not reported
Operator org type: Private
Operator addr line1: 12350 124TH AVE NE STE A
Operator city, st, zip: KIRKLAND, WA 98034-8217
Operator country: UNITED STATES
Operator phone nbr: (425)823-8888
Operator effective date: 09/04/1996
Site contact name: Don G Whitcher
Site contact addr line1: 12350 124TH AVE NE STE A
Site Contact City/State/Zip: KIRKLAND, WA 98034-8217
Site Contact Country: UNITED STATES
Site Contact Phone #: 425823-8888
Site Contact EMail: Not reported
Form Contact NAME: Don G Whitcher
Form Contact ADDR LINE1: 12350 124TH AVE NE STE A
Form Contact City,ST,Zip: KIRKLAND, WA 98034-8217
Form Contact Country: UNITED STATES
Form Contact Phone #: 425823-8888
Form Contact EMail: don.whitcher2@frontier.com
Gen Status CD: SQG
### EVERGREEN AUTO REBUILD INC (Continued)

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<td>Universal waste - batteries - generate:</td>
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<td>Off-specification used oil burner - utility boiler:</td>
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<tr>
<td>Mail Name:</td>
<td>Evergreen Auto Rebuild Inc</td>
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<tr>
<td>Mail addr line1:</td>
<td>12350 124TH AVE NE STE A</td>
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<tr>
<td>Mail city, st, zip:</td>
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EVERGREEN AUTO REBUILD INC (Continued) 1000357893

Legal addr line1: 12350 124TH AVE NE STE A
Legal city, st, zip: KIRKLAND, WA 98034-8217
Legal country: UNITED STATES
Legal phone nbr: (425)823-8888
Legal effective date: 09/04/1996
Land org name: Radford & Co
Land org type: Private
Land person name: Not reported
Land addr line1: 10423 MAIN ST STE 4
Land city, st, zip: BELLEVUE, WA 98004-5925
Land country: UNITED STATES
Land phone nbr: (425)454-4200
Operator org name: Not reported
Operator org type: Private
Operator addr line1: 12350 124TH AVE NE STE A
Operator city, st, zip: KIRKLAND, WA 98034-8217
Operator country: UNITED STATES
Operator phone nbr: (425)823-8888
Operator effective date: 09/04/1996
Site contact name: Don G Whitcher
Site contact addr line1: 12350 124TH AVE NE STE A
Site Contact City/State/ Zip: KIRKLAND, WA 98034-8217
Site Contact Country: UNITED STATES
Site Contact Phone #: 425823-8888
Site Contact EMail: Not reported
Form Contact NAME: Don G Whitcher
Form Contact ADDR LINE1: 12350 124TH AVE NE STE A
Form Contact City,ST,Zip: KIRKLAND, WA 98034-8217
Form Contact Country: UNITED STATES
Form Contact Phone #: 425823-8888
Form Contact EMail: don.whitcher2@frontier.com
Gen Status CD: SQG
Monthly Generation: False
Batch Generation: True
One Time Generation: False
Transport Own Waste: False
Tranports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Facility Site ID Number: 2396
EPA ID: WAD070392303
NAICS: 811121
SWC Desc: Not reported
FWC Desc: D001 D035 F003 F005
Form Comm: Not reported
Data Year: 2012
Permit by Rule: False
# EVERGREEN AUTO REBUILD INC (Continued)

| Treatment by Generator | False |
| Mixed radioactive waste | False |
| Importer of hazardous waste | False |
| Immediate recycler | False |
| Treatment/Storage/Disposal/Recycling Facility | False |
| Generator of dangerous fuel waste | False |
| Generator marketing to burner | False |
| Other marketers (i.e., blender, distributor, etc.) | False |
| Utility boiler burner | False |
| Industry boiler burner | False |
| Industrial Furnace | False |
| Smelter deferral | False |
| Universal waste - batteries - generate | False |
| Universal waste - thermostats - generate | False |
| Universal waste - mercury - generate | False |
| Universal waste - lamps - generate | False |
| Universal waste - batteries - accumulate | False |
| Universal waste - thermostats - accumulate | False |
| Universal waste - mercury - accumulate | False |
| Universal waste - lamps - accumulate | False |
| Destination Facility for Universal Waste | False |
| Off-specification used oil burner - utility boiler | False |
| Off-specification used oil burner - industrial boiler | False |
| Off-specification used oil burner - industrial furnace | False |
| Tax Reg #: | 601090865 |
| Business Type: | Not reported |
| Mail Name: | Evergreen Auto Rebuild Inc |
| Mail addr line1: | 12350 124TH AVE NE STE A |
| Mail city, st, zip: | KIRKLAND, WA 98034-8217 |
| Mail country: | UNITED STATES |
| Legal org name: | Evergreen Auto Rebuild Inc |
| Legal org type: | Private |
| Legal addr line1: | 12350 124TH AVE NE STE A |
| Legal city, st, zip: | KIRKLAND, WA 98034-8217 |
| Legal country: | UNITED STATES |
| Legal phone nbr: | (425)823-8888 |
| Legal effective date: | 09/04/1996 |
| Land org name: | Radford & Co |
| Land org type: | Private |
| Land person name: | Not reported |
| Land addr line1: | 10423 MAIN ST STE 4 |
| Land city, st, zip: | BELLEVUE, WA 98004-5925 |
| Land country: | UNITED STATES |
| Land phone nbr: | (425)454-4200 |
| Operator org name: | Not reported |
| Operator org type: | Private |
| Operator addr line1: | 12350 124TH AVE NE STE A |
| Operator city, st, zip: | KIRKLAND, WA 98034-8217 |
| Operator country: | UNITED STATES |
| Operator phone nbr: | (425)823-8888 |
| Operator effective date: | 09/04/1996 |
| Site contact name: | Don G Whitcher |
| Site contact addr line1: | 12350 124TH AVE NE STE A |
| Site Contact City/State/Zip: | KIRKLAND, WA 98034-8217 |
| Site Contact Country: | UNITED STATES |
| Site Contact Phone #: | 425823-8888 |
| Site Contact EMail: | Not reported |
### EVERGREEN AUTO REBUILD INC (Continued)

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<td>12350 124TH AVE NE STE A</td>
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<tr>
<td>Form Contact City,ST,Zip:</td>
<td>KIRKLAND, WA 98034-8217</td>
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<td>425823-8888</td>
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<td>Universal waste - mercury - accumulate:</td>
<td>False</td>
</tr>
<tr>
<td>Universal waste - lamps - accumulate:</td>
<td>False</td>
</tr>
<tr>
<td>Destination Facility for Universal Waste:</td>
<td>False</td>
</tr>
<tr>
<td>Off-specification used oil burner - utility boiler:</td>
<td>False</td>
</tr>
<tr>
<td>Off-specification used oil burner - industrial boiler:</td>
<td>False</td>
</tr>
<tr>
<td>Off-specification used oil burner - industrial furnace:</td>
<td>False</td>
</tr>
<tr>
<td>Tax Reg #:</td>
<td>601090863</td>
</tr>
</tbody>
</table>
EVERGREEN AUTO REBUILD INC (Continued) 1000357893

Business Type: Not reported
Mail Name: Evergreen Auto Rebuild Inc
Mail addr line1: 12350 124TH AVE NE STE A
Mail city, st, zip: KIRKLAND, WA 98034-8217
Mail country: UNITED STATES
Legal org name: Evergreen Auto Rebuild Inc
Legal org type: Private
Legal addr line1: 12350 124TH AVE NE STE A
Legal city, st, zip: KIRKLAND, WA 98034-8217
Legal country: UNITED STATES
Legal phone nbr: (425)823-8888
Legal effective date: 09/04/1996
Land org name: Radford & Co
Land org type: Private
Land person name: Not reported
Land addr line1: 10423 MAIN ST STE 4
Land city, st, zip: BELLEVUE, WA 98004-5925
Land country: UNITED STATES
Land phone nbr: (425)454-4200
Operator org name: Not reported
Operator org type: Private
Operator addr line1: 12350 124TH AVE NE STE A
Operator city, st, zip: KIRKLAND, WA 98034-8217
Operator country: UNITED STATES
Operator phone nbr: (425)823-8888
Operator effective date: 09/04/1996
Site contact name: Don G Whitcher
Site contact addr line1: 12350 124TH AVE NE STE A
Site contact City/State/ Zip: KIRKLAND, WA 98034-8217
Site contact Country: UNITED STATES
Site contact Phone #: 425823-8888
Site Contact EMail: Not reported
Form Contact NAME: Don G Whitcher
Form Contact ADDR LINE1: 12350 124TH AVE NE STE A
Form Contact City, ST,Zip: KIRKLAND, WA 98034-8217
Form Contact Country: UNITED STATES
Form Contact Phone #: 425823-8888
Form Contact EMail: 97HDSOFT@MSN.COM
Gen Status CD: SQG
Monthly Generation: True
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
Transport Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Facility Site ID Number: 2396
EVERGREEN AUTO REBUILD INC (Continued)  1000357893

EPA ID: WAD070392303
NAICS: 811121
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: Not reported

Permit by Rule: No
Treatment by Generator: No
Mixed radioactive waste: No
Importer of hazardous waste: No
Immediate recycler: No

Treatment/Storage/Disposal/Recycling Facility: No
Generator of dangerous fuel waste: No
Generator marketing to burner: No
Other marketers (i.e., blender, distributor, etc.): No
Utility boiler burner: No
Industry boiler burner: No
Industrial Furnace: No

Smelter deferral: No
Universal waste - batteries - generate: No
Universal waste - thermostats - generate: No
Universal waste - mercury - generate: No
Universal waste - lamps - generate: No
Universal waste - batteries - accumulate: No
Universal waste - thermostats - accumulate: No
Universal waste - mercury - accumulate: No
Universal waste - lamps - accumulate: No
Destination Facility for Universal Waste: No

Off-specification used oil burner - utility boiler: No
Off-specification used oil burner - industrial boiler: No
Off-specification used oil burner - industrial furnace: No

Tax Reg #: 601090863
Business Type: Not reported
Mail Name: Evergreen Auto Rebuild Inc
Mail addr line1: 12350 124TH AVE NE STE A
Mail city, st, zip: KIRKLAND, WA 98034-8217
Mail country: UNITED STATES
Legal org name: Evergreen Auto Rebuild Inc
Legal org type: Private
Legal addr line1: 12350 124TH AVE NE STE A
Legal city, st, zip: KIRKLAND, WA 98034-8217
Legal country: UNITED STATES
Legal phone nbr: (425)823-8888
Legal effective date: 09/04/1996
Land org name: Radford & Co
Land org type: Private
Land person name: Not reported
Land addr line1: 10423 MAIN ST STE 4
Land city, st, zip: BELLEVUE, WA 98004-5925
Land country: UNITED STATES
Land phone nbr: (425)454-4200
Operator org name: Not reported
Operator org type: Private
Operator addr line1: 12350 124TH AVE NE STE A
Operator city, st, zip: KIRKLAND, WA 98034-8217
Operator country: UNITED STATES
Operator phone nbr: (425)823-8888
### Evergreen Auto Rebuild Inc.

**Operator effective date:** 09/04/1996  
**Site contact name:** Don G Whitcher  
**Site contact address:** 12350 124TH AVE NE STE A  
**Site Contact City/State/Zip:** KIRKLAND, WA 98034-8217  
**Site Contact Country:** UNITED STATES  
**Site Contact Phone:** 425823-8888  
**Site Contact Email:** Not reported  
**Form Contact NAME:** Don G Whitcher  
**Form Contact Address:** 12350 124TH AVE NE STE A  
**Form Contact City/State/Zip:** KIRKLAND, WA 98034-8217  
**Form Contact Country:** UNITED STATES  
**Form Contact Phone:** 425823-8888  
**Form Contact Email:** 97HDSOFT@MSN.COM  
**Gen Status CD:** SQG  
**Monthly Generation:** Yes  
**Batch Generation:** No  
**One Time Generation:** No  
**Transport Own Waste:** No  
**Transports Other Waste:** No  
**Recycler Onsite:** No  
**Transfer Facility:** No  
**Other Exemption:** Not reported  
**UW Battery Generation:** No  
**Used Oil Transportation:** No  
**Used Oil Transfer Facility:** No  
**Used Oil Processor:** No  
**Used Oil Refiner:** No  
**Used Oil Fuel Marketer Directs Shipments:** No  
**Used Oil Fuel Marketer Meets Spec:** No  

**Facility Site ID Number:** 2396  
**EPA ID:** WAD070392303  
**NAICS:** 811112  
**SWC Desc:** WT02  
**FWC Desc:** D001,D008,D018,D035,D039,D040,F001,F003,F005  
**Form Comm:** Not reported  
**Data Year:** 2017  
**Permit by Rule:** False  
**Treatment by Generator:** False  
**Mixed radioactive waste:** False  
**Importer of hazardous waste:** False  
**Immediate recycler:** False  
**Treatment/Storage/Disposal/Recycling Facility:** False  
**Generator of dangerous fuel waste:** False  
**Generator marketing to burner:** False  
**Other marketers (i.e., blender, distributor, etc.):** False  
**Utility boiler burner:** False  
**Industry boiler burner:** False  
**Industrial Furnace:** False  
**Smelter deferral:** False  
**Universal waste - batteries - generate:** False  
**Universal waste - thermostats - generate:** False  
**Universal waste - mercury - generate:** False  
**Universal waste - lamps - generate:** False  
**Universal waste - batteries - accumulate:** False  
**Universal waste - thermostats - accumulate:** False  
**Universal waste - thermostats - accumulate:** False
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**EVERGREEN AUTO REBUILD INC (Continued)**

- Universal waste - mercury - accumulate: False
- Universal waste - lamps - accumulate: False
- Destination Facility for Universal Waste: False
- Off-specification used oil burner - utility boiler: False
- Off-specification used oil burner - industrial boiler: False
- Off-specification used oil burner - industrial furnace: False
- Tax Reg #: 603283211
- Business Type: auto body repair
- Mail Name: Team Safety LLC
- Mail addr line1: 16120 Foster St
- Mail city, st, zip: Overland Park, KS 66085
- Mail country: UNITED STATES
- Legal org name: ABRA Inc
- Legal org type: Private
- Legal addr line1: 7225 Northland Drive
- Legal addr line2: #210
- Legal city, st, zip: Brooklyn Park, MN 55428
- Legal country: UNITED STATES
- Legal phone nbr: 763-585-6253
- Legal effective date: 05/14/2013
- Land org name: Colin W Radford, Merlyna M Radford
- Land org type: Private
- Land person name: Foster Radford
- Land addr line1: 10423 MAIN ST STE 4
- Land city, st, zip: BELLEVUE, WA 98004
- Land country: UNITED STATES
- Land phone nbr: (425)823-8880
- Operator org name: ABRA Auto Body & Glass, LP
- Operator org type: Private
- Operator addr line1: 7225 Northland Drive
- Operator addr line2: #210
- Operator city, st, zip: Brooklyn Park, MN 55428
- Operator country: UNITED STATES
- Operator phone nbr: 763-585-6253
- Operator effective date: 05/14/2013
- Site contact name: Scott Schilperoort
- Site contact addr line1: 12350 124th Ave NE
- Site Contact City/State/Zip: Kirkland, WA 98034
- Site Contact Country: UNITED STATES
- Site Contact Phone #: 425-823-8880
- Site Contact EMail: sschilperoort@abraauto.com
- Form Contact NAME: Kevin Caruso
- Form Contact ADDR LINE: 7225 Northland Drive
- Form Contact ADDR LINE2: #210
- Form Contact City, ST, Zip: Brooklyn Park, MN 55428
- Form Contact Country: UNITED STATES
- Form Contact Phone #: 763-585-6253
- Form Contact EMail: kcaruso@abraauto.com
- Gen Status CD: SQG
- Monthly Generation: True
- Batch Generation: False
- One Time Generation: False
- Transport Own Waste: False
- Tranports Other Waste: False
- Recycler Onsite: False
- Transfer Facility: False
- Other Exemption: Not reported
EVERGREEN AUTO REBUILD INC (Continued) 1000357893

UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Facility Site ID Number: 2396
EPA ID: WAD070392303
NAICS: 811112
SWC Desc: WT02
FWC Desc: D001,D005,D006,D035,D018,D039,F003,F005
Form Comm: Not reported
Data Year: 2015
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 6032833211
Business Type: auto body repair
Mail Name: Team Safety LLC
Mail addr line1: 6801 W 121st St
Mail addr line2: #110
Mail city, st, zip: Overland Park, KS 66209
Mail country: UNITED STATES
Legal org name: ABRA Inc
Legal org type: Private
Legal addr line1: 7225 Northland Drive
Legal addr line2: #210
Legal city, st, zip: Brooklyn Park, MN 55428
Legal country: UNITED STATES
Legal phone nbr: 763-585-6253
Legal effective date: 05/14/2013
Land org name: Colin W Radford, Merlyna M Radford
<table>
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<th>Data Year</th>
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<tr>
<td>Form Contact EMail</td>
<td><a href="mailto:sschilperoort@abraauto.com">sschilperoort@abraauto.com</a></td>
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<tr>
<td>Site Contact EMail</td>
<td><a href="mailto:gwright@abraauto.com">gwright@abraauto.com</a></td>
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<tr>
<td>Site Contact Phone #:</td>
<td>425-823-8880</td>
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<td>Monthly Generation:</td>
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<td>Batch Generation:</td>
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<td>One Time Generation:</td>
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<td>Transport Own Waste:</td>
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<td>Tranports Other Waste:</td>
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<td>Recycler Onsite:</td>
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<td>Transfer Facility:</td>
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<td>Other Exemption:</td>
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<td>UW Battery Gen:</td>
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<td>Used Oil Transporter:</td>
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<td>Used Oil Transfer Facility:</td>
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<td>Used Oil Processor:</td>
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<td>Used Oil Refiner:</td>
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<td>False</td>
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<td>Used Oil Fuel Marketer Directs Shipments:</td>
<td>False</td>
</tr>
<tr>
<td>Used Oil Fuel Marketer Meets Specs:</td>
<td>False</td>
</tr>
</tbody>
</table>

**EVERGREEN AUTO REBUILD INC (Continued)**

| Land org type: | Private |
| Land person name: | Foster Radford |
| Land addr line1: | 10423 MAIN ST STE 4 |
| Land city, st, zip: | BELLEVUE, WA 98004 |
| Land country: | UNITED STATES |
| Land phone nbr: | (425)823-8880 |
| Operator org name: | ABRA Inc |
| Operator org type: | Private |
| Operator addr line1: | 7225 Northland Drive |
| Operator addr line2: | #210 |
| Operator city, st, zip: | Brooklyn Park, MN 55428 |
| Operator country: | UNITED STATES |
| Operator phone nbr: | 763-585-6253 |
| Operator effective date: | 05/14/2013 |
| Site contact name: | Scott Schilperoort |
| Site contact addr line1: | 12350 124th Ave NE |
| Site Contact City/State/Zip: | Kirkland, WA 98034 |
| Site Contact Country: | UNITED STATES |
| Site Contact Phone #: | 425-823-8880 |
| Site Contact EMail: | sschilperoort@abraauto.com |
| Form Contact NAME: | Greg Wright |
| Form Contact ADDR LINE1: | 7225 Northland Drive |
| Form Contact ADDR LINE2: | #210 |
| Form Contact City, ST, Zip: | Brooklyn Park, MN 55428 |
| Form Contact Country: | UNITED STATES |
| Form Contact Phone #: | 763-585-6253 |
| Form Contact EMail: | gwright@abraauto.com |
| Gen Status CD: | SQG |
| Monthly Generation: | True |
| Batch Generation: | False |
| One Time Generation: | False |
| Transport Own Waste: | False |
| Tranports Other Waste: | False |
| Recycler Onsite: | False |
| Transfer Facility: | False |
| Other Exemption: | Not reported |
| UW Battery Gen: | False |
| Used Oil Transporter: | False |
| Used Oil Transfer Facility: | False |
| Used Oil Processor: | False |
| Used Oil Refiner: | False |
| Used Oil Refiner: | False |
| Used Oil Fuel Marketer Directs Shipments: | False |
| Used Oil Fuel Marketer Meets Specs: | False |
EVERGREEN AUTO REBUILD INC (Continued) 1000357893

Treatment/Storage/Disposal/Recycling Facility: FALSE
Generator of dangerous fuel waste: FALSE
Generator marketing to burner: FALSE
Other marketers (i.e., blender, distributor, etc.): FALSE
Utility boiler burner: FALSE
Industry boiler burner: FALSE
Industrial Furnace: FALSE
Smelter deferral: FALSE
Universal waste - batteries - generate: FALSE
Universal waste - thermostats - generate: FALSE
Universal waste - mercury - generate: FALSE
Universal waste - lamps - generate: FALSE
Universal waste - batteries - accumulate: FALSE
Universal waste - thermostats - accumulate: FALSE
Universal waste - mercury - accumulate: FALSE
Universal waste - lamps - accumulate: FALSE
Destination Facility for Universal Waste: FALSE
Off-specification used oil burner - utility boiler: FALSE
Off-specification used oil burner - industrial boiler: FALSE
Off-specification used oil burner - industrial furnace: FALSE
Tax Reg #: 601090863
Business Type: Not reported
Mail Name: Evergreen Auto Rebuild Inc
Mail addr line1: 12350 124TH AVE NE STE A
Mail city, st, zip: KIRKLAND, WA 98034-8217
Mail country: UNITED STATES
Mail phone nbr: (425)823-8888
Mail legal effective date: 09/04/1996
Mail org name: Evergreen Auto Rebuild Inc
Mail org type: Private
Mail person name: Radford & Co
Mail org addr line1: 12350 124TH AVE NE STE A
Mail org city, st, zip: KIRKLAND, WA 98034-8217
Mail org country: UNITED STATES
Mail org phone nbr: (425)823-8888
Mail org legal effective date: 09/04/1996
Mail org contact name: Don G Whitcher
Mail org contact addr line1: 12350 124TH AVE NE STE A
Mail org contact site contact name: KIRKLAND, WA 98034-8217
Mail org contact country: UNITED STATES
Mail org contact phone #: 425823-8888
Mail org contact email: Not reported
Mail org contact name: Don G Whitcher
Mail org contact addr line1: 12350 124TH AVE NE STE A
Mail org contact country: UNITED STATES

Form Contact NAME: Don G Whitcher
Form Contact ADDR LINE1: 12350 124TH AVE NE STE A
Form Contact City, ST, Zip: KIRKLAND, WA 98034-8217
Form Contact Country: UNITED STATES

Business Type: Not reported
Mail Name: Evergreen Auto Rebuild Inc
Mail addr line1: 12350 124TH AVE NE STE A
Mail city, st, zip: KIRKLAND, WA 98034-8217
Mail country: UNITED STATES
Mail phone nbr: (425)823-8888
Mail legal effective date: 09/04/1996
Mail org name: Evergreen Auto Rebuild Inc
Mail org type: Private
Mail person name: Radford & Co
Mail org addr line1: 12350 124TH AVE NE STE A
Mail org city, st, zip: KIRKLAND, WA 98034-8217
Mail org country: UNITED STATES
Mail org phone nbr: (425)823-8888
Mail org legal effective date: 09/04/1996
Mail org contact name: Don G Whitcher
Mail org contact addr line1: 12350 124TH AVE NE STE A
Mail org contact site contact name: KIRKLAND, WA 98034-8217
Mail org contact country: UNITED STATES
Mail org contact phone #: 425823-8888
Mail org contact email: Not reported
Mail org contact name: Don G Whitcher
Mail org contact addr line1: 12350 124TH AVE NE STE A
Mail org contact country: UNITED STATES

Form Contact NAME: Don G Whitcher
Form Contact ADDR LINE1: 12350 124TH AVE NE STE A
Form Contact City, ST, Zip: KIRKLAND, WA 98034-8217
Form Contact Country: UNITED STATES
EVERGREEN AUTO REBUILD INC (Continued)

Form Contact Phone #: 425823-8888
Form Contact EMail: 97HDSOFT@MSN.COM
Gen Status CD: SOG
Monthly Generation: TRUE
Batch Generation: FALSE
One Time Generation: FALSE
Transport Own Waste: FALSE
Transports Other Waste: FALSE
Recycler Onsite: FALSE
Transfer Facility: FALSE
Other Exemption: Not reported
UW Battery Gen: FALSE
Used Oil Transporter: FALSE
Used Oil Transfer Facility: FALSE
Used Oil Processor: FALSE
Used Oil Refiner: FALSE
Used Oil Fuel Marketer Directs Shipments: FALSE
Used Oil Fuel Marketer Meets Specs: FALSE

H33  THURMAN INDUSTRIES INC
ESE  12626 NE 124TH ST
1/8-1/4  KIRKLAND, WA  98034
0.235 mi.  1240 ft.  Site 1 of 2 in cluster H
132 ft.

Relative: Lower
Actual: 132 ft.

UST:
Facility ID: 96934556
Site Id: 4385
UBI: Not reported
Phone Number: Not reported
Decimal Latitude: 47.70924
Decimal Longitude: -122.174425

Tank Name: 1
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 00/31/1964
Tank Closure Date: Not reported
Capacity Range: Not reported
Tank Permit Expiration Date: Not reported
Tank Upgrade Date: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
Tank Material: Steel
Tank Construction: Not reported
Tank Tightness Test: Not reported
Tank Corrosion Protection: Not reported
Tank Manifold: Not reported
Tank Release Detection: Not reported
Tank SFC Type: Not reported
Pipe Material: Not reported
Pipe Construction: Above Ground Piping
Pipe Primary Release Detection: Not reported
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Pipe Pumping System: Not reported
THURMAN INDUSTRIES INC (Continued)  U001123591

Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

ALLSITES:

Facility Name: THURMAN INDUSTRIES INC
Facility Id: 96934556

Interaction: 75116
Interaction 1: I
Interaction 2: UST
Ecology Program: TOXICS
Program Data: UST
Facility Alt.: Not reported
Program ID: 4385
Date Interaction: 2000-02-29 00:00:00
Date Interaction 3: Underground Storage Tank
Latitude: 47.709234359
Longitude: -122.174410106

WANG MANAGEMENT CO

Facility Name: WANG MANAGEMENT CO
Facility Id: 93747955

Interaction: 73070
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD982658304
Date Interaction: 1989-05-31 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.70798435999998
Longitude: -122.176915107

RCRA NonGen / NLR:
Date form received by agency: 06/13/1997
Facility name: WANG MANAGEMENT CO
Facility address: 12421 124TH AVE NE
KIRKLAND, WA 98033
EPA ID: WAD982658304
Contact: TOTEM LAKE PROP TOTEM LAKE PROP
Contact address: 12421 124TH AVE NE
KIRKLAND, WA 98033
Contact country: US
Contact telephone: 000-000-0000
Contact email: Not reported
EPA Region: 10
Classification: Non-Generator
WANG MANAGEMENT CO (Continued) 1000232030

Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: TOTEM LAKE ASSO T
Owner/operator address: 16215 NE 124TH ST
                        REDMOND, WA 98052
Owner/operator country: US
Owner/operator telephone: 425-881-6774
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 06/13/1997
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 06/13/1997
Site name: WANG MANAGEMENT CO
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:
Registry ID: 110005347874

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.
### WANG MANAGEMENT CO (Continued)

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<td>S103508771</td>
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#### I35 QUAKER STATE MINIT LUBE #1067

**Location:**
- **SE 12427 NE 124TH ST.
- **KIRKLAND, WA 98034**

**Distance:** 0.238 mi.

**Elevation:** 1259 ft.

**Site:** 1 of 2 in cluster I

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<td><strong>ICR:</strong></td>
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<tr>
<td><strong>ICR:</strong></td>
<td></td>
</tr>
</tbody>
</table>

**ICR:**
- **Date Ecology Received Report:** 01/04/95
- **Contaminants Found at Site:** Petroleum products
- **Media Contaminated:** Soil
- **Waste Management:** Tank
- **Region:** North Western
- **Type of Report Ecology Received:** Final cleanup report
- **Site Register Issue:** 94-19
- **County Code:** 17
- **Contact:** Not reported
- **Report Title:** Not reported

**ICR:**
- **Date Ecology Received Report:** 03/02/95
- **Contaminants Found at Site:** Petroleum products
- **Media Contaminated:** Soil
- **Waste Management:** Tank
- **Region:** North Western
- **Type of Report Ecology Received:** Interim cleanup report
- **Site Register Issue:** 93-48
- **County Code:** 17
- **Contact:** Not reported
- **Report Title:** Not reported

**ICR:**
- **Date Ecology Received Report:** 07/07/95
- **Contaminants Found at Site:** Petroleum products
- **Media Contaminated:** Groundwater, Soil
- **Waste Management:** Tank
- **Region:** North Western
- **Type of Report Ecology Received:** Interim cleanup report
- **Site Register Issue:** 94-03
- **County Code:** 17
- **Contact:** Not reported
- **Report Title:** Not reported

#### I36 MINIT-LUBE 1067

**Location:**
- **SE 12427 NE 124TH ST.
- **KIRKLAND, WA 98034**

**Distance:** 0.238 mi.

**Elevation:** 1259 ft.

**Site:** 2 of 2 in cluster I

<table>
<thead>
<tr>
<th>Relative:</th>
<th>Higher Actual:</th>
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<tr>
<td><strong>ICR:</strong></td>
<td><strong>151 ft.</strong></td>
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<table>
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<tbody>
<tr>
<td><strong>UST:</strong></td>
<td>41585457</td>
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**UST:**
- **Facility ID:** 41585457
- **Site Id:** 97536
- **UBI:** Not reported
- **Phone Number:** Not reported
MINIT-LUBE 1067 (Continued)

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<tr>
<td>Facility Id</td>
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<tr>
<td>Interaction</td>
<td>43199</td>
</tr>
<tr>
<td>Interaction 1:</td>
<td>I</td>
</tr>
<tr>
<td>Interaction 2:</td>
<td>LUST</td>
</tr>
<tr>
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<td>TOXICS</td>
</tr>
<tr>
<td>Program Data:</td>
<td>ISIS</td>
</tr>
<tr>
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<tr>
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<tr>
<td>Date Interaction:</td>
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<tr>
<td>Date Interaction 3:</td>
<td>LUST Facility</td>
</tr>
<tr>
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<td>Interaction 1:</td>
<td>I</td>
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<td>Interaction 2:</td>
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<td>Ecology Program:</td>
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<tr>
<td>Date Interaction:</td>
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<tr>
<td>Date Interaction 3:</td>
<td>Underground Storage Tank</td>
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Tank Name: 1
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 00/01/1988
Tank Closure Date: Not reported
Capacity Range: 5,000 to 9,999 Gallons
Tank Permit Expiration Date: 07/01/1995
Tank Upgrade Date: Not reported
Tank Spill Prevention: None
Tank Overfill Prevention: 25 Gallons or less
Tank Material: Steel
Tank Construction: Double Wall Tank
Tank Tightness Test: Not reported
Tank Corrosion Protection: None
Tank Manifold: Not reported
Tank Release Detection: Statistical Inventory Reconciliation
Tank SFC Type: Not reported
Pipe Material: Steel
Pipe Construction: Single Wall Pipe
Pipe Primary Release Detection: Vapor Monitoring
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Sacrificial Anode
Pipe Pumping System: Non-Safe Suction
 Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

ALL SITES:

Facility Name: JIFFY LUBE STORE 2054
Facility Id: 41585457
Interaction: 43199
Interaction 1: I
Interaction 2: LUST
Ecology Program: TOXICS
Program Data: ISIS
Facility Alt.: Not reported
Program ID: 97536
Date Interaction: 1995-02-15 00:00:00
Date Interaction 3: LUST Facility
Latitude: 47.7085343600000002
Longitude: -122.177020107

Dispenser/Pump SFC Type: Not reported
### MINIT-LUBE 1067 (Continued)

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<tr>
<td>CS Id:</td>
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<tr>
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<td>Rank:</td>
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<td>VCP:</td>
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<td>Latitude:</td>
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<td>Longitude:</td>
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**CSCSL NFA:**
- **Facility/Alt:** Not reported
- **Program Data:** CCRK000060490
- **Date Interaction:** 2004-02-14 00:00:00
- **Latitude:** 47.708534360000002
- **Longitude:** -122.177020107

**TOYOTA OF KIRKLAND**

<table>
<thead>
<tr>
<th>Facility Name:</th>
<th>TOYOTA OF KIRKLAND</th>
</tr>
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<tbody>
<tr>
<td>Facility Id:</td>
<td>51838333</td>
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- **Interaction:** 48988
- **Interaction 1:** I
- **Interaction 2:** HWG
- **Ecology Program:** HAZWASTE
- **Program Data:** TURBOWASTE
- **Date Interaction:** 1996-02-26 00:00:00
- **Latitude:** 47.710469025000002
- **Longitude:** -122.17241724199999

**RCRA NonGen / NLR:**
- **Date form received by agency:** 02/19/2008
- **Facility name:** TOYOTA OF KIRKLAND
- **Facility address:** 12612 NE 124TH ST, KIRKLAND, WA 98034
- **EPA ID:** WAR000008052
- **Mailing address:** PO BOX 818, KIRKLAND, WA 98083
- **Contact:** TOYOTA OF KIRKLAND TOYOTA OF KIRKL

**RCRA NonGen / NLR:**
- **Program Data:** CRK000060490
- **Date Interaction:** 2004-02-14 00:00:00
- **Latitude:** 47.708534360000002
- **Longitude:** -122.177020107

**H37**

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<tr>
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<th>12612 NE 124TH ST</th>
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</thead>
<tbody>
<tr>
<td>KIRKLAND, WA 98034</td>
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</tr>
</tbody>
</table>

**Site 2 of 2 in cluster H**

- **ALLSITES:**
  - **Facility Name:** TOYOTA OF KIRKLAND
  - **Facility Id:** 51838333
  - **Interaction:** 48988
  - **Interaction 1:** I
  - **Interaction 2:** HWG
  - **Ecology Program:** HAZWASTE
  - **Program Data:** TURBOWASTE
  - **Program ID:** CRK000060490
  - **Date Interaction:** 2004-02-14 00:00:00
  - **Latitude:** 47.708534360000002
  - **Longitude:** -122.177020107
TOYOTA OF KIRKLAND (Continued)

Contact address: PO BOX 818
KIRKLAND, WA 98083
Contact country: US
Contact telephone: 000-000-0000
Contact email: Not reported
EPA Region: 10
Land type: Private
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: TOYOTA OF KIRKLAND
Owner/operator address: 12612 NE 124TH ST
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-814-9696
Owner/operator email: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 05/03/1996
Owner/Op end date: Not reported

Owner/operator name: JAY SUNDE
Owner/operator address: PO BOX 818
KIRKLAND, WA 98083
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/01/1900
Owner/Op end date: Not reported

Owner/operator name: TOYOTA OF KIRKLAND
Owner/operator address: 12612 NE 124TH ST
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 05/03/1996
Owner/Op end date: Not reported

Owner/operator name: ADAM
Owner/operator address: PO BOX 818
KIRKLAND, WA 98083
Owner/operator country: US
Owner/operator telephone: 425-814-9696
Owner/operator email: Not reported
Owner/operator fax: Not reported
TOYOTA OF KIRKLAND (Continued) 1001226380

Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/01/1900
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 12/31/2007
Site name: TOYOTA OF KIRKLAND
Classification: Not a generator, verified

Date form received by agency: 08/09/2007
Site name: TOYOTA OF KIRKLAND
Classification: Not a generator, verified

Date form received by agency: 12/31/2005
Site name: TOYOTA OF KIRKLAND
Classification: Not a generator, verified

Date form received by agency: 12/31/2003
Site name: TOYOTA OF KIRKLAND
Classification: Not a generator, verified

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 01/29/1998
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

WA MANIFEST:
Facility Site ID Number: 51838333
EPA ID: WAR000008052
NAICS: 44111
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
TOYOTA OF KIRKLAND (Continued) 1001226380

Data Year: Not reported
Permit by Rule: FALSE
Treatment by Generator: FALSE
Mixed radioactive waste: FALSE
Importer of hazardous waste: FALSE
Immediate recycler: FALSE
Treatment/Storage/Disposal/Recycling Facility: FALSE
Generator of dangerous fuel waste: FALSE
Generator marketing to burner: FALSE
Other marketers (i.e., blender, distributor, etc.): FALSE
Utility boiler burner: FALSE
Industry boiler burner: FALSE
Industrial Furnace: FALSE
Smelter deferral: FALSE
Universal waste - batteries - generate: FALSE
Universal waste - thermostats - generate: FALSE
Universal waste - mercury - generate: FALSE
Universal waste - lamps - generate: FALSE
Universal waste - batteries - accumulate: FALSE
Universal waste - thermostats - accumulate: FALSE
Universal waste - mercury - accumulate: FALSE
Universal waste - lamps - accumulate: FALSE
Destination Facility for Universal Waste: FALSE
Off-specification used oil burner - utility boiler: FALSE
Off-specification used oil burner - industrial boiler: FALSE
Off-specification used oil burner - industrial furnace: FALSE
Tax Reg #: 601642219

Business Type: Not reported
Mail Name: Toyota of Kirkland
Mail addr line1: PO Box 818
Mail city, st, zip: KIRKLAND, WA 98083
Mail country: UNITED STATES
Legal org name: Toyota of Kirkland
Legal org type: Private
Legal addr line1: 12612 NE 124TH ST
Legal city, st, zip: KIRKLAND, WA 98034-8301
Legal country: UNITED STATES
Legal phone nbr: (425)814-9696
Legal effective date: 05/03/1996
Land org name: Toyota Motor Sales USA
Land org type: Private
Land person name: Not reported
Land addr line1: PO Box 2991
Land city, st, zip: TORRANCE, CA 90509-2991
Land country: UNITED STATES
Land phone nbr: (310)618-4820
Operator org name: Not reported
Operator org type: Private
Operator addr line1: PO Box 818
Operator city, st, zip: Kirkland, WA 98083
Operator country: UNITED STATES
Operator phone nbr: (425)814-9696
Operator effective date: Not reported
Site contact name: Adam Powell
Site contact addr line1: PO Box 818
Site Contact City/State/Zip: KIRKLAND, WA 98083-0818
Site Contact Country: UNITED STATES
Site Contact Phone #: (425)814-9696
Site Contact EMail: Not reported
Form Contact NAME: Adam Powell
Form Contact ADDR LINE1: PO Box 818
Form Contact City,ST,Zip: KIRKLAND, WA 98083-0818
Form Contact Country: UNITED STATES
Form Contact Phone #: (425)814-9696
Form Contact EMail: apowell@toyotaofkirkland.com
Gen Status CD: SOG
Monthly Generation: FALSE
Batch Generation: FALSE
One Time Generation: FALSE
Transport Own Waste: FALSE
Transport Other Waste: FALSE
Recycler Onsite: FALSE
Transfer Facility: FALSE
Other Exemption: Not reported
UW Battery Gen: FALSE
Used Oil Transporter: FALSE
Used Oil Transfer Facility: FALSE
Used Oil Processor: FALSE
Used Oil Refiner: FALSE
Used Oil Fuel Marketer Directs Shipments: FALSE
Used Oil Fuel Marketer Meets Specs: FALSE
Facility Site ID Number: 51838333
EPA ID: WAR000008052
NAICS: 44111
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: Not reported
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industiral Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
TOYOTA OF KIRKLAND (Continued) 1001226380

Off-specification used oil burner - industrial furnace: False

Tax Reg #: 602243158
Business Type: Not reported
Mail Name: Toyota of Kirkland
Mail addr line1: PO Box 818
Mail city, st, zip: KIRKLAND, WA 98083
Mail country: UNITED STATES
Legal org name: Toyota of Kirkland
Legal org type: Private
Legal addr line1: 12612 NE 124TH ST
Legal city, st, zip: KIRKLAND, WA 98034-8301
Legal country: UNITED STATES
Legal phone nbr: (425)814-9696
Legal effective date: 05/03/1996
Land org name: Toyota Motor Sales USA
Land org type: Private
Land person name: Not reported
Land addr line1: PO Box 2991
Land city, st, zip: TORRANCE, CA 90509-2991
Land country: UNITED STATES
Land phone nbr: (310)618-4820
Operator org name: Not reported
Operator org type: Private
Operator addr line1: PO Box 818
Operator city, st, zip: Kirkland, WA 98083
Operator country: UNITED STATES
Operator phone nbr: (425)814-9696
Operator effective date: Not reported
Site contact name: Adam Powell
Site contact addr line1: PO Box 818
Site Contact City/State/ Zip: KIRKLAND, WA 98083-0818
Site Contact Country: UNITED STATES
Site Contact Phone #: (425)814-9696
Site Contact EMail: Not reported
Form Contact NAME: Adam Powell
Form Contact ADDR LINE1: PO Box 818
Form Contact City,ST,Zip: KIRKLAND, WA 98083-0818
Form Contact Country: UNITED STATES
Form Contact Phone #: (425)814-9696
Form Contact EMail: apowell@toyotaofkirkland.com
Gen Status CD: SOG
Monthly Generation: False
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
Tranports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False
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<td>Treatment by Generator:</td>
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<td>Mixed radioactive waste:</td>
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<td>Importer of hazardous waste:</td>
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<td>Treatment/Storage/Disposal/Recycling Facility:</td>
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<td>Generator of dangerous fuel waste:</td>
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<td>Generator marketing to burner:</td>
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<td>Other marketers (i.e., blender, distributor, etc.):</td>
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<td>Utility boiler burner:</td>
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<td>Universal waste - batteries - generate:</td>
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<tr>
<td>Destination Facility for Universal Waste:</td>
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<td>Off-specification used oil burner - utility boiler:</td>
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<td>Off-specification used oil burner - industrial boiler:</td>
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<td>Mail Name:</td>
<td>Toyota of Kirkland</td>
<td>Mail addr line1:</td>
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<td>UNITED STATES</td>
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<td>TORRANCE, CA 90509-2991</td>
<td>Land country:</td>
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<td>Land phone rbr:</td>
<td>(310)618-4820</td>
<td>Operator org name:</td>
<td>Not reported</td>
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<tr>
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### TOYOTA OF KIRKLAND (Continued)

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<thead>
<tr>
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<tbody>
<tr>
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<tr>
<td>Interaction 1:</td>
<td>94199</td>
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<td>CONSTSWGP</td>
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<td>Ecology Program:</td>
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<td>Program Data:</td>
<td>PARIS</td>
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<tr>
<td>Date Interaction 3:</td>
<td>Construction SW GP</td>
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<tr>
<td>Longitude:</td>
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**Operator**
- Phone: (425)814-9696
- Effective Date: Not reported
- Name: Jay Sundet
- Address: PO Box 818, KIRKLAND, WA 98083-0818
- Country: UNITED STATES
- Phone: (425)814-9696
- Email: jsundet@toyotaofkirkland.com

**Site Contact**
- Name: Jay Sundet
- Address: PO Box 818, KIRKLAND, WA 98083-0818
- Country: UNITED STATES
- Phone: (425)814-9696
- Email: jsundet@toyotaofkirkland.com

**Operator Contact**
- Phone: (425)814-9696

**Site Information**
- J38
- ESE
- FRANCIS VILLAGE
- 12601 NE 124TH ST
- KIRKLAND, WA 98034
- 0.268 mi.
- 1414 ft.
- Site 1 of 2 in cluster J

**Effective Date:**
- United States: 1001226380
- KIRKLAND, WA 98083-0818
- PO Box 818
- United States
- Jay Sundet
- jsundet@toyotaofkirkland.com

**Contact Information:**
- Operator:
  - Phone: (425)814-9696
  - Email: jsundet@toyotaofkirkland.com

**Facility Information:**
- Program ID: WAR124631
- Date Interaction: 2010-08-09 00:00:00
- Construction SW GP
- Latitude: 47.70874268
- Longitude: -122.174465201
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<td>J39</td>
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<td>15877344</td>
<td>S109553496</td>
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</table>

**Site 2 of 2 in cluster J**

Relative: ALL SITES

Higher

Actual: 136 ft.

<table>
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<tr>
<th>Interaction</th>
<th>Date Interaction</th>
<th>Program ID</th>
<th>Facility Alt.</th>
<th>Program Data</th>
<th>Ecology Program</th>
<th>Facility Alt.</th>
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**Elevation: 1463 ft.**

Relative: Higher

Actual: 136 ft.
### CIRCUIT TECHNOLOGY INC (Continued)

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<thead>
<tr>
<th>Site</th>
<th>Direction</th>
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</tbody>
</table>

- **Longitude**: -122.172075107
- **Interaction**: 29071
- **Interaction 1**: I
- **Interaction 2**: HWP
- **Ecology Program**: HAZWASTE
- **Program Data**: HWPPRT
- **Facility Alt.**: Not reported
- **Program ID**: WAD980975049
- **Date Interaction**: 1991-01-01 00:00:00
- **Date Interaction 3**: Hazardous Waste Planner
- **Latitude**: 47.709874358999997
- **Longitude**: -122.172075107

### OSBORNE SPERRY DENTAL LAB INC

- **Facility Name**: OSBORNE SPERRY DENTAL LAB INC
- **Facility Id**: 41747993
- **Interaction**: 43346
- **Interaction 1**: I
- **Interaction 2**: HWG
- **Ecology Program**: HAZWASTE
- **Program Data**: TURBOWASTE
- **Facility Alt.**: Not reported
- **Program ID**: WAD085190239
- **Date Interaction**: 1990-11-10 00:00:00
- **Date Interaction 3**: Hazardous Waste Generator
- **Latitude**: 47.71466436
- **Longitude**: -122.183355104

### RCRA NonGen / NLR:
- **Date form received by agency**: 01/06/1999
- **Facility name**: OSBORNE SPERRY DENTAL LAB INC
- **Facility address**: 11830 NE 128TH ST KIRKLAND, WA 98034
- **EPA ID**: WAD085190239
- **Contact**: OSBORNE SPERRY OSBORNE SPERRY
- **Contact address**: 11830 NE 128TH ST KIRKLAND, WA 98034-7202
- **Contact country**: US
- **Contact telephone**: 000-000-0000
- **Contact email**: Not reported
- **EPA Region**: 10
- **Classification**: Non-Generator
- **Description**: Handler: Non-Generators do not presently generate hazardous waste

### Owner/Operator Summary:
- **Owner/operator name**: OSBORNE SPERRY O

---

**Map Findings**

- **Map ID**: 40
- **Direction**: NW
- **Distance**: 1479 ft.
- **Elevation**: 0.280 mi.
- **Relative**: Higher
- **Actual**: 173 ft.

**ALLSITES**

- **EPA ID Number**: S109553496
- **EDR ID Number**: WAD085190239
- **Program Data**: FindS
- **RCRA NonGen / NLR**: 1000341589
OSBORNE SPERRY DENTAL LAB INC (Continued)

Owner/operator address: 11830 NE 128TH ST
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 000-000-0000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 12/30/1996
Owner/Op end date: Not reported

Owner/operator name: OSBORNE SPERRY O
Owner/operator address: 11830 NE 128TH ST
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 000-000-0000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 12/30/1996
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 11/04/1990
Site name: OSBORNE SPERRY DENTAL LAB INC
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:
Registry ID: 110005327805

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport,
OSBORNE SPERRY DENTAL LAB INC (Continued)

and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA
program staff to track the notification, permit, compliance, and
corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access
additional FINDS: detail in the EDR Site Report.

ECHO:
Envrd: 1000341589
Registry ID: 110005327805
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005327805

K41 HAVLIKS RADIATOR SVC INC
SSE 11851 124TH AVE NE
1/4-1/2 KIRKLAND, WA  98034
0.282 mi. Site 1 of 5 in cluster K
1491 ft. Relative:
Relative:
Higher: ALLSITES: HAVLIKS RADIATOR SVC INC
Actual: 170 ft. Facility Id: 93461187

Interaction: 72838
Interaction 1: I
Interaction 2: HWOTHER
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD988507968
Date Interaction: 2003-12-31 00:00:00
Date Interaction 3: Haz Waste Management Acti
Latitude: 47.709754359999998
Longitude: -122.183155105

Interaction: 72837
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD988507968
Date Interaction: 1992-06-19 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.709754359999998
Longitude: -122.183155105

RCRA NonGen / NLR:
Date form received by agency: 05/25/2006
Facility name: HAVLIKS RADIATOR SVC INC
Facility address: 11851 124TH AVE NE
KIRKLAND, WA 98034-8110
EPA ID: WAD988507968
Contact: HAVLIKS RADIATO
Contact address: HAVLIKS RADIATO
11851 124TH AVE NE
HAVLIKS RADIATOR SVC INC (Continued) 1004794349

KIRKLAND, WA 98034-8110

Contact country: US
Contact telephone: 000-000-0000
Contact email: Not reported
EPA Region: 10
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: HAVLIKS RADIATOR SVC INC
Owner/operator address: 11851 124TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 05/03/1996
Owner/Op end date: Not reported

Owner/operator name: HAVLIKS RADIATOR SVC INC
Owner/operator address: 11851 124TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-823-8900
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 05/03/1996
Owner/Op end date: Not reported

Owner/operator name: ERIC JEROCHIM
Owner/operator address: 11851 124TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 05/07/1997
Owner/Op end date: Not reported

Owner/operator name: ERIC J
Owner/operator address: 11851 124TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-823-8900
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
HAVLIKS RADIATOR SVC INC (Continued)

Owner/Operator Type: Operator
Owner/Op start date: 05/07/1997
Owner/Op end date: Not reported

Handler Activities Summary:
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: No
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil fuel burner: No
- Used oil processor: No
- User oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No

Historical Generators:
- Date form received by agency: 12/31/2005
  Site name: HAVLIKS RADIATOR SVC INC
  Classification: Not a generator, verified

- Date form received by agency: 12/31/2003
  Site name: HAVLIKS RADIATOR SVC INC
  Classification: Not a generator, verified

- Date form received by agency: 03/11/2003
  Site name: HAVLIKS RADIATOR SVC INC
  Classification: Not a generator, verified

Violation Status: No violations found

FINDS:
Registry ID: 110005376636

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER
HAVLIKS RADIATOR SVC INC (Continued)

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

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<tr>
<th>EPA ID:</th>
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**ECHO:**
- Envid: 1004794349
- Registry ID: 110005376636
- DFR URL: [http://echo.epa.gov/detailed-facility-report?id=110005376636](http://echo.epa.gov/detailed-facility-report?id=110005376636)

**WA MANIFEST:**
- Facility Site ID Number: 93461187
- EPA ID: WAD988507968
- NAICS: 811118
- SWC Desc: Not reported
- FWC Desc: Not reported
- Form Comm: Not reported
- Data Year: Not reported
- Permit by Rule: No
- Treatment by Generator: No
- Mixed radioactive waste: No
- Importer of hazardous waste: No
- Immediate recycler: No
- Treatment/Storage/Disposal/Recycling Facility: No
- Generator of dangerous fuel waste: No
- Generator marketing to burner: No
- Other marketers (i.e., blender, distributor, etc.): No
- Utility boiler burner: No
- Industry boiler burner: No
- Industrial Furnace: No
- Smelter defferal: No
- Universal waste - batteries - generate: No
- Universal waste - thermostats - generate: No
- Universal waste - mercury - generate: No
- Universal waste - lamps - generate: No
- Universal waste - batteries - accumulate: No
- Universal waste - thermostats - accumulate: No
- Universal waste - mercury - accumulate: No
- Universal waste - lamps - accumulate: No
- Destination Facility for Universal Waste: No
- Off-specification used oil burner - utility boiler: No
- Off-specification used oil burner - industrial boiler: No
- Off-specification used oil burner - industrial furnace: No
- Tax Reg #: 600633123

**Business Type:** Not reported

**Mail Name:** Havliks Radiator Svc Inc

**Mail addr line1:** 11851 124TH AVE NE

**Mail city, st, zip:** KIRKLAND, WA 98034-8110

**Mail country:** UNITED STATES

**Legal org name:** Havliks Radiator Svc Inc

**Legal org type:** Private

**Legal addr line1:** 11851 124TH AVE NE

**Legal city, st, zip:** KIRKLAND, WA 98034-8110

**Legal country:** UNITED STATES

**Legal phone nbr:** 4258238900

**Legal effective date:** 05/03/1996

**Land org name:** Totem Square Partners
### HAVLIKS RADIATOR SVC INC (Continued)

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<td>PO Box 661300</td>
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<tr>
<td>Land city, state, zip</td>
<td>SACRAMENTO, CA 95866-1300</td>
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<td>UNITED STATES</td>
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<td>Land phone nbr</td>
<td>425-820-1330</td>
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<td>Site contact name</td>
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<td>Form Contact EMail</td>
<td><a href="mailto:e.jerochim@verizon.net">e.jerochim@verizon.net</a></td>
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NELSONS AUTOMOTIVE SVC (Continued)

Facility Alt.: Not reported
Program ID: WAD988486825
Date Interaction: 1991-05-22 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.70559380000003
Longitude: -122.177260129

Interaction: 125408
Interaction 1: A
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Busby Junk Removal LLC
Program ID: WAD988486825
Date Interaction: 2018-02-27 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.70559380000003
Longitude: -122.177260129

RCRA NonGen / NLR:
Date form received by agency: 07/19/1993
Facility name: NELSONS AUTOMOTIVE SVC
Facility address: 11821 124TH AVE NE
KIRKLAND, WA 98034
EPA ID: WAD988486825
Contact: NELSONS AUTOMOT NELSONS AUTOMOT
Contact address: 11821 124TH AVE NE
KIRKLAND, WA 98034-8110
Contact country: US
Contact telephone: 000-000-0000
Contact email: Not reported
EPA Region: 10
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: NELSONS AUTOMOT N
Owner/operator address: 11821 124TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 000-000-0000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 05/02/1996
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
NELSONS AUTOMOTIVE SVC (Continued)  1000659020

Treater, storer or disposer of HW:  No
Underground injection activity:  No
On-site burner exemption:  No
Furnace exemption:  No
Used oil fuel burner:  No
Used oil processor:  No
User oil refiner:  No
Used oil fuel marketer to burner:  No
Used oil Specification marketer:  No
Used oil transfer facility:  No
Used oil transporter:  No

Historical Generators:
Date form received by agency: 07/19/1993
Site name:  NELSONS AUTOMOTIVE SVC
Classification:  Not a generator, verified
Violation Status:  No violations found

FINDS:
Registry ID:  110005361161

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

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Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid:  1000659020
Registry ID:  110005361161
DFR URL:  http://echo.epa.gov/detailed-facility-report?fid=110005361161

MOSS DOCTORS
11923 124TH AVE NE
KIRKLAND, WA  98034
0.282 mi.
1491 ft.
Site 3 of 5 in cluster K

Relative:
Higher
Actual: 170 ft.
<table>
<thead>
<tr>
<th>MOSS DOCTORS (Continued)</th>
<th>S109010470</th>
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<tbody>
<tr>
<td>Interaction:</td>
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<td>Interaction 1:</td>
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<tr>
<td>Interaction 2:</td>
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<td>Program Data:</td>
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<tr>
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<tr>
<td>Date Interaction:</td>
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<tr>
<td>Date Interaction 3:</td>
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</tr>
<tr>
<td>Latitude:</td>
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<tr>
<td>Longitude:</td>
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<tr>
<td>Medium:</td>
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</tr>
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<td>Material Desc:</td>
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<tr>
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<td>Date Received:</td>
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<tr>
<td>Resp Party Contact:</td>
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<th>RCRA-LQG</th>
<th>1001969475</th>
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<tbody>
<tr>
<td>SSE</td>
<td>RCRA-LQG</td>
<td>1001969475</td>
</tr>
<tr>
<td>1/4-1/2</td>
<td>WA ALLSITES</td>
<td>WAD052595196</td>
</tr>
<tr>
<td>11815 124TH AVE NE</td>
<td>FINDS</td>
<td>ECHO</td>
</tr>
<tr>
<td>KIRKLAND, WA 98034</td>
<td>WA MANIFEST</td>
<td></td>
</tr>
<tr>
<td>0.282 mi.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1491 ft.</td>
<td></td>
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<tr>
<td>Site 4 of 5 in cluster K</td>
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<td></td>
</tr>
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<table>
<thead>
<tr>
<th>Relative: Higher Actual: 170 ft.</th>
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<tbody>
<tr>
<td>RCRA-LQG:</td>
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<tr>
<td>Date form received by agency: 02/18/2011</td>
</tr>
<tr>
<td>Facility name: MARCO TECHNOLOGIES LLC</td>
</tr>
<tr>
<td>Facility address: 11815 124TH AVE NE KIRKLAND, WA 98034</td>
</tr>
<tr>
<td>EPA ID: WAD052595196</td>
</tr>
<tr>
<td>Contact: MACRO TECHNOLOG MACRO TECHNOLOG</td>
</tr>
<tr>
<td>Contact address: 11815 124TH AVE NE KIRKLAND, WA 98034</td>
</tr>
<tr>
<td>Contact country: US</td>
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<tr>
<td>Contact telephone: 000-000-0000</td>
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<tr>
<td>Contact email: Not reported</td>
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<tr>
<td>EPA Region: 10</td>
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<tr>
<td>Land type: Private</td>
</tr>
<tr>
<td>Classification: Large Quantity Generator</td>
</tr>
<tr>
<td>Description: Handler: generates 1,000 kg or more of hazardous waste during any</td>
</tr>
</tbody>
</table>
MACRO TECHNOLOGIES LLC (Continued)

Owner/Operator Summary:
Owner/operator name: CHARLES LOOMIS
Owner/operator address: 11828 NE 112TH ST
KIRKLAND, WA 98033
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 08/27/1996
Owner/Op end date: Not reported

Owner/operator name: CHARLES L
Owner/operator address: 11828 NE 112TH ST
KIRKLAND, WA 98033
Owner/operator country: US
Owner/operator telephone: 425-823-4560
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 08/27/1996
Owner/Op end date: Not reported

Owner/operator name: MACRO TECHNOLOGIES INC 124TH AVE
Owner/operator address: 11815 124TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 02/07/2001
Owner/Op end date: Not reported

Owner/operator name: DON M
Owner/operator address: 11815 124TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-825-8100

calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time.
### Macro Technologies LLC (Continued)

**Owner/Operator Email:** Not reported  
**Owner/Operator Fax:** Not reported  
**Owner/Operator Extension:** Not reported  
**Legal Status:** Private  
**Owner/Operator Type:** Owner  
**Owner/Op Start Date:** 08/01/2009  
**Owner/Op End Date:** Not reported

**Handler Activities Summary:**  
- U.S. importer of hazardous waste: No  
- Mixed waste (haz. and radioactive): No  
- Recycler of hazardous waste: No  
- Transporter of hazardous waste: No  
- Treater, storer or disposer of HW: No  
- Underground injection activity: No  
- On-site burner exemption: No  
- Furnace exemption: No  
- Used oil fuel burner: No  
- Used oil processor: No  
- User oil refiner: No  
- Used oil fuel marketer to burner: No  
- Used oil specification marketer: No  
- Used oil transfer facility: No  
- Used oil transporter: No

<table>
<thead>
<tr>
<th>Waste Code</th>
<th>Waste Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>D002</td>
<td>A waste which has a pH of less than 2 or greater than 12.5 is considered to be a corrosive hazardous waste. Sodium hydroxide, a caustic solution with a high pH, is often used by industries to clean or degrease parts. Hydrochloric acid, a solution with a low pH, is used by many industries to clean metal parts prior to painting. When these caustic or acid solutions become contaminated and must be disposed, the waste would be a corrosive hazardous waste.</td>
<td></td>
</tr>
<tr>
<td>D005</td>
<td>Barium</td>
<td></td>
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<tr>
<td>D007</td>
<td>Chromium</td>
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<tr>
<td>D008</td>
<td>Lead</td>
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**Historical Generators:**  
Date Form Received by Agency: 02/22/2010  
Site Name: MACRO TECHNOLOGIES LLC  
Classification: Large Quantity Generator

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<thead>
<tr>
<th>Waste Code</th>
<th>Waste Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>D002</td>
<td>A waste which has a pH of less than 2 or greater than 12.5 is considered to be a corrosive hazardous waste. Sodium hydroxide, a caustic solution with a high pH, is often used by industries to clean or degrease parts. Hydrochloric acid, a solution with a low pH, is used by many industries to clean metal parts prior to painting. When these caustic or acid solutions become contaminated and must be disposed, the waste would be a corrosive hazardous waste.</td>
<td></td>
</tr>
</tbody>
</table>
MACRO TECHNOLOGIES LLC (Continued)

- Waste code: D007
- Waste name: CHROMIUM

- Waste code: D008
- Waste name: LEAD

Date form received by agency: 12/31/2007
Site name: MACRO TECHNOLOGIES INC 124TH AVE
Classification: Large Quantity Generator

Date form received by agency: 12/31/2005
Site name: MACRO TECHNOLOGIES INC 124TH AVE
Classification: Large Quantity Generator

Date form received by agency: 12/31/2003
Site name: MACRO TECHNOLOGIES INC 124TH AVE
Classification: Small Quantity Generator

Date form received by agency: 02/18/2003
Site name: MACRO TECHNOLOGIES INC 124TH AVE
Classification: Not a generator, verified

- Waste code: D002
- Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

- Waste code: D005
- Waste name: BARIUM

- Waste code: D007
- Waste name: CHROMIUM

- Waste code: D008
- Waste name: LEAD

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: TSD IS-Container Use and Management
Date violation determined: 08/19/2014
Date achieved compliance: 12/17/2014
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/24/2014
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: State Statute or Regulation
MACRO TECHNOLOGIES LLC (Continued)

Date violation determined: 08/19/2014
Date achieved compliance: 12/17/2014
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/24/2014
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 08/19/2014
Date achieved compliance: 12/17/2014
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/24/2014
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General Facility Standards
Date violation determined: 08/19/2014
Date achieved compliance: 12/17/2014
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/24/2014
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Manifest
Date violation determined: 08/19/2014
Date achieved compliance: 12/17/2014
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/24/2014
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Contingency Plan and Emergency Procedures
Date violation determined: 08/19/2014
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<tr>
<td>Enforcement action:</td>
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| Regulation violated:      | Not reported |
| Area of violation:        | Universal Waste - Small Quantity Handlers |
| Date violation determined:| 05/12/2009 |
| Date achieved compliance: | 06/09/2009 |
| Enforcement lead agency:  | State      |
| Enforcement action:       | WRITTEN INFORMAL |
| Enforcement action date:  | 05/20/2009 |
| Enf. disposition status:  | Not reported |
| Enf. disp. status date:   | Not reported |

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| Regulation violated:      | Not reported |
| Area of violation:        | TSD - General Facility Standards |
| Date violation determined:| 05/12/2009 |
| Date achieved compliance: | 06/09/2009 |
| Enforcement lead agency:  | State      |
| Enforcement action:       | WRITTEN INFORMAL |
| Enforcement action date:  | 05/20/2009 |
| Enf. disposition status:  | Not reported |
| Enf. disp. status date:   | Not reported |

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| Regulation violated:      | SR - 630(7) |
| Area of violation:        | Generators - General |
| Date violation determined:| 11/08/2005 |
| Date achieved compliance: | 02/08/2006 |
| Enforcement lead agency:  | State      |
| Enforcement action:       | WRITTEN INFORMAL |
| Enforcement action date:  | 01/09/2006 |
| Enf. disposition status:  | Not reported |
| Enf. disp. status date:   | Not reported |

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| Regulation violated:      | SR - 200(1)(e) |
| Area of violation:        | Generators - Records/Reporting |
| Date violation determined:| 11/08/2005 |
| Date achieved compliance: | 04/18/2006 |
MACRO TECHNOLOGIES LLC  (Continued)  1001969475

Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 01/09/2006
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - 573(9)
Area of violation: Generators - General
Date violation determined: 11/08/2005
Date achieved compliance: 12/13/2005

Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 01/09/2006
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - 210(1)
Area of violation: Generators - Records/Reporting
Date violation determined: 11/08/2005
Date achieved compliance: 11/08/2005

Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 01/09/2006
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - 630(5)(a)
Area of violation: Generators - General
Date violation determined: 11/08/2005
Date achieved compliance: 11/08/2005

Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 01/09/2006
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - 330(2)
Area of violation: Generators - Records/Reporting
Date violation determined: 11/08/2005
Date achieved compliance: 04/03/2006
Violiation lead agency: State

TC5463995.2s  Page 393
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**Regulation violated:** SR - 200(1)(e)
**Area of violation:** Generators - Records/Reporting
**Date violation determined:** 11/08/2005
**Date achieved compliance:** 04/17/2006

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**Regulation violated:** SR - 640(5)(d)
**Area of violation:** Generators - General
**Date violation determined:** 11/08/2005
**Date achieved compliance:** 12/15/2005

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**Regulation violated:** SR - 200(1)(b)
**Area of violation:** Generators - General
**Date violation determined:** 11/08/2005
**Date achieved compliance:** 02/20/2006

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<td>Enf. disposition status:</td>
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<td>Not reported</td>
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**Regulation violated:** SR - 200(1)(c)
**Area of violation:** Generators - General
**Date violation determined:** 11/08/2005
**Date achieved compliance:** 12/15/2005

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MACRO TECHNOLOGIES LLC  (Continued)  1001969475

Enforcement action date: 01/09/2006
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 11/17/2014
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 08/19/2014
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD IS-Container Use and Management
Date achieved compliance: 12/17/2014
Evaluation lead agency: State

Evaluation date: 08/19/2014
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General Facility Standards
Date achieved compliance: 12/17/2014
Evaluation lead agency: State

Evaluation date: 08/19/2014
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Manifest
Date achieved compliance: 12/17/2014
Evaluation lead agency: State

Evaluation date: 08/19/2014
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 12/17/2014
Evaluation lead agency: State

Evaluation date: 08/19/2014
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Contingency Plan and Emergency Procedures
Date achieved compliance: 12/17/2014
Evaluation lead agency: State

Evaluation date: 08/19/2014
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: State Statute or Regulation
Date achieved compliance: 12/17/2014
Evaluation lead agency: State

Evaluation date: 05/12/2009
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General Facility Standards
Date achieved compliance: 06/09/2009
Evaluation lead agency: State
<table>
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<th>Area of violation:</th>
<th>Date achieved compliance:</th>
<th>Evaluation date:</th>
<th>Evaluation lead agency:</th>
<th>Evaluation:</th>
<th>EPA ID Number: 1001969475</th>
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<td>Universal Waste - Small Quantity Handlers</td>
<td>06/09/2009</td>
<td>05/12/2009</td>
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<td>Generators - General</td>
<td>02/20/2006</td>
<td>11/08/2005</td>
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<td>State</td>
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<td>Generators - General</td>
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<td>COMPLIANCE EVALUATION INSPECTION ON-SITE</td>
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<td>Generators - General</td>
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MACRO TECHNOLOGIES LLC (Continued) 1001969475

Date achieved compliance: 12/15/2005
Evaluation lead agency: State

ALL SITES:

Facility Name: MACRO TECHNOLOGIES INC 124TH AVE
Facility Id: 22945928

Interaction: 32849
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD052595196
Date Interaction: 1988-11-21 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.709804361000003
Longitude: -122.18330510600001

Interaction: 32851
Interaction 1: I
Interaction 2: HWP
Ecology Program: HAZWASTE
Program Data: HWPPRT
Facility Alt.: Marco Technologies LLC
Program ID: WAD052595196
Date Interaction: 2006-01-01 00:00:00
Date Interaction 3: Hazardous Waste Planner
Latitude: 47.709804361000003
Longitude: -122.18330510600001

Interaction: 32850
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Macro Technologies LLC
Program ID: WAD052595196
Date Interaction: 1998-08-07 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.709804361000003
Longitude: -122.18330510600001

FINDS:

Registry ID: 110005321990

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.
MACRO TECHNOLOGIES LLC (Continued) 1001969475

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1001969475
Registry ID: 110005321990
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005321990

WA MANIFEST:
Facility Site ID Number: 22945928
EPA ID: WAD052595196
NAICS: 335122
SWC Desc: Not reported
FWC Desc: D002 D005 D007 D008 D002 D008
Form Comm: Not reported
Data Year: Not reported
Permit by Rule: No
Treatment by Generator: No
Mixed radioactive waste: No
Importer of hazardous waste: No
Immediate recycler: No
Treatment/Storage/Disposal/Recycling Facility: No
Generator of dangerous fuel waste: No
Generator marketing to burner: No
Other marketers (i.e., blender, distributor, etc.): No
Utility boiler burner: No
Industry boiler burner: No
Industrial Furnace: No
Smelter defferal: No
Universal waste - batteries - generate: No
Universal waste - thermostats - generate: No
Universal waste - mercury - generate: No
Universal waste - lamps - generate: No
Universal waste - batteries - accumulate: No
Universal waste - thermostats - accumulate: No
Universal waste - mercury - accumulate: No
Universal waste - lamps - accumulate: No
Destination Facility for Universal Waste: No
Off-specification used oil burner - utility boiler: No
Off-specification used oil burner - industrial boiler: No
Off-specification used oil burner - industrial furnace: No
Tax Reg #: 600345551
Business Type: Not reported
Mail Name: Macro Technologies Inc 124th Ave
Mail addr line1: 11815 124th Ave NE
Mail city, st, zip: KIRKLAND, WA 98034
MACRO TECHNOLOGIES LLC (Continued) 1001969475

Mail country: UNITED STATES
Legal org name: Macro Technologies Inc 124th Ave
Legal org type: Private
Legal address line1: 11815 124th Ave NE
Legal city, state, zip: KIRKLAND, WA 98034
Legal country: UNITED STATES
Legal phone number: 4253980132
Legal effective date: 02/07/2001
Land org name: Totem Square Partners
Land org type: Private
Land person name: Not reported
Land address line1: 2029 Century Park E #1550
Land city, state, zip: LOS ANGELES, CA 90067
Land country: UNITED STATES
Land phone number: (310)277-1648
Operator org name: Not reported
Operator org type: Private
Operator address line1: 11828 NE 112th St
Operator city, state, zip: KIRKLAND, WA 98033
Operator country: UNITED STATES
Operator phone number: (425)823-4560
Operator effective date: 08/27/1996
Site contact name: Jeff Williams
Site contact address line1: 11815 124th Ave NE
Site contact phone number: (425)825-8100 19
Form contact name: Jeff Williams
Form contact address line1: 11815 124th Ave NE
Form contact phone number: (425)825-8100 19
Form contact email: jeffw@macrotechnologies.com
Gen Status CD: LQG
Monthly Generation: No
Batch Generation: Yes
One Time Generation: No
Transport Own Waste: No
Transport Other Waste: No
Recycler Onsite: No
Transfer Facility: No
Other Exemption: Not reported
UW Battery Gen: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Fuel Marketer Directs Shipments: No
Used Oil Fuel Marketer Meets Specs: No

Waste Streams Generated:
Facility ID: 22945928
Data Year: 2008
Description: Regulated waste coolant
Mix: False
Reported Qty: 36336.980000000003 LB
MACRO TECHNOLOGIES LLC (Continued) 1001969475

Kilo Qty: 16482.45441149822
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: 2009
Description: SPENT MACHINE COOLANT and ELECTRO POLISH WASTE WATER
Mix: False
Reported Qty: 5454.3599999999997 LB
Kilo Qty: 2474.0977385544811
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: 2009
Description: Regulated waste coolant
Mix: False
Reported Qty: 11442.48 LB
Kilo Qty: 5190.3090172733155
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: 2010
Description: Regulated Waste Coolant, Hydrite 4000, Absorbants W/Regulated waste Coolant
Mix: False
Reported Qty: 21377.16 LB
Kilo Qty: 9696.679427828955
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: HYDRITE 4000
Mix: No
Reported Qty: 875.7 LB
Kilo Qty: 397.217526832142
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: Regulated waste coolant
Mix: No
Reported Qty: 23160.18 LB
Kilo Qty: 10505.4578286939
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: Regulated waste coolant
Mix: No
Reported Qty: 10875.36 LB
Kilo Qty: 4933.06338084869
Density No: 0
Density Qty: Not reported
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<td>2008</td>
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<td>500 LB</td>
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<tr>
<td>Facility ID: 22945928</td>
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<tr>
<td>Facility ID: 22945928</td>
<td>2008</td>
<td>8/4/2008</td>
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<td>2008</td>
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MACRO TECHNOLOGIES LLC (Continued)

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<tr>
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<th>Reported Qty</th>
<th>Kilo Qty</th>
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<tr>
<td>FWC Desc:</td>
<td>D002 D005 D007 D008D002 D008</td>
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<tr>
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</tr>
<tr>
<td>Permit by Rule:</td>
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<tr>
<td>Treatment by Generator:</td>
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</tr>
<tr>
<td>Mixed radioactive waste:</td>
<td>FALSE</td>
</tr>
<tr>
<td>Importer of hazardous waste:</td>
<td>FALSE</td>
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<tr>
<td>Immediate recycler:</td>
<td>FALSE</td>
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| Treatment/Storage/Disposal/Recycling Facility: | FALSE |
| Generator of dangerous fuel waste:            | FALSE |
| Generator marketing to burner:                | FALSE |
| Other marketers (i.e., blender, distributor, etc.): | FALSE |
| Utility boiler burner:                        | FALSE |
| Industry boiler burner:                       | FALSE |
| Industrial Furnace:                           | FALSE |
| Smelter deferral:                             | FALSE |
| Universal waste - batteries - generate:       | FALSE |
| Universal waste - thermostats - generate:     | FALSE |
| Universal waste - mercury - generate:         | FALSE |
| Universal waste - lamps - generate:           | FALSE |
| Universal waste - batteries - accumulate:     | FALSE |
| Universal waste - thermostats - accumulate:   | FALSE |
| Universal waste - mercury - accumulate:       | FALSE |
| Universal waste - lamps - accumulate:         | FALSE |
| Destination Facility for Universal Waste:      | FALSE |
| Off-specification used oil burner - utility boiler: | FALSE |
| Off-specification used oil burner - industrial boiler: | FALSE |
| Off-specification used oil burner - industrial furnace: | FALSE |
| Tax Reg #:                                   | 600345551    |
| Business Type:                               | Not reported |
| Mail Name:                                   | Macro Technologies Inc 124th Ave |
| Mail addr line1:                             | 11815 124th Ave NE |
| Mail city, st, zip:                          | KIRKLAND, WA 98034 |
| Mail country:                                | UNITED STATES |
| Legal org name:                              | Macro Technologies Inc 124th Ave |
| Legal org type:                              | Private |
| Legal addr line1:                            | 11815 124th Ave NE |
| Legal city, st, zip:                         | KIRKLAND, WA 98034 |
| Legal country:                               | UNITED STATES |
| Legal phone nbr:                             | 4253980132 |
| Legal effective date:                        | 02/07/2001 |
| Land org name:                               | Totem Square Partners |
| Land org type:                               | Private |
| Land person name:                            | Not reported |
| Land addr line1:                             | 2029 Century Park E #1550 |
| Land city, st, zip:                          | LOS ANGELES, CA 90067 |
MACRO TECHNOLOGIES LLC (Continued)

| Land country: | UNITED STATES |
| Land phone nbr: | (310)277-1648 |
| Operator org name: | Not reported |
| Operator org type: | Private |
| Operator addr line1: | 11828 NE 112th St |
| Operator city, st, zip: | KIRKLAND, WA 98033 |
| Operator country: | UNITED STATES |
| Operator phone nbr: | (425)823-4560 |
| Operator effective date: | 08/27/1996 |
| Site contact name: | Jeff Williams |
| Site contact addr line1: | 11815 124th Ave NE |
| Site Contact City/State/Zip: | KIRKLAND, WA 98034 |
| Site Contact Country: | UNITED STATES |
| Site Contact Phone #: | (425)825-8100 19 |
| Site Contact EMail: | Not reported |
| Form Contact NAME: | Jeff Williams |
| Form Contact ADDR LINE1: | 11815 124th Ave NE |
| Form Contact City,ST,Zip: | KIRKLAND, WA 98034 |
| Form Contact Country: | UNITED STATES |
| Form Contact Phone #: | (425)825-8100 19 |
| Form Contact EMail: | jeffw@macrotechnologies.com |
| Gen Status CD: | LQG |
| Monthly Generation: | FALSE |
| Batch Generation: | FALSE |
| One Time Generation: | FALSE |
| Transport Own Waste: | FALSE |
| Transports Other Waste: | FALSE |
| Recycler Onsite: | FALSE |
| Transfer Facility: | FALSE |
| Other Exemption: | Not reported |
| UW Battery Gen: | FALSE |
| Used Oil Transporter: | FALSE |
| Used Oil Transfer Facility: | FALSE |
| Used Oil Processor: | FALSE |
| Used Oil Refiner: | FALSE |
| Used Oil Fuel Marketer Directs Shipments: | FALSE |
| Used Oil Fuel Marketer Meets Specs: | FALSE |

Waste Streams Generated:

| Facility ID: | 22945928 |
| Data Year: | 2008 |
| Description: | Regulated waste coolant |
| Mix: | False |
| Reported Qty: | 36336.980000000003 LB |
| Kilo Qty: | 16482.45441149822 |
| Density No: | 0 |
| Density Qty: | Not reported |

<p>| Facility ID: | 22945928 |
| Data Year: | 2009 |
| Description: | SPENT MACHINE COOLANT and ELECTRO POLISH WASTE WATER |
| Mix: | False |
| Reported Qty: | 5454.3599999999997 LB |
| Kilo Qty: | 2474.0977385544811 |
| Density No: | 0 |
| Density Qty: | Not reported |</p>
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<th>Kilo Qty</th>
<th>Density No</th>
<th>Density Qty</th>
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<tbody>
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<td>22945928</td>
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<td>Regulated waste coolant</td>
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<tr>
<td>22945928</td>
<td>2010</td>
<td>Regulated Waste Coolant, Hydrite 4000, Absorbants W/Regulated waste Coolant</td>
<td>False</td>
<td>21377.16 LB</td>
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**Shipments Sent:**

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<th>Reported Qty</th>
<th>Kilo Qty</th>
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<td>2008</td>
<td>1/14/2008</td>
<td>500 LB</td>
<td>226.80000390096</td>
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<tr>
<td>22945928</td>
<td>2008</td>
<td>12/5/2008</td>
<td>3127.5 LB</td>
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### MACRO TECHNOLOGIES LLC (Continued)

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<th>Shipment sent data</th>
<th>Reported Qty</th>
<th>Kilo Qty</th>
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<tr>
<td>22945928</td>
<td>2008</td>
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<td>2126.7 LB</td>
<td>964.671136592343</td>
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<td>2008</td>
<td>6/24/2008</td>
<td>3252.6 LB</td>
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MACRO TECHNOLOGIES LLC (Continued) 1001969475

| Reported Qty: | 2043.3 LB | Kilo Qty: | 926.840895941663 |
| Facility ID: | 22945928 |
| Data Year: | 2008 |
| Shipment sent data: | 1/14/2008 |
| Reported Qty: | 2443.62 LB |
| Kilo Qty: | 1108.42605106493 |
| Facility ID: | 22945928 |
| Data Year: | 2009 |
| Shipment sent data: | 10/2/2009 |
| Reported Qty: | 1167.6 LB |
| Kilo Qty: | 529.623369109522 |
| Facility ID: | 22945928 |
| Data Year: | 2009 |
| Shipment sent data: | 8/11/2009 |
| Reported Qty: | 1668 LB |
| Kilo Qty: | 756.604813013603 |
| Facility ID: | 22945928 |
| Data Year: | 2009 |
| Shipment sent data: | 5/12/2009 |
| Reported Qty: | 2393.58 LB |
| Kilo Qty: | 1085.72790667452 |
| Facility ID: | 22945928 |
| Data Year: | 2009 |
| Shipment sent data: | 3/20/2009 |
| Reported Qty: | 2618.76 LB |
| Kilo Qty: | 1187.8695643136 |
| Facility ID: | 22945928 |
| Data Year: | 2009 |
| Shipment sent data: | 2/18/2009 |
| Reported Qty: | 3127.5 LB |
| Kilo Qty: | 1418.63402440051 |
| Facility ID: | 22945928 |
| Data Year: | 2009 |
| Shipment sent data: | 1/19/2009 |
| Reported Qty: | 3302.64 LB |
| Kilo Qty: | 1498.07752976693 |

Facility Site ID Number: 22945928
EPA ID: WAD052595196
NAICS: 335122
SWC Desc: Not reported
FWC Desc: D002, D005, D007, D008
MACRO TECHNOLOGIES LLC (Continued) 1001969475

Form Comm: Not reported
Data Year: 2010
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 602942175
Business Type: Not reported
Mail Name: Macro Technologies LLC
Mail addr line1: 11815 124th Ave NE
Mail city, st, zip: Kirkland, WA 98034
Mail country: UNITED STATES
Legal org name: Macro Technologies LLC
Legal org type: Private
Legal addr line1: 11815 124th Ave NE
Legal city, st, zip: Kirkland, WA 98034
Legal country: UNITED STATES
Legal phone nbr: (425)/825-8100
Legal effective date: 08/01/2009
Land org name: Totem Square Partners
Land org type: Private
Land person name: Not reported
Land addr line1: 2029 Century Park E Ste 1550
Land city, st, zip: Los Angeles, CA 90067
Land country: UNITED STATES
Land phone nbr: (310)/277-1648
Operator org name: Not reported
Operator org type: Private
Operator addr line1: 11828 NE 112th St
Operator city, st, zip: Kirkland, WA 98033
Operator country: UNITED STATES
Operator phone nbr: (425)/823-4560
Operator effective date: 08/27/1996
Site contact name: Jeff Williams
Site contact addr line1: 12550 135th Ave NE
Site Contact City/State/Zip: Kirkland, WA 98034

TC5463995.2s Page 408
MACRO TECHNOLOGIES LLC (Continued)

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<tbody>
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<tr>
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<td><a href="mailto:jeffw@macrotechnologies.com">jeffw@macrotechnologies.com</a></td>
</tr>
<tr>
<td>Form Contact NAME:</td>
<td>Jeff Williams</td>
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<tr>
<td>Form Contact ADDR LINE1:</td>
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<td>Form Contact City,ST,Zip:</td>
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Waste Streams Generated:

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<tr>
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<tr>
<td>Description:</td>
<td>Regulated Waste Coolant, Hydrite 4000, Absorbants W/Regulated waste Coolant</td>
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MACRO TECHNOLOGIES LLC (Continued)

Mix: False
Reported Qty: 21377.16 LB
Kilo Qty: 9696.6799427828955
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: HYDRITE 4000
Mix: No
Reported Qty: 875.7 LB
Kilo Qty: 397.21752632142
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: Regulated waste coolant
Mix: No
Reported Qty: 23160.18 LB
Kilo Qty: 10505.4578286939
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: Regulated waste coolant
Mix: No
Reported Qty: 10875.36 LB
Kilo Qty: 4933.06338084869
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 22945928
Data Year: 2008
Shipment sent data: 1/14/2008
Reported Qty: 500 LB
Kilo Qty: 226.80000390096

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 12/5/2008
Reported Qty: 3127.5 LB
Kilo Qty: 1418.63402440051

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 10/8/2008
Reported Qty: 2126.7 LB
Kilo Qty: 964.671136592343

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 9/3/2008
Reported Qty: 3853.08 LB
Kilo Qty: 1747.75711806142

EDR ID Number: 1001969475
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**MACRO TECHNOLOGIES LLC (Continued)**

**Reported Qty:** 1167.6 LB
**Kilo Qty:** 529.623369109522
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<td>Universal waste - batteries - generate:</td>
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<td>11815 124th Ave NE</td>
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MACRO TECHNOLOGIES LLC (Continued) 1001969475

| One Time Generation: | False |
| Transport Own Waste: | False |
| Tranports Other Waste: | False |
| Recycler Onsite: | False |
| Transfer Facility: | False |
| Other Exemption: | Not reported |
| UW Battery Gen: | False |
| Used Oil Transporter: | False |
| Used Oil Transfer Facility: | False |
| Used Oil Processor: | False |
| Used Oil Refiner: | False |
| Used Oil Fuel Marketer Directs Shipments: | False |
| Used Oil Fuel Marketer Meets Specs: | False |

### Waste Streams Generated:

| Facility ID: | 22945928 |
| Data Year: | 2008 |
| Description: | Regulated waste coolant |
| Mix: | False |
| Reported Qty: | 36336.9800000000003 LB |
| Kilo Qty: | 16482.45441149822 |
| Density No: | 0 |
| Density Qty: | Not reported |

| Facility ID: | 22945928 |
| Data Year: | 2009 |
| Description: | SPENT MACHINE COOLANT and ELECTRO POLISH WASTE WATER |
| Mix: | False |
| Reported Qty: | 5454.3599999999997 LB |
| Kilo Qty: | 2474.0977385544811 |
| Density No: | 0 |
| Density Qty: | Not reported |

| Facility ID: | 22945928 |
| Data Year: | 2009 |
| Description: | Regulated waste coolant |
| Mix: | False |
| Reported Qty: | 11442.48 LB |
| Kilo Qty: | 5190.3090172733155 |
| Density No: | 0 |
| Density Qty: | Not reported |

| Facility ID: | 22945928 |
| Data Year: | 2010 |
| Description: | Regulated Waste Coolant, Hydrite 4000, Absorbants W/Regulated waste Coolant |
| Mix: | False |
| Reported Qty: | 21377.16 LB |
| Kilo Qty: | 9696.6799427828955 |
| Density No: | 0 |
| Density Qty: | Not reported |

| Facility ID: | 22945928 |
| Data Year: | Not reported |
| Description: | HYDRITE 4000 |
| Mix: | No |
| Reported Qty: | 875.7 LB |
| Kilo Qty: | 397.217526832142 |

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MACRO TECHNOLOGIES LLC (Continued) 1001969475

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<th>Reported Qty</th>
<th>Shipment sent data</th>
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<th>Kilo Qty (LB)</th>
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MACRO TECHNOLOGIES LLC (Continued)

Reported Qty: 1668 LB
Kilo Qty: 756.604813013603

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 5/12/2009
Reported Qty: 2393.58 LB
Kilo Qty: 1085.72790667452

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 3/20/2009
Reported Qty: 2618.76 LB
Kilo Qty: 1187.86955643136

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 2/18/2009
Reported Qty: 3127.5 LB
Kilo Qty: 1418.63402440051

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 1/19/2009
Reported Qty: 3302.64 LB
Kilo Qty: 1498.07752976693

Facility Site ID Number: 22945928
EPA ID: WAD052595196
NAICS: 335122
SWC Desc: Not reported
FWC Desc: D002, D007, D008
Form Comm: Sold Company
Data Year: 2009
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
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**MACRO TECHNOLOGIES LLC (Continued)**

- **Off-specification used oil burner - utility boiler:** False
- **Off-specification used oil burner - industrial boiler:** False
- **Off-specification used oil burner - industrial furnace:** False
- **Tax Reg #:** 600345551
- **Business Type:** Not reported
- **Mail Name:** Macro Technologies Inc 124th Ave
- **Mail addr line1:** 11815 124th Ave NE
- **Mail city, st, zip:** KIRKLAND, WA 98034
- **Mail country:** UNITED STATES
- **Legal org name:** Macro Technologies Inc 124th Ave
- **Legal org type:** Private
- **Legal addr line1:** 11815 124th Ave NE
- **Legal city, st, zip:** KIRKLAND, WA 98034
- **Legal country:** UNITED STATES
- **Legal phone nbr:** 4253980132
- **Legal effective date:** 02/07/2001
- **Land org name:** Totem Square Partners
- **Land org type:** Private
- **Land person name:** Not reported
- **Land addr line1:** 2029 Century Park E #1550
- **Land city, st, zip:** LOS ANGELES, CA 90067
- **Land country:** UNITED STATES
- **Land phone nbr:** (310)277-1648
- **Operator org name:** Not reported
- **Operator org type:** Private
- **Operator addr line1:** 11828 NE 112th St
- **Operator city, st, zip:** KIRKLAND, WA 98033
- **Operator country:** UNITED STATES
- **Operator phone nbr:** (425)823-4560
- **Operator effective date:** 08/27/1996
- **Site contact name:** Jeff Williams
- **Site contact addr line1:** 11815 124th Ave NE
- **Site Contact City/State/Zip:** KIRKLAND, WA 98034
- **Site Contact Country:** UNITED STATES
- **Site Contact Phone #:** (425)825-8100 19
- **Site Contact EMail:** Not reported
- **Form Contact NAME:** Jeff Williams
- **Form Contact ADDR LINE1:** 11815 124th Ave NE
- **Form Contact City,ST,Zip:** KIRKLAND, WA 98034
- **Form Contact Country:** UNITED STATES
- **Form Contact Phone #:** (425)825-8100 19
- **Form Contact EMail:** jeffw@mactechnologies.com
- **Gen Status CD:** LOG
- **Monthly Generation:** False
- **Batch Generation:** True
- **One Time Generation:** False
- **Transport Own Waste:** False
- **Tranports Other Waste:** False
- **Recycler Onsite:** False
- **Transfer Facility:** False
- **Other Exemption:** Not reported
- **UW Battery Gen:** False
- **Used Oil Transporter:** False
- **Used Oil Transfer Facility:** False
- **Used Oil Processor:** False
- **Used Oil Refiner:** False
- **Used Oil Fuel Marketer Directs Shipments:** False
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<th>Mix</th>
<th>Reported Qty</th>
<th>Kilo Qty</th>
<th>Density No</th>
<th>Density Qty</th>
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MACRO TECHNOLOGIES LLC  (Continued)

Facility ID: 22945928
Data Year: Not reported
Description: Regulated waste coolant
Mix: No
Reported Qty: 10875.36 LB
Kilo Qty: 4933.06338084869
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 22945928
Data Year: 2008
Shipment sent data: 1/14/2008
Reported Qty: 500 LB
Kilo Qty: 226.80000390096

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 12/5/2008
Reported Qty: 3127.5 LB
Kilo Qty: 1418.63402440051

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 10/8/2008
Reported Qty: 2126.7 LB
Kilo Qty: 964.671136592343

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 9/3/2008
Reported Qty: 3853.08 LB
Kilo Qty: 1747.75711806142

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 8/4/2008
Reported Qty: 2585.4 LB
Kilo Qty: 1172.73746017108

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 6/24/2008
Reported Qty: 3252.6 LB
Kilo Qty: 1475.37938537653

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 6/4/2008
Reported Qty: 4036.56 LB
Kilo Qty: 1830.98364749292

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 5/7/2008
Reported Qty: 3310.98 LB
Kilo Qty: 1501.860553832

TC5463995.2s  Page 420
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<td>1187.86955643136</td>
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MACRO TECHNOLOGIES LLC (Continued) 1001969475

Reported Qty: 2618.76 LB
Kilo Qty: 1187.86955643136
Facility ID: 22945928
Data Year: 2009
Shipment sent data: 2/18/2009
Reported Qty: 3127.5 LB
Kilo Qty: 1418.63402440051

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 1/19/2009
Reported Qty: 3302.64 LB
Kilo Qty: 1498.07752976693

Facility Site ID Number: 22945928
EPA ID: WAD052595196
NAICS: 335122
SWC Desc: Not reported
FWC Desc: D002 D005 D007 D008 D008D002 D008
Form Comm: Not reported
Data Year: Not reported
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 600345551
Business Type: Not reported
Mail Name: Macro Technologies Inc 124th Ave
Mail addr line1: 11815 124th Ave NE
Mail city, st, zip: KIRKLAND, WA 98034
Mail country: UNITED STATES
Legal org name: Macro Technologies Inc 124th Ave
Legal org type: Private
Legal addr line1: 11815 124th Ave NE
MACRO TECHNOLOGIES LLC (Continued)  
1001969475

Legal city, st, zip: KIRKLAND, WA 98034
Legal country: UNITED STATES
Legal phone nbr: 4253980132
Legal effective date: 02/07/2001
Land org name: Totem Square Partners
Land org type: Private
Land person name: Not reported
Land addr line1: 2029 Century Park E #1550
Land city, st, zip: LOS ANGELES, CA 90067
Land country: UNITED STATES
Land phone nbr: (310)277-1648
Operator org name: Not reported
Operator org type: Private
Operator addr line1: 11828 NE 112th St
Operator city, st, zip: KIRKLAND, WA 98033
Operator country: UNITED STATES
Operator phone nbr: (425)823-4560
Operator effective date: 08/27/1996
Site contact name: Jeff Williams
Site contact addr line1: 11815 124th Ave NE
Site Contact City/State/Zip: KIRKLAND, WA 98034
Site Contact Country: UNITED STATES
Site Contact Phone #: (425)825-8100 19
Site Contact EMail: Not reported
Form Contact ADDR LINE1: 11815 124th Ave NE
Form Contact City, ST, Zip: KIRKLAND, WA 98034
Form Contact Country: UNITED STATES
Form Contact Phone #: (425)825-8100 19
Form Contact EMail: jeffw@macrotechnologies.com
Gen Status CD: LQG
Monthly Generation: False
Batch Generation: True
One Time Generation: False
Transport Own Waste: False
Transports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:
Facility ID: 22945928
Data Year: 2008
Description: Regulated waste coolant
Mix: False
Reported Qty: 36336.980000000003 LB
Kilo Qty: 16482.45441149822
Density No: 0
Density Qty: Not reported
MACRO TECHNOLOGIES LLC (Continued)

Facility ID: 22945928
Data Year: 2009
Description: SPENT MACHINE COOLANT and ELECTRO POLISH WASTE WATER
Mix: False
Reported Qty: 5454.359999999997 LB
Kilo Qty: 2474.0977385544811
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: 2009
Description: Regulated waste coolant
Mix: False
Reported Qty: 11442.48 LB
Kilo Qty: 5190.3090172733155
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: 2010
Description: Regulated Waste Coolant, Hydrite 4000, Absorbants W/Regulated waste Coolant
Mix: False
Reported Qty: 21377.16 LB
Kilo Qty: 9696.6799427828955
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: HYDRITE 4000
Mix: No
Reported Qty: 875.7 LB
Kilo Qty: 397.217526832142
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: Regulated waste coolant
Mix: No
Reported Qty: 10875.36 LB
Kilo Qty: 4933.06338084869
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 22945928
Data Year: 2008
### MACRO TECHNOLOGIES LLC (Continued)

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<td>2008</td>
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<td>4036.56 LB</td>
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<td>3310.98 LB</td>
<td>1501.860553832</td>
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<tr>
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<td>4/10/2008</td>
<td>3702.96 LB</td>
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<td>2785.56 LB</td>
<td>1263.53003773272</td>
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### Additional Information
- **Shipments sent data:**
  - 1/14/2008
- **Reported Qty:**
  - 500 LB
- **Kilo Qty:**
  - 226.80000390096
- **Facility ID:** 22945928
- **Data Year:** 2008
- **Shipment sent data:** 12/5/2008
- **Reported Qty:** 3127.5 LB
- **Kilo Qty:** 1418.63402440051
- **Facility ID:** 22945928
- **Data Year:** 2008
- **Shipment sent data:** 10/8/2008
- **Reported Qty:** 2126.7 LB
- **Kilo Qty:** 964.671136592343
MACRO TECHNOLOGIES LLC (Continued) 1001969475

| Facility ID: | 22945928 |
| Data Year: | 2008 |
| Shipment sent data: | 2/20/2008 |
| Reported Qty: | 2568.72 LB |
| Kilo Qty: | 1165.17141204095 |

| Facility ID: | 22945928 |
| Data Year: | 2008 |
| Shipment sent data: | 1/23/2008 |
| Reported Qty: | 2043.3 LB |
| Kilo Qty: | 926.640895941663 |

| Facility ID: | 22945928 |
| Data Year: | 2008 |
| Shipment sent data: | 1/14/2008 |
| Reported Qty: | 2443.62 LB |
| Kilo Qty: | 1108.42605106493 |

| Facility ID: | 22945928 |
| Data Year: | 2009 |
| Shipment sent data: | 10/2/2009 |
| Reported Qty: | 1167.6 LB |
| Kilo Qty: | 529.623369109522 |

| Facility ID: | 22945928 |
| Data Year: | 2009 |
| Shipment sent data: | 10/9/2009 |
| Reported Qty: | 2618.76 LB |
| Kilo Qty: | 1187.86955643136 |

| Facility ID: | 22945928 |
| Data Year: | 2009 |
| Shipment sent data: | 8/11/2009 |
| Reported Qty: | 1668 LB |
| Kilo Qty: | 756.604813013603 |

| Facility ID: | 22945928 |
| Data Year: | 2009 |
| Shipment sent data: | 5/12/2009 |
| Reported Qty: | 2393.58 LB |
| Kilo Qty: | 1085.72790667452 |

| Facility ID: | 22945928 |
| Data Year: | 2009 |
| Shipment sent data: | 3/20/2009 |
| Reported Qty: | 2618.76 LB |
| Kilo Qty: | 1187.86955643136 |

| Facility ID: | 22945928 |
| Data Year: | 2009 |
| Shipment sent data: | 2/18/2009 |
| Reported Qty: | 3127.5 LB |
| Kilo Qty: | 1418.63402440051 |

| Facility ID: | 22945928 |
| Data Year: | 2009 |
| Shipment sent data: | 1/19/2009 |
MACRO TECHNOLOGIES LLC (Continued)

Reported Qty: 3302.64 LB
Kilo Qty: 1498.07752976693

Facility Site ID Number: 22945928
EPA ID: WAD052595196
NAICS: 335122
SWC Desc: Not reported
FWC Desc: D002, D007, D008
Form Comm: Not reported
Data Year: 2009
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 602942175
Business Type: Not reported
Mail Name: Macro Technologies LLC
Mail addr line1: 11815 124th Ave NE
Mail city, st, zip: Kirkland, WA 98034
Mail country: UNITED STATES
Legal org name: Macro Technologies LLC
Legal org type: Private
Legal addr line1: 11815 124th Ave NE
Legal city, st, zip: Kirkland, WA 98034
Legal country: UNITED STATES
Legal phone nbr: (425)825-8100
Legal effective date: 08/01/2009
Land org name: Totem Square Partners
Land org type: Private
Land person name: Not reported
Land addr line1: 2029 Century Park E Ste 1550
Land city, st, zip: Los Angeles, CA 90067
Land country: UNITED STATES
Land phone nbr: (310)277-1648
Operator org name: Not reported
MACRO TECHNOLOGIES LLC (Continued)

<table>
<thead>
<tr>
<th>Operator org type:</th>
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</tr>
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<tbody>
<tr>
<td>Operator addr line1:</td>
<td>11828 NE 112th St</td>
</tr>
<tr>
<td>Operator city, st, zip:</td>
<td>Kirkland, WA 98033</td>
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<tr>
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<tr>
<td>Operator phone nbr:</td>
<td>(425)823-4560</td>
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<tr>
<td>Site contact name:</td>
<td>Jeff Williams</td>
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<tr>
<td>Site contact addr line1:</td>
<td>11815 124th Ave NE</td>
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<td>Site Contact City/State/ Zip:</td>
<td>Kirkland, WA 98034</td>
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<tr>
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</tr>
<tr>
<td>Site Contact Phone #:</td>
<td>(425)825-8100</td>
</tr>
<tr>
<td>Site Contact EMail:</td>
<td><a href="mailto:jeffw@macrotechnologies.com">jeffw@macrotechnologies.com</a></td>
</tr>
<tr>
<td>Form Contact NAME:</td>
<td>Jeff Williams</td>
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<tr>
<td>Form Contact ADDR LINE1:</td>
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<td>Form Contact City, ST, Zip:</td>
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<td>(425)825-8100</td>
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<td>Form Contact EMail:</td>
<td><a href="mailto:jeffw@macrotechnologies.com">jeffw@macrotechnologies.com</a></td>
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Waste Streams Generated:

| Facility ID: | 22945928 |
| Data Year: | 2008 |
| Description: | Regulated waste coolant |
| Mix: | False |
| Reported Qty: | 36336.9800000000003 LB |
| Kilo Qty: | 16482.45441149822 |
| Density No: | 0 |
| Density Qty: | Not reported |

| Facility ID: | 22945928 |
| Data Year: | 2009 |
| Description: | SPENT MACHINE COOLANT and ELECTRO POLISH WASTE WATER |
| Mix: | False |
| Reported Qty: | 5454.3599999999997 LB |
| Kilo Qty: | 2474.0977385544811 |
| Density No: | 0 |
| Density Qty: | Not reported |

| Facility ID: | 22945928 |
| Data Year: | 2009 |
| Description: | Regulated waste coolant |
MACRO TECHNOLOGIES LLC (Continued) 1001969475

Mix: False
Reported Qty: 11442.48 LB
Kilo Qty: 5190.3090172733155
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: 2010
Description: Regulated Waste Coolant, Hydrite 4000, Absorbants W/Regulated waste Coolant
Mix: False
Reported Qty: 21377.16 LB
Kilo Qty: 9696.6799427828955
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: HYDRITE 4000
Mix: No
Reported Qty: 875.7 LB
Kilo Qty: 397.217526832142
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: Regulated waste coolant
Mix: No
Reported Qty: 23160.18 LB
Kilo Qty: 10505.4578286939
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: Regulated waste coolant
Mix: No
Reported Qty: 10875.36 LB
Kilo Qty: 4933.06338084869
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 22945928
Data Year: 2008
Shipment sent data: 1/14/2008
Reported Qty: 500 LB
Kilo Qty: 226.80000390096

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 12/5/2008
Reported Qty: 3127.5 LB
Kilo Qty: 1418.63402440051

Facility ID: 22945928
Data Year: 2008
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<th>Facility ID</th>
<th>Data Year</th>
<th>Shipment sent data</th>
<th>Reported Qty</th>
<th>Kilo Qty</th>
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<td>2009</td>
<td>1/19/2009</td>
<td>3302.64 LB</td>
<td>1498.07752976693</td>
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</table>
45
LENNAR TOTEM LAKE APARTMENTS
11811 NE 128TH ST
KIRKLAND, WA 98034
NW
1/4-1/2
0.290 mi.
1531 ft.

Relative: ALLSITES:
Higher
Actual: 168 ft.

Facility Name: LENNAR TOTEM LAKE APARTMENTS
Facility Id: 24439

Interaction: 122611
Interaction 1: A
Interaction 2: CONSTSWGP
Ecology Program: WATQUAL
Program Data: PARIS
Facility Alt.: Lennar Totem Lake Apartments
Program ID: WAR305978
Date Issued: 11/18/2015
Date Issued: 11/18/2015
Latitude: 47.71452369699997
Longitude: -122.183513467

NPDES:
Facility Status: Not reported
Facility Type: Construction SW GP
Admin Region: Headquarters
Date Issued: 11/18/2015
Latitude: Not reported
Longitude: Not reported
Permit ID: WAR305978
Permit ID: WAR305978
Permit Version: Not reported
Permit Status: Active
Permit SubStatus: Not reported
Ecology Contact: Not reported
WRIA: Not reported
Permit Expiration Date: 12/31/2020
Effective Date: 11/16/2017
Days to Expiration: -897

46
FRED MEYER STORES INC
12221 120TH AVE NE
KIRKLAND, WA 98034
SW
1/4-1/2
0.308 mi.
1626 ft.

Relative: ALLSITES:
Higher
Actual: 158 ft.

RCRA-LQG: 1000474133
Facility name: FRED MEYER STORES INC
Facility address: 12221 120TH AVE NE
KIRKLAND, WA 98034
EPA ID: WAD988482287
Mailing address: PO BOX 42121
PORTLAND, OR 97055
Contact: MARCUS YOUNG
Contact address: 3800 SE 22ND AVE
FRED MEYER STORES INC (Continued)

Contact country: US
Contact telephone: 503-797-3750
Contact email: MARCUS.YOUNG@FREDMEYER.COM
EPA Region: 10
Land type: Private
Classification: Large Quantity Generator
Description: Handler: generates 1,000 kg or more of hazardous waste during any calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time

Owner/Operator Summary:
Owner/operator name: FRED MEYER STORES INC
Owner/operator address: 3800 SE 22ND AVE
PORTLAND, OR 97242
Owner/operator country: US
Owner/operator telephone: 503-232-8844
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 11/07/1980
Owner/Op end date: Not reported

Owner/operator name: FRED MEYER INC F
Owner/operator address: 12221 120TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 000-000-0000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 01/23/1991
Owner/Op end date: Not reported

Owner/operator name: FRED MEYER STORES INC
Owner/operator address: 12221 120TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-820-3200
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
FRED MEYER STORES INC  (Continued)  1000474133

Owner/Op start date:  11/07/1980
Owner/Op end date:  Not reported

Handler Activities Summary:
- U.S. importer of hazardous waste:  No
- Mixed waste (haz. and radioactive):  No
- Recycler of hazardous waste:  No
- Transporter of hazardous waste:  No
- Treater, storer or disposer of HW:  No
- Underground injection activity:  No
- On-site burner exemption:  No
- Furnace exemption:  No
- Used oil fuel burner:  No
- Used oil processor:  No
- User oil refiner:  No
- Used oil fuel marketer to burner:  No
- Used oil Specification marketer:  No
- Used oil transfer facility:  No
- Used oil transporter:  No

- Waste code:  D001
- Waste name:  IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

- Waste code:  D002
- Waste name:  A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

- Waste code:  D003
- Waste name:  A MATERIAL IS CONSIDERED TO BE A REACTIVE HAZARDOUS WASTE IF IT IS NORMALLY UNSTABLE, REACTS VIOLENTLY WITH WATER, GENERATES TOXIC GASES WHEN EXPOSED TO WATER OR CORROSIVE MATERIALS, OR IF IT IS CAPABLE OF DETONATION OR EXPLOSION WHEN EXPOSED TO HEAT OR A FLAME. ONE EXAMPLE OF SUCH WASTE WOULD BE WASTE GUNPOWDER.

- Waste code:  D005
- Waste name:  BARIUM

- Waste code:  D007
- Waste name:  CHROMIUM

- Waste code:  D008
- Waste name:  LEAD

- Waste code:  D009
- Waste name:  MERCURY
FRED MEYER STORES INC (Continued) 1000474133

- Waste code: D010
  Waste name: SELENIUM

- Waste code: D011
  Waste name: SILVER

- Waste code: D016
  Waste name: 2,4-D

- Waste code: D018
  Waste name: BENZENE

- Waste code: D023
  Waste name: O-CRESOL

- Waste code: D024
  Waste name: M-CRESOL

- Waste code: D025
  Waste name: P-CRESOL

- Waste code: D035
  Waste name: METHYL ETHYL KETONE

- Waste code: P001
  Waste name: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS,
  WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

- Waste code: P075
  Waste name: NICOTINE, & SALTS

- Waste code: U002
  Waste name: ACETONE (I)

- Waste code: U010
  Waste name: ACETALDEHYDE, TRICHLORO-

- Waste code: U034
  Waste name: ACETALDEHYDE, TRICHLORO-

- Waste code: U035
  Waste name: BENZENEBUTANOIC ACID, 4-[BIS(2-CHLOROETHYL)AMINO]-

- Waste code: U044
  Waste name: CHLOROFORM

- Waste code: U058
  Waste name: CYCLOPHOSPHAMIDE

- Waste code: U059
  Waste name: DAUNOMYCIN

- Waste code: U089
  Waste name: DIETHYLSTILBESTEROL
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<td>U132</td>
<td>HEXACHLOROPHENE</td>
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<td>U249</td>
<td>ZINC PHOSPHIDE ZN3P2, WHEN PRESENT AT CONCENTRATIONS OF 10% OR LESS</td>
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</table>
FRED MEYER STORES INC (Continued) 1000474133

Historical Generators:
- Date form received by agency: 03/02/2001
- Site name: FRED MEYER TOTEM LAKE
- Classification: Not a generator, verified

- Date form received by agency: 03/02/2001
- Site name: FRED MEYER TOTEM LAKE
- Classification: Not a generator, verified

- Date form received by agency: 11/20/1990
- Site name: FRED MEYER TOTEM LAKE
- Classification: Conditionally Exempt Small Quantity Generator

Facility Has Received Notices of Violations:
- Waste code: WT02
- Waste name: WT02

- Date violation determined: 07/27/2016
- Date achieved compliance: 12/14/2016
- Violation lead agency: State
- Enforcement action: WRITTEN INFORMAL
- Enforcement action date: 09/23/2016
- Enf. disposition status: Not reported
- Enf. disp. status date: Not reported
- Enforcement lead agency: State
- Proposed penalty amount: Not reported
- Final penalty amount: Not reported
- Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 07/27/2016
Date achieved compliance: 12/14/2016

IGITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

Waste name: D002
### FRED MEYER STORES INC (Continued)

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- **Regulation violated:** Not reported
- **Area of violation:** TSD - Contingency Plan and Emergency Procedures
- **Date violation determined:** 07/27/2016
- **Date achieved compliance:** 12/14/2016

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- **Regulation violated:** Not reported
- **Area of violation:** TSD IS-Container Use and Management
- **Date violation determined:** 07/27/2016
- **Date achieved compliance:** 12/14/2016

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- **Regulation violated:** Not reported
- **Area of violation:** TSD - General Facility Standards
- **Date violation determined:** 07/27/2016
- **Date achieved compliance:** 12/14/2016

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- **Regulation violated:** Not reported
- **Area of violation:** Generators - Pre-transport
- **Date violation determined:** 07/27/2016
- **Date achieved compliance:** 12/14/2016

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- **Regulation violated:** Not reported
- **Area of violation:** Generators - Pre-transport
- **Date violation determined:** 07/27/2016
- **Date achieved compliance:** 12/14/2016

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- **Regulation violated:** Not reported
- **Area of violation:** Generators - Pre-transport
- **Date violation determined:** 07/27/2016
- **Date achieved compliance:** 12/14/2016

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- **Regulation violated:** Not reported
- **Area of violation:** Generators - Pre-transport
- **Date violation determined:** 07/27/2016
- **Date achieved compliance:** 12/14/2016
FRED MEYER STORES INC (Continued)

Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/23/2016
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: LDR - General
Date violation determined: 07/27/2016
Date achieved compliance: 12/14/2016
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/23/2016
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Manifest
Date violation determined: 07/27/2016
Date achieved compliance: 12/14/2016
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/23/2016
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 07/27/2016
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: State Statute or Regulation
Date achieved compliance: 12/14/2016
Evaluation lead agency: State

Evaluation date: 07/27/2016
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General Facility Standards
Date achieved compliance: 12/14/2016
Evaluation lead agency: State

Evaluation date: 07/27/2016
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 12/14/2016
Evaluation lead agency: State

Evaluation date: 07/27/2016
FRED MEYER STORES INC (Continued) 1000474133

Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 12/14/2016
Evaluation lead agency: State

Evaluation date: 07/27/2016
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Contingency Plan and Emergency Procedures
Date achieved compliance: 12/14/2016
Evaluation lead agency: State

Evaluation date: 07/27/2016
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Manifest
Date achieved compliance: 12/14/2016
Evaluation lead agency: State

Evaluation date: 07/27/2016
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 12/14/2016
Evaluation lead agency: State

Evaluation date: 07/27/2016
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD IS-Container Use and Management
Date achieved compliance: 12/14/2016
Evaluation lead agency: State

Evaluation date: 06/24/1997
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

CSCSL:
Facility ID: 51971957
Region: Northwest
Lat/Long: 47.70596 / -122.182375
Brownfield Status: Not reported
Rank Status: N
Clean Up Site ID: 9528
Site Status: Cleanup Started
PSI?: Not reported
Contaminant Name: Petroleum-Other
Ground Water: Not reported
Surface Water: Not reported
Soil: Confirmed Above Cleanup Level
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

LUST:
Facility ID: 51971957
Lust Status Type: Cleanup Started
Cleanup Site ID: 9528
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<td>Dispenser/Pump SFC Type</td>
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FRED MEYER STORES INC (Continued)

Tank Corrosion Protection: Not reported
Tank Manifold: Not reported
Tank Release Detection: Not reported
Tank SFC Type: Not reported
Pipe Material: Steel
Pipe Construction: Not reported
Pipe Primary Release Detection: Not reported
Pipe Secondary Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Pipe Pumping System: Not reported
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

SWRCY:

Facility ID: 81834
Service: Goodwill Totem Lake Donation Center
Phone: (206) 329-1000
Extension: Not reported
Website: Not reported
Email: tiffany.hatch@seattlegoodwill.org
Material Category: Electronics
Material Accepted: E-readers
Contact Name: Tiffany Hatch
Residential: Yes
Commercial: Yes
Service Type: Dropoff and buy-back sites
Light Recycle Participant: No
Hours: Mon - Sun, 7:30 am - 5pm
Comments: Located in the north end of the Fred Meyer parking lot near the gas station. This location accepts up to 5 televisions (19" or smaller), monitors, computers and laptops per donor, per day under the E-Cycle Washington program. Televisions 19" or larger need to be delivered to your closest Goodwill store. Accept non-reusable textiles as well as reusable items.

Facility ID: 81834
Service: Goodwill Totem Lake Donation Center
Phone: (206) 329-1000
Extension: Not reported
Website: Not reported
Email: tiffany.hatch@seattlegoodwill.org
Material Category: Electronics
Material Accepted: Televisions
Contact Name: Tiffany Hatch
Residential: Yes
Commercial: Yes
Service Type: Dropoff and buy-back sites
Light Recycle Participant: No
Hours: Mon - Sun, 7:30 am - 5pm
Comments: Located in the north end of the Fred Meyer parking lot near the gas station. This location accepts up to 5 televisions (19" or smaller), monitors, computers and laptops per donor, per day under the E-Cycle Washington program. Televisions 19" or larger need to be delivered to your closest Goodwill store. Accept non-reusable textiles as well as reusable items.
FRED MEYER STORES INC (Continued)

Service: Goodwill Totem Lake Donation Center
Phone: (206) 329-1000
Extension: Not reported
Website: Not reported
Email: tiffany.hatch@seattlegoodwill.org
Material Category: Electronics
Material Accepted: Computers
Contact Name: Tiffany Hatch
Residential: Yes
Commercial: Yes
Service Type: Dropoff and buy-back sites
Light Recycle Participant: No
Hours: Mon - Sun, 7:30 am - 5pm
Comments: Located in the north end of the Fred Meyer parking lot near the gas station. This location accepts up to 5 televisions (19" or smaller), monitors, computers and laptops per donor, per day under the E-Cycle Washington program. Televisions 19" or larger need to be delivered to your closest Goodwill store. Accept non-reusable textiles as well as reusable items.

Facility ID: 81834
Service: Goodwill Totem Lake Donation Center
Phone: (206) 329-1000
Extension: Not reported
Website: Not reported
Email: tiffany.hatch@seattlegoodwill.org
Material Category: Electronics
Material Accepted: Monitors
Contact Name: Tiffany Hatch
Residential: Yes
Commercial: Yes
Service Type: Dropoff and buy-back sites
Light Recycle Participant: No
Hours: Mon - Sun, 7:30 am - 5pm
Comments: Located in the north end of the Fred Meyer parking lot near the gas station. This location accepts up to 5 televisions (19" or smaller), monitors, computers and laptops per donor, per day under the E-Cycle Washington program. Televisions 19" or larger need to be delivered to your closest Goodwill store. Accept non-reusable textiles as well as reusable items.

Facility ID: 81834
Service: Goodwill Totem Lake Donation Center
Phone: (206) 329-1000
Extension: Not reported
Website: Not reported
Email: tiffany.hatch@seattlegoodwill.org
Material Category: Electronics
Material Accepted: Portable DVD players
Contact Name: Tiffany Hatch
Residential: Yes
Commercial: Yes
Service Type: Dropoff and buy-back sites
Light Recycle Participant: No
Hours: Mon - Sun, 7:30 am - 5pm
Comments: Located in the north end of the Fred Meyer parking lot near the gas station. This location accepts up to 5 televisions (19" or smaller),
<table>
<thead>
<tr>
<th>Site</th>
<th>Elevation</th>
<th>Database(s)</th>
<th>EPA ID Number</th>
<th>EDR ID Number</th>
<th>Direction</th>
<th>Distance</th>
</tr>
</thead>
</table>

### Map Findings

**Facility ID:** 81834  
**Service:** Goodwill Totem Lake Donation Center  
**Phone:** (206) 329-1000  
**Extension:** Not reported  
**Website:** Not reported  
**Email:** tiffany.hatch@seattlegoodwill.org  
**Material Category:** Miscellaneous  
**Material Accepted:** Clothes and Textiles  
**Contact Name:** Tiffany Hatch  
**Residential:** Yes  
**Commercial:** No  
**Service Type:** Dropoff and buy-back sites  
**Light Recycle Participant:** No  
**Hours:** Mon - Sun, 7:30 am - 5pm  
**Comments:** Located in the north end of the Fred Meyer parking lot near the gas station. This location accepts up to 5 televisions (19" or smaller), monitors, computers and laptops per donor, per day under the E-Cycle Washington program. Televisions 19" or larger need to be delivered to your closest Goodwill store. Accept non-reusable textiles as well as reusable items.

**Facility Name:** FRED MEYER TOTEM LAKE  
**Facility Id:** 92981559  
**Interaction:** 72577  
**Interaction 1:** I  
**Interaction 2:** HWG  
**Ecology Program:** HAZWASTE  
**Program Data:** TURBOWASTE  
**Facility Alt.:** Not reported  
**Program ID:** WAD988482287  
**Date Interaction:** 1991-01-16 00:00:00  
**Date Interaction 3:** Hazardous Waste Generator  
**Latitude:** 47.71545436099999  
**Longitude:** -122.18278510499999

**Facility Name:** FRED MEYER STORES INC  
**Facility Id:** 1000474133  
**Interaction:** 120254  
**Interaction 1:** A  
**Interaction 2:** HWG  
**Ecology Program:** HAZWASTE  
**Program Data:** TURBOWASTE  
**Facility Alt.:** Fred Meyer Stores Inc  
**Program ID:** WAD988482287  
**Date Interaction:** 2016-11-17 00:00:00  
**Date Interaction 3:** Hazardous Waste Generator  
**Latitude:** 47.71545436099999  
**Longitude:** -122.18278510499999

**Facility Name:** ALLSITES:  
**Facility Name:** FRED MEYER TOTEM LAKE  
**Facility Id:** 92981559  
**Interaction:** 120227

---

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| Interaction 1: | I |
| Interaction 2: | HWOTHER |
| Ecology Program: | HAZWASTE |
| Program Data: | TURBOWASTE |
| Facility Alt.: | Fred Meyer Totem Lake |
| Program ID: | WAD988482287 |
| Date Interaction: | 2000-12-31 00:00:00 |
| Date Interaction 3: | Haz Waste Management Act |
| Latitude: | 47.715454360999999 |
| Longitude: | -122.18278510499999 |

| Facility Name: | FRED MEYER INC 120TH AVE KIRKLAND |
| Facility Id: | 51971957 |
| Interaction: | 49085 |
| Interaction 1: | I |
| Interaction 2: | LUST |
| Ecology Program: | TOXICS |
| Program Data: | ISIS |
| Facility Alt.: | Not reported |
| Program ID: | 639 |
| Date Interaction: | 1989-10-30 00:00:00 |
| Date Interaction 3: | LUST Facility |
| Latitude: | 47.70595436 |
| Longitude: | -122.18236010699999 |

| Interaction: | 49086 |
| Interaction 1: | I |
| Interaction 2: | UST |
| Ecology Program: | TOXICS |
| Program Data: | UST |
| Facility Alt.: | Not reported |
| Program ID: | 639 |
| Date Interaction: | 2000-03-20 00:00:00 |
| Date Interaction 3: | Underground Storage Tank |
| Latitude: | 47.70595436 |
| Longitude: | -122.18236010699999 |

**FINDS:**

| Registry ID: | 110070135505 |

**Environmental Interest/Information System**

Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

[Click this hyperlink](#) while viewing on your computer to access additional FINDS: detail in the EDR Site Report.
FRED MEYER STORES INC (Continued)

Operator org type: Private
Operator addr line1: 12221 120TH Ave NE
Operator city, st, zip: Kirkland, WA 98034
Operator country: UNITED STATES
Operator phone nbr: 425-820-3200
Operator effective date: 11/07/1980
Site contact name: Cheryl Ferguson
Site contact addr line1: 12221 120th NE
Site Contact City/State/Zip: KIRKLAND, WA 98034
Site Contact Country: UNITED STATES
Site Contact Phone #: 425-820-3200
Site Contact EMail: cheryl.ferguson@stores.fredmeyer.com
Form Contact NAME: Marcus Young
Form Contact ADDR LINE1: 3800 SE 22nd Ave
Form Contact City,ST,Zip: PORTLAND, OR 97202
Form Contact Country: UNITED STATES
Form Contact Phone #: 503-797-3750
Form Contact EMail: Marcus.young@fredmeyer.com
Gen Status CD: LOG
Monthly Generation: True
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
Transports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:
Facility ID: 92981559
Data Year: 2016
Description: Retail products designated Dangerous Waste, Non-RCRA
Mix: False
Reported Qty: 94 LB
Kilo Qty: 42.6384007
Density No: 0
Density Qty: Not reported

Facility ID: 92981559
Data Year: 2016
Description: Retail photo processing chemicals
Mix: False
Reported Qty: 42 LB
Kilo Qty: 19.0512003
Density No: 0
Density Qty: Not reported

Facility ID: 92981559
Data Year: 2016
Description: Medicine and pills from pharmacy
<table>
<thead>
<tr>
<th>Facility ID</th>
<th>Data Year</th>
<th>Description</th>
<th>Mix</th>
<th>Reported Qty</th>
<th>Kilo Qty</th>
<th>Density No</th>
<th>Density Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>92981559</td>
<td>2016</td>
<td>Empty warfarin containers from pharmacy</td>
<td>False</td>
<td>6 LB</td>
<td>2.72160004</td>
<td>0</td>
<td>Not reported</td>
</tr>
<tr>
<td>92981559</td>
<td>2016</td>
<td>Photo chemicals for processing film</td>
<td>False</td>
<td>19 LB</td>
<td>8.61840014</td>
<td>0</td>
<td>Not reported</td>
</tr>
<tr>
<td>92981559</td>
<td>2016</td>
<td>Retail products, household bleach, pool chemicals, cleaning products</td>
<td>False</td>
<td>28 LB</td>
<td>12.7008002</td>
<td>0</td>
<td>Not reported</td>
</tr>
<tr>
<td>92981559</td>
<td>2016</td>
<td>Retail products, lawn and garden chemicals</td>
<td>False</td>
<td>77 LB</td>
<td>34.9272006</td>
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</tr>
<tr>
<td>92981559</td>
<td>2016</td>
<td>Retail paint, stains, and solvent material</td>
<td>False</td>
<td>28 LB</td>
<td>12.7008002</td>
<td>0</td>
<td>Not reported</td>
</tr>
<tr>
<td>92981559</td>
<td>2017</td>
<td>Retail Products designated Washington DW Solid Corrosive, Solid Corrosive</td>
<td>False</td>
<td>5 LB</td>
<td>2.26800003</td>
<td>0</td>
<td>Not reported</td>
</tr>
<tr>
<td>Facility ID</td>
<td>Data Year</td>
<td>Description</td>
<td>Mix</td>
<td>Reported Qty</td>
<td>Kilo Qty</td>
<td>Density No</td>
<td>Density Qty</td>
</tr>
<tr>
<td>-------------</td>
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<td>-----</td>
<td>--------------</td>
<td>-----------------</td>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td>92981559</td>
<td>2017</td>
<td>Retail aerosol cans</td>
<td>False</td>
<td>200 LB</td>
<td>90.7200015</td>
<td>0</td>
<td>Not reported</td>
</tr>
</tbody>
</table>
FRED MEYER STORES INC (Continued)

Facility ID: 92981559
Data Year: 2017
Description: Retail paint, stains, and solvent material
Mix: False
Reported Qty: 245 LB
Kilo Qty: 111.132001
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-12-17 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-04-02 00:00:00
Reported Qty: 74 LB
Kilo Qty: 33.5664005

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-04-02 00:00:00
Reported Qty: 42 LB
Kilo Qty: 19.0512003

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-04-02 00:00:00
Reported Qty: 19 LB
Kilo Qty: 8.61840014

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-04-02 00:00:00
Reported Qty: 18 LB
Kilo Qty: 8.16480014

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-12-17 00:00:00
Reported Qty: 10 LB
Kilo Qty: 4.53600007

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-04-02 00:00:00
Reported Qty: 67 LB
Kilo Qty: 30.3912005

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-04-02 00:00:00
Reported Qty: 4 LB
Kilo Qty: 1.81440003
FRED MEYER STORES INC (Continued)

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-12-17 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-04-02 00:00:00
Reported Qty: 8 LB
Kilo Qty: 3.62880006

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-12-17 00:00:00
Reported Qty: 5 LB
Kilo Qty: 2.26800003

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-12-17 00:00:00
Reported Qty: 2 LB
Kilo Qty: 0.90720001

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-12-17 00:00:00
Reported Qty: 10 LB
Kilo Qty: 4.53600007

Facility ID: 92981559
Data Year: 2017
Shipment sent data: 2017-11-03 00:00:00
Reported Qty: 1 LB
Kilo Qty: 0.45360000

Facility ID: 92981559
Data Year: 2017
Shipment sent data: 2017-11-07 00:00:00
Reported Qty: 100 LB
Kilo Qty: 45.3600007

Facility ID: 92981559
Data Year: 2017
Shipment sent data: 2017-11-03 00:00:00
Reported Qty: 10 LB
Kilo Qty: 4.53600007

Facility ID: 92981559
Data Year: 2017
Shipment sent data: 2017-11-03 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 92981559
Data Year: 2017
Shipment sent data: 2017-11-03 00:00:00
FRED MEYER STORES INC (Continued)

Reported Qty: 10 LB
Kilo Qty: 4.53600007

Facility ID: 92981559
Data Year: 2017
Shipment sent data: 2017-08-28 00:00:00
Reported Qty: 1 LB
Kilo Qty: 0.45360000

Facility ID: 92981559
Data Year: 2017
Shipment sent data: 2017-08-28 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Waste Stream Comments:
Facility ID: 92981559
Data Year: 2017
Comments: B-1. Waste weight reflects both weight and empty containers.

Facility Site ID Number: 92981559
EPA ID: WAD988482287
NAICS: 445110
SWC Desc: WT02,WT01,WSC2,WP02,WP01,WPCB
FWC Desc: D001,D002,D003,D005,D007,D023,D024,D025,D009,D010,D011,D016,D008,D018,
           D035,P001,P075,U034,U035,U044,U058,U059,U089,U122,U132,U150,U010,U188,
           U200,U201,U205,U206,U002,U154,U159,U240,U249,U279
Form Comm: Supermarket grocery store with consumer commodities, general hardline
           goods, pharmacy and fuel station.
Data Year: 2016
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 602342738
FRED MEYER STORES INC (Continued)

Business Type: grocery store
Mail Name: Fred Meyer Stores Inc
Mail addr line1: PO Box 42121
Mail city, st, zip: PORTLAND, OR 97055
Mail country: UNITED STATES
Legal org name: Fred Meyer Stores Inc
Legal org type: Private
Legal addr line1: 3800 SE 22nd Ave
Legal city, st, zip: Portland, OR 97242
Legal country: UNITED STATES
Legal phone nbr: 503-232-8844
Legal effective date: 11/07/1980
Land org name: Fred Meyer Stores Inc
Land org type: Private
Land person name: Not reported
Land addr line1: 3800 SE 22nd Ave
Land city, st, zip: Portland, OR 97242
Land country: UNITED STATES
Land phone nbr: 503-232-8844
Operator org name: Fred Meyer Stores Inc
Operator org type: Private
Operator addr line1: 12221 120TH Ave NE
Operator city, st, zip: Kirkland, WA 98034
Operator country: UNITED STATES
Operator phone nbr: 425-820-3200
Operator effective date: 11/07/1980
Site contact name: Cheryl Ferguson
Site contact addr line1: 12221 120th NE
Site Contact City/State/ Zip: KIRKLAND, WA 98034
Site Contact Country: UNITED STATES
Site Contact Phone #: 425-820-3200
Site Contact EMail: cheryl.ferguson@stores.fredmeyer.com
Form Contact NAME: Marcus Young
Form Contact ADDR LINE1: 3800 SE 22nd Ave
Form Contact City, ST,Zip: PORTLAND, OR 97202
Form Contact Country: UNITED STATES
Form Contact Phone #: 503-797-3750
Form Contact EMail: Marcus.young@fredmeyer.com
Gen Status CD: LQG
Monthly Generation: True
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
Transports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:
Facility ID: 92981559
FRED MEYER STORES INC (Continued)

Data Year: 2016
Description: Retail products designated Dangerous Waste, Non-RCRA
Mix: False
Reported Qty: 94 LB
Kilo Qty: 42.6384007
Density No: 0
Density Qty: Not reported

Facility ID: 92981559
Data Year: 2016
Description: Retail photo processing chemicals
Mix: False
Reported Qty: 42 LB
Kilo Qty: 19.0512003
Density No: 0
Density Qty: Not reported

Facility ID: 92981559
Data Year: 2016
Description: Medicine and pills from pharmacy
Mix: False
Reported Qty: 5 LB
Kilo Qty: 2.2680003
Density No: 0
Density Qty: Not reported

Facility ID: 92981559
Data Year: 2016
Description: Empty warfarin containers from pharmacy
Mix: False
Reported Qty: 6 LB
Kilo Qty: 2.7216004
Density No: 0
Density Qty: Not reported

Facility ID: 92981559
Data Year: 2016
Description: Photo chemicals for processing film
Mix: False
Reported Qty: 19 LB
Kilo Qty: 8.61840014
Density No: 0
Density Qty: Not reported

Facility ID: 92981559
Data Year: 2016
Description: Retail products, household bleach, pool chemicals, cleaning products
Mix: False
Reported Qty: 28 LB
Kilo Qty: 12.7008002
Density No: 0
Density Qty: Not reported

Facility ID: 92981559
Data Year: 2016
Description: Retail products, lawn and garden chemicals
Mix: False
<table>
<thead>
<tr>
<th>Facility ID:</th>
<th>92981559</th>
<th>92981559</th>
<th>92981559</th>
<th>92981559</th>
<th>92981559</th>
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</thead>
<tbody>
<tr>
<td>Data Year:</td>
<td>2016</td>
<td>2017</td>
<td>2017</td>
<td>2017</td>
<td>2017</td>
</tr>
<tr>
<td>Description:</td>
<td>Retail paint, stains, and solvent material</td>
<td>Retail Products designated Washington DW Solid Corrosive, Solid Corrosive</td>
<td>Retail aerosol cans</td>
<td>Retail products designated Washington Dangerous Waste Toxic, Non-RCRA</td>
<td>Medicine and pills from pharmacy</td>
</tr>
<tr>
<td>Mix:</td>
<td>False</td>
<td>False</td>
<td>False</td>
<td>False</td>
<td>False</td>
</tr>
<tr>
<td>Reported Qty:</td>
<td>77 LB</td>
<td>5 LB</td>
<td>200 LB</td>
<td>330 LB</td>
<td>10 LB</td>
</tr>
<tr>
<td>Kilo Qty:</td>
<td>34.9272006</td>
<td>2.26800003</td>
<td>90.7200015</td>
<td>149.688002</td>
<td>4.53600007</td>
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<td>0</td>
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<td>0</td>
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<td>Not reported</td>
<td>Not reported</td>
<td>Not reported</td>
<td>Not reported</td>
<td>Not reported</td>
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</table>

FRED MEYER STORES INC (Continued)
FRED MEYER STORES INC (Continued)  

Density Qty: Not reported  
Facility ID: 92981559  
Data Year: 2017  
Description: Retail products, household bleach, pool chemicals, cleaning products  
Mix: False  
Reported Qty: 25 LB  
Kilo Qty: 11.3400001  
Density No: 0  
Density Qty: Not reported

Facility ID: 92981559  
Data Year: 2017  
Description: Retail products, lawn and garden chemicals  
Mix: False  
Reported Qty: 85 LB  
Kilo Qty: 38.5560006  
Density No: 0  
Density Qty: Not reported

Facility ID: 92981559  
Data Year: 2017  
Description: Retail paint, stains, and solvent material  
Mix: False  
Reported Qty: 245 LB  
Kilo Qty: 111.132001  
Density No: 0  
Density Qty: Not reported

Shipments Sent:  
Facility ID: 92981559  
Data Year: 2016  
Shipment sent data: 2016-12-17 00:00:00  
Reported Qty: 20 LB  
Kilo Qty: 9.07200015

Facility ID: 92981559  
Data Year: 2016  
Shipment sent data: 2016-04-02 00:00:00  
Reported Qty: 74 LB  
Kilo Qty: 33.5664005

Facility ID: 92981559  
Data Year: 2016  
Shipment sent data: 2016-04-02 00:00:00  
Reported Qty: 42 LB  
Kilo Qty: 19.0512003

Facility ID: 92981559  
Data Year: 2016  
Shipment sent data: 2016-04-02 00:00:00  
Reported Qty: 19 LB  
Kilo Qty: 8.61840014

Facility ID: 92981559  
Data Year: 2016  
Shipment sent data: 2016-04-02 00:00:00

TC5463995.2s Page 456
<table>
<thead>
<tr>
<th>Facility ID</th>
<th>Data Year</th>
<th>Shipment sent data</th>
<th>Reported Qty</th>
<th>Kilo Qty</th>
</tr>
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<tbody>
<tr>
<td>92981559</td>
<td>2016</td>
<td>2016-12-17 00:00:00</td>
<td>10 LB</td>
<td>4.53600007</td>
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<tr>
<td>92981559</td>
<td>2016</td>
<td>2016-04-02 00:00:00</td>
<td>67 LB</td>
<td>30.3912005</td>
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<tr>
<td>92981559</td>
<td>2016</td>
<td>2016-04-02 00:00:00</td>
<td>4 LB</td>
<td>1.81440003</td>
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<tr>
<td>92981559</td>
<td>2016</td>
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<td>20 LB</td>
<td>9.07200015</td>
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<tr>
<td>92981559</td>
<td>2016</td>
<td>2016-04-02 00:00:00</td>
<td>8 LB</td>
<td>3.62880006</td>
</tr>
<tr>
<td>92981559</td>
<td>2016</td>
<td>2016-12-17 00:00:00</td>
<td>5 LB</td>
<td>2.26800003</td>
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<tr>
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<td>4.53600007</td>
</tr>
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<td>2017</td>
<td>2017-11-03 00:00:00</td>
<td>1 LB</td>
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</table>
### FRED MEYER STORES INC (Continued)

<table>
<thead>
<tr>
<th>Facility ID:</th>
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<td>Data Year:</td>
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</tr>
<tr>
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<tbody>
<tr>
<td>Data Year:</td>
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<tr>
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<tbody>
<tr>
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<td>Kilo Qty:</td>
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<tr>
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Waste Stream Comments:
- Facility ID: 92981559
- Data Year: 2017
- Comments: B-1. Waste weight reflects both weight and empty containers.

---

**47**
SLATER AVE AND 124TH AVE
KIRKLAND, WA 98034

**ALLSITES:**
- Facility Name: NE 120TH STREET ROADWAY EXTENSION
- Facility Id: 7577
- Interaction: 107178
- Interaction 1: 1
- Interaction 2: CONSTSWGP
- Ecology Program: WATQUAL
- Program Data: PARIS
NE 120TH STREET ROADWAY EXTENSION (Continued)

Facility Alt.: NE 120th Street Roadway Extension
Program ID: WAR301607
Date Interaction: 2014-01-30 00:00:00
Date Interaction 3: Construction SW GP
Latitude: 47.707665759999998
Longitude: -122.17403520800001

48
SHERWIN WILLIAMS CO STORE 8002
ESE
12731 NE 124TH ST
KIRKLAND, WA 98034
1642 ft.
0.311 mi.

Relative: ALLSITES:
Higher Facility Name: SHERWIN WILLIAMS CO STORE 8002
Actual: Facility Id: 5205170
140 ft.

Interaction: 91450
Interaction 1: I
Interaction 2: HWOTHER
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Sherwin Williams Co Store 8002
Program ID: WAH000034028
Date Interaction: 2009-12-31 00:00:00
Date Interaction 3: Haz Waste Management Acti
Latitude: 47.706384360000001
Longitude: -122.1702865108

Interaction: 125338
Interaction 1: A
Interaction 2: HWOTHER
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Sherwin Williams Co Store 8002
Program ID: WAH000034028
Date Interaction: 2017-12-31 00:00:00
Date Interaction 3: Haz Waste Management Acti
Latitude: 47.706384360000001
Longitude: -122.1702865108

Interaction: 104551
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Sherwin Williams Co Store 8002
Program ID: WAH000034028
Date Interaction: 2013-04-12 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.706384360000001
Longitude: -122.1702865108

Interaction: 16260

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## SHERWIN WILLIAMS CO STORE 8002 (Continued)

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<tr>
<td>Date Interaction 1</td>
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<td>Date Interaction 2</td>
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<tr>
<td>Registry ID</td>
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</tr>
</tbody>
</table>

### FINDS:

Registry ID: 110037546518

**Environmental Interest/Information System**

Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

**RCRAInfo** is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

**HAZARDOUS WASTE BIENNALE REPORTER**

Click this [hyperlink](http://echo.epa.gov/detailed-facility-report?fid=110037546518) while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

**ECHO:**

Envid: 1011932364
Registry ID: 110037546518
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110037546518

**WA MANIFEST:**

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</tr>
<tr>
<td>EPA ID</td>
<td>WAH000034028</td>
</tr>
<tr>
<td>NAICS</td>
<td>444120</td>
</tr>
<tr>
<td>SWC Desc.</td>
<td>Not reported</td>
</tr>
<tr>
<td>FWC Desc.</td>
<td>Not reported</td>
</tr>
<tr>
<td>Form Comm.</td>
<td>Not reported</td>
</tr>
<tr>
<td>Data Year</td>
<td>2017</td>
</tr>
<tr>
<td>Permit by Rule</td>
<td>False</td>
</tr>
<tr>
<td>Treatment by Generator</td>
<td>False</td>
</tr>
<tr>
<td>Mixed radioactive waste</td>
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<tr>
<td>Importer of hazardous waste</td>
<td>False</td>
</tr>
<tr>
<td>Immediate recycler</td>
<td>False</td>
</tr>
<tr>
<td>Treatment/Storage/Disposal/Recycling Facility</td>
<td>False</td>
</tr>
</tbody>
</table>
SHERWIN WILLIAMS CO STORE 8002 (Continued) 1011932364

Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 409012267
Business Type: Paint Wallpaper & Varnish
Mail Name: The Sherwin-Williams Co
Mail addr line1: 101 W. Prospect Ave
Mail addr line2: 1000 Midland
Mail city, st, zip: Cleveland, OH 44115
Mail country: UNITED STATES
Legal org name: The Sherwin Williams Co
Legal org type: Private
Legal addr line1: 101 W. Prospect Ave
Legal addr line2: 1000 Midland
Legal city, st, zip: Cleveland, OH 44115
Legal country: UNITED STATES
Legal phone nbr: (216)566-1710
Legal effective date: 11/06/1986
Land org name: Not reported
Land org type: Private
Land person name: Nicholas & Susan Le Cleircq
Land addr line1: PO Box 53288
Land city, st, zip: Bellevue, WA 98015
Land country: UNITED STATES
Land phone nbr: (425)453-5354
Operator org name: The Sherwin-Williams Co
Operator org type: Private
Operator addr line1: 101 Prospect Ave NW,
Operator addr line2: 1000 Midland
Operator city, st, zip: Cleveland, OH 44115
Operator country: UNITED STATES
Operator phone nbr: (216)515-1710
Operator effective date: 11/06/1986
Site contact name: Store Manager
Site contact addr line1: 12731 NE 124th St
Site Contact City/State/Zip: Kirkland, WA 98034-8307
Site Contact Country: UNITED STATES
Site Contact Phone #: (425)821-8022
Site Contact EMail: sw8002@sherwin.com
Form Contact NAME: Carol F Doe
Form Contact ADDR LINE1: 101 W. Prospect Ave
### SHERWIN WILLIAMS CO STORE 8002

- **Form Contact ADDR LINE2**: 1000 Midland
- **Form Contact City,ST,Zip**: Cleveland, OH 44115
- **Form Contact Country**: UNITED STATES
- **Form Contact Phone #**: (216)566-1710
- **Form Contact EMail**: carol.f.doe@sherwin.com
- **Gen Status CD**: XQG
- **Monthly Generation**: False
- **Batch Generation**: False
- **One Time Generation**: False
- **Transport Own Waste**: False
- **Transports Other Waste**: False
- **Recycler Onsite**: False
- **Transfer Facility**: False
- **Other Exemption**: Not reported
- **UW Battery Gen**: False
- **Used Oil Transporter**: False
- **Used Oil Transfer Facility**: False
- **Used Oil Processor**: False
- **Used Oil Refiner**: False
- **Used Oil Fuel Marketer Meets Specs**: False
- **Used Oil Fuel Marketer Directs Shipments**: False
- **Used Oil Fuel Marketer Meets Specs**: False

### Waste Streams Generated:
- **Facility ID**: 5205170
- **Data Year**: 2012
- **Description**: Waste paint-related material
- **Mix**: False
- **Reported Qty**: 1500 LB
- **Kilo Qty**: 680.400011
- **Density No**: 0
- **Density Qty**: Not reported

### Shipments Sent:
- **Facility ID**: 5205170
- **Data Year**: 2012
- **Shipment sent data**: 2012-12-18 00:00:00
- **Reported Qty**: 1500 LB
- **Kilo Qty**: 680.400011

### Facility Site ID Number: 5205170
- **EPA ID**: WAH000034028
- **NAICS**: 444120
- **SWC Desc**: Not reported
- **FWC Desc**: D001
- **Form Comm**: No hazardous waste was generated in 2016.
- **Data Year**: 2016
- **Permit by Rule**: False
- **Treatment by Generator**: False
- **Mixed radioactive waste**: False
- **Importer of hazardous waste**: False
- **Immediate recycler**: False
- **Treatment/Storage/Disposal/Recycling Facility**: False
- **Generator of dangerous fuel waste**: False
- **Generator marketing to burner**: False
- **Other marketers (i.e., blender, distributor, etc.)**: False
<table>
<thead>
<tr>
<th><strong>Utility boiler burner:</strong></th>
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<tbody>
<tr>
<td><strong>Industry boiler burner:</strong></td>
<td>False</td>
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<tr>
<td><strong>Industrial Furnace:</strong></td>
<td>False</td>
</tr>
<tr>
<td><strong>Smelter defferal:</strong></td>
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</tr>
<tr>
<td><strong>Universal waste - batteries - generate:</strong></td>
<td>False</td>
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<tr>
<td><strong>Universal waste - thermostats - generate:</strong></td>
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<tr>
<td><strong>Universal waste - mercury - generate:</strong></td>
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<tr>
<td><strong>Universal waste - lamps - generate:</strong></td>
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<td><strong>Universal waste - batteries - accumulate:</strong></td>
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<td><strong>Universal waste - lamps - accumulate:</strong></td>
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<td><strong>Destination Facility for Universal Waste:</strong></td>
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<td><strong>Off-specification used oil burner - utility boiler:</strong></td>
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<tr>
<td><strong>Off-specification used oil burner - industrial boiler:</strong></td>
<td>False</td>
</tr>
<tr>
<td><strong>Off-specification used oil burner - industrial furnace:</strong></td>
<td>False</td>
</tr>
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</table>

**Map ID:** Map ID

**Direction:** Direction

**Distance:** Distance

**Elevation:** Elevation

**Site:** Site

**Database(s):** Database(s)

**EDR ID Number:** EDR ID Number

**EPA ID Number:** EPA ID Number

---

**SHERWIN WILLIAMS CO STORE 8002**

* (Continued) 1011932364

- **Tax Reg #:** 409012267
- **Business Type:** Paint Wallpaper & Varnish
- **Mail Name:** The Sherwin-Williams Co
- **Mail addr line1:** 101 W. Prospect Ave
- **Mail addr line2:** 1000 Midland
- **Mail city,st,zip:** Cleveland, OH 44115
- **Mail country:** UNITED STATES
- **Legal org name:** The Sherwin Williams Co
- **Legal org type:** Private
- **Legal addr line1:** 101 W. Prospect Ave
- **Legal addr line2:** 1000 Midland
- **Legal city,st,zip:** Cleveland, OH 44115
- **Legal country:** UNITED STATES
- **Legal phone nbr:** (216)566-1710
- **Legal effective date:** 11/06/1986
- **Land org name:** Not reported
- **Land org type:** Private
- **Land person name:** Nicholas & Susan Le Cleircq
- **Land addr line1:** PO Box 53288
- **Land city,st,zip:** Bellevue, WA 98015
- **Land country:** UNITED STATES
- **Land phone nbr:** (425)453-5354
- **Operator org name:** The Sherwin-Williams Co
- **Operator org type:** Private
- **Operator addr line1:** 101 Prospect Ave NW,
- **Operator addr line2:** 1000 Midland
- **Operator city,st,zip:** Cleveland, OH 44115
- **Operator country:** UNITED STATES
- **Operator phone nbr:** (216)515-1710
- **Operator effective date:** 11/06/1986
- **Site contact name:** Store Manager
- **Site contact addr line1:** 12731 NE 124th St
- **Site Contact City/State/Zip:** Kirkland, WA 98034-8307
- **Site Contact Country:** UNITED STATES
- **Site Contact Phone #:** (425)821-8022
- **Site Contact EMail:** sw8002@sherwin.com
- **Form Contact NAME:** Carol F Doe
- **Form Contact ADDR LINE1:** 101 W. Prospect Ave
- **Form Contact ADDR LINE2:** 1000 Midland
- **Form Contact City,ST,Zip:** Cleveland, OH 44115
- **Form Contact Country:** UNITED STATES
## SHERWIN WILLIAMS CO STORE 8002 (Continued)

<table>
<thead>
<tr>
<th>Form Contact Phone #:</th>
<th>(216)566-1710</th>
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<tbody>
<tr>
<td>Form Contact Email:</td>
<td><a href="mailto:carol.f.doe@sherwin.com">carol.f.doe@sherwin.com</a></td>
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<tr>
<td>Gen Status CD:</td>
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<td>Monthly Generation:</td>
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<td>Batch Generation:</td>
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<td>One Time Generation:</td>
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</tr>
<tr>
<td>Transport Own Waste:</td>
<td>False</td>
</tr>
<tr>
<td>Tranports Other Waste:</td>
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</tr>
<tr>
<td>Recycler Onsite:</td>
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</tr>
<tr>
<td>Transfer Facility:</td>
<td>False</td>
</tr>
<tr>
<td>Other Exemption:</td>
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<tr>
<td>UW Battery Gen:</td>
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<tr>
<td>Used Oil Transporter:</td>
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<td>Used Oil Transfer Facility:</td>
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<td>Used Oil Fuel Marketer Directs Shipments:</td>
<td>False</td>
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<tr>
<td>Used Oil Fuel Marketer Meets Specs:</td>
<td>False</td>
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</table>

### Waste Streams Generated:

- **Facility ID:** 5205170
- **Data Year:** 2012
- **Description:** Waste paint-related material
- **Mix:** False
- **Reported Qty:** 1500 LB
- **Kilo Qty:** 680.400011
- **Density No:** 0
- **Density Qty:** Not reported

### Shipment Sent:

- **Facility ID:** 5205170
- **Data Year:** 2012
- **Shipment sent data:** 2012-12-18 00:00:00
- **Reported Qty:** 1500 LB
- **Kilo Qty:** 680.400011

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<tr>
<td>NAICS:</td>
<td>444120</td>
</tr>
<tr>
<td>SWC Desc:</td>
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</tr>
<tr>
<td>FWC Desc:</td>
<td>Not reported</td>
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<tr>
<td>Form Comm:</td>
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<td>Data Year:</td>
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<tr>
<td>Treatment by Generator:</td>
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<tr>
<td>Mixed radioactive waste:</td>
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</tr>
<tr>
<td>Importer of hazardous waste:</td>
<td>False</td>
</tr>
<tr>
<td>Immediate recycler:</td>
<td>False</td>
</tr>
<tr>
<td>Treatment/Storage/Disposal/Recycling Facility:</td>
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</tr>
<tr>
<td>Generator of dangerous fuel waste:</td>
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</tr>
<tr>
<td>Generator marketing to burner:</td>
<td>False</td>
</tr>
<tr>
<td>Other marketers (i.e., blender, distributor, etc.):</td>
<td>False</td>
</tr>
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<td>Utility boiler burner:</td>
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<tr>
<td>Industry boiler burner:</td>
<td>False</td>
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<tr>
<td>Industrial Furnace:</td>
<td>False</td>
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SHERWIN WILLIAMS CO STORE 8002 (Continued)  1011932364

Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 409012267
Business Type: Paint Wallpaper & Varnish
Mail Name: The Sherwin-Williams Co
Mail addr line1: 101 Prospect Ave 333 Republic Bldg
Mail city, st, zip: Cleveland, OH 44115
Mail country: UNITED STATES
Legal org name: The Sherwin Williams Co
Legal org type: Private
Legal addr line1: 101 Prospect Ave 333 Republic Bldg
Legal city, st, zip: Cleveland, OH 44115
Legal country: UNITED STATES
Operator org name: The Sherwin-Williams Co
Operator org type: Private
Operator addr line1: 101 Prospect Ave NW, 333 Republic
Operator city, st, zip: Cleveland, OH 44115
Operator country: UNITED STATES
Operator phone nbr: (216)515-1710
Operator effective date: 11/06/1986
Site contact name: Robert KOTHENBEUTEL
Site contact addr line1: 12731 NE 124th St
Site Contact City/State/ Zip: Kirkland, WA 98034-8307
Site Contact Country: UNITED STATES
Site Contact Phone #: (425)821-8022
Site Contact EMail: sw8002@sherwin.com
Form Contact NAME: Shay Roseman
Form Contact ADDR LINE1: 101 Prospect Ave 333 Republic Bldg
Form Contact City, ST, Zip: Cleveland, OH 44115
Form Contact Country: UNITED STATES
Form Contact Phone #: (216)566-1710
Form Contact EMail: shay.roseman@sherwin.com
Gen Status CD: XQG
Monthly Generation: False
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
MAP FINDINGS

SHERWIN WILLIAMS CO STORE 8002  (Continued)  1011932364

Tranports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:
Facility ID: 5205170
Data Year: 2012
Description: Waste paint-related material
Mix: False
Reported Qty: 1500 LB
Kilo Qty: 680.400011
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 5205170
Data Year: 2012
Shipment sent data: 2012-12-18 00:00:00
Reported Qty: 1500 LB
Kilo Qty: 680.400011

Facility Site ID Number: 5205170
EPA ID: WAH000034028
NAICS: 444120
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2009
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferal: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False

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SHERWIN WILLIAMS CO STORE 8002 (Continued)

Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 409012267
Business Type: Paint Wallpaper & Varnish
Mail Name: The Sherwin Williams Co # 8002
Mail addr line1: 101 Prospect Ave 333 Republic Bldg
Mail city, st, zip: Cleveland, OH 44115
Mail country: UNITED STATES
Legal org name: The Sherwin Williams Co
Legal org type: Private
Legal addr line1: 101 Prospect Ave 333 Republic Bldg
Legal city, st, zip: Cleveland, OH 44115
Legal country: UNITED STATES
Legal phone nbr: (216)566-1710
Legal effective date: 11/06/1986
Land org name: Not reported
Land org type: Private
Land person name: Nicholas & Susan Le Cleircq
Land addr line1: PO Box 53288
Land city, st, zip: Bellevue, WA 98015
Land country: UNITED STATES
Land phone nbr: (425)453-5354
Operator org name: Sherwin Williams #8002
Operator org type: Private
Operator addr line1: 12731 NE 124th St
Operator city, st, zip: Kirkland, WA 98034
Operator country: UNITED STATES
Operator phone nbr: (425)821-8022
Operator effective date: 11/06/1986
Site contact name: Shay Roseman
Site contact addr line1: 101 Prospect Ave 333 Republic Bldg
Site Contact City/State/ Zip: Cleveland, OH 44115
Site Contact Country: UNITED STATES
Site Contact Phone #: (216)566-1710
Site Contact EMail: shay.roseman@sherwin.com
Form Contact NAME: Shay Roseman
Form Contact ADDR LINE1: 101 Prospect Ave 333 Republic Bldg
Form Contact City, ST, Zip: Cleveland, OH 44115
Form Contact Country: UNITED STATES
Form Contact Phone #: (216)566-1710
Form Contact EMail: shay.roseman@sherwin.com
Gen Status CD: XQG
Monthly Generation: False
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
Tranports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False

TC5463995.2s Page 467
<table>
<thead>
<tr>
<th>Used Oil Processor:</th>
<th>False</th>
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<tbody>
<tr>
<td>Used Oil Refiner:</td>
<td>False</td>
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<tr>
<td>Used Oil Fuel Marketer Directs Shipments:</td>
<td>False</td>
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<tr>
<td>Used Oil Fuel Marketer Meets Specs:</td>
<td>False</td>
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**Waste Streams Generated:**
- **Facility ID:** 5205170
- **Data Year:** 2012
- **Description:** Waste paint-related material
- **Mix:** False
- **Reported Qty:** 1500 LB
- **Kilo Qty:** 680.400011
- **Density No:** 0
- **Density Qty:** Not reported

**Shipments Sent:**
- **Facility ID:** 5205170
- **Data Year:** 2012
- **Shipment sent data:** 2012-12-18 00:00:00
- **Reported Qty:** 1500 LB
- **Kilo Qty:** 680.400011
- **Facility Site ID Number:** 5205170
- **EPA ID:** WAH000034028
- **NAICS:** 444120
- **SWC Desc:** Not reported
- **FWC Desc:** D001
- **Form Comm:** Not reported
- **Data Year:** 2010
- **Permit by Rule:** False
- **Treatment by Generator:** False
- **Mixed radioactive waste:** False
- **Importer of hazardous waste:** False
- **Immediate recycler:** False
- **Treatment/Storage/Disposal/Recycling Facility:** False
- **Generator of dangerous fuel waste:** False
- **Generator marketing to burner:** False
- **Other marketers (i.e., blender, distributor, etc.):** False
- **Utility boiler burner:** False
- **Industry boiler burner:** False
- **Industrial Furnace:** False
- **Smelter deferral:** False
- **Universal waste - batteries - generate:** False
- **Universal waste - thermostats - generate:** False
- **Universal waste - mercury - generate:** False
- **Universal waste - lamps - generate:** False
- **Universal waste - batteries - accumulate:** False
- **Universal waste - thermostats - accumulate:** False
- **Universal waste - mercury - accumulate:** False
- **Universal waste - lamps - accumulate:** False
- **Destination Facility for Universal Waste:** False
- **Off-specification used oil burner - utility boiler:** False
- **Off-specification used oil burner - industrial boiler:** False
- **Off-specification used oil burner - industrial furnace:** False
- **Tax Reg #:** 409012267

**Notes:**
- False
SHERWIN WILLIAMS CO STORE 8002 (Continued)

Business Type: Paint Wallpaper & Varnish
Mail Name: The Sherwin Williams Co # 8002
Mail addr line1: 101 Prospect Ave 333 Republic Bldg
Mail city,st,zip: Cleveland, OH 44115
Mail country: UNITED STATES
Legal org name: The Sherwin Williams Co
Legal org type: Private
Legal addr line1: 101 Prospect Ave 333 Republic Bldg
Legal city,st,zip: Cleveland, OH 44115
Legal country: UNITED STATES
Legal phone nbr: (216)566-1710
Legal effective date: 11/06/1986
Land org name: Nicholas & Susan Le Cleircq
Land person name: Nicholas & Susan Le Cleircq
Land addr line1: PO Box 53288
Land city,st,zip: Bellevue, WA 98015
Land country: UNITED STATES
Land phone nbr: (425)453-5354
Operator org name: Sherwin Williams #8002
Operator org type: Private
Operator addr line1: 12731 NE 124th St
Operator city, st, zip: Kirkland, WA 98034
Operator country: UNITED STATES
Operator phone nbr: (425)821-8022
Operator effective date: 11/06/1986
Site contact name: Shay Roseman
Site contact addr line1: 101 Prospect Ave 333 Republic Bldg
Site Contact City/State/Zip: Cleveland, OH 44115
Site Contact Country: UNITED STATES
Site Contact Phone #: (216)566-1710
Site Contact EMail: shay.roseman@sherwin.com
Form Contact NAME: Shay Roseman
Form Contact ADDR LINE1: 101 Prospect Ave 333 Republic Bldg
Form Contact City,ST,Zip: Cleveland, OH 44115
Form Contact Country: UNITED STATES
Form Contact Phone #: (216)566-1710
Form Contact EMail: shay.roseman@sherwin.com
Gen Status CD: XQG
Monthly Generation: False
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
Transports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False
Waste Streams Generated:
Facility ID: 5205170
SHERWIN WILLIAMS CO STORE 8002 (Continued) 1011932364

Data Year: 2012
Description: Waste paint-related material
Mix: False
Reported Qty: 1500 LB
Kilo Qty: 680.400011
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 5205170
Data Year: 2012
Shipment sent data: 2012-12-18 00:00:00
Reported Qty: 1500 LB
Kilo Qty: 680.400011

Facility Site ID Number: 5205170
EPA ID: WAH000034028
NAICS: 444120
SWC Desc: Not reported
FWC Desc: D001
Form Comm: Not reported
Data Year: 2012
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter defferal: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 409012267
Business Type: Paint Wallpaper & Varnish
Mail Name: The Sherwin-Williams Co
Mail addr line1: 101 Prospect Ave 333 Republic Bldg
Mail city, st, zip: Cleveland, OH 44115
Mail country: UNITED STATES
Legal org name: The Sherwin Williams Co
Legal org type: Private
Legal addr line1: 101 Prospect Ave 333 Republic Bldg
**SHERWIN WILLIAMS CO STORE 8002** (Continued)

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<th>Elevation</th>
<th>Site</th>
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<td>1011932364</td>
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- **Legal city, st, zip:** Cleveland, OH 44115
- **Legal country:** UNITED STATES
- **Legal phone nbr:** (216)566-1710
- **Legal effective date:** 11/06/1986
- **Land org name:** Not reported
- **Land org type:** Private
- **Land person name:** Nicholas & Susan Le Cleircq
- **Land addr line1:** PO Box 53288
- **Land city, st, zip:** Bellevue, WA 98015
- **Land country:** UNITED STATES
- **Land phone nbr:** (425)453-5354
- **Operator org name:** The Sherwin-Williams Co
- **Operator org type:** Private
- **Operator addr line1:** 101 Prospect Ave NW, 333 Republic Bldg
- **Operator city, st, zip:** Cleveland, OH 44115
- **Operator country:** UNITED STATES
- **Operator phone nbr:** (216)515-1710
- **Operator effective date:** 11/06/1986
- **Site contact name:** Bonnie Curry
- **Site contact addr line1:** 12731 NE 124th St
- **Site Contact City/State/Zip:** Kirkland, WA 98034-8307
- **Site Contact Country:** UNITED STATES
- **Site Contact Phone #:** (425)821-8022
- **Site Contact EMail:** sw8002@sherwin.com
- **Form Contact NAME:** Shay Roseman
- **Form Contact ADDR LINE1:** 101 Prospect Ave 333 Republic Bldg
- **Form Contact City, ST, Zip:** Cleveland, OH 44115
- **Form Contact Country:** UNITED STATES
- **Form Contact Phone #:** (216)566-1710
- **Form Contact EMail:** shay.roseman@sherwin.com
- **Gen Status CD:** MQG
- **Monthly Generation:** False
- **Batch Generation:** True
- **One Time Generation:** False
- **Transport Own Waste:** False
- **Transport Other Waste:** False
- **Recycler Onsite:** False
- **Transfer Facility:** False
- **Other Exemption:** Not reported
- **UW Battery Gen:** False
- **Used Oil Transporter:** False
- **Used Oil Transfer Facility:** False
- **Used Oil Processor:** False
- **Used Oil Refiner:** False
- **Used Oil Fuel Marketer Directs Shipments:** False
- **Used Oil Fuel Marketer Meets Specs:** False

**Waste Streams Generated:**
- **Facility ID:** 5205170
- **Data Year:** 2012
- **Description:** Waste paint-related material
- **Mix:** False
- **Reported Qty:** 1500 LB
- **Kilo Qty:** 680.400011
- **Density No:** 0
- **Density Qty:** Not reported
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<tr>
<th>Site</th>
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<th>Facility Id</th>
<th>Interaction</th>
<th>Ecology Program</th>
<th>Program Data</th>
<th>Facility Alt.</th>
<th>Program ID</th>
<th>Date Interaction</th>
<th>Date Interaction 3</th>
<th>Latitude</th>
<th>Longitude</th>
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<tr>
<td>L49</td>
<td>VERIZON KIRKLAND GARAGE</td>
<td>2555</td>
<td>4798</td>
<td>TOXICS</td>
<td>ISIS</td>
<td>Not reported</td>
<td>12327</td>
<td>1993-04-27 00:00:00</td>
<td>LUST Facility</td>
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<td>-122.173165107</td>
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<td>4802</td>
<td>HAZWASTE</td>
<td>TURBOWASTE</td>
<td>Not reported</td>
<td>WAD988484283</td>
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<td>Hazardous Waste Generator</td>
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<td>4796</td>
<td>A</td>
<td>EPCRA</td>
<td>Not reported</td>
<td>WAD988484283</td>
<td>1989-01-01 00:00:00</td>
<td>Emergency/Haz Chem Rpt TI</td>
<td>47.708144359999999</td>
<td>-122.173165107</td>
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**SHERWIN WILLIAMS CO STORE 8002 (Continued)**

**Shipments Sent:**
- Facility ID: 5205170
- Data Year: 2012
- Shipment sent data: 2012-12-18 00:00:00
- Reported Qty: 1500 LB
- Kilo Qty: 680.400011

**L49**

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<th>Site 1 of 4 in cluster L</th>
<th>ALLSITES: VERIZON KIRKLAND GARAGE</th>
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<tr>
<td>Interaction 2:</td>
<td>LUST</td>
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<tr>
<td>Ecology Program:</td>
<td>TOXICS</td>
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<td>Program Data:</td>
<td>ISIS</td>
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<td>Facility Alt.:</td>
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<td>Program ID:</td>
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<tr>
<td>Date Interaction:</td>
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<td>Date Interaction 3:</td>
<td>LUST Facility</td>
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**SE**

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<td>Interaction:</td>
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</tr>
<tr>
<td>Interaction 2:</td>
<td>HWG</td>
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<td>Ecology Program:</td>
<td>HAZWASTE</td>
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<td>Program Data:</td>
<td>TURBOWASTE</td>
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<td>Hazardous Waste Generator</td>
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**SE**

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<th>ALLSITES: VERIZON KIRKLAND GARAGE</th>
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<tbody>
<tr>
<td>Facility Id:</td>
<td>2555</td>
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<tr>
<td>Interaction:</td>
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<tr>
<td>Interaction 1:</td>
<td>A</td>
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<tr>
<td>Interaction 2:</td>
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<td>Ecology Program:</td>
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<td>Longitude:</td>
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VERIZON KIRKLAND GARAGE (Continued)  S108523659

Interaction: 4803
Interaction 1: I
Interaction 2: HWOTHER
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD988484283
Date Interaction: 2007-12-31 00:00:00
Date Interaction 3: Haz Waste Management Act
Latitude: 47.708144359999999
Longitude: -122.173165107

Interaction: 4797
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD988484283
Date Interaction: 1991-04-01 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.708144359999999
Longitude: -122.173165107

Interaction: 4799
Interaction 1: I
Interaction 2: IRAP
Ecology Program: TOXICS
Program Data: ISIS
Facility Alt.: Verizon Kirkland Garage
Program ID: Not reported
Date Interaction: 1995-08-21 00:00:00
Date Interaction 3: Independent Remedial Actn
Latitude: 47.708144359999999
Longitude: -122.173165107

Interaction: 4800
Interaction 1: A
Interaction 2: UST
Ecology Program: TOXICS
Program Data: UST
Facility Alt.: KIRKLAND GARAGE
Program ID: 12327
Date Interaction: 2000-03-20 00:00:00
Date Interaction 3: Underground Storage Tank
Latitude: 47.708144359999999
Longitude: -122.173165107

Interaction: 4801
Interaction 1: I
Interaction 2: HWOTHER
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
VERIZON KIRKLAND GARAGE (Continued)

Facility Alt.: Not reported
Program ID: WAD988484283
Date Interaction: 2003-12-31 00:00:00
Date Interaction 3: Haz Waste Management Act
Latitude: 47.708144359999999
Longitude: -122.173165107

---

GTE VEHICLE CENTER
12055 SLATER AVE.
KIRKLAND, WA  98034

Site 2 of 4 in cluster L

ICR:
Date Ecology Received Report: 09/08/93
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 93-13
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 05/18/94
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 93-27
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 08/24/94
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Final cleanup report
Site Register Issue: 93-35
County Code: 17
Contact: Not reported
Report Title: Not reported
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<th>GTE VEHICLE CENTER</th>
<th>WA CSCSL NFA</th>
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<td>SE</td>
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<td>KIRKLAND, WA 98034</td>
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<td>1/4-1/2</td>
<td>0.314 mi.</td>
<td>1660 ft.</td>
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<td>Actual:</td>
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<td>0.314 mi.</td>
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<td>Fencing or Other Permanent Access Barriers:</td>
<td>N</td>
<td></td>
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<tr>
<td>Simple Soil CAP:</td>
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<tr>
<td>Engineered CAP:</td>
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<tr>
<td>Engineered Bottom Barriers:</td>
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<td></td>
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<tr>
<td>Immobilization by Stabilization, Solidification, or Encapsulation:</td>
<td>N</td>
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<tr>
<td>Ground Water Extraction and Gradient Control:</td>
<td>N</td>
<td></td>
<td></td>
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<tr>
<td>Vertical Ground Water Barrier:</td>
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<tr>
<td>Impermeable Surface:</td>
<td>N</td>
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<tr>
<td>Restrict Land Use:</td>
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<td></td>
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<tr>
<td>Restrict All Ground Water Use:</td>
<td>N</td>
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<tr>
<td>Prohibit Domestic Ground Water Well Installation:</td>
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<tr>
<td>Prohibit All Soil Disturbance:</td>
<td>N</td>
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</table>

TC5463995.2s  Page 475
**GTE VEHICLE CENTER (Continued)**

Access Barrier: \( N \)

<table>
<thead>
<tr>
<th>Site</th>
<th>Facility ID</th>
<th>Distance</th>
<th>Database(s)</th>
<th>Site Elevation</th>
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<tbody>
<tr>
<td>K53</td>
<td>TOTEM SQUARE LP</td>
<td>47893677</td>
<td>WA ALLSITES</td>
<td>1672 ft. Site 5 of 5 in cluster K</td>
</tr>
<tr>
<td>SSE</td>
<td>12063 124TH AVE NE</td>
<td>12063 124TH AVE NE</td>
<td>KIRKLAND, WA 98034</td>
<td>168 ft.</td>
</tr>
</tbody>
</table>

**RCRA NonGen / NLR:**
- Date form received by agency: 02/20/1998
- Facility name: TOTEM SQUARE LP
- Facility address: 12063 124TH AVE NE
  KIRKLAND, WA 98034
- EPA ID: WA0001022631
- Mailing address: 11901 124TH AVE NE
  KIRKLAND, WA 98034-8112
- Contact: TOTEM SQUARE TOTEM SQUARE
- Contact address: 11901 124TH AVE NE
  KIRKLAND, WA 98034-8112
- Contact country: US
- Contact telephone: 000-000-0000
- Contact email: Not reported
- EPA Region: 10
- Classification: Non-Generator
- Description: Handler: Non-Generators do not presently generate hazardous waste

**Owner/Operator Summary:**
- Owner/operator name: TOTEM SQUARE T
- Owner/operator address: 12063 124TH AVE NE
  KIRKLAND, WA 98034
- Owner/operator country: US
- Owner/operator telephone: 000-000-0000
- Owner/operator email: Not reported
- Owner/operator fax: Not reported
- Owner/operator extension: Not reported
- Legal status: Private
- Owner/Operator Type: Owner
- Owner/Op start date: 05/01/1996
- Owner/Op end date: Not reported
TOTEM SQUARE LP (Continued)

Handler Activities Summary:
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: No
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil burner: No
- Used oil processor: No
- User oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No

Historical Generators:
Date form received by agency: 02/20/1998
Site name: TOTEM SQUARE LP
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:
Registry ID: 110005309077

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1000993276
Registry ID: 110005309077
DFR URL: http://echo.epa.gov/detailed-facility-report?id=110005309077

54 FRED MEYER FUEL CENTER NO. 391 WA ALLSITES S113427205 N/A
WSW 12301 120TH AVE NE 1/4-1/2
0.326 ml. 1720 ft.
KIRKLAND, WA 98034

Relative: Higher
Actual: 201 ft.
Interaction: 104573
Interaction 1: 1
FRED MEYER FUEL CENTER NO. 391 (Continued)

<table>
<thead>
<tr>
<th>Interaction 2:</th>
<th>CONSTSWP</th>
<th>Ecology Program:</th>
<th>WATQUAL</th>
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<tbody>
<tr>
<td>Program Data:</td>
<td>PARIS</td>
<td>Facility Alt.:</td>
<td>Fred Meyer Fuel Center No. 391</td>
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<tr>
<td>Program ID:</td>
<td>WAR126852</td>
<td>Date Interaction:</td>
<td>2013-03-21 00:00:00</td>
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<tr>
<td>Date Interaction 3:</td>
<td>Construction SW GP</td>
<td>Latitude:</td>
<td>47.709002325</td>
</tr>
<tr>
<td>Longitude:</td>
<td>-122.18500430500001</td>
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<td></td>
</tr>
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</table>

| Interaction 1: | A |
| Interaction 2: | UST |
| Ecology Program: | TOXICS |
| Program Data: | UST |
| Facility Alt.: | Fred Meyer Fuel Center No. 391 |
| Program ID: | 620097 |
| Date Interaction: | 2014-01-17 00:00:00 |
| Date Interaction 3: | Underground Storage Tank |
| Latitude: | 47.709002325 |
| Longitude: | -122.18500430500001 |

---

M55

| Relative: | Lower |
| Actual: | 131 ft. |

<table>
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<tr>
<th>Site 1 of 2 in cluster M</th>
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<table>
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<tr>
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<th>Hazardous Sites List</th>
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<tr>
<td>Facility Status:</td>
<td>Cleanup Started</td>
</tr>
<tr>
<td>FSID Number:</td>
<td>85348955</td>
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<tr>
<td>Rank:</td>
<td>4</td>
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<tr>
<td>Region:</td>
<td>NW</td>
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<td>EDR Link ID:</td>
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<td>Region Decode:</td>
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<td>PSI?:</td>
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<td>Surface Water:</td>
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<td>Soil:</td>
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<tr>
<td>Site</td>
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<td>------</td>
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### EXXON 72428 (Continued)  
**Region:** Northwest  
**Lat/Long:** 47.7116487 / -122.18608

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<th>EDR ID Number</th>
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<td>S108022437</td>
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#### LUST:
- **Facility ID:** 85348955  
- **Lust Status Type:** Cleanup Started  
- **Cleanup Site ID:** 10813  
- **Cleanup Site ID:** Upland  
- **Process Type:** Voluntary Cleanup Program  
- **Cleanup Unit Name:** Voluntary Cleanup Program  
- **Lust Status Date:** 07/12/1995  
- **Response Section:** Northwest  
- **Lat/Long:** 47.7116487 / -122.18608

#### VCP:
- **edr_fstat:** WA  
- **edr_fzip:** 98034-4309  
- **edr_fcnty:** KING  
- **edr_zip:** Not reported  
- **Facility ID:** 85348955  
- **VCP Status:** Not reported  
- **VCP:** Yes  
- **Ecology Status:** Not reported  
- **NFA Type:** Not reported  
- **Date NFA:** Not reported  
- **Rank:** 4  
- **Cleanup Site ID:** 10813

- **edr_fstat:** WA  
- **edr_fzip:** 98034-4309  
- **edr_fcnty:** KING  
- **edr_zip:** Not reported  
- **Facility ID:** 85348955  
- **VCP Status:** Not reported  
- **VCP:** Yes  
- **Ecology Status:** Not reported  
- **NFA Type:** Not reported  
- **Date NFA:** Not reported  
- **Rank:** 4  
- **Cleanup Site ID:** 10813

- **edr_fstat:** WA  
- **edr_fzip:** 98034-4309
**EXXON 72428 (Continued)**

edr_fcnty:  KING  
edr_zip:  Not reported  
Facility ID:  85348955  
VCP Status:  Not reported  
VCP:  Yes  
Ecology Status:  Not reported  
NFA Type:  Not reported  
Date NFA:  Not reported  
Rank:  4  
Cleanup Siteid:  10813

edr_fstat:  WA  
edr_fzip:  98034-4309  
edr_fcnty:  KING  
edr_zip:  Not reported  
Facility ID:  85348955  
VCP Status:  Not reported  
VCP:  Yes  
Ecology Status:  Not reported  
NFA Type:  Not reported  
Date NFA:  Not reported  
Rank:  4  
Cleanup Siteid:  10813

**ALLSITES:**

Facility Name:  TOSCO 0313030102  
Facility Id:  85348955

Interaction:  68407  
Interaction 1:  A  
Interaction 2:  UST  
Ecology Program:  TOXICS  
Program Data:  UST  
Facility Alt.:  PLATINUM ENERGY  
Program ID:  9547  
Date Interaction:  1985-01-01 00:00:00  
Date Interaction 3:  Underground Storage Tank  
Latitude:  47.71164378099999  
Longitude:  -122.18606287999999

Interaction:  68408  
Interaction 1:  A  
Interaction 2:  LUST
EXXON 72428 (Continued)

Facility Name: BP SERVICE STATION 03130
Facility Id: 44568374

Interaction: 45180
Interaction 1: A
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD988488565
Date Interaction: 2005-12-31 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.711274361000001
Longitude: -122.18650510499999

Facility Name: TURBOWASTE
Facility Alt.: Not reported
Program ID: 9547
Date Interaction: 1991-10-22 00:00:00
Date Interaction 3: LUST Facility
Latitude: 47.711643780999999
Longitude: -122.18606287999999

Facility Name: TURBOWASTE
Facility Alt.: Not reported
Program ID: 45180
Date Interaction: 1991-10-22 00:00:00
Date Interaction 3: LUST Facility
Latitude: 47.711643780999999
Longitude: -122.18606287999999

Facility Name: TURBOWASTE
Facility Alt.: Not reported
Program ID: 45181
Date Interaction: 1991-10-22 00:00:00
Date Interaction 3: LUST Facility
Latitude: 47.711643780999999
Longitude: -122.18606287999999

Facility Name: TURBOWASTE
Facility Alt.: Not reported
Program ID: 45180
Date Interaction: 1991-10-22 00:00:00
Date Interaction 3: LUST Facility
Latitude: 47.711643780999999
Longitude: -122.18606287999999

Facility Name: TURBOWASTE
Facility Alt.: Not reported
Program ID: 45181
Date Interaction: 1991-10-22 00:00:00
Date Interaction 3: LUST Facility
Latitude: 47.711643780999999
Longitude: -122.18606287999999

Facility Name: TURBOWASTE
Facility Alt.: Not reported
Program ID: 45180
Date Interaction: 1991-10-22 00:00:00
Date Interaction 3: LUST Facility
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Facility Name: TURBOWASTE
Facility Alt.: Not reported
Program ID: 45181
Date Interaction: 1991-10-22 00:00:00
Date Interaction 3: LUST Facility
Latitude: 47.711643780999999
Longitude: -122.18606287999999

Facility Name: TURBOWASTE
Facility Alt.: Not reported
Program ID: 45180
Date Interaction: 1991-10-22 00:00:00
Date Interaction 3: LUST Facility
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Facility Alt.: Not reported
Program ID: 45181
Date Interaction: 1991-10-22 00:00:00
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Facility Alt.: Not reported
Program ID: 45180
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Facility Name: TURBOWASTE
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Program ID: 45181
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Date Interaction 3: LUST Facility
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Date Interaction 3: LUST Facility
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Program ID: 45181
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Facility Alt.: Not reported
Program ID: 45180
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Facility Name: TURBOWASTE
Facility Alt.: Not reported
Program ID: 45181
Date Interaction: 1991-10-22 00:00:00
Date Interaction 3: LUST Facility
Latitude: 47.711643780999999
Longitude: -122.18606287999999

Facility Name: TURBOWASTE
Facility Alt.: Not reported
Program ID: 45180
Date Interaction: 1991-10-22 00:00:00
Date Interaction 3: LUST Facility
Latitude: 47.711643780999999
Longitude: -122.18606287999999
**EXXON 72428 (Continued)**

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<th>Facility Alt.:</th>
<th>ConocoPhillips 30102</th>
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<tr>
<td>Program ID:</td>
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<tr>
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<td>2007-12-31 00:00:00</td>
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<td>Date Interaction 3:</td>
<td>Haz Waste Management Acti</td>
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<td>HAZWASTE</td>
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<tr>
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</table>

**SPILLS:**

<p>| Facility ID:    | 607144          |
| Medium:         | Not reported    |
| Material Desc:  | PETROLEUM · GASOLINE |
| Material Qty:   | Not reported    |
| Material Units: | GALLON          |
| Date Received:  | 07/21/2008      |
| Contact Name:   | BOE             |
| Incident Date:  | Not reported    |
| Incident Category Type: | Not reported |
| Incident Category: | Not reported |
| Latitude:       | Not reported    |
| Longitude:      | Not reported    |
| Source Type:    | Not reported    |
| Source:         | Not reported    |
| Vessel Facility Name2: | Not reported |
| Recovered Quantity: | Not reported |
| Resp Party Contact: | Not reported |
| Cause:          | Not reported    |
| Cause Type:     | Not reported    |
| Resp Party Name: | Not reported    |</p>
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<th>Date Ecology Received Report:</th>
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<th>Media Contaminated:</th>
<th>Waste Management:</th>
<th>Region:</th>
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<td>Interim cleanup report</td>
<td>05/07/99</td>
<td>Petroleum products</td>
<td>Groundwater, Soil</td>
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<td>05/07/99</td>
<td>Petroleum products</td>
<td>Groundwater, Soil</td>
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<td>North Western</td>
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<td>Not reported</td>
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<td>04/28/99</td>
<td>Petroleum products</td>
<td>Groundwater, Soil</td>
<td>Tank</td>
<td>North Western</td>
<td></td>
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<td>Not reported</td>
<td>Not reported</td>
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<tr>
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<td>12/17/99</td>
<td>Petroleum products</td>
<td>Groundwater, Soil</td>
<td>Tank</td>
<td>North Western</td>
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EXXON #7 2428 (Continued)

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EXXON #7 2428 (Continued)

Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-43
County Code: 17
Contact: Not reported
Report Title: Second Quarter Ground Water Monitoring - June 2001

Date Ecology Received Report: 07/25/01
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-39
County Code: 17
Contact: Not reported
Report Title: Quarterly Ground Water Monitoring Report

Date Ecology Received Report: 09/11/00
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-42
County Code: 17
Contact: Not reported
Report Title: Soil Sampling - August 2000

Date Ecology Received Report: 04/09/01
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-37
County Code: 17
Contact: Not reported
Report Title: Ground Water Sampling - December 2000

57 QUALITY FINISHING INC WA ALLSITES S121970821
East 1/4-1/2 0.342 mi. QUALITY FINISHING INC 96137858
12706 NE 124TH ST AIRQUAL N/A
KIRKLAND, WA 98034 AIRSIS
1806 ft.

ALLSITES:
Facility Name: QUALITY FINISHING INC
Facility Id: 96137858

Interaction: 80448
Interaction 1: A
Interaction 2: AQLA
Ecology Program: AIRQUAL
Program Data: AIRSIS
Facility Alt.: Quality Finishing Inc
Program ID: C_033_16097
Date Interaction: 2007-01-01 00:00:00

TC5463995.2s Page 488
QUALITY FINISHING INC (Continued) S121970821

Date Interaction 3: Air Qual Local Authority
Latitude: 47.711625818999998
Longitude: -122.1707068

Interaction: 74632
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD089942999
Date Interaction: 1981-06-11 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.711625818999998
Longitude: -122.1707068

58 TOTEM LAKE AUTO SVC CTR WA ALLSITES 1000659762
SSE 11902 124TH AVE NE RCRA NonGen / NLR WAD988494381
1/4-1/2 KIRKLAND, WA 98034 FINDS
0.345 mi. ECHO
1822 ft.

Relative: ALLSITES: TOTEM LAKE AUTO SVC CTR
Higher Facility Name: 3564939
Actual: Interaction: 12948
174 ft. Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD988494381
Date Interaction: 1991-09-30 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.70969436099997
Longitude: -122.182935106

RCRA NonGen / NLR:
Date form received by agency: 09/01/1993
Facility name: TOTEM LAKE AUTO SVC CTR
Site name: BUCHAN BROS INVESTMENT PROPERT
Facility address: 11902 124TH AVE NE
KIRKLAND, WA 98034
EPA ID: WAD988494381
Mailing address: 11555 NORTHUP WAY
BELLEVUE, WA 98004
Contact: GLORIA SAUNDERSON
Contact address: Not reported
Contact country: US
Contact telephone: 206-827-9499
Contact email: Not reported
EPA Region: 10

TC5463995.2s Page 489
TOTEM LAKE AUTO SVC CTR (Continued) 1000659762

Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: SEE PAPER COPY
Owner/operator address: 11902 124TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: Not reported
Owner/operator telephone: 000-000-0000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: TOTEM LAKE AUTO SVC CTR
Owner/operator address: 11902 124TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 000-000-0000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 09/30/1991
Site name: TOTEM LAKE AUTO SVC CTR
Classification: Not a generator, verified

Date form received by agency: 09/30/1991
Site name: TOTEM LAKE AUTO SVC CTR
Classification: Not a generator, verified
**TOTEM LAKE AUTO SVC CTR (Continued)**

Violation Status: No violations found

FINDS:

Registry ID: 110005366914

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

**Click this hyperlink** while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

**ECHO:**

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### Site 1 of 5 in cluster N

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</table>

| Interaction: | 37067 |
| Interaction 1: | I |
| Interaction 2: | HWG |
| Ecology Program: | HAZWASTE |
| Program Data: | TURBOWASTE |
| Facility Alt.: | Not reported |
| Program ID: | WAD115165110 |
| Date Interaction: | 1986-12-09 00:00:00 |
| Date Interaction 3: | Hazardous Waste Generator |
| Latitude: | 47.709454360999999 |
| Longitude: | -122.182365105 |

**RCRA NonGen / NLR:**

Date form received by agency: 03/20/2007

<p>| Facility name: | DAVES AUTO PAINTING INC |
| Facility address: | 11947 124TH AVE NE KIRKLAND, WA 98034 |
| EPA ID: | WAD115165110 |
| Contact: | TIM WHITAKER |
| Contact address: | 11947 124TH AVE NE KIRKLAND, WA 98034 |
| Contact country: | US |
| Contact telephone: | 425-823-8255 |</p>
<table>
<thead>
<tr>
<th>Owner/Operator Summary:</th>
<th>DAVES AUTO PAINTING INC (Continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner/operator name:</td>
<td>DAVES AUTO PAINTING DENTS</td>
</tr>
<tr>
<td>Owner/operator address:</td>
<td>11947 124TH AVE NE KIRKLAND, WA 98034</td>
</tr>
<tr>
<td>Owner/operator country:</td>
<td>US</td>
</tr>
<tr>
<td>Owner/operator telephone:</td>
<td>425-486-3703</td>
</tr>
<tr>
<td>Owner/operator email:</td>
<td>Not reported</td>
</tr>
<tr>
<td>Owner/operator fax:</td>
<td>Not reported</td>
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<tr>
<td>Owner/operator extension:</td>
<td>Not reported</td>
</tr>
<tr>
<td>Legal status:</td>
<td>Private</td>
</tr>
<tr>
<td>Owner/Operator Type:</td>
<td>Operator</td>
</tr>
<tr>
<td>Owner/Op start date:</td>
<td>04/15/1983</td>
</tr>
<tr>
<td>Owner/Op end date:</td>
<td>Not reported</td>
</tr>
</tbody>
</table>

| Owner/operator name:   | DAVES AUTO PAINTING DENTS            |
| Owner/operator address:| 11947 124TH AVE NE KIRKLAND, WA 98034|
| Owner/operator country:| US                                   |
| Owner/operator telephone:| 425-486-3703                         |
| Owner/operator email:  | Not reported                         |
| Owner/operator fax:    | Not reported                         |
| Owner/operator extension:| Not reported            |
| Legal status:          | Private                              |
| Owner/Operator Type:   | Operator                             |
| Owner/Op start date:   | 04/15/1983                           |
| Owner/Op end date:     | Not reported                         |

| Owner/operator name:   | DAVE WHITAKER                        |
| Owner/operator address:| 11947 124TH AVE NE KIRKLAND, WA 98034|
| Owner/operator country:| US                                   |
| Owner/operator telephone:| Not reported                         |
| Owner/operator email:  | Not reported                         |
| Owner/operator fax:    | Not reported                         |
| Owner/operator extension:| Not reported            |
| Legal status:          | Private                              |
| Owner/Operator Type:   | Operator                             |
| Owner/Op start date:   | 04/15/1983                           |
| Owner/Op end date:     | Not reported                         |

| Owner/operator name:   | CAL AMERICAN REAL ESTATE             |
| Owner/operator address:| 2029 CENTURY PARK E STE 1550 LOS ANGELES, CA 90067|
| Owner/operator country:| US                                   |
| Owner/operator telephone:| 310-277-6318                         |
| Owner/operator email:  | Not reported                         |
| Owner/operator fax:    | Not reported                         |
| Owner/operator extension:| Not reported            |
| Legal status:          | Private                              |
| Owner/Operator Type:   | Owner                                |
| Owner/Op start date:   | Not reported                         |

Contact email: TIMOTHYJWHITAKER@HOTMAIL.NET
EPA Region: 10
Land type: Private
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste
DAVES AUTO PAINTING INC  (Continued)

Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 03/20/2007
Site name: DAVES AUTO PAINTING INC
Classification: Not a generator, verified

Date form received by agency: 12/31/2005
Site name: DAVES AUTO PAINTING INC
Classification: Not a generator, verified

Date form received by agency: 12/31/2003
Site name: DAVES AUTO PAINTING INC
Classification: Not a generator, verified

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 01/29/1998
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

FINDS:
Registry ID: 110005330793

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport,
DAVES AUTO PAINTING INC (Continued)

and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA programstaff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1000199465
Registry ID: 110005330793
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005330793

WA MANIFEST:
Facility Site ID Number: 30929928
EPA ID: WAD115165110
NAICS: 811121
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: Not reported
Permit by Rule: FALSE
Treatment by Generator: FALSE
Mixed radioactive waste: FALSE
Importer of hazardous waste: FALSE
Immediate recycler: FALSE
Treatment/Storage/Disposal/Recycling Facility: FALSE
Generator of dangerous fuel waste: FALSE
Generator marketing to burner: FALSE
Other marketers (i.e., blender, distributor, etc.): FALSE
Utility boiler burner: FALSE
Industry boiler burner: FALSE
Industrial Furnace: FALSE
Smelter deferral: FALSE
Universal waste - batteries - generate: FALSE
Universal waste - thermostats - generate: FALSE
Universal waste - mercury - generate: FALSE
Universal waste - lamps - generate: FALSE
Universal waste - batteries - accumulate: FALSE
Universal waste - thermostats - accumulate: FALSE
Universal waste - mercury - accumulate: FALSE
Universal waste - lamps - accumulate: FALSE
Destination Facility for Universal Waste: FALSE
Off-specification used oil burner - utility boiler: FALSE
Off-specification used oil burner - industrial boiler: FALSE
Off-specification used oil burner - industrial furnace: FALSE
Tax Reg #: 602302499
Business Type: Not reported
Mail Name: Daves Auto Painting Inc
Mail addr line1: 11947 124TH AVE NE
Mail city, st, zip: KIRKLAND, WA 98034-8112
Mail country: UNITED STATES
Legal org name: Daves Auto Painting Dents
Legal org type: Private
DAVES AUTO PAINTING INC (Continued)

Legal addr line1: 11947 124TH AVE NE
Legal city, st, zip: KIRKLAND, WA 98034-8112
Legal country: UNITED STATES
Legal phone nbr: (425)486-3703
Legal effective date: 04/15/1983
Land org name: Cal American Real Estate
Land org type: Private
Land person name: Not reported
Land addr line1: 2029 Century Park E Ste 1550
Land city, st, zip: LOS ANGELES, CA 90067
Land country: UNITED STATES
Land phone nbr: (310)277-6318
Operator org name: Dave’s Auto Painting
Operator org type: Private
Operator addr line1: 11947 124th Ave NE
Operator city, st, zip: KIRKLAND, WA 98034
Operator country: UNITED STATES
Operator phone nbr: (425)823-8255
Operator effective date: 04/15/1983
Site contact name: Dave Whitaker
Site contact addr line1: 11947 124th Ave NE
Site Contact City/State/Zip: KIRKLAND, WA 98034
Site Contact Country: UNITED STATES
Site Contact Phone #: (425)823-8255
Site Contact EMail: Not reported
Form Contact NAME: Tim Whitaker
Form Contact ADDR LINE1: 11947 124th Ave NE
Form Contact City,ST,Zip: KIRKLAND, WA 98034
Form Contact Country: UNITED STATES
Form Contact Phone #: (425)823-8255
Form Contact EMail: timothyjwhitaker@hotmail.net
Gen Status CD: SQG
Monthly Generation: FALSE
Batch Generation: FALSE
One Time Generation: FALSE
Transport Own Waste: FALSE
Transport Other Waste: FALSE
Recycler Onsite: FALSE
Transfer Facility: FALSE
Other Exemption: Not reported
UW Battery Gen: FALSE
Used Oil Transporter: FALSE
Used Oil Transfer Facility: FALSE
Used Oil Processor: FALSE
Used Oil Refiner: FALSE
Used Oil Fuel Marketer Directs Shipments: FALSE
Used Oil Fuel Marketer Meets Specs: FALSE

Facility Site ID Number: 30929928
EPA ID: WAD115165110
NAICS: 811121
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: Not reported
Permit by Rule: No
DAVES AUTO PAINTING INC (Continued) 1000199465

Treatment by Generator: No
Mixed radioactive waste: No
Importer of hazardous waste: No
Immediate recycler: No
Treatment/Storage/Disposal/Recycling Facility: No
Generator of dangerous fuel waste: No
Generator marketing to burner: No
Other marketers (i.e., blender, distributor, etc.): No
Utility boiler burner: No
Industry boiler burner: No
Industrial Furnace: No
Smelter deferral: No
Universal waste - batteries - generate: No
Universal waste - thermostats - generate: No
Universal waste - mercury - generate: No
Universal waste - lamps - generate: No
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Universal waste - thermostats - accumulate: No
Universal waste - mercury - accumulate: No
Universal waste - lamps - accumulate: No
Destination Facility for Universal Waste: No
Off-specification used oil burner - utility boiler: No
Off-specification used oil burner - industrial boiler: No
Off-specification used oil burner - industrial furnace: No
Tax Reg #: 602302499
Business Type: Not reported
Mail Name: Daves Auto Painting Inc
Mail addr line1: 11947 124TH AVE NE
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Mail country: UNITED STATES
Legal org name: Daves Auto Painting Dents
Legal org type: Private
Legal addr line1: 11947 124TH AVE NE
Legal city, st, zip: KIRKLAND, WA 98034-8112
Legal country: UNITED STATES
Legal phone nbr: (425)486-3703
Legal effective date: 04/15/1983
Land org name: Cal American Real Estate
Land org type: Private
Land person name: Not reported
Land addr line1: 2029 Century Park E Ste 1550
Land city, st, zip: LOS ANGELES, CA 90067
Land country: UNITED STATES
Land phone nbr: (310)277-6318
Operator org name: Dave’s Auto Painting
Operator org type: Private
Operator addr line1: 11947 124th Ave NE
Operator city, st, zip: KIRKLAND, WA 98034
Operator country: UNITED STATES
Operator phone nbr: (425)823-8255
Operator effective date: 04/15/1983
Site contact name: Dave Whitaker
Site contact addr line1: 11947 124th Ave NE
Site Contact City/State/ Zip: KIRKLAND, WA 98034
Site Contact Country: UNITED STATES
Site Contact Phone #: (425)823-8255
Site Contact EMail: Not reported
DAVES AUTO PAINTING INC (Continued)

Form Contact NAME: Tim Whitaker
Form Contact ADDR LINE1: 11947 124th Ave NE
Form Contact City,ST,Zip: KIRKLAND, WA 98034
Form Contact Country: UNITED STATES
Form Contact Phone #: (425)823-8255
Form Contact EMail: timothyjwhitaker@hotmail.net
Gen Status CD: SQG
Monthly Generation: No
Batch Generation: No
One Time Generation: No
Transport Own Waste: No
Transports Other Waste: No
Recycler Onsite: No
Transfer Facility: No
Other Exemption: Not reported
UW Battery Gen: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Fuel Marketer Directs Shipments: No
Used Oil Fuel Marketer Meets Specs: No

60 12528 NE 129TH COURT US BROWNFIELDS 1023618534
NNE 12528 NE 129TH COURT APT. C9 N/A
1/4-1/2 KIRKLAND, WA 98034
0.352 mi.
1858 ft.
Relative: US BROWNFIELDS:
Higher Property Name: 12528 NE 129TH COURT
Actual: Recipient Name: Public Health Seattle & King County
279 ft. Grant Type: Assessment
Parcel size: 1
Latitude: 47.7163
Longitude: -122.173373
HCM Label: Not reported
Map Scale: Not reported
Point of Reference: Not reported
Highlights: Not reported
Datum: Not reported
Acres Property ID: 16066
IC Data Access: Not reported
Start Date: Not reported
Redev Completion Date: Not reported
Completed Date: Not reported
Acres Cleaned Up: Not reported
Cleanup Funding: Not reported
Cleanup Funding Source: Not reported
Assessment Funding: Not reported
Assessment Funding Source: Not reported
Redevelopment Funding: Not reported
Redev. Funding Source: Not reported
Redev. Funding Entity Name: Not reported
Redevelopment Start Date: Not reported
Assessment Funding Entity: Not reported
### 12528 NE 129TH COURT (Continued)

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<tr>
<td>Cooperative Agreement Number:</td>
<td>97093401</td>
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<td>Start Date:</td>
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<td>Ownership Entity:</td>
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<tr>
<td>Completion Date:</td>
<td>Not reported</td>
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<tr>
<td>Current Owner:</td>
<td>Marvin F. Poer and Company</td>
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<td>Did Owner Change:</td>
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<td>Cleanup Required:</td>
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<td>Video Available:</td>
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<td>Photo Available:</td>
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<tr>
<td>Institutional Controls Required:</td>
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<td>IC Category Proprietary Controls:</td>
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<td>IC Cat. Gov. Controls:</td>
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<td>IC Cat. Enforcement Permit Tools:</td>
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<td>IC in place date:</td>
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<td>IC in place:</td>
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<tr>
<td>State/tribal program date:</td>
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<td>Air contaminated:</td>
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<td>Asbestos found:</td>
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<td>Asbestos cleaned:</td>
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<td>Controlled substance found:</td>
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<td>Controlled substance cleaned:</td>
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<tr>
<td>Drinking water affected:</td>
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<tr>
<td>Drinking water cleaned:</td>
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<td>Groundwater affected:</td>
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<td>Groundwater cleaned:</td>
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<td>Lead contaminant found:</td>
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<td>Lead cleaned up:</td>
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<tr>
<td>Unknown media affected:</td>
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<tr>
<td>Other cleaned up:</td>
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<tr>
<td>Other metals found:</td>
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<td>Other contaminants found:</td>
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<td>PAHs cleaned up:</td>
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<td>Sediments found:</td>
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<td>Surface water cleaned:</td>
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<td>VOCs found:</td>
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<td>VOCs cleaned:</td>
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<tr>
<td>Cleanup other description:</td>
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<tr>
<td>Num. of cleanup and re-dev. jobs:</td>
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**EPA ID Number**: 1023618534

**EDR ID Number**: 12528 NE 129TH COURT (Continued)
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<thead>
<tr>
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<tbody>
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<td>196</td>
</tr>
<tr>
<td>Below Poverty Percent</td>
<td>5.4%</td>
</tr>
<tr>
<td>Meidan Income</td>
<td>6048</td>
</tr>
<tr>
<td>Meidan Income Number</td>
<td>669</td>
</tr>
<tr>
<td>Meidan Income Percent</td>
<td>18.3%</td>
</tr>
<tr>
<td>Vacant Housing Number</td>
<td>119</td>
</tr>
<tr>
<td>Vacant Housing Percent</td>
<td>6.8%</td>
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<tr>
<td>Unemployed Number</td>
<td>201</td>
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<tr>
<td>Unemployed Percent</td>
<td>5.5%</td>
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<tr>
<td>Map ID</td>
<td>Direction</td>
</tr>
<tr>
<td>--------</td>
<td>-----------</td>
</tr>
<tr>
<td>N61</td>
<td>SSE</td>
</tr>
</tbody>
</table>

**Facility Name:** N GRAVERS INC  
**Facility Id:** 19127197

| Interaction | 30921 |
| Interaction 1 | | |
| Interaction 2 | HWG |
| Ecology Program | HAZWASTE |
| Program Data | TURBOWASTE |
| Facility Alt | Not reported |
| Program ID | WAH000018127 |
| Date Interaction | 2002-04-23 00:00:00 |
| Date Interaction 3 | Hazardous Waste Generator |
| Latitude | 47.70556737500001 |
| Longitude | -122.17732916200001 |

**RCRA NonGen / NLR:**  
Date form received by agency: 07/23/2003  
Facility name: N GRAVERS INC  
Facility address: 11943 124TH AVE NE  
KIRKLAND, WA 98034  
EPA ID: WAH000018127  
Mailing address: 15100 SE 38TH ST  
STE 825  
BELLEVUE, WA 98006-1765  
Contact: KEVIN KAYSER  
Contact address: 15100 SE 38TH ST STE 825  
BELLEVUE, WA 98006-1765  
Contact country: US  
Contact telephone: 425-471-4871  
Contact email: Not reported  
EPA Region: 10  
Land type: Private  
Classification: Non-Generator  
Description: Handler: Non-Generators do not presently generate hazardous waste

**Owner/Operator Summary:**  
Owner/operator name: TOTEM SQUARE PARTNERS  
Owner/operator address: 2029 CENTURY PARK E #1550  
LOS ANGELES, CA 90067  
Owner/operator country: US  
Owner/operator telephone: 310-277-1648  
Owner/operator email: Not reported  
Owner/operator fax: Not reported  
Owner/operator extension: Not reported  
Legal status: Private  
Owner/Operator Type: Owner  
Owner/Op start date: Not reported  
Owner/Op end date: Not reported  
Owner/operator name: TOTEM SQUARE PARTNERS
N GRAVERS INC (Continued)

Owner/operator address: 2029 CENTURY PARK E #1550
LOS ANGELES, CA 90067
Owner/operator country: US
Owner/operator telephone: 310-277-1648
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 07/23/2003
Site name: N GRAVERS INC
Classification: Not a generator, verified

Date form received by agency: 04/23/2002
Site name: N GRAVERS INC
Classification: Not a generator, verified
Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 12/18/2003
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

FINDS:
Registry ID: 110012557349

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air

EDR ID Number: 1005445539
N GRAVERS INC (Continued)

Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1005445539
Registry ID: 110012557349
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110012557349

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>62</td>
<td>KIRKLAND PONTIAC</td>
<td>1000659495</td>
</tr>
<tr>
<td>WSW</td>
<td>12335 120TH AVE NE</td>
<td>WAD988491676</td>
</tr>
<tr>
<td>1/4-1/2</td>
<td>KIRKLAND, WA 98034</td>
<td>FINDS</td>
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<tr>
<td>0.355 mi.</td>
<td>ALLSITES:</td>
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<td>1877 ft.</td>
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<tr>
<td>Relative: Higher Actual: 198 ft.</td>
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</tbody>
</table>

Interaction: 62318
Interaction 1: I
Interaction 2: HWOTHER
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD988491676
Date Interaction: 2003-12-31 00:00:00
Date Interaction 3: Haz Waste Management Act
Latitute: 47.708084360999997
Longitude: -122.182755105

Interaction: 62316
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD988491676
Date Interaction: 1991-07-30 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitute: 47.708084360999997
Longitude: -122.182755105

Interaction: 62317
Interaction 1: I
**KIRKLAND PONTIAC** (Continued)

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**RCRA NonGen / NLR:**
- Date form received by agency: 02/28/2005
- Facility name: KIRKLAND PONTIAC
- Facility address: 12335 120TH AVE NE
- KIRKLAND, WA 98034
- EPA ID: WAD988491676
- Contact: KIRKLAND PONTIA
- Contact address: 12335 120TH AVE NE
- KIRKLAND, WA 98034-6909
- Contact country: US
- Contact telephone: 000-000-0000
- Contact email: Not reported
- EPA Region: 10
- Land type: Private
- Classification: Non-Generator
- Description: Handler: Non-Generators do not presently generate hazardous waste

**Owner/Operator Summary:**
- Owner/operator name: BILL C
- Owner/operator address: 12335 120TH AVE NE
- KIRKLAND, WA 98034
- Owner/operator country: US
- Owner/operator telephone: 425-821-7162
- Owner/operator email: Not reported
- Owner/operator fax: Not reported
- Owner/operator extension: Not reported
- Legal status: Private
- Owner/Operator Type: Operator
- Owner/Op start date: 02/28/1997
- Owner/Op end date: Not reported

- Owner/operator name: AUTONATION KIRK A
- Owner/operator address: 12335 120TH AVE NE
- KIRKLAND, WA 98034
- Owner/operator country: US
- Owner/operator telephone: 425-821-6800
- Owner/operator email: Not reported
- Owner/operator fax: Not reported
- Owner/operator extension: Not reported
- Legal status: Private
- Owner/Operator Type: Owner
- Owner/Op start date: 06/01/2000
- Owner/Op end date: Not reported
KIRKLAND PONTIAC (Continued)

Handler Activities Summary:
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: No
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil fuel burner: No
- Used oil processor: No
- User oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No

Historical Generators:
- Date form received by agency: 12/31/2003
  - Site name: KIRKLAND PONTIAC
  - Classification: Not a generator, verified

- Date form received by agency: 02/24/1997
  - Site name: KIRKLAND PONTIAC
  - Classification: Not a generator, verified

Evaluation Action Summary:
- Evaluation date: 01/29/1998
- Evaluation: COMPLIANCE ASSISTANCE VISIT
- Area of violation: Not reported
- Date achieved compliance: Not reported
- Evaluation lead agency: State

FINDS:

Registry ID: 110005364747

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER
### KIRKLAND PONTIAC (Continued)

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
- EnvId: 1000659495
- Registry ID: 110005364747
- DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005364747

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ALLSITES:
- Facility Name: US CLEANERS
- Facility Id: 65991728
- Interaction: 57512
- Interaction 1: I
- Interaction 2: HWG
- Ecology Program: HAZWASTE
- Program Data: TURBOWASTE
- Facility Alt.: Not reported
- Program ID: WAD988505608
- Date Interaction: 1992-04-20 00:00:00
- Date Interaction 3: Hazardous Waste Generator
- Latitude: 47.712104361000002
- Longitude: -122.18654510499999

RCRA NonGen / NLR:
- Date form received by agency: 03/04/1996
- Facility name: US CLEANERS
- Facility address: 12547 116TH AVE NE KIRKLAND, WA 98033
- EPA ID: WAD988505608
- Contact: US CLEANERS US CLEANERS
- Contact address: 12547 116TH AVE NE KIRKLAND, WA 98034-4310
- Contact country: US
- Contact telephone: 000-000-0000
- Contact email: Not reported
- EPA Region: 10
- Classification: Non-Generator
- Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
- Owner/operator name: STEVE K
- Owner/operator address: 12547 116TH AVE NE KIRKLAND, WA 98034
- Owner/operator country: US
- Owner/operator telephone: 425-820-0676
- Owner/operator email: Not reported
- Owner/operator fax: Not reported
### US CLEANERS (Continued)

**Owner/operator name:** STEVE K  
**Owner/operator address:** 12547 116TH AVE NE  
**KIRKLAND, WA 98034**

**Owner/operator phone:** 425-820-0676
**Owner/operator email:** Not reported

**Legal status:** Private
**Owner/Operator Type:** Operator

**Owner/Op start date:** 07/11/1996
**Owner/Op end date:** Not reported

**Handler Activities Summary:**
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: No
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil fuel burner: No
- Used oil processor: No
- User oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No

**Historical Generators:**
- Date form received by agency: 03/04/1996
- Site name: US CLEANERS
- Classification: Not a generator, verified

**Violation Status:** No violations found

**FINDS:**
- Registry ID: 110005374996

**Environmental Interest/Information System**
- Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

- RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of...
US CLEANERS (Continued) 1001490832

Events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1001490832
Registry ID: 110005374996
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005374996

INACTIVE DRYCLEANERS:
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FS Id: 7513
Fed Waste Code Desc: Not reported
Fed Waste Code Desc: Not reported
TAX REG NBR: Not reported
BUSINESS TYPE: Not reported
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**GALLERIA REFINISHERS**

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GALLERIA REFINISHERS (Continued)

Program ID: WAD988480323
Date Interaction: 1990-11-14 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.709484361000001
Longitude: -122.182445105

RCRA NonGen / NLR:
Date form received by agency: 07/10/2003
Facility name: GALLERIA REFINISHERS
Facility address: 11933 124TH AVE NE
KIRKLAND, WA 98034
EPA ID: WAD988480323
Contact: GALLERIA REFINI GALLERIA REFINI
Contact address: 11933 124TH AVE NE
KIRKLAND, WA 98034-8112
Contact country: US
Contact telephone: 000-000-0000
Contact email: Not reported
EPA Region: 10
Land type: Private
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: CLAUDE L
Owner/operator address: 11933 124TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-821-6918
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 12/31/2001
Owner/Op end date: Not reported

Owner/operator name: CLAUDE L
Owner/operator address: 11933 124TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-821-6918
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 12/31/2001
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
GALLERIA REFINISHERS (Continued) 1000473956

Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 07/10/2003
Site name: GALLERIA REFINISHERS
Classification: Not a generator, verified
Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 01/29/1998
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

FINDS:
Registry ID: 110005356596

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1000473956
Registry ID: 110005356596
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005356596
65  ARCO 6031  WA CSCL 1004794498
West 11450 NE 124TH ST  WA LUST WAD988515250
1/4-1/2  KIRKLAND, WA  98034  WA VCP
0.372 mi.  ECHO
1963 ft.  FINDS
Relative:  WA ALLSITES
Higher  ECHO
Actual:  WA MANIFEST

CSCSL:
Facility ID:  79226415
Region:  Northwest
Lat/Long:  47.711486611 / -122.18703623
Brownfield Status:  Not reported
Rank Status:  N
Clean Up Siteid:  10551
Site Status:  Cleanup Started
PSI?:  Not reported
Contaminant Name:  Benzene
Ground Water:  Confirmed Above Cleanup Level
Surface Water:  Not reported
Soil:  Confirmed Above Cleanup Level
Sediment:  Not reported
Air:  Not reported
Bedrock:  Not reported
Responsible Unit:  Northwest

Facility ID:  79226415
Region:  Northwest
Lat/Long:  47.711486611 / -122.18703623
Brownfield Status:  Not reported
Rank Status:  N
Clean Up Siteid:  10551
Site Status:  Cleanup Started
PSI?:  Not reported
Contaminant Name:  Methyl tertiary-butyl ether
Ground Water:  Confirmed Above Cleanup Level
Surface Water:  Not reported
Soil:  Confirmed Above Cleanup Level
Sediment:  Not reported
Air:  Not reported
Bedrock:  Not reported
Responsible Unit:  Northwest

Facility ID:  79226415
Region:  Northwest
Lat/Long:  47.711486611 / -122.18703623
Brownfield Status:  Not reported
Rank Status:  N
Clean Up Siteid:  10551
Site Status:  Cleanup Started
PSI?:  Not reported
Contaminant Name:  Petroleum-Gasoline
Ground Water:  Confirmed Above Cleanup Level
Surface Water:  Not reported
Soil:  Confirmed Above Cleanup Level
Sediment:  Not reported
Air:  Not reported
Bedrock:  Not reported
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| edr_fcnty | KING |
| edr_zip | Not reported |
| Facility ID | 79226415 |
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| VCP | Yes |
| Ecology Status | Not reported |
| NFA Type | Not reported |
| Date NFA | Not reported |
| Rank | N |
| Cleanup Site id | 10551 |

### ALLSITES:

| Facility Name | ARCO 6031 |
| Facility Id | 79226415 |
### ARCO 6031 (Continued)

<table>
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<tr>
<th>Interaction</th>
<th>Program Data</th>
<th>Ecology Program</th>
<th>Facility Alt.</th>
<th>Program ID</th>
<th>Date Interaction</th>
<th>Date Interaction 3</th>
<th>Latitude</th>
<th>Longitude</th>
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<td>ISIS</td>
<td>Arco 6031</td>
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ARCO 6031 (Continued)

Facility Alt.: Arco 6031
Program ID: NW2403
Date Interaction: 2011-04-27 00:00:00
Date Interaction 3: Voluntary Cleanup Sites
Latitude: 47.71148097199997
Longitude: -122.18702133399999

Interaction: 112805
Interaction 1: I
Interaction 2: ENFORFNL
Ecology Program: TOXICS
Program Data: DMS
Facility Alt.: Not reported
Program ID: Not reported
Date Interaction: 2015-04-14 00:00:00
Date Interaction 3: Enforcement Final
Latitude: 47.71148097199997
Longitude: -122.18702133399999

Interaction: 65021
Interaction 1: A
Interaction 2: UST
Ecology Program: TOXICS
Program Data: UST
Facility Alt.: Not reported
Program ID: 8796
Date Interaction: 1987-11-01 00:00:00
Date Interaction 3: Underground Storage Tank
Latitude: 47.71148097199997
Longitude: -122.18702133399999

Interaction: 65023
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: ARCO 6031
Program ID: WAD988515250
Date Interaction: 1992-12-04 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.71148097199997
Longitude: -122.18702133399999

Interaction: 89774
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: ARCO 6031
Program ID: WAD988515250
Date Interaction: 2009-09-22 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.71148097199997
Longitude: -122.18702133399999

TC5463995.2s Page 517
ARCO 6031 (Continued)

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<th>1004794498</th>
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Longitude: -122.18702133399999

RCRA NonGen / NLR:
- Date form received by agency: 02/16/2017
- Facility name: ARCO 6031
- Facility address: 11450 NE 124TH ST
  KIRKLAND, WA 98033
- EPA ID: WAD988515250
- Mailing address: 1440 PUYALLUP AVENUE
  TACOMA, WA 98421
- Contact: TIM SHALABI
- Contact address: 1440 PUYALLUP AVENUE
  TACOMA, WA 98421
- Contact country: US
- Contact telephone: 253-627-8444
- Contact email: CORPORATE@PYRAMIDGOLD.NET
- EPA Region: 10
- Classification: Non-Generator
- Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
- Owner/operator name: HARBOR OLYMPIC LAND LLC
- Owner/operator address: 1440 PUYALLUP AVENUE
  TACOMA, WA 98421
- Owner/operator country: US
- Owner/operator telephone: 253-627-8444
- Owner/operator email: Not reported
- Owner/operator fax: Not reported
- Owner/operator extension: Not reported
- Legal status: Private
- Owner/Operator Type: Operator
- Owner/Op start date: 09/22/2009
- Owner/Op end date: Not reported

Owner/operator name: HARBOR OLYMPIC LAND LLC
- Owner/operator address: 1440 PUYALLUP AVENUE
  TACOMA, WA 98421
- Owner/operator country: US
- Owner/operator telephone: 253-627-8444
- Owner/operator email: Not reported
- Owner/operator fax: Not reported
- Owner/operator extension: Not reported
- Legal status: Private
- Owner/Operator Type: Owner
- Owner/Op start date: 09/22/2009
- Owner/Op end date: Not reported

Handler Activities Summary:
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: No
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
### ARCO 6031 (Continued)

<table>
<thead>
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<th>Date form received by agency</th>
<th>Site name</th>
<th>Classification</th>
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<tr>
<td>12/31/2003</td>
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<td>Small Quantity Generator</td>
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<td>12/31/2005</td>
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<td>12/31/2007</td>
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<td>11/13/1992</td>
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**Waste name:** BENZENE

**Waste code:** D018
### ARCO 6031 (Continued)

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<th>Site name:</th>
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<tbody>
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<tr>
<td>Waste name:</td>
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<td>Waste code:</td>
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<td>Waste name:</td>
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<tr>
<td>Violation Status:</td>
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**FINDS:**

| Registry ID: | 110005382031 |

**Environmental Interest/Information System**

Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

**HAZARDOUS WASTE BIENNIAL REPORTER**

[Click this hyperlink](http://echo.epa.gov/detailed-facility-report?fid=110005382031) while viewing on your computer to access additional FINDS; detail in the EDR Site Report.

**ECHO:**

| Envid: | 1004794498 |
| Registry ID: | 110005382031 |

**WA MANIFEST:**

| Facility Site ID Number: | 79226415 |
| EPA ID: | WAD988515250 |
| NAICS: | 44711 |
| SWC Desc: | Not reported |
| FWC Desc: | D001 & D018D001 & D018 |
| Form Comm: | Not reported |
| Data Year: | Not reported |
| Permit by Rule: | False |
| Treatment by Generator: | False |
| Mixed radioactive waste: | False |
| Importer of hazardous waste: | False |
| Immediate recycler: | False |
| Treatment/Storage/Disposal/Recycling Facility: | False |
| Generator of dangerous fuel waste: | False |
| Generator marketing to burner: | False |
ARCO 6031 (Continued)

Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 409018414
Business Type: Gas station with store
Mail Name: BP West Coast Products LLC
Mail addr line1: PO Box 6038
Mail city, st, zip: ARTESIA, CA 90702-6038
Mail country: UNITED STATES
Legal org name: BP West Coast Products LLC
Legal org type: Private
Legal addr line1: PO BOX 6038
Legal city, st, zip: ARTESIA, CA 90702-6038
Legal country: UNITED STATES
Legal phone nbr: 503-524-6191
Legal effective date: 07/11/1996
Land org name: BP West Coast Products LLC
Land org type: Private
Land person name: Not reported
Land addr line1: PO BOX 6038
Land city, st, zip: ARTESIA, CA 90702-6038
Land country: UNITED STATES
Land phone nbr: 503-524-6191
Operator org name: BP West Coast Products LLC
Operator org type: Private
Operator addr line1: PO BOX 6038
Operator city, st, zip: ARTESIA, CA 90702-6038
Operator country: UNITED STATES
Operator phone nbr: 503-524-6191
Operator effective date: 07/11/1996
Site contact name: Ruth Ha
Site contact addr line1: PO BOX 6038
Site Contact City/State/Zip: ARTESIA, CA 90702
Site Contact Country: UNITED STATES
Site Contact Phone #: 503-524-6191
Site Contact EMail: harx00@bp.com
Form Contact NAME: Ruth Ha
Form Contact ADDR LINE1: PO BOX 6038
Form Contact City, ST, Zip: ARTESIA, CA 90702
Form Contact Country: UNITED STATES
Form Contact Phone #: 503-524-6191
Form Contact EMail: harx00@bp.com
Gen Status CD: MQG
ARCO 6031 (Continued)

Monthly Generation: False
Batch Generation: True
One Time Generation: False
Transport Own Waste: False
Transport Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:
Facility ID: 79226415
Data Year: 2009
Description: Absorbent, soil and debris with gasoline
Mix: False
Reported Qty: 300 LB
Kilo Qty: 136.08000234057604
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Absorbent, soil and debris with gasoline
Mix: No
Reported Qty: 350 LB
Kilo Qty: 158.760002730672
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Absorbent, soil and debris with gasoline
Mix: No
Reported Qty: 500 LB
Kilo Qty: 226.80000390096
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Gasoline and water mixture
Mix: No
Reported Qty: 110 GAL
Kilo Qty: 416.132647157482
Density No: 8.34
Density Qty: PPG

Shipments Sent:
Facility ID: 79226415
Data Year: Not reported
ARCO 6031 (Continued)

EPA ID: WAD988515250
NAICS: 447110
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2010
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter defferal: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 602850362
Business Type: Gas station with store
Mail Name: Harbor Olympic Land 6031 LLC
Mail addr line1: 2326 Milwaukee Way
Mail city, st, zip: Tacoma, WA 98421
Mail country: UNITED STATES
Legal org name: Harbor Olympic Land LLC
Legal org type: Private
Legal addr line1: 2326 Milwaukee Way

Facility Site ID Number: 79226415

Waste Stream Comments:
Facility ID: 79226415
Data Year: 2006
Comments: A-7&A-8: Petroleum contact water from secondary containment.

Shipment sent data: 8/1/2007
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 79226415
Data Year: Not reported
Shipment sent data: 9/28/2007
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

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**ARCO 6031 (Continued)**

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<tr>
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<tr>
<td>Legal phone nbr</td>
<td>(253)627-8444</td>
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<tr>
<td>Legal effective date</td>
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<tr>
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<td>Tim Shalabi</td>
</tr>
<tr>
<td>Land addr line1</td>
<td>2326 Milwaukee Way</td>
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<tr>
<td>Land city, st, zip</td>
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<td>Harbor Olympic Land LLC</td>
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<td>Operator effective date</td>
<td>09/22/2009</td>
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<tr>
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<tr>
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<tr>
<td>Site Contact Phone #</td>
<td>(253)627-8444</td>
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<td><a href="mailto:corporate@pyramidgold.net">corporate@pyramidgold.net</a></td>
</tr>
<tr>
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<td>Stuart Pennington</td>
</tr>
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<td>Form Contact ADDR LINE1</td>
<td>2326 Milwaukee Way</td>
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<tr>
<td>Form Contact City, ST, Zip</td>
<td>Tacoma, WA 98421</td>
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<td>Used Oil Refiner</td>
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<td>Used Oil Fuel Marketer Directs Shipments</td>
<td>False</td>
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<tr>
<td>Used Oil Fuel Marketer Meets Specs</td>
<td>False</td>
</tr>
</tbody>
</table>

**Waste Streams Generated:**

- **Facility ID:** 79226415
- **Data Year:** 2009
- **Description:** Absorbent, soil and debris with gasoline
- **Mix:** False
- **Reported Qty:** 300 LB
- **Kilo Qty:** 136.0800234057604
- **Density No:** 0
- **Density Qty:** Not reported
| Facility ID: | 79226415 |
| Description: | Absorbent, soil and debris with gasoline |
| Mix: | No |
| Reported Qty: | 350 LB |
| Kilo Qty: | 158.760002730672 |
| Density No: | 0 |
| Density Qty: | Not reported |

| Facility ID: | 79226415 |
| Description: | Absorbent, soil and debris with gasoline |
| Mix: | No |
| Reported Qty: | 500 LB |
| Kilo Qty: | 226.80000390096 |
| Density No: | 0 |
| Density Qty: | Not reported |

| Facility ID: | 79226415 |
| Description: | Gasoline and water mixture |
| Mix: | No |
| Reported Qty: | 110 GAL |
| Kilo Qty: | 416.132647157482 |
| Density No: | 8.34 |
| Density Qty: | PPG |

**Shipments Sent:**

| Facility ID: | 79226415 |
| Data Year: | Not reported |
| Shipment sent data: | 8/1/2007 |
| Reported Qty: | 100 LB |
| Kilo Qty: | 45.360000780192 |

| Facility ID: | 79226415 |
| Data Year: | Not reported |
| Shipment sent data: | 9/28/2007 |
| Reported Qty: | 250 LB |
| Kilo Qty: | 113.40000195048 |

**Waste Stream Comments:**

| Facility ID: | 79226415 |
| Data Year: | 2006 |
| Comments: | A-7&A-8: Petroleum contact water from secondary containment. |

| Facility Site ID Number: | 79226415 |
| EPA ID: | WAD988515250 |
| NAICS: | 447110 |
| SWC Desc: | Not reported |
| FWC Desc: | Not reported |
| Form Comm: | Not reported |
| Data Year: | 2017 |
| Permit by Rule: | False |
| Treatment by Generator: | False |
| Mixed radioactive waste: | False |
ARCO 6031 (Continued)

Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: Not reported
Business Type: Gas station with store
Mail Name: Harbor Olympic Land 6031 LLC
Mail addr line1: 1440 Puyallup Avenue
Mail city, st, zip: Tacoma, WA 98421
Mail country: UNITED STATES
Legal org name: Harbor Olympic Land LLC
Legal org type: Private
Legal addr line1: 1440 Puyallup Avenue
Legal city, st, zip: Tacoma, WA 98421
Legal country: UNITED STATES
Legal phone nbr: (253)627-8444
Legal effective date: 09/22/2009
Land org name: Harbor Olympic Land LLC
Land org type: Private
Land person name: Tim Shalabi
Land addr line1: 1440 Puyallup Avenue
Land city, st, zip: Tacoma, WA 98421
Land country: UNITED STATES
Land phone nbr: (253)627-8444
Operator org name: Harbor Olympic Land LLC
Operator org type: Private
Operator addr line1: 1440 Puyallup Avenue
Operator city, st, zip: Tacoma, WA 98421
Operator country: UNITED STATES
Operator phone nbr: (253)572-4675
Operator effective date: 09/22/2009
Site contact name: Tim Shalabi
Site contact addr line1: 1440 Puyallup Avenue
Site Contact City/State/Zip: Tacoma, WA 98421
Site Contact Country: UNITED STATES
Site Contact Phone #: (253)572-4675
Site Contact EMail: corporate@pyramidgold.net
Form Contact NAME: Tim Shalabi
Form Contact ADDR LINE1: 1440 Puyallup Avenue
ARCO 6031 (Continued)

Form Contact City, ST, Zip: Tacoma, WA 98421
Form Contact Country: UNITED STATES
Form Contact Phone #: (253) 572-4675
Form Contact EMail: corporate@pyramidgold.net
Gen Status CD: XQG
Monthly Generation: False
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
Transports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: False

Waste Streams Generated:
Facility ID: 79226415
Date Year: 2009
Description: Absorbent, soil and debris with gasoline
Mix: False
Reported Qty: 300 LB
Kilo Qty: 136.08000234057604
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Date Year: Not reported
Description: Absorbent, soil and debris with gasoline
Mix: No
Reported Qty: 350 LB
Kilo Qty: 158.760002730672
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Date Year: Not reported
Description: Absorbent, soil and debris with gasoline
Mix: No
Reported Qty: 500 LB
Kilo Qty: 226.80000390096
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Date Year: Not reported
Description: Gasoline and water mixture
Mix: No
Reported Qty: 110 GAL
Kilo Qty: 416.132647157482
Density No: 8.34
Density Qty: PPG
**ARCO 6031 (Continued)**

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<thead>
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<th>Facility ID:</th>
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<tbody>
<tr>
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<tr>
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<tr>
<td>Reported Qty:</td>
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<tr>
<td>Kilo Qty:</td>
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<table>
<thead>
<tr>
<th>Facility ID:</th>
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</tr>
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<tbody>
<tr>
<td>Data Year:</td>
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<tr>
<td>Kilo Qty:</td>
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**Waste Stream Comments:**

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<th>Facility ID:</th>
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<tr>
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<td>Comments:</td>
<td>A-7&amp;A-8: Petroleum contact water from secondary containment.</td>
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**Facility Site ID Number:**

79226415

<table>
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<tr>
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<td>Form Comm:</td>
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<td>Data Year:</td>
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<td>Permit by Rule:</td>
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<td>Treatment by Generator:</td>
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<td>Mixed radioactive waste:</td>
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<td>Importer of hazardous waste:</td>
<td>FALSE</td>
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<tr>
<td>Immediate recycler:</td>
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<tr>
<td>Treatment/Storage/Disposal/Recycling Facility:</td>
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<tr>
<td>Generator of dangerous fuel waste:</td>
<td>FALSE</td>
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<tr>
<td>Generator marketing to burner:</td>
<td>FALSE</td>
</tr>
<tr>
<td>Other marketers (i.e., blender, distributor, etc.):</td>
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<tr>
<td>Utility boiler burner:</td>
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<td>Industry boiler burner:</td>
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<tr>
<td>Destination Facility for Universal Waste:</td>
<td>FALSE</td>
</tr>
<tr>
<td>Off-specification used oil burner - utility boiler:</td>
<td>FALSE</td>
</tr>
<tr>
<td>Off-specification used oil burner - industrial boiler:</td>
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<tr>
<td>Off-specification used oil burner - industrial furnace:</td>
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**Tax Reg #:**

409018414

**Business Type:**

Gas station with store

**Mail Name:**

BP West Coast Products LLC

**Mail addr line1:**

PO Box 6038

**Mail city,st,zip:**

ARTESSA, CA 90702-6038
ARCO 6031 (Continued)

Mail country: UNITED STATES
Legal org name: BP West Coast Products LLC
Legal org type: Private
Legal addr line1: PO BOX 6038
Legal city, st, zip: ARTESIA, CA 90702-6038
Legal country: UNITED STATES
Legal phone nbr: (714) 670-3958
Legal effective date: 07/11/1996
Land org name: BP West Coast Products LLC
Land org type: Private
Land person name: Teresa Santana
Land addr line1: PO BOX 6038
Land city, st, zip: ARTESIA, CA 90702-6038
Land country: UNITED STATES
Land phone nbr: (714) 670-3958
Operator org name: BP West Coast Products LLC
Operator org type: Private
Operator addr line1: PO BOX 6038
Operator city, st, zip: ARTESIA, CA 90702-6038
Operator country: UNITED STATES
Operator phone nbr: (714) 670-3958
Operator effective date: 07/11/1996
Site contact name: Teresa Station
Site contact addr line1: PO BOX 6038
Site Contact City/State/Zip: ARTESIA, CA 90702
Site Contact Country: UNITED STATES
Site Contact Phone #: (714) 670-3958
Site Contact EMail: santanta@bp.com
Form Contact NAME: Teresa Station
Form Contact ADDR LINE1: PO BOX 6038
Form Contact City,ST,Zip: ARTESIA, CA 90702
Form Contact Country: UNITED STATES
Form Contact Phone #: (714) 670-3958
Form Contact EMail: santanta@bp.com
Gen Status CD: MQG
Monthly Generation: FALSE
Batch Generation: TRUE
One Time Generation: FALSE
Transport Own Waste: FALSE
Transport Other Waste: FALSE
Recycler Onsite: FALSE
Transfer Facility: FALSE
Other Exemption: Not reported
UW Battery Gen: FALSE
Used Oil Transporter: FALSE
Used Oil Transfer Facility: FALSE
Used Oil Processor: FALSE
Used Oil Refiner: FALSE
Used Oil Fuel Marketer Directs Shipments: FALSE
Used Oil Fuel Marketer Meets Specs: FALSE

Waste Streams Generated:
 Facility ID: 79226415
 Data Year: 2009
 Description: Absorbent, soil and debris with gasoline
 Mix: False
 Reported Qty: 300 LB
### ARCO 6031 (Continued)

**Kilo Qty:** 136.08000234057604  
**Density No:** 0  
**Density Qty:** Not reported  
**Facility ID:** 79226415  
**Data Year:** Not reported  
**Description:** Absorbent, soil and debris with gasoline  
**Mix:** No  
**Reported Qty:** 350 LB  
**Kilo Qty:** 158.760002730672  
**Density No:** 0  
**Density Qty:** Not reported  

**Facility ID:** 79226415  
**Data Year:** Not reported  
**Description:** Absorbent, soil and debris with gasoline  
**Mix:** No  
**Reported Qty:** 500 LB  
**Kilo Qty:** 226.80000390096  
**Density No:** 0  
**Density Qty:** Not reported  

**Facility ID:** 79226415  
**Data Year:** Not reported  
**Description:** Gasoline and water mixture  
**Mix:** No  
**Reported Qty:** 110 GAL  
**Kilo Qty:** 416.132647157482  
**Density No:** 8.34  
**Density Qty:** PPG  

**Shipments Sent:**  
**Facility ID:** 79226415  
**Data Year:** Not reported  
**Shipment sent data:** 8/1/2007  
**Reported Qty:** 100 LB  
**Kilo Qty:** 45.360000780192  
**Facility ID:** 79226415  
**Data Year:** Not reported  
**Shipment sent data:** 9/28/2007  
**Reported Qty:** 250 LB  
**Kilo Qty:** 113.40000195048  

**Waste Stream Comments:**  
**Facility ID:** 79226415  
**Data Year:** 2006  
**Comments:** A-7&A-8: Petroleum contact water from secondary containment.
ARCO 6031 (Continued)

Data Year: 2009
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 409018414
Business Type: Gas station with store
Mail Name: BP West Coast Products LLC
Mail addr line1: PO Box 6038
Mail city, state, zip: ARTESIA, CA 90702-6038
Mail country: UNITED STATES
Legal org name: BP West Coast Products LLC
Legal org type: Private
Legal addr line1: PO BOX 6038
Legal city, state, zip: ARTESIA, CA 90702-6038
Legal country: UNITED STATES
Legal phone nbr: (714)670-3958
Legal effective date: 07/11/1996
Land org name: BP West Coast Products LLC
Land org type: Private
Land person name: Not reported
Land addr line1: PO BOX 6038
Land city, state, zip: ARTESIA, CA 90702-6038
Land country: UNITED STATES
Land phone nbr: (714)670-3958
Operator org name: BP West Coast Products LLC
Operator org type: Private
Operator addr line1: PO BOX 6038
Operator city, state, zip: ARTESIA, CA 90702-6038
Operator country: UNITED STATES
Operator phone nbr: (714)670-3958
Operator effective date: 07/11/1996
Site contact name: Bratzo Basagoitia
Site contact addr line1: PO BOX 6038
Site Contact City/State/Zip: ARTESIA, CA 90702
Site Contact Country: UNITED STATES
ARCO 6031 (Continued)

Site Contact Phone #: (714)670-3958
Site Contact EMail: basabm@bp.com
Form Contact NAME: Bratzo Basagoitia
Form Contact ADDR LINE1: PO BOX 6038
Form Contact City, ST, Zip: ARTESIA, CA 90702
Form Contact Country: UNITED STATES
Form Contact Phone #: (714)670-3958
Form Contact EMail: basabm@bp.com

Gen Status CD: MOG
Monthly Generation: False
Batch Generation: True
One Time Generation: False
Transport Own Waste: False
Transport Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:
Facility ID: 79226415
Data Year: 2009
Description: Absorbent, soil and debris with gasoline
Mix: False
Reported Qty: 300 LB
Kilo Qty: 136.08000234057604
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Absorbent, soil and debris with gasoline
Mix: No
Reported Qty: 350 LB
Kilo Qty: 158.760002730672
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Absorbent, soil and debris with gasoline
Mix: No
Reported Qty: 500 LB
Kilo Qty: 226.80000390096
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Gasoline and water mixture
Mix: No
### ARCO 6031 (Continued)

<table>
<thead>
<tr>
<th>Facility ID Number</th>
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<tbody>
<tr>
<td>79226415</td>
<td>WAD988515250</td>
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| NAICS:     | 447110        |
| SWC Desc:  | Not reported  |
| FWC Desc:  | Not reported  |
| Form Comm: | Not reported  |
| Data Year: | 2016          |
| Permit by Rule: | False     |
| Treatment by Generator: | False    |
| Mixed radioactive waste: | False  |
| Importer of hazardous waste: | False |
| Immediate recycler: | False |
| Treatment/Storage/Disposal/Recycling Facility: | False |
| Generator of dangerous fuel waste: | False |
| Generator marketing to burner: | False |
| Other marketers (i.e., blender, distributor, etc.): | False |
| Utility boiler burner: | False |
| Industry boiler burner: | False |
| Industrial Furnace: | False |
| Smelter deferral: | False |
| Universal waste - batteries - generate: | False |
| Universal waste - thermostats - generate: | False |
| Universal waste - mercury - generate: | False |
| Universal waste - lamps - generate: | False |
| Universal waste - batteries - accumulate: | False |
| Universal waste - thermostats - accumulate: | False |
| Universal waste - mercury - accumulate: | False |
| Universal waste - lamps - accumulate: | False |
| Destination Facility for Universal Waste: | False |
| Off-specification used oil burner - utility boiler: | False |
| Off-specification used oil burner - industrial boiler: | False |
| Off-specification used oil burner - industrial furnace: | False |

### Shipments Sent:

| Facility ID: | 79226415 |
| Data Year:   | Not reported |
| Shipment sent data: | 8/1/2007 |
| Reported Qty: | 100 LB |
| Kilo Qty:    | 45.360000780192 |

| Facility ID: | 79226415 |
| Data Year:   | Not reported |
| Shipment sent data: | 9/28/2007 |
| Reported Qty: | 250 LB |
| Kilo Qty:    | 113.40000195048 |

### Waste Stream Comments:

- Facility ID: 79226415
- Data Year: 2006
- Comments: A-7&A-8: Petroleum contact water from secondary containment.
| MAP FINDINGS |

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<thead>
<tr>
<th>Map ID</th>
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<th>Elevation</th>
<th>Site</th>
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**ARCO 6031 (Continued)**

| Tax Reg #: | 602850362 |
| Business Type: | Gas station with store |
| Mail Name: | Harbor Olympic Land 6031 LLC |
| Mail addr line1: | 1440 Puyallup Avenue |
| Mail city, st, zip: | Tacoma, WA 98421 |
| Mail country: | UNITED STATES |
| Legal org name: | Harbor Olympic Land LLC |
| Legal org type: | Private |
| Legal addr line1: | 1440 Puyallup Avenue |
| Legal city, st, zip: | Tacoma, WA 98421 |
| Legal country: | UNITED STATES |
| Legal phone nbr: | (253)627-8444 |
| Legal effective date: | 09/22/2009 |
| Land org name: | Harbor Olympic Land LLC |
| Land org type: | Private |
| Land person name: | Tim Shalabi |
| Land addr line1: | 1440 Puyallup Avenue |
| Land city, st, zip: | Tacoma, WA 98421 |
| Land country: | UNITED STATES |
| Land phone nbr: | (253)627-8444 |
| Operator org name: | Harbor Olympic Land LLC |
| Operator org type: | Private |
| Operator addr line1: | 1440 Puyallup Avenue |
| Operator city, st, zip: | Tacoma, WA 98421 |
| Operator country: | UNITED STATES |
| Operator phone nbr: | (253)627-8444 |
| Operator effective date: | 09/22/2009 |
| Site contact name: | Tim Shalabi |
| Site contact addr line1: | 1440 Puyallup Avenue |
| Site Contact City/State/ Zip: | Tacoma, WA 98421 |
| Site Contact Country: | UNITED STATES |
| Site Contact Phone #: | (253)627-8444 |
| Site Contact EMail: | corporate@pyramidgold.net |
| Form Contact NAME: | Tim Shalabi |
| Form Contact ADDR LINE1: | 1440 Puyallup Avenue |
| Form Contact City,ST,Zip: | Tacoma, WA 98421 |
| Form Contact Country: | UNITED STATES |
| Form Contact Phone #: | (253)627-8444 |
| Form Contact EMail: | corporate@pyramidgold.net |
| Gen Status CD: | XQG |
| Monthly Generation: | False |
| Batch Generation: | False |
| One Time Generation: | False |
| Transport Own Waste: | False |
| Tranports Other Waste: | False |
| Recycler Onsite: | False |
| Transfer Facility: | False |
| Other Exemption: | Not reported |
| UW Battery Gen: | False |
| Used Oil Transporter: | False |
| Used Oil Transfer Facility: | False |
| Used Oil Processor: | False |
| Used Oil Refiner: | False |
| Used Oil Fuel Marketer Directs Shipments: | False |
| Used Oil Fuel Marketer Meets Specs: | False |
ARCO 6031 (Continued)

Waste Streams Generated:

Facility ID: 79226415
Data Year: 2009
Description: Absorbent, soil and debris with gasoline
Mix: False
Reported Qty: 300 LB
Kilo Qty: 136.08000234057604
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Absorbent, soil and debris with gasoline
Mix: No
Reported Qty: 350 LB
Kilo Qty: 158.760002730672
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Absorbent, soil and debris with gasoline
Mix: No
Reported Qty: 500 LB
Kilo Qty: 226.80000390096
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
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Mix: No
Reported Qty: 110 GAL
Kilo Qty: 416.132647157482
Density No: 8.34
Density Qty: PPG

Shipments Sent:

Facility ID: 79226415
Data Year: Not reported
Shipment sent data: 8/1/2007
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 79226415
Data Year: Not reported
Shipment sent data: 9/28/2007
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Waste Stream Comments:

Facility ID: 79226415
Data Year: 2006
Comments: A-7&A-8: Petroleum contact water from secondary containment.
**ARCO 6031 (Continued)***

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<tr>
<th>Field</th>
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<td>Facility Site ID Number</td>
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<td>Treatment by Generator</td>
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<td>Importer of hazardous waste</td>
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<td>Industry boiler burner</td>
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<td>Tax Reg #:</td>
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<td>Business Type</td>
<td>Gas station with store</td>
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<tr>
<td>Mail Name</td>
<td>Harbor Olympic Land 6031 LLC</td>
</tr>
<tr>
<td>Mail addr line1</td>
<td>1440 Puyallup Avenue</td>
</tr>
<tr>
<td>Mail city, st, zip</td>
<td>Tacoma, WA 98421</td>
</tr>
<tr>
<td>Mail country</td>
<td>UNITED STATES</td>
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<td>Legal org name</td>
<td>Harbor Olympic Land LLC</td>
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<td>Tacoma, WA 98421</td>
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<tr>
<td>Legal country</td>
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</tr>
<tr>
<td>Legal phone rbr</td>
<td>(253)627-8444</td>
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<td>Land person name</td>
<td>Tim Shalabi</td>
</tr>
<tr>
<td>Land addr line1</td>
<td>1440 Puyallup Avenue</td>
</tr>
<tr>
<td>Land city, st, zip</td>
<td>Tacoma, WA 98421</td>
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<tr>
<td>Land country</td>
<td>UNITED STATES</td>
</tr>
<tr>
<td>Land phone rbr</td>
<td>(253)627-8444</td>
</tr>
<tr>
<td>Operator org name</td>
<td>Harbor Olympic Land LLC</td>
</tr>
<tr>
<td>Operator org type</td>
<td>Private</td>
</tr>
<tr>
<td>Operator addr line1</td>
<td>1440 Puyallup Avenue</td>
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<tr>
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<td>Tacoma, WA 98421</td>
</tr>
<tr>
<td>Operator country</td>
<td>UNITED STATES</td>
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</tbody>
</table>
ARCO 6031 (Continued)

Operator phone nbr: (253)627-8444
Operator effective date: 09/22/2009
Site contact name: Tim Shalabi
Site contact addr line1: 1440 Puyallup Avenue
Site Contact City/State/Zip: Tacoma, WA 98421
Site Contact Country: UNITED STATES
Site Contact Phone #: (253)627-8444
Site Contact EMail: corporate@pyramidgold.net
Form Contact NAME: Tim Shalabi
Form Contact ADDR LINE1: 1440 Puyallup Avenue
Form Contact City,ST,Zip: Tacoma, WA 98421
Form Contact Country: UNITED STATES
Form Contact Phone #: (253)627-8444
Form Contact EMail: corporate@pyramidgold.net
Gen Status CD: XQG
Monthly Generation: False
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
Transports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel marketer Meets Specs: False
Waste Streams Generated:

| Facility ID | Data Year | Description                                 | Mix | Reported Qty | Kilo Qty | Density No | Density Qty | Facility ID | Data Year | Description                                 | Mix | Reported Qty | Kilo Qty | Density No | Density Qty |
|-------------|-----------|----------------------------------------------|-----|--------------|----------|------------|-------------|-------------|------------|-----------|----------------------------------------------|-----|--------------|----------|------------|-------------|
| 79226415    | 2009      | Absorbent, soil and debris with gasoline     | False | 300 LB       | 136.08000234057604 | 0          | Not reported | 79226415    | Not reported | Absorbent, soil and debris with gasoline     | No  | 350 LB       | 158.760002730672 | 0          | Not reported |
| 79226415    | Not reported | Absorbent, soil and debris with gasoline     | No  | 500 LB       | 226.80000390096    | 0          | Not reported |

Operator phone nbr: (253)627-8444
Operator effective date: 09/22/2009
Site contact name: Tim Shalabi
Site contact addr line1: 1440 Puyallup Avenue
Site Contact City/State/Zip: Tacoma, WA 98421
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Form Contact Phone #: (253)627-8444
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Monthly Generation: False
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
Transports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel marketer Meets Specs: False
Waste Streams Generated:

| Facility ID | Data Year | Description                                 | Mix | Reported Qty | Kilo Qty | Density No | Density Qty | Facility ID | Data Year | Description                                 | Mix | Reported Qty | Kilo Qty | Density No | Density Qty |
|-------------|-----------|----------------------------------------------|-----|--------------|----------|------------|-------------|-------------|------------|-----------|----------------------------------------------|-----|--------------|----------|------------|-------------|
| 79226415    | 2009      | Absorbent, soil and debris with gasoline     | False | 300 LB       | 136.08000234057604 | 0          | Not reported | 79226415    | Not reported | Absorbent, soil and debris with gasoline     | No  | 350 LB       | 158.760002730672 | 0          | Not reported |
| 79226415    | Not reported | Absorbent, soil and debris with gasoline     | No  | 500 LB       | 226.80000390096    | 0          | Not reported |
ARCO 6031 (Continued)

Density Qty: Not reported
Facility ID: 79226415
Data Year: Not reported
Description: Gasoline and water mixture
Mix: No
Reported Qty: 110 GAL
Kilo Qty: 416.132647157482
Density No: 8.34
Density Qty: PPG

Shipments Sent:
Facility ID: 79226415
Data Year: Not reported
Shipments sent data: 8/1/2007
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 79226415
Data Year: Not reported
Shipments sent data: 9/28/2007
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Waste Stream Comments:
Facility ID: 79226415
Data Year: 2006
Comments: A-7&A-8: Petroleum contact water from secondary containment.

Facility Site ID Number: 79226415
EPA ID: WAD988515250
NAICS: 44711
SWC Desc: Not reported
FWC Desc: D001 & D018D001 & D018
Form Comm: Not reported
Data Year: Not reported
Permit by Rule: No
Treatment by Generator: No
Mixed radioactive waste: No
Importer of hazardous waste: No
Immediate recycler: No
Treatment/Storage/Disposal/Recycling Facility: No
Generator of dangerous fuel waste: No
Generator marketing to burner: No
Other marketers (i.e., blender, distributor, etc.): No
Utility boiler burner: No
Industry boiler burner: No
Industrial Furnace: No
Smelter deferral: No
Universal waste - batteries - generate: No
Universal waste - thermostats - generate: No
Universal waste - mercury - generate: No
Universal waste - lamps - generate: No
Universal waste - batteries - accumulate: No
Universal waste - thermostats - accumulate: No
ARCO 6031 (Continued)

Universal waste - mercury - accumulate: No
Universal waste - lamps - accumulate: No
Destination Facility for Universal Waste: No
Off-specification used oil burner - utility boiler: No
Off-specification used oil burner - industrial boiler: No
Off-specification used oil burner - industrial furnace: No
Tax Reg #: 409018414
Business Type: Gas station with store
Mail Name: BP West Coast Products LLC
Mail city, st, zip: ARTESSA, CA 90702-6038
Mail country: UNITED STATES
Legal org name: BP West Coast Products LLC
Legal org type: Private
Legal addr line1: PO BOX 6038
Legal city, st, zip: ARTESSA, CA 90702-6038
Legal country: UNITED STATES
Legal phone nbr: (714)670-3958
Legal effective date: 07/11/1996
Land org name: BP West Coast Products LLC
Land org type: Private
Land person name: Teresa Santana
Land addr line1: PO BOX 6038
Land city, st, zip: ARTESSA, CA 90702-6038
Land country: UNITED STATES
Land phone nbr: (714)670-3958
Operator org name: BP West Coast Products LLC
Operator org type: Private
Operator addr line1: PO BOX 6038
Operator city, st, zip: ARTESSA, CA 90702-6038
Operator country: UNITED STATES
Operator phone nbr: (714)670-3958
Operator effective date: 07/11/1996
Site contact name: Teresa Station
Site contact addr line1: PO BOX 6038
Site Contact City/State/Zip: ARTESSA, CA 90702
Site Contact Country: UNITED STATES
Site Contact Phone #: (714) 670-3958
Site Contact EMail: santanta@bp.com
Form Contact NAME: Teresa Station
Form Contact ADDR LINE1: PO BOX 6038
Form Contact City, ST, Zip: ARTESSA, CA 90702
Form Contact Country: UNITED STATES
Form Contact Phone #: (714) 670-3958
Form Contact EMail: santanta@bp.com
Gen Status CD: MQG
Monthly Generation: No
Batch Generation: Yes
One Time Generation: No
Transport Own Waste: No
Transport Other Waste: No
Recycler Onsite: No
Transfer Facility: No
Other Exemption: Not reported
UW Battery Gen: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
### ARCO 6031 (Continued)

<table>
<thead>
<tr>
<th>Used Oil Processor:</th>
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<tbody>
<tr>
<td>Used Oil Refiner:</td>
<td>No</td>
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<tr>
<td>Used Oil Fuel Marketer Directs Shipments:</td>
<td>No</td>
</tr>
<tr>
<td>Used Oil Fuel Marketer Meets Specs:</td>
<td>No</td>
</tr>
</tbody>
</table>

#### Waste Streams Generated:

**Facility ID:** 79226415  
**Data Year:** 2009  
**Description:** Absorbent, soil and debris with gasoline  
**Mix:** False  
**Reported Qty:** 300 LB  
**Kilo Qty:** 136.08000234057604  
**Density No:** 0  
**Density Qty:** Not reported  

**Facility ID:** 79226415  
**Data Year:** Not reported  
**Description:** Absorbent, soil and debris with gasoline  
**Mix:** No  
**Reported Qty:** 350 LB  
**Kilo Qty:** 158.760002730672  
**Density No:** 0  
**Density Qty:** Not reported  

**Facility ID:** 79226415  
**Data Year:** Not reported  
**Description:** Gasoline and water mixture  
**Mix:** No  
**Reported Qty:** 110 GAL  
**Kilo Qty:** 416.132647157482  
**Density No:** 8.34  
**Density Qty:** PPG  

#### Shipments Sent:

**Facility ID:** 79226415  
**Data Year:** Not reported  
**Shipment sent data:** 8/1/2007  
**Reported Qty:** 100 LB  
**Kilo Qty:** 45.360000780192  

**Facility ID:** 79226415  
**Data Year:** Not reported  
**Shipment sent data:** 9/28/2007  
**Reported Qty:** 250 LB  
**Kilo Qty:** 113.40000195048
ARCO 6031 (Continued)

Waste Stream Comments:
Facility ID: 79226415
Data Year: 2006
Comments: A-7&A-8: Petroleum contact water from secondary containment.

Facility Site ID Number: 79226415
EPA ID: WAD988515250
NAICS: 447110
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2009
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 602850362
Business Type: Gas station with store
Mail Name: Harbor Olympic Land 6031 LLC
Mail addr line1: 2326 Milwaukee Way
Mail city, st, zip: Tacoma, WA 98421
Mail country: UNITED STATES
Legal org name: Harbor Olympic Land LLC
Legal org type: Private
Legal addr line1: 2326 Milwaukee Way
Legal city, st, zip: Tacoma, WA 98421
Legal country: UNITED STATES
Legal phone nbr: (360)815-2726
Legal effective date: 09/22/2009
Land org name: Harbor Olympic Land LLC
Land org type: Private
Land person name: Stuart Pennington
Land addr line1: 2326 Milwaukee Way
Land city, st, zip: Tacoma, WA 98421
Land country: UNITED STATES
ARCO 6031 (Continued)

Land phone nbr: (360)815-2726
Operator org name: Harbor Olympic Land LLC
Operator org type: Private
Operator addr line1: 2326 Milwaukee Way
Operator city, st, zip: Tacoma, WA 98421
Operator country: UNITED STATES
Operator phone nbr: (360)815-2726
Operator effective date: 09/22/2009
Site contact name: Stuart Pennington
Site contact addr line1: 2326 Milwaukee Way
Site Contact City/State/Zip: Tacoma, WA 98421
Site Contact Country: UNITED STATES
Site Contact Phone #: (360)815-2726
Site Contact EMail: sopennington61@gmail.com
Form Contact NAME: Stuart Pennington
Form Contact ADDR LINE1: 2326 Milwaukee Way
Form Contact City, ST, ZIP: Tacoma, WA 98421
Form Contact Country: UNITED STATES
Form Contact Phone #: (360)815-2726
Form Contact EMail: sopennington61@gmail.com
Gen Status CD: XQG
Monthly Generation: False
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
Transports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False
Waste Streams Generated:
Facility ID: 79226415
Data Year: 2009
Description: Absorbent, soil and debris with gasoline
Mix: False
Reported Qty: 300 LB
Kilo Qty: 136.08000234057604
Density No: 0
Density Qty: Not reported
Facility ID: 79226415
Data Year: Not reported
Description: Absorbent, soil and debris with gasoline
Mix: No
Reported Qty: 350 LB
Kilo Qty: 158.760002730672
Density No: 0
Density Qty: Not reported
Facility ID: 79226415
<table>
<thead>
<tr>
<th>ARCO 6031 (Continued)</th>
<th>1004794498</th>
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</thead>
<tbody>
<tr>
<td>Data Year:</td>
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<tr>
<td>Description:</td>
<td>Absorbent, soil and debris with gasoline</td>
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<td>Mix:</td>
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<tr>
<td>Reported Qty:</td>
<td>500 LB</td>
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<tr>
<td>Kilo Qty:</td>
<td>226.80000390096</td>
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<tr>
<td>Density No:</td>
<td>0</td>
</tr>
<tr>
<td>Density Qty:</td>
<td>Not reported</td>
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<tr>
<td>Data Year:</td>
<td>Not reported</td>
</tr>
<tr>
<td>Description:</td>
<td>Gasoline and water mixture</td>
</tr>
<tr>
<td>Mix:</td>
<td>No</td>
</tr>
<tr>
<td>Reported Qty:</td>
<td>110 GAL</td>
</tr>
<tr>
<td>Kilo Qty:</td>
<td>416.132647157482</td>
</tr>
<tr>
<td>Density No:</td>
<td>8.34</td>
</tr>
<tr>
<td>Density Qty:</td>
<td>PPG</td>
</tr>
</tbody>
</table>

**Shipments Sent:**

| Facility ID:          | 79226415 |
| Data Year:            | Not reported |
| Shipment sent data:   | 8/1/2007 |
| Reported Qty:         | 100 LB |
| Kilo Qty:             | 45.360000780192 |

| Facility ID:          | 79226415 |
| Data Year:            | Not reported |
| Shipment sent data:   | 9/28/2007 |
| Reported Qty:         | 250 LB |
| Kilo Qty:             | 113.40000195048 |

**Waste Stream Comments:**

| Facility ID:          | 79226415 |
| Data Year:            | 2006 |
| Comments:             | A-7&A-8: Petroleum contact water from secondary containment. |

| Facility Site ID Number: | 79226415 |
| EPA ID:                 | WAD988515250 |
| NAICS:                  | 447110 |
| SWC Desc:               | Not reported |
| FWC Desc:               | Not reported |
| Form Comm:              | Not reported |
| Data Year:              | 2011 |
| Permit by Rule:         | False |
| Treatment by Generator: | False |
| Mixed radioactive waste:| False |
| Importer of hazardous waste: | False |
| Immediate recycler:     | False |
| Treatment/Storage/Disposal/Recycling Facility: | False |
| Generator of dangerous fuel waste: | False |
| Generator marketing to burner: | False |
| Other marketers (i.e., blender, distributor, etc.): | False |
| Utility boiler burner:  | False |
| Industry boiler burner: | False |
| Industrial Furnace:     | False |
| Smelter deferral:       | False |
ARCO 6031 (Continued)

Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False

Tax Reg #: 602850362
Business Type: Gas station with store
Mail Name: Harbor Olympic Land 6031 LLC
Mail addr line1: 2326 Milwaukee Way
Mail city, st, zip: Tacoma, WA 98421
Mail country: UNITED STATES
Legal org name: Harbor Olympic Land LLC
Legal org type: Private
Legal addr line1: 2326 Milwaukee Way
Legal city, st, zip: Tacoma, WA 98421
Legal country: UNITED STATES
Legal phone nbr: (253)627-8444
Legal effective date: 09/22/2009
Land org name: Harbor Olympic Land LLC
Land org type: Private
Land person name: Tim Shalabi
Land addr line1: 2326 Milwaukee Way
Land city, st, zip: Tacoma, WA 98421
Land country: UNITED STATES
Land phone nbr: (253)627-8444
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Operator org type: Private
Operator addr line1: 2326 Milwaukee Way
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Site contact addr line1: 2326 Milwaukee Way
Site Contact City/State/Zip: Tacoma, WA 98421
Site Contact Country: UNITED STATES
Site Contact Phone #: (253)627-8444
Site Contact EMail: corporate@pyramidgold.net
Form Contact NAME: Stuart Pennington
Form Contact ADDR LINE1: 2326 Milwaukee Way
Form Contact City, ST, Zip: Tacoma, WA 98421
Form Contact Country: UNITED STATES
Form Contact Phone #: (253)627-8444
Form Contact EMail: corporate@pyramidgold.net
Gen Status CD: XQQ
Monthly Generation: False
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
Tranports Other Waste: False
### ARCO 6031 (Continued)

<table>
<thead>
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<th>Recycler Onsite:</th>
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<td>Used Oil Transporter:</td>
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<td>Used Oil Transfer Facility:</td>
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<td>Used Oil Refiner:</td>
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<td>Used Oil Fuel Marketer Meets Specs:</td>
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**Waste Streams Generated:**

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<tr>
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<tbody>
<tr>
<td>Data Year:</td>
<td>2009</td>
</tr>
<tr>
<td>Description:</td>
<td>Absorbent, soil and debris with gasoline</td>
</tr>
<tr>
<td>Mix:</td>
<td>False</td>
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<tr>
<td>Reported Qty:</td>
<td>300 LB</td>
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<tr>
<td>Kilo Qty:</td>
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<tr>
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<tbody>
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<td>Mix:</td>
<td>No</td>
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<td>Reported Qty:</td>
<td>350 LB</td>
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<tr>
<td>Kilo Qty:</td>
<td>158.760002730672</td>
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<td>Density No:</td>
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<td>Density Qty:</td>
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<td>Data Year:</td>
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<td>Description:</td>
<td>Absorbent, soil and debris with gasoline</td>
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<tr>
<td>Mix:</td>
<td>No</td>
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<tr>
<td>Reported Qty:</td>
<td>500 LB</td>
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<tr>
<td>Kilo Qty:</td>
<td>226.80000390096</td>
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<td>Density No:</td>
<td>0</td>
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<tr>
<td>Density Qty:</td>
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<tr>
<td>Description:</td>
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<tr>
<td>Reported Qty:</td>
<td>110 GAL</td>
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<tr>
<td>Kilo Qty:</td>
<td>416.132647157482</td>
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<td>Density No:</td>
<td>8.34</td>
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<tr>
<td>Density Qty:</td>
<td>PPG</td>
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**Shipments Sent:**

<table>
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</tr>
<tr>
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<td>8/1/2007</td>
</tr>
<tr>
<td>Reported Qty:</td>
<td>100 LB</td>
</tr>
<tr>
<td>Kilo Qty:</td>
<td>45.360000780192</td>
</tr>
</tbody>
</table>

**Facility ID:** 79226415
ARCO 6031 (Continued)

Data Year: Not reported
Shipment sent data: 9/28/2007
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Waste Stream Comments:
Facility ID: 79226415
Data Year: 2006
Comments: A-7&A-8: Petroleum contact water from secondary containment.
<table>
<thead>
<tr>
<th>Map ID</th>
<th>Direction</th>
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<td>(Continued)</td>
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</tr>
</tbody>
</table>

**Land org type:** Private  
**Land person name:** Tim Shalabi  
**Land addr line1:** 2326 Milwaukee Way  
**Land city, st, zip:** Tacoma, WA 98421  
**Land country:** UNITED STATES  
**Land phone nbr:** (253)627-8444  
**Operator org name:** Harbor Olympic Land LLC  
**Operator org type:** Private  
**Operator addr line1:** 2326 Milwaukee Way  
**Operator city, st, zip:** Tacoma, WA 98421  
**Operator country:** UNITED STATES  
**Operator phone nbr:** (253)627-8444  
**Operator effective date:** 09/22/2009  
**Site contact name:** Tim Shalabi  
**Site contact addr line1:** 2326 Milwaukee Way  
**Site Contact City/State/ Zip:** Tacoma, WA 98421  
**Site Contact Country:** UNITED STATES  
**Site Contact Phone #:** (253)627-8444  
**Site Contact EMail:** corporate@pyramidgold.net  
**Form Contact NAME:** Stuart Pennington  
**Form Contact ADDR LINE1:** 2326 Milwaukee Way  
**Form Contact City, ST, Zip:** Tacoma, WA 98421  
**Form Contact Country:** UNITED STATES  
**Form Contact Phone #:** (253)627-8444  
**Form Contact EMail:** corporate@pyramidgold.net  
**Gen Status CD:** XQG  
**Monthly Generation:** False  
**Batch Generation:** False  
**One Time Generation:** False  
**Transport Own Waste:** False  
**Tranports Other Waste:** False  
**Recycler Onsite:** False  
**Transfer Facility:** False  
**Other Exemption:** Not reported  
**UW Battery Gen:** False  
**Used Oil Transporter:** False  
**Used Oil Transfer Facility:** False  
**Used Oil Processor:** False  
**Used Oil Refiner:** False  
**Used Oil Fuel Marketer Directs Shipments:** False  
**Used Oil Fuel Marketer Meets Specs:** False  

**Waste Streams Generated:**  
**Facility ID:** 79226415  
**Data Year:** 2009  
**Description:** Absorbent, soil and debris with gasoline  
**Mix:** False  
**Reported Qty:** 300 LB  
**Kilo Qty:** 136.08000234057604  
**Density No:** 0  
**Density Qty:** Not reported  

**Facility ID:** 79226415  
**Data Year:** Not reported  
**Description:** Absorbent, soil and debris with gasoline  
**Mix:** No  
**Reported Qty:** 350 LB
## ARCO 6031 (Continued)

<table>
<thead>
<tr>
<th>Description</th>
<th>Data Year</th>
<th>Facility ID</th>
<th>Kilo Qty</th>
<th>Density No</th>
<th>Density Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kilo Qty: 158.760002730672</td>
<td></td>
<td>79226415</td>
<td></td>
<td>0</td>
<td>Not reported</td>
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<tr>
<td>Density No: 0</td>
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<td>Density Qty: Not reported</td>
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<tr>
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<tr>
<td>Data Year: Not reported</td>
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<tr>
<td>Description: Absorbent, soil and debris with gasoline</td>
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</tr>
<tr>
<td>Mix: No</td>
<td></td>
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</tr>
<tr>
<td>Reported Qty: 500 LB</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Density Qty: Not reported</td>
<td></td>
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</tr>
<tr>
<td>Facility ID: 79226415</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td>Data Year: Not reported</td>
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<td>Description: Gasoline and water mixture</td>
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<tr>
<td>Mix: No</td>
<td></td>
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</tr>
<tr>
<td>Reported Qty: 110 GAL</td>
<td></td>
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<td>Kilo Qty: 416.132647157482</td>
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<tr>
<td>Density Qty: PPG</td>
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</tr>
</tbody>
</table>

### Shipments Sent:

- **Facility ID:** 79226415
- **Data Year:** Not reported
- **Shipment sent data:** 8/1/2007
- **Reported Qty:** 100 LB
- **Kilo Qty:** 45.360000780192

- **Facility ID:** 79226415
- **Data Year:** Not reported
- **Shipment sent data:** 9/28/2007
- **Reported Qty:** 250 LB
- **Kilo Qty:** 113.4000195048

### Waste Stream Comments:

- **Facility ID:** 79226415
- **Data Year:** 2006
- **Comments:** A-7&A-8: Petroleum contact water from secondary containment.
CIR QUICK INCORPORATED (Continued) 1000139524

Program ID: WAD981768294
Date Interaction: 1997-01-01 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.713434358000001
Longitude: -122.165915107

Interaction: 50750
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD981768294
Date Interaction: 1987-07-21 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.713434358000001
Longitude: -122.165915107

RCRA NonGen / NLR:
Date form received by agency: 03/30/1998
Facility name: CIR QUICK INC
Facility address: 12817 NE 126TH PL
KIRKLAND, WA 98034
EPA ID: WAD981768294
Mailing address: PO BOX 875
REDMOND, WA 98073
Contact: DAVID NANLE
Contact address: 21817 NE 126TH PL
KIRKLAND, WA 98034
Contact country: US
Contact telephone: 425-821-6247
Contact email: Not reported
EPA Region: 10
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: RYDER, DAVE
Owner/operator address: PO BOX 875
REDMOND, WA 98073
Owner/operator country: US
Owner/operator telephone: 206-882-1873
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported
Owner/operator name: WILLOWS PARK ASSOCIATES
Owner/operator address: PO BOX 5003
BELLEVUE, WA 98009
Owner/operator country: US
CIR QUICK INCORPORATED  (Continued)

Owner/operator telephone:  000-000-0000
Owner/operator email:  Not reported
Owner/operator fax:  Not reported
Owner/operator extension:  Not reported
Legal status:  Private
Owner/Operator Type:  Owner
Owner/Op start date:  Not reported
Owner/Op end date:  Not reported

Handler Activities Summary:
U.S. importer of hazardous waste:  No
Mixed waste (haz. and radioactive):  No
Recycler of hazardous waste:  No
Transporter of hazardous waste:  No
Treater, storer or disposer of HW:  No
Underground injection activity:  No
On-site burner exemption:  No
Furnace exemption:  No
Used oil fuel burner:  No
Used oil processor:  No
User oil refiner:  No
Used oil fuel marketer to burner:  No
Used oil Specification marketer:  No
Used oil transfer facility:  No
Used oil transporter:  No

Historical Generators:
Date form received by agency: 03/30/1998
Site name:  CIR QUICK INC
Classification:  Large Quantity Generator

Date form received by agency: 03/30/1998
Site name:  CIR QUICK INC
Classification:  Not a generator, verified

Date form received by agency: 03/30/1998
Site name:  CIR QUICK INC
Classification:  Not a generator, verified

- Waste code:  D008
- Waste name:  LEAD
- Waste code:  F006
- Waste name:  WASTEWATER TREATMENT SLUDGES FROM ELECTROPLATING OPERATIONS EXCEPT FROM THE FOLLOWING PROCESSES: (1) SULFURIC ACID ANODIZING OF ALUMINUM; (2) TIN PLATING ON CARBON STEEL; (3) ZINC PLATING (SEGREGATED BASIS) ON CARBON STEEL; (4) ALUMINUM OR ZINC-ALUMINUM PLATING ON CARBON STEEL; (5) CLEANING/STRIPPING ASSOCIATED WITH TIN, ZINC AND ALUMINUM PLATING ON CARBON STEEL; AND (6) CHEMICAL ETCHING AND MILLING OF ALUMINUM.

Violation Status:  No violations found

FINDS:
Registry ID:  110000828800
CIR QUICK INCORPORATED (Continued)

Environmental Interest/Information System

Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

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[Click this hyperlink](http://echo.epa.gov/detailed-facility-report?fid=110000828800) while viewing on your computer to access corrective action activities required under RCRA.

<table>
<thead>
<tr>
<th>ECHO:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Envid: 1000139524</td>
</tr>
<tr>
<td>Registry ID: 110000828800</td>
</tr>
</tbody>
</table>

| O67 | EAST URBAN AUTO SVC | WA ALLSites | 1004793302 |
| SE | 11841 SLATER AVE | RCRA NonGen / NLR | WA0000968297 |
| 1/4-1/2 | KIRKLAND, WA 98034 | FINDS | ECHO |
| 0.374 mi. | 1976 ft. | Site 1 of 2 in cluster O |

Relative: ALLSITES:

| Facility Name: EAST URBAN AUTO SVC |
| Facility Id: 43348836 |

| Interaction: 44399 |
| Interaction 1: HWG |
| Interaction 2: HAZWASTE |
| Ecology Program: TURBOWASTE |
| Program Data: |
| Facility Alt.: Not reported |
| Program ID: WA0000968297 |
| Date Interaction: 1994-12-07 00:00:00 |
| Date Interaction 2: Hazardous Waste Generator |
| Date Interaction 3: |
| Latitude: 47.70619435999998 |
| Longitude: -122.17298510800001 |

RCRA NonGen / NLR:

Date form received by agency: 01/22/2004

| Facility name: EAST URBAN AUTO SVC |
| Facility address: 11841 SLATER AVE KIRKLAND, WA 98034 |
| EPA ID: WA0000968297 |
| Mailing address: 11841 SLATER AVE NE KIRKLAND, WA 98034-4103 |
| Contact: JERI LUCAS |
| Contact address: 11841 SLATER AVE NE |
EAST URBAN AUTO SVC (Continued)

KIRKLAND, WA 98034-4103

Contact country: US
Contact telephone: 425-821-8619
Contact email: Not reported
EPA Region: 10
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: EAST URBAN AUTO SVC
Owner/operator address: 11841 SLATER AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-821-8619
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: EAST URBAN AUTO SVC
Owner/operator address: 11841 SLATER AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 05/01/1996
Owner/Op end date: Not reported

Owner/operator name: JERI LUCAS
Owner/operator address: 11841 SLATER AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 05/06/1997
Owner/Op end date: Not reported

Owner/operator name: BUCHAN BROTHERS CONSTRUCTION
Owner/operator address: 11555 NORTHUP WAY
BELLEVUE, WA 98004
Owner/operator country: US
Owner/operator telephone: 425-827-9499
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
MAP FINDINGS

EAST URBAN AUTO SVC (Continued)

Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: No
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil fuel burner: No
- Used oil processor: No
- User oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No

Historical Generators:
Date form received by agency: 01/22/2004
Site name: EAST URBAN AUTO SVC
Classification: Not a generator, verified

Date form received by agency: 12/31/2003
Site name: EAST URBAN AUTO SVC
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:
Registry ID: 110005307792

Environmental Interest/Information System
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HAZARDOUS WASTE BIENNIAL REPORTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.
### EAST URBAN AUTO SVC (Continued)

**MAP FINDINGS**

<table>
<thead>
<tr>
<th>Map ID</th>
<th>Direction</th>
<th>Distance</th>
<th>Elevation</th>
<th>Site</th>
</tr>
</thead>
</table>

**MAP FINDINGS**

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<tr>
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<th>Database(s)</th>
<th>EPA ID Number</th>
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</table>

**ECHO:**

- **Envid:** 1004793302
- **Registry ID:** 110005307792

**N68**  
**SSE**  
**1/4-1/2**  
**0.389 mi.**  
**2056 ft.**  
**Site 4 of 5 in cluster N**

**Relative:**  
**Higher:**

**Actual:**

**174 ft.**

**ALLSITES:**

- **Facility Name:** IMPORT CAR SVC INC
- **Facility Id:** 79325544
- **Interaction:** 65090
- **Interaction 1:** I
- **Interaction 2:** HWG
- **Ecology Program:** HAZWASTE
- **Program Data:** TURBOWASTE
- **Facility Alt.:** Not reported
- **Program ID:** WAD988518122
- **Date Interaction:** 1993-02-19 00:00:00
- **Date Interaction 3:** Hazardous Waste Generator
- **Latitude:** 47.709524361
- **Longitude:** -122.18246510500001

**RCRA NonGen / NLR:**

- **Date form received by agency:** 02/19/1998
- **Facility name:** IMPORT CAR SVC INC
- **Facility address:** 11926 124TH AVE NE  
  KIRKLAND, WA 98034-8111
- **EPA ID:** WAD988518122
- **Contact:** IMPORT CAR SVC IMPORT CAR SVC
- **Contact address:** 11926 124TH AVE NE  
  KIRKLAND, WA 98034-8111
- **Contact country:** US
- **Contact telephone:** 000-000-0000
- **Contact email:** Not reported
- **EPA Region:** 10
- **Land type:** Private
- **Classification:** Non-Generator
- **Description:** Handler: Non-Generators do not presently generate hazardous waste

**Owner/Operator Summary:**

- **Owner/operator name:** IMPORT CAR SVC
- **Owner/operator address:** 11926 124TH AVE NE  
  KIRKLAND, WA 98034
- **Owner/operator country:** US
- **Owner/operator telephone:** 000-000-0000
- **Owner/operator email:** Not reported
- **Owner/operator fax:** Not reported
- **Owner/operator extension:** Not reported
- **Legal status:** Private
- **Owner/Operator Type:** Owner

**RCRA NonGen / NLR:**

- **Date form received by agency:** 02/19/1998
- **Facility name:** IMPORT CAR SVC INC
- **Facility address:** 11926 124TH AVE NE  
  KIRKLAND, WA 98034-8111
- **EPA ID:** WAD988518122
- **Contact:** IMPORT CAR SVC IMPORT CAR SVC
- **Contact address:** 11926 124TH AVE NE  
  KIRKLAND, WA 98034-8111
- **Contact country:** US
- **Contact telephone:** 000-000-0000
- **Contact email:** Not reported
- **EPA Region:** 10
- **Land type:** Private
- **Classification:** Non-Generator
- **Description:** Handler: Non-Generators do not presently generate hazardous waste

**Owner/Operator Summary:**

- **Owner/operator name:** IMPORT CAR SVC
- **Owner/operator address:** 11926 124TH AVE NE  
  KIRKLAND, WA 98034
- **Owner/operator country:** US
- **Owner/operator telephone:** 000-000-0000
- **Owner/operator email:** Not reported
- **Owner/operator fax:** Not reported
- **Owner/operator extension:** Not reported
- **Legal status:** Private
- **Owner/Operator Type:** Owner
IMPORT CAR SVC INC (Continued) 1000838992

Owner/Op start date: 05/03/1996
Owner/Op end date: Not reported

Handler Activities Summary:
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: No
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil fuel burner: No
- Used oil processor: No
- Used oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No

Historical Generators:
- Date form received by agency: 02/19/1998
- Site name: IMPORT CAR SVC INC
- Classification: Not a generator, verified
- Violation Status: No violations found

Evaluation Action Summary:
- Evaluation date: 01/29/1998
- Evaluation: COMPLIANCE ASSISTANCE VISIT
- Area of violation: Not reported
- Date achieved compliance: Not reported
- Evaluation lead agency: State

FINDS:

Registry ID: 110005384280

Environmental Interest/Information System
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Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
- Envid: 1000838992
- Registry ID: 110005384280
- DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005384280
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<tr>
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<tbody>
<tr>
<td>Site Id:</td>
<td>2555</td>
</tr>
<tr>
<td>UBI:</td>
<td>Not reported</td>
</tr>
<tr>
<td>Phone Number:</td>
<td>Not reported</td>
</tr>
<tr>
<td>Decimal Latitude:</td>
<td>47.70553</td>
</tr>
<tr>
<td>Decimal Longitude:</td>
<td>-122.176975</td>
</tr>
</tbody>
</table>

- **Tank Name:** TANK #1
- **Tag Number:** Not reported
- **Tank Status:** Removed
- **Tank Status Date:** 08/06/1996
- **Tank Install Date:** 00/31/1964
- **Tank Closure Date:** Not reported
- **Capacity Range:** 111 TO 1,100 Gallons
- **Tank Permit Expiration Date:** Not reported
- **Tank Upgrade Date:** Not reported
- **Tank Spill Prevention:** Not reported
- **Tank Overfill Prevention:** Not reported
- **Tank Material:** Steel
- **Tank Construction:** Single Wall Tank
- **Tank Tightness Test:** Not reported
- **Tank Corrosion Protection:** Not reported
- **Tank Manifold:** Not reported
- **Tank Release Detection:** Not reported
- **Tank SFC Type:** Not reported
- **Pipe Material:** Steel
- **Pipe Construction:** Not reported
- **Pipe Primary Release Detection:** Not reported
- **Pipe Second Release Detection:** Not reported
- **Pipe Corrosion Protection:** Not reported
- **Pipe Pumping System:** Not reported
- **Responsible Unit:** NORTHWEST
- **Dispenser/Pump SFC Type:** Not reported

**ALLSITES:**

- **Facility Name:** BUCHAN BROS INVESTMENT PROPERTY
- **Facility Id:** 25769269

- **Interaction:** 34722
- **Interaction 1:** I
- **Interaction 2:** UST
- **Ecology Program:** TOXICS
- **Program Data:** UST
- **Facility Alt.:** Not reported
- **Program ID:** 2555
- **Date Interaction:** 2000-02-29 00:00:00
- **Date Interaction 3:** Underground Storage Tank
- **Latitude:** 47.705524359999998
- **Longitude:** -122.176960108
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<th>Distance</th>
<th>Elevation</th>
<th>Site</th>
<th>Site 1 of 4 in cluster P</th>
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<tbody>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/4-1/2</td>
<td></td>
<td>0.396 mi.</td>
<td>2091 ft.</td>
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</table>

**CSCSL:**
- **Facility ID:** 37172442
- **Region:** Northwest
- **Lat/Long:** 47.70534 / -122.182355
- **Brownfield Status:** Not reported
- **Rank Status:** N
- **Clean Up Siteid:** 5968
- **Site Status:** Cleanup Started
- **PSI?**:
- **Contaminant Name:** Benzene
- **Ground Water:** Confirmed Above Cleanup Level
- **Surface Water:** Not reported
- **Soil:** Not reported
- **Sediment:** Not reported
- **Air:** Not reported
- **Bedrock:** Not reported
- **Responsible Unit:** Northwest

**Facility ID:** 37172442
- **Region:** Northwest
- **Lat/Long:** 47.70534 / -122.182355
- **Brownfield Status:** Not reported
- **Rank Status:** N
- **Clean Up Siteid:** 5968
- **Site Status:** Cleanup Started
- **PSI?**:
- **Contaminant Name:** Metals - Other
- **Ground Water:** Confirmed Above Cleanup Level
- **Surface Water:** Not reported
- **Soil:** Not reported
- **Sediment:** Not reported
- **Air:** Not reported
- **Bedrock:** Not reported
- **Responsible Unit:** Northwest

**Facility ID:** 37172442
- **Region:** Northwest
- **Lat/Long:** 47.70534 / -122.182355
- **Brownfield Status:** Not reported
- **Rank Status:** N
- **Clean Up Siteid:** 5968
- **Site Status:** Cleanup Started
- **PSI?**:
- **Contaminant Name:** Petroleum-Diesel
- **Ground Water:** Confirmed Above Cleanup Level
- **Surface Water:** Not reported
- **Soil:** Not reported
- **Sediment:** Not reported
- **Air:** Not reported
- **Bedrock:** Not reported
- **Responsible Unit:** Northwest

**Facility ID:** 37172442
- **Region:** Northwest
- **Lat/Long:** 47.70534 / -122.182355
- **Brownfield Status:** Not reported
- **Rank Status:** N
- **Clean Up Siteid:** 5968
- **Site Status:** Cleanup Started
- **PSI?**:
- **Contaminant Name:** Benzene
- **Ground Water:** Confirmed Above Cleanup Level
- **Surface Water:** Not reported
- **Soil:** Not reported
- **Sediment:** Not reported
- **Air:** Not reported
- **Bedrock:** Not reported
- **Responsible Unit:** Northwest

**Facility ID:** 37172442
- **Region:** Northwest
- **Lat/Long:** 47.70534 / -122.182355
- **Brownfield Status:** Not reported
- **Rank Status:** N
- **Clean Up Siteid:** 5968
- **Site Status:** Cleanup Started
- **PSI?**:
- **Contaminant Name:** Metals - Other
- **Ground Water:** Confirmed Above Cleanup Level
- **Surface Water:** Not reported
- **Soil:** Not reported
- **Sediment:** Not reported
- **Air:** Not reported
- **Bedrock:** Not reported
- **Responsible Unit:** Northwest

**Facility ID:** 37172442
- **Region:** Northwest
- **Lat/Long:** 47.70534 / -122.182355
- **Brownfield Status:** Not reported
- **Rank Status:** N
- **Clean Up Siteid:** 5968
- **Site Status:** Cleanup Started
- **PSI?**:
- **Contaminant Name:** Petroleum-Diesel
- **Ground Water:** Confirmed Above Cleanup Level
- **Surface Water:** Not reported
- **Soil:** Not reported
- **Sediment:** Not reported
- **Air:** Not reported
- **Bedrock:** Not reported
- **Responsible Unit:** Northwest

**Facility ID:** 37172442
- **Region:** Northwest
- **Lat/Long:** 47.70534 / -122.182355
- **Brownfield Status:** Not reported
- **Rank Status:** N
- **Clean Up Siteid:** 5968
- **Site Status:** Cleanup Started
- **PSI?**:
- **Contaminant Name:** Benzene
- **Ground Water:** Confirmed Above Cleanup Level
- **Surface Water:** Not reported
- **Soil:** Not reported
- **Sediment:** Not reported
- **Air:** Not reported
- **Bedrock:** Not reported
- **Responsible Unit:** Northwest

TC5463995.2s  Page 557
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NORTHWEST CONSTRUCTION INC  (Continued)  1000411165

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Capacity Range: Not reported
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Tank Overfill Prevention: Not reported
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Pipe Pumping System: Not reported
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

Tank Name: OIL #2
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 00/31/1964
Tank Closure Date: Not reported
Capacity Range: Not reported
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Tank Upgrade Date: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
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Tank Construction: Not reported
Tank Tightness Test: Not reported
Tank Corrosion Protection: Not reported
Tank Manifold: Not reported
Tank Release Detection: Not reported
Tank SFC Type: Not reported
Pipe Material: Not reported
Pipe Construction: Not reported
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Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Pipe Pumping System: Not reported
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

Tank Name: OIL #3
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 00/31/1964
Tank Closure Date: Not reported
NORTHWEST CONSTRUCTION INC  (Continued)  1000411165

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Tag Number: Not reported
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Tank Status Date: 08/06/1996
Tank Install Date: 00/31/1964
Tank Closure Date: Not reported
Capacity Range: Not reported
Tank Permit Expiration Date: Not reported
Tank Upgrade Date: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
Tank Material: Steel
Tank Construction: Not reported
Tank Tightness Test: Not reported
Tank Corrosion Protection: Not reported
Tank Manifold: Not reported
Tank Release Detection: Not reported
Tank SFC Type: Not reported
Pipe Material: Not reported
Pipe Construction: Not reported
Pipe Primary Release Detection: Not reported
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Pipe Pumping System: Not reported
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

ALL SITES:
- Facility Name: HOMEBASE 45
- Facility Id: 37172442

Interaction: 41098
Interaction 1: I
Interaction 2: VOLCLNST
Ecology Program: TOXICS
NORTHWEST CONSTRUCTION INC (Continued)

Program Data: ISIS
Facility Alt.: Homebase 45
Program ID: NW0573
Date Interaction: 2000-11-09 00:00:00
Date Interaction 3: Voluntary Cleanup Sites
Latitude: 47.70534360999998
Longitude: -122.182340106

Interaction: 41100
Interaction 1: A
Interaction 2: SCS
Ecology Program: TOXICS
Program Data: ISIS
Facility Alt.: Homebase 45
Program ID: Not reported
Date Interaction: 2006-07-19 00:00:00
Date Interaction 3: State Cleanup Site
Latitude: 47.70534360999998
Longitude: -122.182340106

Interaction: 41096
Interaction 1: I
Interaction 2: LUST
Ecology Program: TOXICS
Program Data: ISIS
Facility Alt.: Not reported
Program ID: 7352
Date Interaction: 1989-05-02 00:00:00
Date Interaction 3: LUST Facility
Latitude: 47.70534360999998
Longitude: -122.182340106

Interaction: 41099
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD988469045
Date Interaction: 1989-10-30 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.70534360999998
Longitude: -122.182340106

Interaction: 41097
Interaction 1: I
Interaction 2: UST
Ecology Program: TOXICS
Program Data: UST
Facility Alt.: Not reported
Program ID: 7352
Date Interaction: 2000-03-20 00:00:00
Date Interaction 3: Underground Storage Tank
NORTHWEST CONSTRUCTION INC (Continued)

Latitude: 47.70534360999998
Longitude: -122.182340106

P71
EVERGREEN AUTO REBUILD INC KIRKLAND

SSW
11731 120TH AVE NE STE A
KIRKLAND, WA 98034

1/4-1/2
0.399 mi.
2105 ft.

Site 2 of 4 in cluster P
Relative: ALLSITES:
Higher Facility Name: EVERGREEN AUTO REBUILD INC KIRKLAND
Actual: 187 ft.

Interaction: 104369
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Evergreen Auto Rebuild Inc Kirkland
Program ID: WAH000043116
Date Interaction: 2013-03-25 00:00:00
Date Interaction 2: Hazardous Waste Generator
Latitude: 47.705923812000002
Longitude: -122.18173859700001

WASHINGCTON ELECTRIC SIGN INC

East
12815 NE 124TH
KIRKLAND, WA 98034

1/4-1/2
0.405 mi.
2137 ft.

Relative: ALLSITES:
Higher Facility Name: WASHINGTON ELECTRIC SIGN INC
Actual: 149 ft.

Interaction: 32634
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD151660867
Date Interaction: 1987-03-10 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.706034361
Longitude: -122.177195107

RCRA NonGen / NLR:
Date form received by agency: 09/03/1998
Facility name: WASHINGTON ELECTRIC SIGN INC
Facility address: 12815 NE 124TH
KIRKLAND, WA 98034
EPA ID: WAD151660867
WASHINGTON ELECTRIC SIGN INC (Continued) 1000241867

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<tr>
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<td>WASHINGTON ELEC W</td>
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<tr>
<td>Contact address:</td>
<td>12815 NE 124TH ST KIRKLAND, WA 98034</td>
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<td>Description:</td>
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Owner/Operator Summary:
- Owner/operator name: WASHINGTON ELEC W
- Owner/operator address: 12815 NE 124TH ST KIRKLAND, WA 98034
- Owner/operator country: US
- Owner/operator telephone: 000-000-0000
- Owner/operator email: Not reported
- Owner/operator fax: Not reported
- Owner/operator extension: Not reported

Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 05/02/1996
Owner/Op end date: Not reported

Handler Activities Summary:
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: No
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil fuel burner: No
- Used oil processor: No
- Used oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No

Historical Generators:
- Date form received by agency: 09/03/1998
- Site name: WASHINGTON ELECTRIC SIGN INC
- Classification: Not a generator, verified

Violation Status: No violations found

FINDS:
- Registry ID: 110005332577

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource
WASHINGTON ELECTRIC SIGN INC  (Continued) 1000241867

Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1000241867
Registry ID: 110005332577
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005332577

P73 EASTSIDE SPRAYING SERVICE 11803 120TH AVE NE KIRKLAND, WA 98034 WA ALLSITES 1007069917 FINDS N/A

0.408 mi.
Site 3 of 4 in cluster P
2154 ft.
Relative: Higher
Actual: 177 ft.

Interaction: 47500
Interaction 1: I
Interaction 2: TIER2
Ecology Program: HAZWASTE
Program Data: EPCRA
Facility Alt.: Not reported
Program ID: CRK000004530
Date Interaction: 1990-01-01 00:00:00
Date Interaction 2: Emergency/Haz Chem Rpt TI
Date Interaction 3: 47.704912284000002
Latitude: -122.183570471
Longitude: 48426162

FINDS:
Registry ID: 110015465236

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.
### 74 SCOTTS LAWSERVICE KIRKLAND
#### WA ALLSITES S109553288

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<tr>
<td>Longitude:</td>
<td>-47.70663310999999</td>
<td></td>
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</tbody>
</table>

### 75 CRITTER DOCTOR ANIMAL HOSPITAL
#### WA ALLSITES S110123498

<table>
<thead>
<tr>
<th>Site</th>
<th>Facility Name</th>
<th>Facility ID</th>
<th>Site Id:</th>
<th>Phone Number:</th>
<th>UBI:</th>
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<th>EPA ID Number</th>
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<td>Site 2 of 2 in cluster O</td>
<td>CRITTER DOCTOR ANIMAL HOSPITAL</td>
<td>4660</td>
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<td>Interaction</td>
<td>89081</td>
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<tr>
<td>Interaction 1:</td>
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<tr>
<td>Ecology Program:</td>
<td>HAZWASTE</td>
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<tr>
<td>Program Data:</td>
<td>LSC</td>
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<tr>
<td>Facility Alt.:</td>
<td>Critter Doctor Animal Hospital</td>
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<td>Program ID:</td>
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<tr>
<td>Date Interaction:</td>
<td>2009-04-21 00:00:00</td>
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<td>Date Interaction 3:</td>
<td>Local Source Cntrl 7/09-3</td>
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### 76 KIRKLAND CHRYSLER PLYMOUTH JEEP EAGLE
#### WA UST 1001491257

<table>
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<th>Site</th>
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---

TC5463995.2s  Page 566
KIRKLAND CHRYSLER PLYMOUTH JEEP EAGLE (Continued) 1001491257

Decimal Longitude: -122.168321771841

Tank Name: 1
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 00/20/1978
Tank Closure Date: Not reported
Capacity Range: Not reported
Tank Permit Expiration Date: 07/01/1994
Tank Upgrade Date: Not reported
Tank Spill Prevention: None
Tank Overfill Prevention: None
Tank Material: Not reported
Tank Construction: Single Wall Tank
Tank Tightness Test: Not reported
Tank Corrosion Protection: Other
Tank Manifold: Not reported
Tank Release Detection: Vapor Monitoring
Tank SFC Type: Not reported
Pipe Material: Not reported
Pipe Construction: Single Wall Pipe
Pipe Primary Release Detection: Other
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Other
Pipe Pumping System: Other
Responsible Unit: NORTHWEST
Dispencer/Pump SFC Type: Not reported

ALLSITES:

Facility Name: KIRKLAND CHRYSLER PLYMOUTH JEEP EAGLE
Facility Id: 31669993

Interaction: 37494
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAR000004572
Date Interaction: 1995-08-24 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.711358593999996
Longitude: -122.168301672

Interaction: 37492
Interaction 1: I
Interaction 2: UST
Ecology Program: TOXICS
Program Data: UST
Facility Alt.: Not reported
Program ID: Not reported
Date Interaction: 1978-10-20 00:00:00
Date Interaction 3: Underground Storage Tank
Latitude: 47.711358593999996
Longitude: -122.168301672
KIRKLAND CHRYSLER PLYMOUTH JEEP EAGLE  (Continued)

Interaction: 37493
Interaction 1: I
Interaction 2: UST
Ecology Program: TOXICS
Program Data: UST
Facility Alt.: Not reported
Program ID: Not reported
Date Interaction: 1993-11-18 00:00:00
Date Interaction 3: Underground Storage Tank
Latitude: 47.711358593999996
Longitude: -122.168301672

RCRA NonGen / NLR:
Date form received by agency: 01/31/1997
Facility name: KIRKLAND CHRYSLER PLYMOUTH JEEP EAGLE
Facility address: 12828 NE 124TH ST
KIRKLAND, WA 98034
EPA ID: WAR000004572
Mailing address: PO BOX 8260
KIRKLAND, WA 98034-0260
Contact: KIRKLAND CHRYSLER CHRYSLER CHRYSL
Contact address: PO BOX 8260
KIRKLAND, WA 98034-0260
Contact country: US
Contact telephone: 000-000-0000
Contact email: Not reported
EPA Region: 10
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: DARRELL R
Owner/operator address: PO BOX 8260
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-821-1777
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 11/20/1996
Owner/Op end date: Not reported

Owner/operator name: CHRYSLER REALTY C
Owner/operator address: 7700 IRVINE CENTER DR STE 330
IRVINE, CA 92618
Owner/operator country: US
Owner/operator telephone: 714-450-5119
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 11/20/1996
KIRKLAND CHRYSLER PLYMOUTH JEEP EAGLE  (Continued)

Owner/Op end date:  Not reported

Handler Activities Summary:
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: No
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil fuel burner: No
- Used oil processor: No
- User oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No

Historical Generators:
- Date form received by agency: 01/31/1997
- Site name: KIRKLAND CHRYSLER PLYMOUTH JEEP EAGLE
- Classification: Not a generator, verified
- Violation Status: No violations found

FINDS:
- Registry ID: 110005401555

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
- Envid: 1001491257
- Registry ID: 110005401555
- DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005401555
ALL SITES:

Facility Name: SPECTRA LUX CORP
Facility Id: 63657721

Interaction: 55980
Interaction 1:
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD982653537
Date Interaction: 1988-08-01 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.705464360000001
Longitude: -122.181125107

Interaction: 55983
Interaction 1:
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: HWPPRPT
Facility Alt.: Not reported
Program ID: WAD982653537
Date Interaction: 1993-01-01 00:00:00
Date Interaction 3: Hazardous Waste Planner
Latitude: 47.705464360000001
Longitude: -122.181125107

Interaction: 55981
Interaction 1:
Interaction 2: TRI
Ecology Program: HAZWASTE
Program Data: EPCRA
Facility Alt.: Not reported
Program ID: WAD982653537
Date Interaction: 1989-01-01 00:00:00
Date Interaction 3: Toxics Release Inventory
Latitude: 47.705464360000001
Longitude: -122.181125107

Interaction: 55985
Interaction 1:
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: HWPPRPT
Facility Alt.: Not reported
Program ID: WAD982653537
Date Interaction: 2005-01-01 00:00:00
Date Interaction 3: Hazardous Waste Planner
Latitude: 47.705464360000001
SPECTRA LUX CORP (Continued)

Longitude: -122.181125107
Interaction: 83047
Interaction 1: I
Interaction 2: IND SWGP
Ecology Program: WATQUAL
Program Data: PARIS
Facility Alt.: SPECTRA LUX CORP
Program ID: SO3000703
Date Interaction: 1992-12-18 00:00:00
Date Interaction 3: Industrial SW GP
Latitude: 47.705464360000001
Longitude: -122.181125107

RCRA NonGen / NLR:
Date form received by agency: 02/27/2004
Facility name: SPECTRA LUX CORP
Facility address: 11825 120TH NE KIRKLAND, WA 98034
EPA ID: WAD982653537
Mailing address: 12335 134TH COURT NE REDMOND, WA 98052
Contact: DENNIS EGAN
Contact address: 12335 134TH COURT NE REDMOND, WA 98052
Contact country: US
Contact telephone: 425-823-1801
Contact email: DENNISE@SPECTRALUX.COM
EPA Region: 10
Land type: Private
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: SPECTRA LUX CORP
Owner/operator address: 12335 134TH COURT NE REDMOND, WA 98052
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/01/1997
Owner/Op end date: Not reported

Owner/operator name: SPECTRA LUX CORP
Owner/operator address: 12335 134TH COURT NE REDMOND, WA 98052
Owner/operator country: US
Owner/operator telephone: 425-823-6857
Owner/operator email: Not reported
Owner/operator fax: Not reported
IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF

{..."Waste name": D001, ...}
SPECTRA LUX CORP (Continued)

LESSEE Than 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKEY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

- Waste code: D002
- Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

- Waste code: D006
- Waste name: CADMIUM

- Waste code: D011
- Waste name: SILVER

- Waste code: D018
- Waste name: BENZENE

- Waste code: D035
- Waste name: METHYL ETHYL KETONE

- Waste code: D039
- Waste name: TETRACHLOROETHYLENE

- Waste code: D040
- Waste name: TRICHLOROETHYLENE

- Waste code: F003
- Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

- Waste code: F005
- Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPAINE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 12/31/2003
Site name: SPECTRA LUX CORP
SPECTRA LUX CORP (Continued)

Classification: Small Quantity Generator

Facility Has Received Notices of Violations:
Regulation violated: SR - 200(1)(b) / -630(6)
Area of violation: Generators - Records/Reporting
Date violation determined: 05/08/2003
Date achieved compliance: 06/09/2003

Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 05/13/2003
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 05/08/2003
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Records/Reporting
Date achieved compliance: 06/09/2003
Evaluation lead agency: State

Q78      PREMIUM TUNE N LUBE TOTEM LAKE 1000838592
South     WA UST
1/4-1/2    WA ICR
0.426 mi.  WA VCP
Site 1 of 2 in cluster Q
2249 ft.   WA ALL SITES
          WA CSCSL NFA
          RCRA NonGen / NLR
Higher    FINDS
Actual:   ECHO
UST:
Facility ID: 14423498
Site Id: 1989
UBI: Not reported
Phone Number: Not reported
Decimal Latitude: 47.705389926666
Decimal Longitude: -122.176325404287

Tag Number: 1 - 15/40
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 00/31/1964
Tank Closure Date: Not reported
Capacity Range: Not reported
Tank Permit Expiration Date: 06/30/1998
Tank Upgrade Date: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
Tank Material: Not reported
Tank Construction: Not reported
Tank Tightness Test: Not reported
Tank Corrosion Protection: Not reported
Tank Manifold: Not reported
Tank Release Detection: Not reported
PREMIUM TUNE N LUBE TOTEM LAKE (Continued) 1000838592

Tank SFC Type: Not reported
Pipe Material: Not reported
Pipe Construction: Not reported
Pipe Primary Release Detection: Not reported
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Pipe Pumping System: Not reported
Responsible Unit: NORTHWEST
Dispencer/Pump SFC Type: Not reported

Tank Name: 2 - 10/30
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 00/31/1964
Tank Closure Date: Not reported
Capacity Range: Not reported
Tank Permit Expiration Date: 06/30/1998
Tank Upgrade Date: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
Tank Material: Not reported
Tank Construction: Not reported
Tank Tightness Test: Not reported
Tank Corrosion Protection: Not reported
Tank Manifold: Not reported
Tank Release Detection: Not reported
Tank SFC Type: Not reported
Pipe Material: Not reported
Pipe Construction: Not reported
Pipe Primary Release Detection: Not reported
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Pipe Pumping System: Not reported
Responsible Unit: NORTHWEST
Dispencer/Pump SFC Type: Not reported

Tank Name: 3-WASTE OIL
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 00/31/1964
Tank Closure Date: Not reported
Capacity Range: 111 TO 1,100 Gallons
Tank Permit Expiration Date: 06/30/1998
Tank Upgrade Date: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
Tank Material: Not reported
Tank Construction: Not reported
Tank Tightness Test: Not reported
Tank Corrosion Protection: Not reported
Tank Manifold: Not reported
Tank Release Detection: Not reported
Tank SFC Type: Not reported

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| Pipe Material:                      | Not reported             |
| Pipe Construction:                 | Not reported             |
| Pipe Primary Release Detection:    | Not reported             |
| Pipe Secondary Release Detection:  | Not reported             |
| Pipe Corrosion Protection:         | Not reported             |
| Pipe Pumping System:               | Not reported             |
| Responsible Unit:                  | NORTHWEST                |
| Dispenser/Pump SFC Type:           | Not reported             |

**ICR:**
- Date Ecology Received Report: 09/09/98
- Contaminants Found at Site: Petroleum products
- Media Contaminated: Soil

**VCP:**
- edr_fstat: WA
- edr_fzip: 98034
- edr_fcnty: KING
- edr_zip: Not reported
- Facility ID: 14423498
- VCP Status: Not reported
- VCP: Yes
- Ecology Status: Not reported
- NFA Type: Not reported
- Date NFA: 4/12/1999
- Rank: Not reported
- Cleanup Siteid: 5567

**ALLSITES:**
- Facility Name: PREMIUM TUNE N LUBE TOTEM LAKE
- Facility Id: 14423498

**Interaction:**
- Interaction: 28094
- Interaction 1: I
- Interaction 2: VOLCLNST
- Ecology Program: TOXICS
- Program Data: ISIS
- Facility Alt.: Premium Tune N Lube Totem Lake
- Program ID: 1989
- Date Interaction: 1998-09-09 00:00:00
- Date Interaction 3: Voluntary Cleanup Sites
- Latitude: 47.705384803000001
- Longitude: -122.17631933600001
PREMIUM TUNE N LUBE TOTEM LAKE (Continued) 1000838592

Interaction: 28093
Interaction 1: I
Interaction 2: LUST
Ecology Program: TOXIC
Program Data: ISIS
Facility Alt.: Not reported
Program ID: 1989
Date Interaction: 1998-09-09 00:00:00
Date Interaction 3: LUST Facility
Latitude: 47.70538480300001
Longitude: -122.17631933600001

Interaction: 28095
Interaction 1: I
Interaction 2: UST
Ecology Program: TOXIC
Program Data: UST
Facility Alt.: Not reported
Program ID: 1989
Date Interaction: 2000-02-29 00:00:00
Date Interaction 3: Underground Storage Tank
Latitude: 47.705389927
Longitude: -122.1763254

CSCSL NFA:
Facility/Site Id: 14423498
CS Id: 5567
NFA Date: 04/12/1999
Rank: Not reported
VCP: Yes
Latitude: 47.705389927
Longitude: -122.1763254

RCRA NonGen / NLR:
Date form received by agency: 05/26/1998
Facility name: PREMIUM TUNE N LUBE TOTEM LAKE
Facility address: 11727 124TH AVE NE
KIRKLAND, WA 98034
EPA ID: WAD988513792
Mailing address: 24705 SE 45TH WAY
ISSAQAH, WA 98029-7709
Contact: BRIAN C LAWSON
Contact address: 24705 SE 45TH WAY
ISSAQAH, WA 98029-7709
Contact country: US
Contact telephone: 425-392-5500
Contact email: Not reported
EPA Region: 10
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: DGH ENTERPRISES
Owner/operator address: 19401 40TH AVE W STE 310
PREMIUM TUNE N LUBE TOTEM LAKE  (Continued)  1000838592

Owner/operator country: US
Owner/operator telephone: 425-776-3333
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: PREMIUM TUNE N LUBE INC
Owner/operator address: 24705 SE 45TH WAY
ISSAQUAH, WA 98029
Owner/operator country: US
Owner/operator telephone: 425-392-5500
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 03/12/1998
Site name: PREMIUM TUNE N LUBE TOTEM LAKE
Classification: Not a generator, verified
Violation Status: No violations found

FINDS:
Registry ID: 110005380738

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air
PREMIUM TUNE N LUBE TOTEM LAKE (Continued)

Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

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Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.
### ROSETTA INPHARMATICS INC (Continued)

**Handler:** Non-Generators do not presently generate hazardous waste

**Description:**

**Interaction 2:** HWP  
**Ecology Program:** HAZWASTE  
**Program Data:** HWPPRT

**Facility Alt.:** Not reported  
**Program ID:** WAD988473070

**Date Interaction:** 1995-01-01 00:00:00  
**Date Interaction 3:** Hazardous Waste Planner

**Lat:** 47.708894362000002  
**Long:** -122.189035105

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**RCRA NonGen / NLR:**  
Date form received by agency: 03/17/2005

**Facility name:** ROSETTA INPHARMATICS INC  
**Facility address:** 12040 115TH AVE NE STE 210  
**KIRKLAND, WA 98034**

**EPA ID:** WAD988473070  
**Mailing address:** 401 TERRY AVE N  
**SEATTLE, WA 98109**

**Contact:** ROSETTA INPHARM ROSETTA INPHARM  
**Contact address:** 401 TERRY AVE N  
**SEATTLE, WA 98109**

**Contact country:** US  
**Contact telephone:** 000-000-0000  
**Contact email:** Not reported

**EPA Region:** 10  
**Classification:** Non-Generator  
**Description:** Handler: Non-Generators do not presently generate hazardous waste

**Owner/Operator Summary:**

**Owner/operator name:** ROSETTA INPHARMATICS

**Owner/operator address:** 401 TERRY AVE N  
**SEATTLE, WA 98109**

**Owner/operator country:** US  
**Owner/operator telephone:** Not reported  
**Owner/operator email:** Not reported  
**Owner/operator fax:** Not reported  
**Owner/operator extension:** Not reported

**Legal status:** Private  
**Owner/Operator Type:** Operator

**Owner/Op start date:** 04/17/1998  
**Owner/Op end date:** Not reported

**Owner/operator name:** MERCK CO INC

**Owner/operator address:** PO BOX 100  
**WHITEHOUSE STATION, NJ 08889**

**Owner/operator country:** US  
**Owner/operator telephone:** Not reported  
**Owner/operator email:** Not reported  
**Owner/operator fax:** Not reported  
**Owner/operator extension:** Not reported

**Legal status:** Private  
**Owner/Operator Type:** Owner

**Owner/Op start date:** 07/19/2001  
**Owner/Op end date:** Not reported
OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS OFTEN USED BY INDUSTRIES TO CLEAN CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS. WASTE name: D002. WASTE code: WH WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE. MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF U.S. importer of hazardous waste: No Mixed waste (haz. and radioactive): No Recycler of hazardous waste: No Transporter of hazardous waste: No Treater, storer or disposer of HW: No Underground injection activity: No On-site burner exemption: No Furnace exemption: No Used oil fuel burner: No Used oil processor: No User oil refiner: No Used oil fuel marketer to burner: No Used oil Specification marketer: No Used oil transfer facility: No Used oil transporter: No . Waste code: D001 . Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE. . Waste code: D002 . Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS
USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

- Waste code: D003
- Waste name: A MATERIAL IS CONSIDERED TO BE A REACTIVE HAZARDOUS WASTE IF IT IS NORMALLY UNSTABLE, REACTS VIOLENTLY WITH WATER, GENERATES TOXIC GASES WHENEXPOSED TO WATER OR CORROSIVE MATERIALS, OR IF IT IS CAPABLE OF DETONATION OR EXPLOSION WHEN EXPOSED TO HEAT OR A FLAME. ONE EXAMPLE OF SUCH WASTE WOULD BE WASTE GUNPOWDER.

- Waste code: D004
- Waste name: ARSENIC

- Waste code: D008
- Waste name: LEAD

- Waste code: D009
- Waste name: MERCURY

- Waste code: D022
- Waste name: CHLOROFORM

- Waste code: D038
- Waste name: PYRIDINE

- Waste code: D040
- Waste name: TRICHLOROETHYLENE

- Waste code: F003
- Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

- Waste code: F005
- Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

- Waste code: P044
- Waste name: DIMETHOATE

- Waste code: P070
- Waste name: ALDICARB

- Waste code: P089
MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF Waste name: D001. Waste code: Not a generator, verified Classification: ROSETTA INPHARMATICS INC Site name: 02/26/2002 Date form received by agency: Not a generator, verified Classification: ROSETTA INPHARMATICS INC Site name: 12/31/2003 Date form received by agency: CARBAMIC ACID, 1H-BENZIMIDAZOL-2-YL, METHYL ESTER (OR) CARBENDAZIM Historical Generators: Date form received by agency: 12/31/2003 Site name: ROSETTA INPHARMATICS INC Classification: Not a generator, verified Date form received by agency: 02/26/2002 Site name: ROSETTA INPHARMATICS INC Classification: Not a generator, verified Waste code: D001. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT
WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

- Waste code: D002
- Waste name: ACETONE (I)

A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

- Waste code: D009
- Waste name: MERCURY

- Waste code: F003
- Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDs CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDs CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

- Waste code: U002
- Waste name: ACETONE (I)

- Waste code: WT02
- Waste name: WT02

Date form received by agency: 03/01/1996
Site name: PROCYTE CORPORATION - MAIN OFFICE
Classification: Large Quantity Generator
Violation Status: No violations found

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER
Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1001969520
Registry ID: 110009511581
DFR URL: http://echo.epa.gov/detailed-facility-report?id=110009511581

NY MANIFEST:
Country: USA
EPA ID: WAD988473070
Facility Status: Not reported
Location Address 1: 12040 115TH AVENUE NE #210
Code: BP
Location Address 2: Not reported
Total Tanks: Not reported
Location City: KIRKLAND
Location State: WA
Location Zip: 98034
Location Zip 4: Not reported

NY MANIFEST:
EPAID: WAD988473070
Mailing Name: PROCYTE CORP
Mailing Contact: KAREN HEDINE
Mailing Address 1: 12040 115TH AVENUE NE #210
Mailing Address 2: Not reported
Mailing City: KIRKLAND
Mailing State: WA
Mailing Zip: 98034
Mailing Zip 4: Not reported
Mailing Country: USA
Mailing Phone: 4258204548

NY MANIFEST:
Document ID: NYB7732971
Manifest Status: K
seq: Not reported
Year: 1997
Trans1 State ID: Not reported
Trans2 State ID: Not reported
Generator Ship Date: 07/18/1997
Trans1 Recv Date: 07/18/1997
Trans2 Recv Date: 07/23/1997
TSD Site Recv Date: 08/11/1997
Part A Recv Date: / /
Part B Recv Date: 08/26/1997
Generator EPA ID: WAD988473070
Trans1 EPA ID: SCD987574647
Trans2 EPA ID: Not reported
TSDF ID 1: NYD000632372
TSDF ID 2: Not reported
Manifest Tracking Number: Not reported
Import Indicator: Not reported
Export Indicator: Not reported
ROSETTA INPHARMATICS INC (Continued)

Discr Quantity Indicator: Not reported
Discr Type Indicator: Not reported
Discr Residue Indicator: Not reported
Discr Partial Reject Indicator: Not reported
Discr Full Reject Indicator: Not reported
Manifest Ref Number: Not reported
Alt Facility RCRA ID: Not reported
Alt Facility Sign Date: Not reported
MGMT Method Type Code: Not reported
Waste Code: U135 - HYDROGEN SULFIDE
Units: P - Pounds
Number of Containers: 003
Container Type: CF - Fiber or plastic boxes, cartons
Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 100

Click this hyperlink while viewing on your computer to access.
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

Q80 THOMASON FORD TOYOTA WA UST U001123851
SSE 11800 124TH AVE NE WA ALLSITES N/A
1/4-1/2
0.441 mi.
2326 ft. Site 2 of 2 in cluster Q
Relative: Higher
Actual: 184 ft.
UST:
Facility ID: 35499432
Site Id: 4985
UBI: Not reported
Phone Number: Not reported
Decimal Latitude: 47.7049
Decimal Longitude: -122.176975
Tank Name: 1
Tag Number: Not reported
Tank Status: Exempt
Tank Status Date: 08/06/1996
Tank Install Date: 00/31/1964
Tank Closure Date: Not reported
Capacity Range: 111 TO 1,100 Gallons
Tank Permit Expiration Date: Not reported
Tank Upgrade Date: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
Tank Material: Steel
Tank Construction: Not reported
Tank Tightness Test: Not reported
Tank Corrosion Protection: Not reported
Tank Manifold: Not reported
Tank Release Detection: Not reported
Tank SFC Type: Not reported

TC5463995.2s Page 586
THOMASON FORD TOYOTA (Continued)  U001123851

Pipe Material: Steel
Pipe Construction: Not reported
Pipe Primary Release Detection: Not reported
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Pipe Pumping System: Not reported
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

Tank Name: 2
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 00/31/1964
Tank Closure Date: Not reported
Capacity Range: 111 TO 1,100 Gallons
Tank Permit Expiration Date: Not reported
Tank Upgrade Date: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
Tank Material: Steel
Tank Construction: Not reported
Tank Tightness Test: Not reported
Tank Corrosion Protection: Not reported
Tank Manifold: Not reported
Tank Release Detection: Not reported
Tank SFC Type: Not reported
Pipe Material: Steel
Pipe Construction: Not reported
Pipe Primary Release Detection: Not reported
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Pipe Pumping System: Not reported
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

ALL SITES:
Facility Name: FORD OF KIRKLAND
Facility Id: 35499432

Interaction: 39982
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD027271477
Date Interaction: 1985-03-15 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.70484359999997
Longitude: -122.176960107

Interaction: 39984
Interaction 1: I
Interaction 2: UST
THOMASON FORD TOYOTA (Continued)

Ecology Program: TOXICS
Program Data: UST
Facility Alt.: Not reported
Program ID: 4985
Date Interaction: 2000-02-29 00:00:00
Date Interaction 3: Underground Storage Tank
Latitude: 47.70489435999997
Longitude: -122.176960107

Interaction: 39983
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD027271477
Date Interaction: 1995-07-28 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.70489435999997
Longitude: -122.176960107

Interaction: 39985
Interaction 1: I
Interaction 2: HWOTHER
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD027271477
Date Interaction: 2003-12-31 00:00:00
Date Interaction 3: Haz Waste Management Act
Latitude: 47.70489435999997
Longitude: -122.176960107

81 HYUNDAI OF KIRKLAND SERVICE GARAGE WA ALLSITES S114555773 N/A
SSE 11651 Slater Ave NE 1/4-1/2 0.443 mi.
KIRKLAND, WA 98034 2339 ft.
Relative: ALLSITES:
Higher Facility Name: HYUNDAI OF KIRKLAND SERVICE GARAGE
Actual: 191 ft.

Interaction: 106690
Interaction 1: I
Interaction 2: CONSTSWGP
Ecology Program: WATQUAL
Program Data: PARIS
Facility Alt.: Hyundai of Kirkland Service Garage
Program ID: WAR301519
Date Interaction: 2013-12-04 00:00:00
Date Interaction 3: Construction SW GP
Latitude: 47.70533468099997
Longitude: -122.174652412
SAVERS RECYCLING, INC.
12515 116TH AVE NE
KIRKLAND, WA  98034

SWRCY: 81941
Service: Value Village Kirkland
Phone: 425-821-7186
Extension: Not reported
Website: http://www.savers.com/
Email: mtalmadge@savers.com
Material Category: Electronics
Material Accepted: E-readers
Contact Name: Mike Talmadge
Residential: Yes
Commercial: Yes
Service Type: Dropoff and buy-back sites
Light Recycle Participant: No
Hours: 9am to 9pm Monday through Saturday - 10:00 AM -7:00 PM Sunday
Comments: Not reported

Facility ID: 81941
Service: Value Village Kirkland
Phone: 425-821-7186
Extension: Not reported
Website: http://www.savers.com/
Email: mtalmadge@savers.com
Material Category: Electronics
Material Accepted: Computers
Contact Name: Mike Talmadge
Residential: Yes
Commercial: Yes
Service Type: Dropoff and buy-back sites
Light Recycle Participant: No
Hours: 9am to 9pm Monday through Saturday - 10:00 AM -7:00 PM Sunday
Comments: Not reported

Facility ID: 81941
Service: Value Village Kirkland
Phone: 425-821-7186
Extension: Not reported
Website: http://www.savers.com/
Email: mtalmadge@savers.com
Material Category: Electronics
Material Accepted: Monitors
Contact Name: Mike Talmadge
Residential: Yes
Commercial: Yes
Service Type: Dropoff and buy-back sites
Light Recycle Participant: No
Hours: 9am to 9pm Monday through Saturday - 10:00 AM -7:00 PM Sunday
Comments: Not reported
SAVERS RECYCLING, INC. (Continued)

Website: http://www.savers.com/
Email: mtalmadge@savers.com
Material Category: Electronics
Material Accepted: Televisions
Contact Name: Mike Talmadge
Residential: Yes
Commercial: Yes
Service Type: Dropoff and buy-back sites
Light Recycle Participant: No
Hours: 9am to 9pm Monday through Saturday - 10:00 AM - 7:00 PM Sunday
Comments: Not reported

Facility ID: 81941
Service: Value Village Kirkland
Phone: 425-821-7186
Extension: Not reported
Website: http://www.savers.com/
Email: mtalmadge@savers.com
Material Category: Miscellaneous
Material Accepted: Clothes and Textiles
Contact Name: Mike Talmadge
Residential: Yes
Commercial: No
Service Type: Dropoff and buy-back sites
Light Recycle Participant: No
Hours: 9am to 9pm Monday through Saturday - 10:00 AM - 7:00 PM Sunday
Comments: Not reported

SPILLS:
Facility ID: 635258
Medium: SURFACE WATER-FRESH
Material Desc: PETROLEUM - HYDRAULIC OIL
Material Qty: 0
Material Units: GALLON
Date Received: 07/19/2012
Contact Name: Not reported
Incident Date: Not reported
Incident Category Type: Not reported
Incident Category: Not reported
Latitude: Not reported
Longitude: Not reported
SAVERS RECYCLING, INC. (Continued)

Source Type: Not reported
Source: Not reported
Vessel Facility Name2: Not reported
Recovered Quantity: Not reported
Resp Party Contact: Not reported
Cause: Not reported
Cause Type: Not reported
Resp Party Name: Not reported

S83 FOOD & DRUG ADMIN, OFFICE OF CRIMINAL IN
West
1/4-1/2 KIRKLAND, WA 98034
0.446 mi.
2356 ft.
Site 1 of 2 in cluster S

Relative:
Higher
Actual:
151 ft.

Interaction: 103347
Interaction 1: A
Interaction 2: HWOTHER
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Food & Drug Admin, Office of Criminal In
Program ID: WAH000041012
Date Interaction: 2012-12-31 00:00:00
Date Interaction 3: Hazardous Waste Management Act
Latitude: 47.710573294
Longitude: -122.18842569

Interaction: 99847
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Food & Drug Admin, Office of Criminal In
Program ID: WAH000041012
Date Interaction: 2012-02-17 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.710573294
Longitude: -122.18842569

WA MANIFEST:
Facility Site ID Number: 22157
EPA ID: WAH000041012
NAICS: 922120
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2016
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
FOOD & DRUG ADMIN, OFFICE OF CRIMINAL IN (Continued)

Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter deferral: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False

Tax Reg #: NA
Business Type: Federal law enforcement
Mail Name: Food & Drug Admin, Office of Criminal In
Mail addr line1: 11411 NE 124th St
Mail addr line2: Ste 235
Mail city, st, zip: Kirkland, WA 98034
Mail country: UNITED STATES
Legal org name: G & I IV Kirkland LLC
Legal org type: Tribal
Legal addr line1: 220 East 22nd St
Legal addr line2: 27th Floor
Legal city, st, zip: New York, NY 10017
Legal country: UNITED STATES
Legal phone nbr: 425-283-5791
Legal effective date: 01/01/2000
Land org name: G & I IV Kirkland LLC
Land org type: Private
Land person name: Not reported
Land addr line1: 220 East 22nd St
Land addr line2: 27th Floor
Land city, st, zip: New York, NY 10017
Land country: UNITED STATES
Land phone nbr: 425-283-5791
Operator org name: FDA/Office of Criminal Investigator
Operator org type: Federal
Operator addr line1: 7500 Standish Place
Operator addr line2: Ste 250N
Operator city, st, zip: Rockville, MD 20855
Operator country: UNITED STATES
Operator phone nbr: 240-276-9500
Operator effective date: 01/01/2011
Site contact name: Lisa Malinowski
Site contact addr line1: 201 Avenida Fabricante
Site contact addr line2: Ste 200
Site Contact City/State/Zip: San Clemente, CA 92672
Site Contact Country: UNITED STATES
**MAP FINDINGS**

<table>
<thead>
<tr>
<th>Site Contact Phone #:</th>
<th>949-940-4220</th>
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<tbody>
<tr>
<td>Site Contact EMail:</td>
<td><a href="mailto:Bruce.Marron@oci.fda.gov">Bruce.Marron@oci.fda.gov</a></td>
</tr>
<tr>
<td>Form Contact NAME:</td>
<td>Michele Wagner</td>
</tr>
<tr>
<td>Form Contact ADDR LINE1:</td>
<td>7500 Standish Place</td>
</tr>
<tr>
<td>Form Contact ADDR LINE2:</td>
<td>Ste 250N</td>
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<tr>
<td>Form Contact City,ST,Zip:</td>
<td>Rockville, MD 20855</td>
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<td>UNITED STATES</td>
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<td>Form Contact Phone #:</td>
<td>240-276-9480</td>
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<td>Form Contact EMail:</td>
<td><a href="mailto:Michele.Wagner@oci.fda.gov">Michele.Wagner@oci.fda.gov</a></td>
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<td>Gen Status CD:</td>
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<td>Transport Own Waste:</td>
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**Facility Site ID Number:** 22157

**EPA ID:** WAH000041012

**NAICS:** 922120

**SWC Desc:** Not reported

**FWC Desc:** Not reported

**Form Comm:** Not reported

**Data Year:** 2017

**Permit by Rule:** False

**Treatment by Generator:** False

**Mixed radioactive waste:** False

**Importer of hazardous waste:** False

**Immediate recycler:** False

**Treatment/Storage/Disposal/Recycling Facility:** False

**Generator of dangerous fuel waste:** False

**Generator marketing to burner:** False

**Other marketers (i.e., blender, distributor, etc.):** False

**Utility boiler burner:** False

**Industry boiler burner:** False

**Industrial Furnace:** False

**Smelter deferal:** False

**Universal waste - batteries - generate:** False

**Universal waste - thermostats - generate:** False

**Universal waste - mercury - generate:** False

**Universal waste - lamps - generate:** False

**Universal waste - batteries - accumulate:** False

**Universal waste - thermostats - accumulate:** False

**Universal waste - mercury - accumulate:** False

**Universal waste - lamps - accumulate:** False

**Destination Facility for Universal Waste:** False

**Off-specification used oil burner - utility boiler:** False
FOOD & DRUG ADMIN, OFFICE OF CRIMINAL IN (Continued)  S111769876

Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: NA
Business Type: Federal law enforcement
Mail Name: Food & Drug Admin, Office of Criminal In
Mail addr line1: 11411 NE 124th St
Mail addr line2: Ste 235
Mail city, st, zip: Kirkland, WA 98034
Mail country: UNITED STATES
Legal org name: G & I IV Kirkland LLC
Legal org type: Tribal
Legal addr line1: 220 East 22nd St
Legal addr line2: 27th Floor
Legal city, st, zip: New York, NY 10017
Legal country: UNITED STATES
Legal phone nbr: 425-283-5791
Legal effective date: 01/01/2000
Land org name: G & I IV Kirkland LLC
Land org type: Private
Land person name: Not reported
Land addr line1: 220 East 22nd St
Land addr line2: 27th Floor
Land city, st, zip: New York, NY 10017
Land country: UNITED STATES
Land phone nbr: 425-283-5791
Operator org name: FDA/Office of Criminal Investigator
Operator org type: Federal
Operator addr line1: 7500 Standish Place
Operator addr line2: Ste 250N
Operator city, st, zip: Rockville, MD 20855
Operator country: UNITED STATES
Operator phone nbr: 240-276-9500
Operator effective date: 01/01/2011
Site contact name: Lisa Malinowski
Site contact addr line1: 201 Avenida Fabricante
Site contact addr line2: Ste 200
Site Contact City/State/Zip: San Clemente, CA 92672
Site Contact Country: UNITED STATES
Site Contact Phone #: 949-940-4220
Site Contact EMail: Bruce.Marron@oci.fda.gov
Form Contact NAME: Zachary Olds
Form Contact ADDR LINE1: 7500 Standish Place
Form Contact ADDR LINE2: Ste 250N
Form Contact City, ST, Zip: Rockville, MD 20855
Form Contact Country: UNITED STATES
Form Contact Phone #: 240-276-9497
Form Contact EMail: Zachary.Olds@fda.hhs.gov
Gen Status CD: XQG
Monthly Generation: False
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
Transports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
### FOOD & DRUG ADMIN, OFFICE OF CRIMINAL IN (Continued)

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<td>Used Oil Refiner:</td>
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<td>Generator marketing to burner:</td>
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<td>Other marketers (i.e., blender, distributor, etc.):</td>
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<tr>
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**FOOD & DRUG ADMIN, OFFICE OF CRIMINAL IN (Continued)**

| Land person name                  | Not reported                               |
| Land addr line1                   | 220 East 22nd St                          |
| Land addr line2                   | 27th Floor                                 |
| Land city, st, zip                | New York, NY 10017                        |
| Land country                      | UNITED STATES                             |
| Land phone nbr                    | 425-283-5791                               |
| Operator org name                 | FDA/Office of Criminal Investigator        |
| Operator org type                 | Federal                                    |
| Operator addr line1               | 7500 Standish Place                       |
| Operator addr line2               | Ste 250N                                   |
| Operator city, st, zip            | Rockville, MD 20855                       |
| Operator country                  | UNITED STATES                             |
| Operator phone nbr                | 240-276-9500                               |
| Operator effective date           | 01/01/2011                                 |
| Site contact name                 | Lisa Malinowski                            |
| Site contact addr line1           | 201 Avenida Fabricante                     |
| Site contact addr line2           | Ste 200                                    |
| Site Contact City/State/ Zip      | San Clemente, CA 92672                    |
| Site Contact Country              | UNITED STATES                             |
| Site Contact Phone #              | 949-940-4220                               |
| Site Contact EMail                | Bruce.Marron@oci.fda.gov                  |
| Form Contact NAME                 | Michele Wagner                             |
| Form Contact ADDR LINE1           | 7500 Standish Place                       |
| Form Contact ADDR LINE2           | Ste 250N                                   |
| Form Contact City, ST, Zip        | Rockville, MD 20855                       |
| Form Contact Country              | UNITED STATES                             |
| Form Contact Phone #              | 240-276-9480                               |
| Form Contact EMail                | Michele.Wagner@oci.fda.gov                |
| Gen Status CD                     | XQG                                        |
| Monthly Generation                | False                                      |
| Batch Generation                  | False                                      |
| One Time Generation               | False                                      |
| Transport Own Waste               | False                                      |
| Tranports Other Waste             | False                                      |
| Recycler Onsite                   | False                                      |
| Transfer Facility                 | False                                      |
| Other Exemption                   | Not reported                               |
| UW Battery Gen                    | False                                      |
| Used Oil Transporter              | False                                      |
| Used Oil Transfer Facility        | False                                      |
| Used Oil Processor                | False                                      |
| Used Oil Refiner                  | False                                      |
| Used Oil Fuel Marketer Directs Sh | False                                      |
| Used Oil Fuel Marketer Meets Spec | False                                      |
FOOD & DRUG ADMIN, OFFICE OF CRIMINAL IN (Continued)  S111769876

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<td>Generator of dangerous fuel waste:</td>
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<td>Generator marketing to burner:</td>
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<td>Other marketers (i.e., blender, distributor, etc.):</td>
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<td>Utility boiler burner:</td>
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<td>Industry boiler burner:</td>
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<td>Universal waste - batteries - generate:</td>
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<td>Off-specification used oil burner - utility boiler:</td>
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<td>Off-specification used oil burner - industrial furnace:</td>
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Tax Reg #: NA

Business Type: Federal law enforcement

Mail Name: Food & Drug Admin, Office of Criminal In

Mail addr line1: 11411 NE 124th St

Mail addr line2: Ste 235

Mail city, st, zip: Kirkland, WA 98034

Mail country: UNITED STATES

Legal org name: G & I IV Kirkland LLC

Legal org type: Tribal

Legal addr line1: 220 East 22nd St

Legal addr line2: 27th Floor

Legal city, st, zip: New York, NY 10017

Legal country: UNITED STATES

Legal phone nbr: 425-283-5791

Legal effective date: 01/01/2000

Land org name: G & I IV Kirkland LLC

Land org type: Private

Land person name: Not reported

Land addr line1: 220 East 22nd St

Land addr line2: 27th Floor

Land city, st, zip: New York, NY 10017

Land country: UNITED STATES

Land phone nbr: 425-283-5791

Operator org name: FDA/Office of Criminal Investigator

Operator org type: Federal

Operator addr line1: 7500 Standish Place

Operator addr line2: Ste 250N

Operator city, st, zip: Rockville, MD 20855

Operator country: UNITED STATES

Operator phone nbr: 240-276-9500

Operator effective date: 01/01/2011

Site contact name: Lisa Malinowski

Site contact addr line1: 201 Avenida Fabricante

Site contact addr line2: Ste 200

Site Contact City/State/Zip: San Clemente, CA 92672

Site Contact Country: UNITED STATES
### FOOD & DRUG ADMIN, OFFICE OF CRIMINAL IN (Continued)

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<tr>
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<td><a href="mailto:Bruce.Marron@oci.fda.gov">Bruce.Marron@oci.fda.gov</a></td>
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<tr>
<td>Form Contact NAME:</td>
<td>Michele Wagner</td>
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<tr>
<td>Form Contact ADDR LINE1:</td>
<td>7500 Standish Place</td>
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**FOOD & DRUG ADMIN, OFFICE OF CRIMINAL IN (Continued)**

- **Off-specification used oil burner - industrial boiler**: False
- **Off-specification used oil burner - industrial furnace**: False

**Tax Reg #**: NA

**Business Type**: Federal law enforcement
**Mail Name**: Food & Drug Admin, Office of Criminal In
**Mail addr line1**: 11411 NE 124th St
**Mail addr line2**: Ste 235
**Mail city, st, zip**: Kirkland, WA 98034
**Mail country**: UNITED STATES

**Legal org name**: G & I IV Kirkland LLC
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**Legal country**: UNITED STATES

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**Legal effective date**: 01/01/2000
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**Land org type**: Private
**Land person name**: Not reported
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**Land country**: UNITED STATES

**Land phone nbr**: 425-283-5791
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**Operator org type**: Federal
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**Operator addr line2**: Ste 250N
**Operator city, st, zip**: Rockville, MD 20855
**Operator country**: UNITED STATES

**Operator phone nbr**: 240-276-9500
**Operator effective date**: 01/01/2011
**Site contact name**: Lisa Malinowski
**Site contact addr line1**: 201 Avenida Fabricante
**Site contact addr line2**: Ste 200
**Site Contact City/State/ Zip**: San Clemente, CA 92672
**Site Contact Country**: UNITED STATES
**Site Contact Phone #**: 949-940-4220
**Site Contact EMail**: Bruce.Marron@oci.fda.gov
**Form Contact NAME**: Michele Wagner
**Form Contact ADDR LINE1**: 7500 Standish Place
**Form Contact ADDR LINE2**: Ste 250N
**Form Contact City, ST,Zip**: Rockville, MD 20855
**Form Contact Country**: UNITED STATES

**Form Contact Phone #:** 240-276-9480
**Form Contact EMail**: Michele.Wagner@oci.fda.gov
**Gen Status CD**: XQG
**Monthly Generation**: False
**Batch Generation**: False
**One Time Generation**: False
**Transport Own Waste**: False
**Transports Other Waste**: False
**Recycler Onsite**: False
**Transfer Facility**: False
**Other Exemption**: Not reported

**UW Battery Gen**: False
**FOOD & DRUG ADMIN, OFFICE OF CRIMINAL IN (Continued)**

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### Interaction 1: 19444
- **Facility Alt.:** Not reported
- **Program ID:** CRK000054180
- **Date Interaction:** 2003-09-15 00:00:00
- **Date Interaction 3:** Emergency/Haz Chem Rpt Ti
- **Latitude:** 47.705251322999999
- **Longitude:** -122.184714231

### Interaction 2: 19443
- **Facility Alt.:** Not reported
- **Program ID:** CRK000054180
- **Date Interaction:** 2003-09-15 00:00:00
- **Date Interaction 3:** Emergency/Haz Chem Rpt Ti
- **Latitude:** 47.705251322999999
- **Longitude:** -122.184714231

### Interaction 3: 114765
- **Facility Alt.:** Amazon.com.DEDC LLC-UWA1
- **Program ID:** CN303659
- **Date Interaction:** 2015-09-15 00:00:00
- **Date Interaction 3:** Industrial SW GP
- **Latitude:** 47.705251322999999
- **Longitude:** -122.184714231

---

**Additional Information**

- Used Oil Transporter: False
- Used Oil Transfer Facility: False
- Used Oil Processor: False
- Used Oil Refiner: False
- Used Oil Fuel Marketer Directs Shipments: False
- Used Oil Fuel Marketer Meets Specs: False
NEXTEL PNW 2-3 (Continued)

NPDES:
Facility Status: Not reported
Facility Type: Industrial SW GP
Admin Region: Headquarters
Date Issued: 08/18/2015
Latitude: Not reported
Longitude: Not reported
Permit ID: CNE303659
Permit Version: Not reported
Permit Status: Active
Permit SubStatus: Not reported
Ecology Contact: Not reported
WRIA: Not reported
Permit Expiration Date: 12/31/2019
Effective Date: 08/18/2015
Days to Expiration: -531

ALLSITES:
Facility Name: SKELETECH INC
Facility Id: 71187283
Interaction: 59878
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAH000005611
Date Interaction: 1998-06-26 00:00:00
Date Interaction 2: Hazardous Waste Generator
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.699394362
Longitude: -122.1890001059999

RCRA NonGen / NLR:
Date form received by agency: 11/30/1999
Facility name: SKELETECH INC
Facility address: 12026 115TH AVE NE
KIRKLAND, WA 98034
EPA ID: WAH000005611
Mailing address: 22002 26TH AVE SE #104
BOTHELL, WA 98021-4902
Contact: SKELETECH INC SKELETECH INC
Contact address: 22002 26TH AVE SE #104
BOTHELL, WA 98021-4902
Contact country: US
Contact telephone: 000-000-0000
Contact email: Not reported
EPA Region: 10
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste
SKELETECH INC (Continued)

Owner/Operator Summary:

Owner/operator name: TINA B
Owner/operator address: 12026 115TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-823-4141
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 06/26/1998
Owner/Op end date: Not reported

Owner/operator name: CHRIS JEROME S
Owner/operator address: 12026 115TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 000-000-0000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 06/26/1998
Owner/Op end date: Not reported

Handler Activities Summary:

U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:

Date form received by agency: 11/30/1999
Site name: SKELETECH INC
Classification: Not a generator, verified
Violation Status: No violations found

FINDS:

Registry ID: 110005393047

Environmental Interest/Information System
SKELETECH INC (Continued) 1001969597

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1001969597
Registry ID: 110005393047
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005393047

R86 ROSETTA INPHARMATICS LLC H WA ALLSITES 1001600514
WSW 12004 115TH AVE NE RCRA NonGen / NLR WAH000009043
1/4-1/2 KIRKLAND, WA 98034 FINDS
0.449 mi. ECHO
2373 ft. Site 3 of 3 in cluster R

Relative: ALLSITES:
Higher Facility Name: ROSETTA INPHARMATICS LLC H
Actual: Facility Id: 65835863
178 ft.

Interaction: 57384
Interaction 1: I
Interaction 2: HWP
Ecology Program: HAZWASTE
Program Data: HWPPRT
Facility Alt.: Not reported
Program ID: WAH000009043
Date Interaction: 2002-01-01 00:00:00
Date Interaction 3: Hazardous Waste Planner
Latitude: 47.707550537000003
Longitude: -122.18719245

Interaction: 57385
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAH000009043
Date Interaction: 1999-07-15 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.707550537000003
Longitude: -122.18719245

RCRA NonGen / NLR:
Date form received by agency: 10/04/2004
Facility name: ROSETTA INPHARMATICS LLC H
Facility address: 12004 115TH AVE NE
KIRKLAND, WA 98034
ROSETTA INPHARMATICS LLC H (Continued)

EPA ID: WAH000009043
Mailing address: 401 TERRY AVE N
SEATTLE, WA 98109
Contact: ROSETTA INPHARM ROSETTA INPHARM
Contact address: 401 TERRY AVE N
SEATTLE, WA 98109
Contact country: US
Contact telephone: 000-000-0000
Contact email: Not reported
EPA Region: 10
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: MERCK & CO INC
Owner/operator address: PO BOX 100
WHITEHOUSE STATION, NJ 08889
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 07/19/2001
Owner/Op end date: Not reported

Owner/operator name: ROSETTA INPHARM R
Owner/operator address: 401 TERRY AVE N
SEATTLE, WA 98109
Owner/operator country: US
Owner/operator telephone: 206-802-6385
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 07/16/1998
Owner/Op end date: Not reported

Owner/operator name: ROSETTA INPHARMATICS LLC
Owner/operator address: 401 TERRY AVE N
SEATTLE, WA 98109
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 07/16/1999
Owner/Op end date: Not reported

Owner/operator name: MERCK & COMPANY M
Owner/operator address: PO BOX 100
WHITEHOUSE STATION, NJ 08889
Owner/operator country: US
ROSETTA INPHARMATICS LLC H (Continued)

Owner/operator telephone: 908-423-1000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 05/19/2001
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 03/31/2004
Site name: ROSETTA INPHARMATICS INC 12004 115TH
Classification: Conditionally Exempt Small Quantity Generator

- Waste code: F003
- Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

- Waste code: U002
- Waste name: ACETONE (I)

- Waste code: WT02
- Waste name: WT02

Date form received by agency: 12/31/2003
Site name: ROSETTA INPHARMATICS INC 12004 115TH
Classification: Large Quantity Generator

Date form received by agency: 02/28/2002
Site name: ROSETTA INPHARMATICS INC 12004 115TH
Classification: Large Quantity Generator
ROSETTA INPHARMATICS LLC H (Continued)

Violation Status: No violations found

FINDS:

Registry ID: 110005395759

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1001600514
Registry ID: 110005395759
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005395759

S87 AMERITECH LASER INC WA SWF/LF S118401467
West 11410 NE 124TH ST 133 N/A
1/4-1/2 KIRKLAND, WA 98034
0.452 mi. 2384 ft. Site 2 of 2 in cluster S
Relative: Higher Actual: 142 ft.
Facility ID: 686 Region: STATE
Permit Status: Recycle Survey Contact Organization: Ameritech Laser Inc
Contact Address1: 11410 Ne 124th St 133 Contact Address2: Not reported
Contact City: Kirkland Contact State: WA
Contact Postal: 98034 Contact EMail: Not reported
Contact Phone: (425) 825-1153 Contact Phone Ext: Not reported
Permit No: Not reported Phone: Not reported
Operator Name: Not reported Operator Title: Not reported
Operator Organization: Ameritech Laser Inc Operator EMail: Not reported
Recycle Survey Code: 6783
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| MAP FINDINGS   | S121304709       |              |

| LIFEBRIDGE (Continued) |              |              |

| Quantity Sq Ft: | Not reported |
| Fireproofing:   | Not reported |
| Popcorn Ceiling: | Not reported |
| CAB:            | Not reported |
| Sheet Vinyl:    | Not reported |
| Asbestos Paper: | Not reported |
| Boiler Insulation: | Not reported |
| Duct Paper:     | Not reported |
| VAT:            | Not reported |
| Roofing:        | Not reported |
| Sq Ft Other:    | Not reported |
| Sq Ft Other Text: | Not reported |
| Quantity Lin Ft: | Not reported |
| Mag Pipe Insulation: | Not reported |
| Air Cell Pipe Insulation: | Not reported |
| Ducting Insulation: | Not reported |
| Cement Asbestos Pipe: | Not reported |
| Muddled Pipe Insulation: | Not reported |
| Duct Tape:      | Not reported |
| Lin Ft Other1:  | Not reported |
| Lin Ft Other1 Text: | Not reported |
| Lin Ft Other2:  | Not reported |
| Lin Ft Other2 Text: | Not reported |
| Indoors:        | Not reported |
| Outdoors:       | Not reported |
| Neg Pres Enclosure: | Not reported |
| Glove Bag:      | Not reported |
| Mini Enclosure: | Not reported |
| Critical Barriers: | Not reported |
| Wrap And Cut:   | Not reported |
| Wet Methods:    | Not reported |
| HEPA Vacuum:    | Not reported |
| MANUALMETHODS:  | Not reported |
| Other CM1:      | Not reported |
| Other CM1 Text: | Not reported |
| Other CM2:      | Not reported |
| Other CM2 Text: | Not reported |
| Half Mask APR:  | Not reported |
| Full Face APR:  | Not reported |
| PAPR:           | Not reported |
| Type C Continuous: | Not reported |
| Type C Pressure: | Not reported |
| Other Resp Pro: | Not reported |
| Other Resp Pro Text: | Not reported |
| Comments:       | Not reported |
| Date Time Submitted: | Not reported |
| Submitter IP Address: | Not reported |
| Region:         | Not reported |
| UBI:            | Not reported |
| Notice type:    | Not reported |
| Project Type:   | Not reported |
| Supervisor:     | Not reported |
| Supervisor Phone: | Not reported |
| Certificate Status: | Not reported |
**LIFEBRIDGE (Continued)**

Facility Type: Construction SW GP  
Admin Region: Headquarters  
Date Issued: 11/18/2015  
Latitude: Not reported  
Longitude: Not reported  
Permit ID: WAR305971  
Permit Version: Not reported  
Permit Status: Active  
Permit SubStatus: Not reported  
Ecology Contact: Not reported  
WRIA: Not reported  
Permit Expiration Date: 12/31/2020  
Effective Date: 11/14/2017  
Days to Expiration: -897

---

**T89 CLARKS WHEEL**  
**South WA ALLSITES**  
1/4-1/2  
0.478 mi.  
2522 ft.  
Site 1 of 3 in cluster T  

Relative:  
Higher: ALLSITES:  
Actual: 190 ft.  

Facility Name: CLARKS WHEEL  
Facility Id: 19979378

Interaction: 31404  
Interaction 1: I  
Interaction 2: HWG  
Ecology Program: HAZWASTE  
Program Data: TURBOWASTE  
Facility Alt.: Not reported  
Program ID: WAD009238668  
Date Interaction: 1985-06-19 00:00:00  
Date Interaction 3: Hazardous Waste Generator  
Latitude: 47.7039043609999999  
Longitude: -122.17800510799999

Interaction: 31405  
Interaction 1: I  
Interaction 2: HWP  
Ecology Program: HAZWASTE  
Program Data: HWPPRT  
Facility Alt.: Not reported  
Program ID: WAD009238668  
Date Interaction: 1993-01-01 00:00:00  
Date Interaction 3: Hazardous Waste Planner  
Latitude: 47.7039043609999999  
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| 91    | AT&T WIRELESS JUANITA| WA ALLSITES | 1007728499 | FINDS | N/A |
| SSW   | 11616 120TH AVE NE  | KIRKLAND, WA 98034 |               |       |     |
| 1/4-1/2 | 0.481 mi. | 2540 ft. | Relative: ALLSITES: | Facility Name: | AT&T WIRELESS JUANITA |
|       |           |            |                | Facility Id: | 5991947 |
|       |           |            |                | Interaction: | 17975 |
|       |           |            |                | Interaction 1: | I |
|       |           |            |                | Interaction 2: | TIER2 |
|       |           |            |                | Ecology Program: | HAZWASTE |
|       |           |            |                | Program Data: | EPCRA |
|       |           |            |                | Facility Alt.: | Not reported |
|       |           |            |                | Program ID: | CRK000055720 |
|       |           |            |                | Date Interaction: | 2003-09-15 00:00:00 |
|       |           |            |                | Date Interaction 3: | Emergency/Haz Chem Rpt TI |
|       |           |            |                | Latitude: | 47.703813109999999 |
|       |           |            |                | Longitude: | -122.1822947499999 |

FINDS:

Registry ID: 110018851624

Environmental Interest/Information System

Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.
AT&T WIRELESS JUANITA (Continued) 1007728499

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

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**Handler Activities Summary:**

- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: No
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil fuel burner: No
- Used oil processor: No
- User oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No

**Facility Details:**

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**Program Details:**

- Program ID: WAD981773633
- Facility ID: T92
- Program Data: TURBOWASTE, HAZWASTE
- Program Alt.: Not reported
- Program Data: Not reported

**Contact Information:**

- Contact phone: 000-000-0000
- Contact email: Not reported
- Contact country: US

**Location Details:**

- Latitude: 47.70414359999998
- Longitude: -122.175825109

**Additional Sites:**

- 2544 ft. South RCRA NonGen / NLR: 11613 124TH AVE NE WAD981773633
ULTRA ONE HOUR CLEANERS (Continued)

Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 05/27/1997
Site name: ULTRA ONE HOUR CLEANERS
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/18/1997
Site name: ULTRA ONE HOUR CLEANERS
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/1993
Site name: ULTRA ONE HOUR CLEANERS
Classification: Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

FINDS:
Registry ID: 110005344564

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1001490440
Registry ID: 110005344564
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005344564

INACTIVE DRYCLEANERS:
EPA I: WAD981773633
FS Id: 12658
Facility ID: 12658
NAICS Code: 81232
Fed Waste Code Desc: Not reported
State Waste Code Desc: Not reported
TAX REG NBR: Not reported
BUSINESS TYPE: Not reported
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USED OIL PROCESSOR: Not reported
USED OIL REREFINER: Not reported
USED OIL FUEL MARKETER DIR SHIPMENTS: Not reported
USED OIL FUEL MARKETER MEETS SPECS: Not reported
ECO Int Type Code: HWG
Status Code: I
Start Date: 05/17/1988
End Date: 12/31/1995
NAICS DS: Not reported
Program Name: 7216
FS SIC Code: Drycleaning Plants, Except Rug Cleaning
SIC DS: HAZWASTE
Latitude: 47.70412
Longitude: -122.17584
Comments: Not reported

93 STEELFORM CONTRACTING COMPANY
South 12230 NE 116TH ST
1/4-1/2
0.494 mi.
2610 ft.

UST:
Facility ID: 21695439
Site Id: 470
UBI: Not reported
Phone Number: Not reported
Decimal Latitude: 47.70371
Decimal Longitude: -122.179475

Tank Name: 1
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 00/31/1964
Tank Closure Date: Not reported
Capacity Range: Not reported
Tank Permit Expiration Date: Not reported
Tank Upgrade Date: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
Tank Material: Steel
Tank Construction: Not reported
Tank Tightness Test: Not reported
Tank Corrosion Protection: Not reported
Tank Manifold: Not reported
Tank Release Detection: Not reported
Tank SFC Type: Not reported
Pipe Material: Steel
Pipe Construction: Not reported
Pipe Primary Release Detection: Not reported
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Pipe Pumping System: Not reported
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported
### STEELFORM CONTRACTING COMPANY (Continued)

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**Interaction:**
- Interaction 1: STEELFORM CONTRACTING COMPANY
- Interaction 2: UST

**Program Data:**
- Program ID: 470
- Date Interaction: 2000-02-29 00:00:00
- Date Interaction 3: Underground Storage Tank
- Latitude: 47.703704360000003
- Longitude: -122.179460107
- Facility Alt.: Not reported
- Facility Id: 03/22/2012

### 94

**South**

**1/4-1/2**

**0.498 mi.**

**2631 ft.**

**Relative:**
- Higher: 1/4-1/2
- Actual: 184 ft.

**ALLSITES:**

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**Interaction:**
- Interaction 1: I
- Interaction 2: INDPNDNT

**Program Data:**
- Program ID: 470
- Date Interaction: 2012-03-22 00:00:00
- Date Interaction 3: Independent Cleanup
- Latitude: 47.701453689999998
- Longitude: -122.179556887
- Facility Alt.: WA DOT I405 NE 116th St Improv
- Facility Id: 14958

**CSCSL NFA:**
- Facility/Site Id: 14958
- CS Id: 12234
- NFA Date: 03/22/2012
### I405 NE 116TH ST INTER ST IMPROV (Continued)

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**CSCSL:**
- Facility ID: 32821675
- Region: Northwest
- Lat/Long: 47.703676073 / -122.17692506
- Brownfield Status: Not reported
- Clean Up Siteid: 8727
- Site Status: Cleanup Started
- PSI?: Not reported
- Contaminant Name: Benzene
- Ground Water: Confirmed Above Cleanup Level
- Surface Water: Not reported
- Soil: Confirmed Above Cleanup Level
- Sediment: Not reported
- Air: Not reported
- Bedrock: Not reported
- Responsible Unit: Northwest

**Facility ID:** 32821675
- Region: Northwest
- Lat/Long: 47.703676073 / -122.17692506
- Brownfield Status: Not reported
- Clean Up Siteid: 8727
- Site Status: Cleanup Started
- PSI?: Not reported
- Contaminant Name: Lead
- Ground Water: Confirmed Above Cleanup Level
- Surface Water: Not reported
- Soil: Confirmed Above Cleanup Level
- Sediment: Not reported
- Air: Not reported
- Bedrock: Not reported
- Responsible Unit: Northwest

**Facility ID:** 32821675
- Region: Northwest
- Lat/Long: 47.703676073 / -122.17692506
- Brownfield Status: Not reported
- Clean Up Siteid: 8727
- Site Status: Cleanup Started
CONOCOPHILLIPS 2603147 (Continued)

PSI?: Not reported
Contaminant Name: Non-Halogenated Solvents
Ground Water: Confirmed Above Cleanup Level
Surface Water: Not reported
Soil: Confirmed Above Cleanup Level
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

Facility ID: 32821675
Region: Northwest
Lat/Long: 47.703676073 / -122.17692506
Brownfield Status: Not reported
Rank Status: N
Clean Up Siteid: 8727
Site Status: Cleanup Started
PSI?: Not reported
Contaminant Name: Other Non-Halogenated Organics
Ground Water: Not reported
Surface Water: Not reported
Soil: Confirmed Above Cleanup Level
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

Facility ID: 32821675
Region: Northwest
Lat/Long: 47.703676073 / -122.17692506
Brownfield Status: Not reported
Rank Status: N
Clean Up Siteid: 8727
Site Status: Cleanup Started
PSI?: Not reported
Contaminant Name: Petroleum-Diesel
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Surface Water: Not reported
Soil: Confirmed Above Cleanup Level
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

Facility ID: 32821675
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Brownfield Status: Not reported
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Responsible Unit: Northwest
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CONOCOPHILLIPS 2603147 (Continued)

edr_zip: 98033
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VCP Status: Not reported
VCP: Yes
Ecology Status: Not reported
NFA Type: Not reported
Date NFA: Not reported
Rank: N
Cleanup Siteid: 8727

edr_fstat: WA
edr_zip: 98033
edr_fcnty: KING
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Facility ID: 32821675
VCP Status: Not reported
VCP: Yes
Ecology Status: Not reported
NFA Type: Not reported
Date NFA: Not reported
Rank: N
Cleanup Siteid: 8727

ALLSITES:
Facility Name: KIRKLAND 76
Facility Id: 32821675

Interaction: 38184
Interaction 1: I
Interaction 2: TIER2
Ecology Program: HAZWASTE
Program Data: EPCRA
Facility Alt.: Not reported
Program ID: WAD988488680
Date Interaction: 1990-01-01 00:00:00
Date Interaction 3: Emergency/Haz Chem Rpt T
Latitude: 47.703670432999999
Longitude: -122.17691017

Interaction: 38183
Interaction 1: A
## CONOCOPHILLIPS 2603147 (Continued)

| Interaction 2: | UST |
| Ecology Program: | TOXICS |
| Program Data: | UST |
| Facility Alt.: | Not reported |
| Program ID: | 9556 |
| Date Interaction: | 1969-01-01 00:00:00 |
| Date Interaction 3: | Underground Storage Tank |
| Latitude: | 47.703670432999999 |
| Longitude: | -122.17691017 |

| Interaction: | 103111 |
| Interaction 1: | A |
| Interaction 2: | VOLCLNST |
| Ecology Program: | TOXICS |
| Program Data: | ISIS |
| Facility Alt.: | KIRKLAND 76 |
| Program ID: | NW2659 |
| Date Interaction: | 2012-11-28 00:00:00 |
| Date Interaction 3: | Voluntary Cleanup Sites |
| Latitude: | 47.703670432999999 |
| Longitude: | -122.17691017 |

| Interaction: | 38187 |
| Interaction 1: | I |
| Interaction 2: | HWOTHER |
| Ecology Program: | HAZWASTE |
| Program Data: | TURBOWASTE |
| Facility Alt.: | Not reported |
| Program ID: | WAD988488680 |
| Date Interaction: | 2004-12-31 00:00:00 |
| Date Interaction 3: | Haz Waste Management Actl |
| Latitude: | 47.703670432999999 |
| Longitude: | -122.17691017 |

| Interaction: | 38186 |
| Interaction 1: | A |
| Interaction 2: | LUST |
| Ecology Program: | TOXICS |
| Program Data: | ISIS |
| Facility Alt.: | Not reported |
| Program ID: | 9556 |
| Date Interaction: | 1991-12-23 00:00:00 |
| Date Interaction 3: | LUST Facility |
| Latitude: | 47.703670432999999 |
| Longitude: | -122.17691017 |

| Interaction: | 38185 |
| Interaction 1: | I |
| Interaction 2: | HWG |
| Ecology Program: | HAZWASTE |
| Program Data: | TURBOWASTE |
| Facility Alt.: | Not reported |
| Program ID: | WAD988488680 |
CONOCOPHILLIPS 2603147 (Continued)

Date Interaction: 1991-05-22 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.703670432999999
Longitude: -122.17691017

SPILLS:
 Facility ID: 647140
 Medium: IMPERMEABLE CONTAINMENT
 Material Desc: PETROLEUM - GASOLINE
 Material Qty: 0
 Material Units: GALLON
 Date Received: 02/28/2014
 Contact Name: Not reported
 Incident Date: Not reported
 Incident Category Type: Not reported
 Incident Category: Not reported
 Latitude: Not reported
 Longitude: Not reported
 Source Type: Not reported
 Source: Not reported
 Vessel Facility Name2: Not reported
 Recovered Quantity: Not reported
 Resp Party Contact: Not reported
 Cause: Not reported
 Cause Type: Not reported
 Resp Party Name: Not reported

Facility ID: 647140
 Medium: IMPERMEABLE CONTAINMENT
 Material Desc: PETROLEUM - GASOLINE
 Material Qty: 0
 Material Units: GALLON
 Date Received: Not reported
 Contact Name: Not reported
 Incident Date: Not reported
 Incident Category Type: Not reported
 Incident Category: Not reported
 Latitude: Not reported
 Longitude: Not reported
 Source Type: Not reported
 Source: Not reported
 Vessel Facility Name2: Not reported
 Recovered Quantity: Not reported
 Resp Party Contact: Not reported
 Cause: Not reported
 Cause Type: Not reported
 Resp Party Name: Not reported

RCRA NonGen / NLR:
 Date form received by agency: 02/15/2006
 Facility name: CONOCOPHILLIPS 2603147
 Facility address: 12235 NE 116TH
 KIRKLAND, WA 98033
 EPA ID: WAD988488680
 Mailing address: 600 NORTH DAIRY ASHFORD
CONOCOPHILLIPS 2603147 (Continued)

Contact: CONOCOPHILLIPS
Contact address: 600 NORTH DAIRY ASHFORD
Contact country: US
Contact phone: Not reported
EPA Region: 10
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: GARRY P
Owner/operator address: 12235 NE 116TH ST
Owner/operator country: US
Owner/operator telephone: 425-827-1932
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 03/18/1997
Owner/Op end date: Not reported

Owner/operator name: CONOCOPHILLIPS COMPANY
Owner/operator address: 600 NORTH DAIRY ASHFORD
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 12/31/2003
Owner/Op end date: Not reported

Owner/operator name: GARRY PRICE
Owner/operator address: 12235 NE 116TH ST
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 03/18/1997
Owner/Op end date: Not reported

Owner/operator name: CONOCOPHILLIPS
Owner/operator address: 600 NORTH DAIRY ASHFORD
Owner/operator country: US
Owner/operator telephone: 281-293-1000
Owner/operator email: Not reported
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**Handler Activities Summary:**
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: No
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil fuel burner: No
- Used oil processor: No
- Used oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No

**Historical Generators:**
- **Date form received by agency:** 12/31/2005
- Site name: CONOCOPHILLIPS 2603147
- Classification: Not a generator, verified

- **Date form received by agency:** 12/31/2003
  - Site name: CONOCOPHILLIPS 2603147
  - Classification: Not a generator, verified

- **Date form received by agency:** 02/26/2003
  - Site name: BP SERVICE STATION 03147
  - Classification: Not a generator, verified

  **Violation Status:** No violations found

**FINDS:**
- Registry ID: 110005362632

**Environmental Interest/Information System**

Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.
### CONOCOPHILLIPS 2603147

**HAZARDOUS WASTE BIENNIAL REPORTER**

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

#### ECHO:
- **Envid:** 1000659201
- **Registry ID:** 110005362632
- **DFR URL:** http://echo.epa.gov/detailed-facility-report?fid=110005362632

### WA Financial Assurance 1:
- **DOE Site ID:** 9556
- **Financial Resp Type:** COLONY INSURANCE COMPANY
- **Inception Date:** 11/28/2017
- **Expiration Date:** 12/01/2018
- **Address 2:** Not reported
- **Policy Number:** WA641315-8
- **Effective Date:** 11/28/2017
- **Liability Limit Type:** Not reported
- **Compliance Method:** Not reported
- **Proof of Responsibility Document Flag:** Not reported
- **Retroactive Date:** Not reported
- **Latitude:** 47.703676073
- **Longitude:** -122.17692506

#### DOE Site ID:
- **DOE Site ID:** 9556
- **Financial Resp Type:** COLONY INSURANCE COMPANY
- **Inception Date:** 12/01/2016
- **Expiration Date:** 12/01/2017
- **Address 2:** Not reported
- **Policy Number:** WA641315-7
- **Effective Date:** 12/01/2016
- **Liability Limit Type:** Not reported
- **Compliance Method:** Not reported
- **Proof of Responsibility Document Flag:** Not reported
- **Retroactive Date:** Not reported
- **Latitude:** 47.703676073
- **Longitude:** -122.17692506

### WA MANIFEST:
- **Facility Site ID Number:** 32821675
- **EPA ID:** WAD988488680
- **NAICS:** 44711
- **SWC Desc:** Not reported
- **FWC Desc:** Not reported
- **Form Comm:** 3-1-06 Amended report per Marina to withdraw ID #. TW
- **Data Year:** Not reported
- **Permit by Rule:** No
- **Treatment by Generator:** No
- **Mixed radioactive waste:** No
- **Importer of hazardous waste:** No
- **Immediate recycler:** No
- **Treatment/Storage/Disposal/Recycling Facility:** No
- **Generator of dangerous fuel waste:** No
- **Generator marketing to burner:** No
CONOCOPHILLIPS 2603147 (Continued)

Other marketers (i.e., blender, distributor, etc.): No
Utility boiler burner: No
Industry boiler burner: No
Industrial Furnace: No
Smelter deferral: No
Universal waste - batteries - generate: No
Universal waste - thermostats - generate: No
Universal waste - mercury - generate: No
Universal waste - lamps - generate: No
Universal waste - batteries - accumulate: No
Universal waste - thermostats - accumulate: No
Universal waste - mercury - accumulate: No
Universal waste - lamps - accumulate: No
Destination Facility for Universal Waste: No
Off-specification used oil burner - utility boiler: No
Off-specification used oil burner - industrial boiler: No
Off-specification used oil burner - industrial furnace: No

Tax Reg #: 600115909
Business Type: Not reported
Mail Name: ConocoPhillips Company
Mail addr line1: 600 North Dairy Ashford
Mail city, st, zip: Houston, TX 77079
Mail country: UNITED STATES
Legal org name: ConocoPhillips Company
Legal org type: Private
Legal addr line1: 600 North Dairy Ashford
Legal city, st, zip: Houston, TX 77079
Legal country: UNITED STATES
Legal phone nbr: 281-293-1000
Legal effective date: 12/31/2003
Land org name: ConocoPhillips Company
Land org type: Private
Land person name: Not reported
Land addr line1: 600 North Dairy Ashford
Land city, st, zip: Houston, TX 77079
Land country: UNITED STATES
Land phone nbr: 281-293-1000
Operator org name: Not reported
Operator org type: Private
Operator addr line1: 12225 NE 116th St
Operator city, st, zip: Kirkland, WA 98033
Operator country: UNITED STATES
Operator phone nbr: 425-827-1932
Operator effective date: 03/18/1997
Site contact name: Irene Jimenez
Site contact addr line1: 1380 San Pablo Ave
Site Contact City/State/ Zip: Rodeo, CA 94572
Site Contact Country: UNITED STATES
Site Contact Phone #: 510-245-5176
Site Contact EMail: Irene.I.Jimenez@ConocoPhillips.com
Form Contact NAME: Marina Tishkova
Form Contact ADDR LINE1: 600 North Dairy Ashford TA1026B
Form Contact City, ST, Zip: Houston, TX 77079
Form Contact Country: UNITED STATES
Form Contact Phone #: 281-293-4335
Form Contact EMail: Marina.A.Tishkova@conocophillips.com
Gen Status CD: XQG
CONOCOPHILLIPS 2603147 (Continued)

- Monthly Generation: Yes
- Batch Generation: No
- One Time Generation: No
- Transport Own Waste: No
- Tranports Other Waste: No
- Recycler Onsite: No
- Transfer Facility: No
- Other Exemption: Not reported
- UW Battery Gen: No
- Used Oil Transporter: No
- Used Oil Transfer Facility: No
- Used Oil Processor: No
- Used Oil Refiner: No
- Used Oil Fuel Marketer Directs Shipments: No
- Used Oil Fuel Marketer Meets Specs: No

96 EASTSIDE PETROLEUM CO INC
SSW 11520 120TH AVE NE
1/2-1 KIRKLAND, WA 98033
0.551 mi. 2909 ft.

Relative:
Higher
Actual:
177 ft.

CSCSL:
- Facility ID: 29783797
- Region: Northwest
- Lat/Long: 47.703462276 / -122.18076151
- Brownfield Status: Not reported
- Rank Status: N
- Clean Up Siteid: 12045
- Site Status: Awaiting Cleanup
- PSI?: Not reported
- Contaminant Name: Benzene
- Ground Water: Suspected
- Surface Water: Not reported
- Soil: Confirmed Above Cleanup Level
- Sediment: Not reported
- Air: Not reported
- Bedrock: Not reported
- Responsible Unit: Pollution Liability Insurance Agency

Facility ID: 29783797
Region: Northwest
Lat/Long: 47.703462276 / -122.18076151
Brownfield Status: Not reported
Rank Status: N
Clean Up Siteid: 12045
Site Status: Awaiting Cleanup
PSI?: Not reported
Contaminant Name: Petroleum-Diesel
Ground Water: Suspected
Surface Water: Not reported
Soil: Confirmed Above Cleanup Level
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Pollution Liability Insurance Agency
### EASTSIDE PETROLEUM CO INC (Continued)

Facility ID: 29783797  
Region: Northwest  
Lat/Long: 47.703462276 / -122.18076151  
Brownfield Status: Not reported  
Rank Status: N  
Clean Up Siteid: 12045  
Site Status: Awaiting Cleanup  
PSI?: Not reported  
Contaminant Name: Petroleum-Gasoline  
Ground Water: Suspected  
Surface Water: Not reported  
Soil: Confirmed Above Cleanup Level  
Sediment: Not reported  
Air: Not reported  
Bedrock: Not reported  
Responsible Unit: Pollution Liability Insurance Agency

### LUST:

Facility ID: 29783797  
Lust Status Type: Awaiting Cleanup  
Cleanup Site ID: 12045  
Cleanup Unit Type: Upland  
Process Type: PLIA Petroleum Technical Assistance Program  
Cleanup Unit Name: EASTSIDE PETROLEUM CO INC  
Lust Status Date: 09/15/2010  
Response Section: Pollution Liability Insurance Agency  
Lat/Long: 47.7034622 / -122.18076

### UST:

Facility ID: 29783797  
Site Id: 3227  
UBI: Not reported  
Phone Number: Not reported  
Decimal Latitude: 47.7034622760492  
Decimal Longitude: -122.180761505211

Tank Name: 6  
Tag Number: Not reported  
Tank Status: Removed  
Tank Status Date: 10/22/2010  
Tank Install Date: Not reported  
Tank Closure Date: 09/13/2010  
Capacity Range: Not reported  
Tank Permit Expiration Date: Not reported  
Tank Upgrade Date: Not reported  
Tank Spill Prevention: Not reported  
Tank Overfill Prevention: Not reported  
Tank Material: Not reported  
Tank Construction: Not reported  
Tank Tightness Test: Not reported  
Tank Corrosion Protection: Not reported  
Tank Manifold: Not reported  
Tank Release Detection: Not reported  
Tank SFC Type: Not reported  
Pipe Material: Not reported  
Pipe Construction: Not reported
EASTSIDE PETROLEUM CO INC (Continued) 1007073015

Pipe Primary Release Detection: Not reported
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Pipe Pumping System: Not reported
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

Tank Name: D-1
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 00/01/1972
Tank Closure Date: Not reported
Capacity Range: 10,000 to 19,999 Gallons
Tank Permit Expiration Date: Not reported
Tank Upgrade Date: Not reported
Tank Spill Prevention: None
Tank Overfill Prevention: None
Tank Material: Not reported
Tank Construction: Single Wall Tank
Tank Tightness Test: Not reported
Tank Corrosion Protection: None
Tank Manifold: Not reported
Tank Release Detection: Manual Inventory Control (daily)
Tank SFC Type: Not reported
Pipe Material: Not reported
Pipe Construction: Single Wall Pipe
Pipe Primary Release Detection: Not reported
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: None
Pipe Pumping System: Non-Safe Suction
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

Tank Name: D-2
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 00/01/1972
Tank Closure Date: Not reported
Capacity Range: 10,000 to 19,999 Gallons
Tank Permit Expiration Date: Not reported
Tank Upgrade Date: Not reported
Tank Spill Prevention: None
Tank Overfill Prevention: None
Tank Material: Not reported
Tank Construction: Single Wall Tank
Tank Tightness Test: Not reported
Tank Corrosion Protection: None
Tank Manifold: Not reported
Tank Release Detection: Manual Inventory Control (daily)
Tank SFC Type: Not reported
Pipe Material: Not reported
Pipe Construction: Single Wall Pipe
Pipe Primary Release Detection: Not reported
### EASTSIDE PETROLEUM CO INC (Continued)

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<td>Dispenser/Pump SFC Type</td>
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EASTSIDE PETROLEUM CO INC (Continued) 1007073015

Pipe Corrosion Protection: None
Pipe Pumping System: Non-Safe Suction
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

Tank Name: U-1
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 00/01/1972
Tank Closure Date: Not reported
Capacity Range: 10,000 to 19,999 Gallons
Tank Permit Expiration Date: 07/01/2002
Tank Upgrade Date: Not reported
Tank Spill Prevention: None
Tank Overfill Prevention: None
Tank Material: Not reported
Tank Construction: Single Wall Tank
Tank Tightness Test: Not reported
Tank Corrosion Protection: None
Tank Manifold: Not reported
Tank Release Detection: Manual Inventory Control (daily)
Tank SFC Type: Not reported
Pipe Material: Not reported
Pipe Construction: Single Wall Pipe
Pipe Primary Release Detection: Not reported
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: None
Pipe Pumping System: Non-Safe Suction
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

ALL SITES:
Facility Name: EASTSIDE PETROLEUM CO INC
Facility Id: 29783797

Interaction: 36853
Interaction 1: I
Interaction 2: UST
Ecology Program: TOXICS
Program Data: UST
Facility Alt.: Not reported
Program ID: 3227
Date Interaction: 1972-06-01 00:00:00
Date Interaction 3: Underground Storage Tank
Latitude: 47.703457116000003
Longitude: -122.180726486

Interaction: 103259
Interaction 1: A
Interaction 2: LUST
Ecology Program: TOXICS
Program Data: ISIS
Facility Alt.: EASTSIDE PETROLEUM CO INC
Program ID: 3227
MAP FINDINGS

EASTSIDE PETROLEUM CO INC (Continued) 1007073015

Date Interaction: 2010-12-20 00:00:00
Date Interaction 3: LUST Facility
Latitude: 47.703457116000003
Longitude: -122.180726486

FINDS:
Registry ID: 110015496453

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

PTAP:
Site ID: PNW072
FSID Number: 29783797
Entry Date: 06/12/2018

97 MIRACLE DRY CLEANERS WA CSCSL S111289396
East 13205 NE 124TH ST STE A WA ALLSITES N/A
1/2-1 KIRKLAND, WA 98034 WA Inactive Drycleaners
0.611 mi. 3225 ft.

Relative: Higher
Actual: 146 ft.

CSCSL:
Facility ID: 4915
Region: Northwest
Lat/Long: 47.711019226 / -122.16393711
Brownfield Status: Not reported
Rank Status: N
Clean Up Siteid: 11679
Site Status: Cleanup Started
PSI?: Not reported
Contaminant Name: Halogenated Solvents
Ground Water: Not reported
Surface Water: Not reported
Soil: Suspected
Sediment: Not reported
Air: Not reported
Responsible Unit: Northwest

ALLSITES:
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Facility Id: 4915
Interaction: 98161
## MIRACLE DRY CLEANERS (Continued)

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- **EPA ID:** Not reported
- **FS Id:** 4915
- **Facility ID:** 4915
- **NAICS Code:** 8123
- **Fed Waste Code Desc.:** Not reported
- **State Waste Code Desc.:** Not reported
- **TAX REG NBR:** Not reported
- **BUSINESS TYPE:** Not reported
- **MAIL NAME:** Not reported
- **MAIL LINE1:** Not reported
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- **MAIL CITY:** Not reported
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- **MAIL ZIP:** Not reported
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- **LEGAL ORG NAME:** Not reported
- **LEGAL PERSON FIRST NAME:** Not reported
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- **LEGAL PHONE NBR:** Not reported
- **LEGAL EFFECTIVE DATE:** Not reported
- **LEGAL ORGANIZATION TYPE:** Not reported
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MIRACLE DRY CLEANERS (Continued)

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UW BATTERY ACCUM: Not reported
UW THERMOSTATS ACCUM: Not reported
UW MERCURY ACCUM: Not reported
UW LAMPS ACCUM: Not reported
UW DESTINATION FACILITY: Not reported
OFF SPEC UTILITY BOILER: Not reported
OFF SPEC INDUSTRY BOILER: Not reported
OFF SPEC FURNACE: Not reported
USED OIL TRANSPORTER: Not reported
USED OIL TRANSFER FACILITY: Not reported
USED OIL PROCESSOR: Not reported
USED OIL REFINER: Not reported
USED OIL FUEL MARKETER DIR SHIPMENTS: Not reported
USED OIL FUEL MARKETER MEETS SPECS: Not reported
ECO Int Type Code: VOLCLNST
Status Code: I
Start Date: 09/19/2011
End Date: 03/14/2013
NAICS DS: Drycleaning and Laundry Services
Program Name: Not reported
FS SIC Code: Not reported
SIC DS: TOXICS
Latitude: 47.7111019226
Longitude: -122.16393711
Comments: Not reported
Contaminant Name: Petroleum Products-Unspecified
Ground Water: Below MTCA Cleanup Level After Assessment
Surface Water: Not reported
Soil: Not reported
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

Facility ID: 37124273
Region: Northwest
Lat/Long: 47.7114 / -122.16423
Brownfield Status: Not reported
Rank Status: N
Clean Up Siteid: 5967
Site Status: Cleanup Started
PSI?: Not reported
Contaminant Name: Petroleum-Diesel
Ground Water: Not reported
Surface Water: Not reported
Soil: Confirmed Above Cleanup Level
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

LUST:
Facility ID: 37124273
Lust Status Type: NFA
Cleanup Site ID: 5967
Cleanup Unit Type: Upland
Process Type: Independent Action
Cleanup Unit Name: Graham Steel
Lust Status Date: 11/18/2004
Response Section: Northwest
Lat/Long: 47.7114 / -122.16423

UST:
Facility ID: 37124273
Site Id: 11087
UBI: Not reported
Phone Number: Not reported
Decimal Latitude: 47.7114
Decimal Longitude: -122.16423
Tank Name: 1
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 10/02/1991
Tank Install Date: 00/31/1980
Tank Closure Date: 12/11/1991
Capacity Range: 2,001 to 4,999 Gallons
Tank Permit Expiration Date: Not reported
Tank Upgrade Date: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
GRAHAM STEEL CORP (Continued)  U000595113

Tank Material: Steel
Tank Construction: Not reported
Tank Tightness Test: Not reported
Tank Corrosion Protection: Not reported
Tank Manifold: Not reported
Tank Release Detection: Not reported
Tank SFC Type: Not reported
Pipe Material: Fiberglass
Pipe Construction: Not reported
Pipe Primary Release Detection: Not reported
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Pipe Pumping System: Not reported
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

Tank Name: 2
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 10/02/1991
Tank Install Date: 00/31/1980
Tank Closure Date: 12/11/1991
Capacity Range: 111 TO 1,100 Gallons
Tank Permit Expiration Date: Not reported
Tank Upgrade Date: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
Tank Material: Steel
Tank Construction: Not reported
Tank Tightness Test: Not reported
Tank Corrosion Protection: Not reported
Tank Manifold: Not reported
Tank Release Detection: Not reported
Tank SFC Type: Not reported
Pipe Material: Fiberglass
Pipe Construction: Not reported
Pipe Primary Release Detection: Not reported
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Pipe Pumping System: Not reported
Responsible Unit: NORTHWEST
Dispenser/Pump SFC Type: Not reported

Tank Name: 3
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 10/02/1991
Tank Install Date: 00/31/1980
Tank Closure Date: 12/11/1991
Capacity Range: 10,000 to 19,999 Gallons
Tank Permit Expiration Date: Not reported
Tank Upgrade Date: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
Tank Material: Steel
### GRAHAM STEEL CORP (Continued)

- **Tank Construction:** Not reported
- **Tank Tightness Test:** Not reported
- **Tank Corrosion Protection:** Not reported
- **Tank Manifold:** Not reported
- **Tank Release Detection:** Not reported
- **Tank SFC Type:** Not reported
- **Pipe Material:** Fiberglass
- **Pipe Construction:** Not reported
- **Pipe Primary Release Detection:** Not reported
- **Pipe Second Release Detection:** Not reported
- **Pipe Corrosion Protection:** Not reported
- **Pipe Pumping System:** Not reported
- **Responsible Unit:** NORTHWEST
- **Dispenser/Pump SFC Type:** Not reported

- **Tank Name:** 4
- **Tag Number:** Not reported
- **Tank Status:** Removed
- **Tank Status Date:** 10/02/1991
- **Tank Install Date:** 00/31/1980
- **Tank Closure Date:** 12/11/1991
- **Capacity Range:** 111 TO 1,100 Gallons
- **Tank Permit Expiration Date:** Not reported
- **Tank Upgrade Date:** Not reported
- **Tank Spill Prevention:** Not reported
- **Tank Overfill Prevention:** Not reported
- **Tank Material:** Steel
- **Tank Construction:** Not reported
- **Tank Tightness Test:** Not reported
- **Tank Corrosion Protection:** Not reported
- **Tank Manifold:** Not reported
- **Tank Release Detection:** Not reported
- **Tank SFC Type:** Not reported
- **Pipe Material:** Fiberglass
- **Pipe Construction:** Not reported
- **Pipe Primary Release Detection:** Not reported
- **Pipe Second Release Detection:** Not reported
- **Pipe Corrosion Protection:** Not reported
- **Pipe Pumping System:** Not reported
- **Responsible Unit:** NORTHWEST
- **Dispenser/Pump SFC Type:** Not reported

**VCP:**
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- `edr_fzip`: 98034-8004
- `edr_fcounty`: KING
- `edr_zip`: Not reported
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- `VCP`: Yes
- `Ecology Status`: Not reported
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- `Date NFA`: Not reported
- `Rank`: N
- `Cleanup Siteid`: 5967
GRAHAM STEEL CORP (Continued)

edr_fstat: WA
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edr_fcnty: KING
edr_zip: Not reported
Facility ID: 37124273
VCP Status: Not reported
VCP: Yes
Ecology Status: Not reported
NFA Type: Not reported
Date NFA: Not reported
Rank: N
Cleanup Siteid: 5967

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edr_zip: Not reported
Facility ID: 37124273
VCP Status: Not reported
VCP: Yes
Ecology Status: Not reported
NFA Type: Not reported
Date NFA: Not reported
Rank: N
Cleanup Siteid: 5967

ALLSITES:
Facility Name: TOYOTA SCION OF KIRKLAND
Facility Id: 11200

Interaction: 105411
Interaction 1: I
Interaction 2: CONSTSWGP
Ecology Program: WATQUAL
Program Data: PARIS
Facility Alt.: Toyota Scion of Kirkland
Program ID: WAR127173
Date Interaction: 2013-05-23 00:00:00
Date Interaction 3: Construction SW GP
Latitude: 47.711888133000002
Longitude: -122.164621565

Facility Name: GRAHAM STEEL CORP
Facility Id: 37124273

Interaction: 41054
Interaction 1: A
Interaction 2: TIER2
Ecology Program: HAZWASTE
Program Data: EPCRA
Facility Alt.: Not reported
Program ID: WAD027338888
Date Interaction: 1990-01-01 00:00:00
Date Interaction 3: Emergency/Haz Chem Rpt TI
Latitude: 47.711394359000003
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<tbody>
<tr>
<td>Interaction 1:</td>
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</tr>
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<td>Interaction 2:</td>
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<td>Ecology Program:</td>
<td>TOXICS</td>
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<td>Program Data:</td>
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**EDR ID Number**: U000595113
### GRAHAM STEEL CORP (Continued)

<table>
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<tr>
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<tr>
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<td>Date Interaction 3:</td>
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<tr>
<td>Latitude:</td>
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</tr>
<tr>
<td>Longitude:</td>
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Interaction: 41058
Interaction 1: I
Interaction 2: VOLCLNST
Ecology Program: TOXICS
Program Data: ISIS
Facility Alt.: GRAHAM STEEL CORP
Program ID: NW1350
Date Interaction: 2004-11-18 00:00:00
Date Interaction 3: Voluntary Cleanup Sites
Latitude: 47.71394359000003
Longitude: -122.164215109

---

### WASTE MANAGEMENT SNO KING KIRKLAND

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Region:</td>
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<td>Lat/Long:</td>
<td>47.713722 / -122.16449</td>
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<td>Brownfield Status:</td>
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<td>Clean Up Siteid:</td>
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<td>Site Status:</td>
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<tr>
<td>PSI?:</td>
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<tr>
<td>Contaminant Name:</td>
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<td>Ground Water:</td>
<td>Confirmed Above Cleanup Level</td>
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<td>Sediment:</td>
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<td>Air:</td>
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CSCSL: 36181742
Waste Management Sno King Kirkland
13225 NE 126TH PL
KIRKLAND, WA 98034

---

**TC5463995.2s Page 645**
### WASTE MANAGEMENT SNO KING KIRKLAND (Continued)

<table>
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<td>11817</td>
<td>WASTE MANAGEMENT SNO KING KIRKLAND</td>
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**Interaction 1:**
- Facility Alt.: Not reported
- Program ID: Not reported
- Date Interaction: 1995-10-23 00:00:00
- Program Data: TOXICS
- Ecology Program: TOXICS
- Interaction: 40430

**Interaction 2:**
- Facility Alt.: Waste Management Sno King Kirkland
- Program ID: NW2581
- Date Interaction: 2000-02-29 00:00:00
- Program Data: TOXICS
- Ecology Program: TOXICS
- Interaction: 100770

**Interaction 3:**
- Facility Alt.: Waste Management Sno King Kirkland
- Program ID: WAR002485
- Date Interaction: 2012-03-14 00:00:00
- Program Data: TOXICS
- Ecology Program: TOXICS
- Interaction: 82568

**Interaction 4:**
- Facility Alt.: Hazardous Waste Generator
- Program ID: WAR00005983
- Date Interaction: 1995-10-23 00:00:00
- Program Data: TURBWASTE
- Ecology Program: HAZWASTE
- Interaction: 40428
### WASTE MANAGEMENT SNO KING KIRKLAND (Continued)

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<td>Ecology Program:</td>
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<td>Program Data:</td>
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To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

**Number of Days to Update:** Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

**STANDARD ENVIRONMENTAL RECORDS**

**Federal NPL site list**

NPL: National Priority List
National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA’s Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

| Date of Government Version: 07/17/2018 | Source: EPA |
| Date Data Arrived at EDR: 08/09/2018 | Telephone: N/A |
| Date Made Active in Reports: 09/07/2018 | Last EDR Contact: 10/04/2018 |
| Number of Days to Update: 29 | Next Scheduled EDR Contact: 01/14/2019 |
| Data Release Frequency: Quarterly |

**NPL Site Boundaries**

Sources:
- EPA’s Environmental Photographic Interpretation Center (EPIC)
  Telephone: 202-564-7333
- EPA Region 1
  Telephone 617-918-1143
- EPA Region 3
  Telephone 215-814-5418
- EPA Region 4
  Telephone 404-562-8033
- EPA Region 5
  Telephone 312-886-6686
- EPA Region 10
  Telephone 206-553-8665
- EPA Region 6
  Telephone 214-655-6659
- EPA Region 7
  Telephone 913-551-7247
- EPA Region 8
  Telephone 303-312-6774
- EPA Region 9
  Telephone 415-947-4246

**Proposed NPL:** Proposed National Priority List Sites
A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

| Date of Government Version: 07/17/2018 | Source: EPA |
| Date Data Arrived at EDR: 08/09/2018 | Telephone: N/A |
| Date Made Active in Reports: 09/07/2018 | Last EDR Contact: 10/04/2018 |
| Number of Days to Update: 29 | Next Scheduled EDR Contact: 01/14/2019 |
| Data Release Frequency: Quarterly |

**NPL LIENS:** Federal Superfund Liens
Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.
• Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions
The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

• Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing
A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

• SEMS: Superfund Enterprise Management System
SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA’s Superfund Program across the United States. The list was formerly known as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

• Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive
SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 07/17/2018  
Source: EPA  
Telephone: 800-424-9346  
Last EDR Contact: 10/04/2018  
Next Scheduled EDR Contact: 01/28/2019  
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report  
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/01/2018  
Source: EPA  
Telephone: 800-424-9346  
Last EDR Contact: 09/19/2018  
Next Scheduled EDR Contact: 01/07/2019  
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal  
RCRAInfo is EPA’s comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/01/2018  
Source: Environmental Protection Agency  
Telephone: (206) 553-1200  
Last EDR Contact: 09/19/2018  
Next Scheduled EDR Contact: 01/07/2019  
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators  
RCRAInfo is EPA’s comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/01/2018  
Source: Environmental Protection Agency  
Telephone: (206) 553-1200  
Last EDR Contact: 09/19/2018  
Next Scheduled EDR Contact: 01/07/2019  
Data Release Frequency: Quarterly
RCRA-SQG: RCRA - Small Quantity Generators
RCRAInfo is EPA’s comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86
Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators
RCRAInfo is EPA’s comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86
Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System
LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/14/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63
Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 07/16/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List
A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 07/31/2018
Date Data Arrived at EDR: 08/28/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 17
Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/28/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls
A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 07/31/2018
Date Data Arrived at EDR: 08/28/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 17
Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/28/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Varies
Federal ERNS list

ERNS: Emergency Response Notification System
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

- Date of Government Version: 06/18/2018
- Date Data Arrived at EDR: 06/27/2018
- Date Made Active in Reports: 09/14/2018
- Number of Days to Update: 79

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 09/25/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

State- and tribal - equivalent NPL

HSL: Hazardous Sites List
The Hazardous Sites List is a subset of the CSCSL Report. It includes sites which have been assessed and ranked using the Washington Ranking Method (WARM).

- Date of Government Version: 08/22/2018
- Date Data Arrived at EDR: 09/07/2018
- Date Made Active in Reports: 09/25/2018
- Number of Days to Update: 18

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 09/05/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Semi-Annually

State- and tribal - equivalent CERCLIS

CSCSL: Confirmed and Suspected Contaminated Sites List
State Hazardous Waste Sites. State hazardous waste site records are the states’ equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

- Date of Government Version: 07/16/2018
- Date Data Arrived at EDR: 07/20/2018
- Date Made Active in Reports: 09/06/2018
- Number of Days to Update: 48

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 10/18/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Solid Waste Facility Database
Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

- Date of Government Version: 09/04/2018
- Date Data Arrived at EDR: 09/07/2018
- Date Made Active in Reports: 09/26/2018
- Number of Days to Update: 19

Source: Department of Ecology
Telephone: 360-407-6132
Last EDR Contact: 09/04/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Annually

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tanks Site List
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

- Date of Government Version: 08/10/2018
- Date Data Arrived at EDR: 08/10/2018
- Date Made Active in Reports: 09/06/2018
- Number of Days to Update: 27

Source: Department of Ecology
Telephone: 360-407-7183
Last EDR Contact: 08/10/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: Quarterly
INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.
Date of Government Version: 04/01/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.
Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.
Date of Government Version: 04/13/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.
Date of Government Version: 04/25/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada
Date of Government Version: 04/10/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska.
Date of Government Version: 04/24/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies
INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/12/2018  Source: EPA, Region 5
Date Data Arrived at EDR: 05/18/2018  Telephone: 312-886-7439
Date Made Active in Reports: 07/20/2018  Last EDR Contact: 07/27/2018
Number of Days to Update: 63  Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 05/15/2017  Source: FEMA
Date Data Arrived at EDR: 05/30/2017  Telephone: 202-646-5797
Date Made Active in Reports: 10/13/2017  Last EDR Contact: 10/10/2018
Number of Days to Update: 136  Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Varies

UST: Underground Storage Tank Database
Registered Underground Storage Tanks. UST’s are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 05/01/2018  Source: Department of Ecology
Date Data Arrived at EDR: 05/01/2018  Telephone: 360-407-7183
Date Made Active in Reports: 05/03/2018  Last EDR Contact: 08/08/2018
Number of Days to Update: 8  Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: Quarterly

AST: Aboveground Storage Tank Locations
A listing of aboveground storage tank locations regulated by the Department of Ecology’s Spill Prevention, Preparedness and Response Program.

Date of Government Version: 12/14/2015  Source: Department of Ecology
Date Data Arrived at EDR: 02/02/2016  Telephone: 360-407-7562
Date Made Active in Reports: 05/03/2016  Last EDR Contact: 07/26/2018
Number of Days to Update: 91  Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/01/2018  Source: EPA Region 6
Date Data Arrived at EDR: 05/18/2018  Telephone: 214-665-7591
Date Made Active in Reports: 07/20/2018  Last EDR Contact: 07/27/2018
Number of Days to Update: 63  Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/24/2018  Source: EPA Region 7
Date Data Arrived at EDR: 05/18/2018  Telephone: 913-551-7003
Date Made Active in Reports: 07/20/2018  Last EDR Contact: 07/27/2018
Number of Days to Update: 63  Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies
INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/10/2018  Source: EPA Region 9
Date Data Arrived at EDR: 05/18/2018  Telephone: 415-972-3368
Date Made Active in Reports: 07/20/2018  Last EDR Contact: 07/27/2018
Number of Days to Update: 63  Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

Date of Government Version: 04/12/2018  Source: EPA Region 10
Date Data Arrived at EDR: 05/18/2018  Telephone: 206-553-2857
Date Made Active in Reports: 07/20/2018  Last EDR Contact: 07/27/2018
Number of Days to Update: 63  Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/13/2018  Source: EPA, Region 1
Date Data Arrived at EDR: 05/18/2018  Telephone: 617-918-1313
Date Made Active in Reports: 07/20/2018  Last EDR Contact: 07/27/2018
Number of Days to Update: 63  Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/12/2018  Source: EPA Region 5
Date Data Arrived at EDR: 05/18/2018  Telephone: 312-886-6136
Date Made Active in Reports: 07/20/2018  Last EDR Contact: 07/27/2018
Number of Days to Update: 63  Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 05/08/2018  Source: EPA Region 4
Date Data Arrived at EDR: 05/18/2018  Telephone: 404-562-9424
Date Made Active in Reports: 07/20/2018  Last EDR Contact: 07/27/2018
Number of Days to Update: 63  Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 04/25/2018  Source: EPA Region 8
Date Data Arrived at EDR: 05/18/2018  Telephone: 303-312-6137
Date Made Active in Reports: 07/20/2018  Last EDR Contact: 07/27/2018
Number of Days to Update: 63  Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies
PTAP: PTAP Site Listing
A list of sites accepted into the Petroleum Technical Assistance Program. The Petroleum Technical Assistance Program (PTAP) expands the state’s ability to respond to the high customer demand to clean up petroleum contaminated sites. Under the PTAP, the Pollution Liability Insurance Agency (PLIA) may provide informal site-specific technical consultations and issue written opinion letters to persons conducting independent remedial actions at qualifying petroleum cleanup sites. PLIA may provide these services under the authority of RCW 70.149.040(9) and the Model Toxics Control Act (MTCA), Chapter 70.149 RCW and Chapter 173-340 WAC.

Date of Government Version: 06/26/2018
Date Data Arrived at EDR: 08/10/2018
Date Made Active in Reports: 09/25/2018
Number of Days to Update: 46

Source: Department of Ecology
Telephone: 360-407-0515
Last EDR Contact: 08/10/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

INST CONTROL: Institutional Control Site List
Sites that have institutional controls.

Date of Government Version: 07/16/2018
Date Data Arrived at EDR: 07/20/2018
Date Made Active in Reports: 09/06/2018
Number of Days to Update: 48

Source: Department of Ecology
Telephone: 360-407-7170
Last EDR Contact: 10/18/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Quarterly

State and tribal voluntary cleanup sites

ICR: Independent Cleanup Reports
These are remedial action reports Ecology has received from either the owner or operator of the sites. These actions have been conducted without department oversight or approval and are not under an order or decree. This database is no longer updated by the Department of Ecology.

Date of Government Version: 12/01/2002
Date Data Arrived at EDR: 01/03/2003
Date Made Active in Reports: 01/22/2003
Number of Days to Update: 19

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 08/10/2009
Next Scheduled EDR Contact: 11/09/2009
Data Release Frequency: No Update Planned

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 09/24/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Sites
Sites that have entered either the Voluntary Cleanup Program or its predecessor Independent Remedial Action Program.
State and tribal Brownfields sites

BROWNFIELDS: Brownfields Sites Listing
A listing of brownfields sites included in the Confirmed & Suspected Sites Listing. Brownfields are abandoned, idle or underused commercial or industrial properties, where the expansion or redevelopment is hindered by real or perceived contamination. Brownfields vary in size, location, age, and past use -- they can be anything from a five-hundred acre automobile assembly plant to a small, abandoned corner gas station.

Local Brownfield lists
US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Local Lists of Landfill / Solid Waste Disposal Sites
SWRCY: Recycling Facility List
A listing of recycling center locations.

SWTIRE: Solid Waste Tire Facilities
This study identified sites statewide with unauthorized accumulations of scrap tires.
GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SWTIRE 2: Solid Waste Tire Facilities 2
- solid waste tire piles

Date of Government Version: 06/20/2017
Date Data Arrived at EDR: 06/23/2017
Date Made Active in Reports: 05/30/2018
Number of Days to Update: 341

Source: Department of Ecology
Telephone: 425-649-7104
Last EDR Contact: 08/30/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
- Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 07/30/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
- A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory
- An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 08/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
- A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Services, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 08/03/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Varies

Local Lists of Hazardous Waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register
- A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 05/18/2018
Date Data Arrived at EDR: 06/20/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 86

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/28/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: No Update Planned
ALL SITES: Facility/Site Identification System Listing
Information on facilities and sites of interest to the Department of Ecology.
Date of Government Version: 07/09/2018
Date Data Arrived at EDR: 07/10/2018
Date Made Active in Reports: 09/18/2018
Number of Days to Update: 70
Source: Department of Ecology
Telephone: 360-407-6423
Last EDR Contact: 07/26/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Quarterly

CDL: Clandestine Drug Lab Contaminated Site List
Illegal methamphetamine labs use hazardous chemicals that create public health hazards. Chemicals and residues can cause burns, respiratory and neurological damage, and death. Biological hazards associated with intravenous needles, feces, and blood also pose health risks.
Date of Government Version: 07/11/2018
Date Data Arrived at EDR: 08/23/2018
Date Made Active in Reports: 09/25/2018
Number of Days to Update: 33
Source: Department of Health
Telephone: 360-236-3380
Last EDR Contact: 08/20/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Varies

HIST CDL: List of Sites Contaminated by Clandestine Drug Labs
This listing of contaminated sites by Clandestine Drug Labs includes non-remediated properties. The current CDL listing does not. This listing is no longer updated by the state agency.
Date of Government Version: 02/08/2007
Date Data Arrived at EDR: 06/26/2007
Date Made Active in Reports: 07/19/2007
Number of Days to Update: 23
Source: Department of Health
Telephone: 360-236-3381
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

CSCSL NFA: Confirmed and Contaminated Sites - No Further Action
This report contains information about sites that are undergoing cleanup and sites that are awaiting further investigation and/or cleanup. Sites on the Hazardous Sites List (see above) are included in this data set.
Date of Government Version: 07/16/2018
Date Data Arrived at EDR: 07/20/2018
Date Made Active in Reports: 09/05/2018
Number of Days to Update: 47
Source: Department of Ecology
Telephone: 360-407-7170
Last EDR Contact: 10/18/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Quarterly

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.
Date of Government Version: 05/18/2018
Date Data Arrived at EDR: 06/20/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 86
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/28/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Quarterly

Local Land Records

LIENS 2: CERCLA Lien Information
A Federal CERCLA (‘Superfund’) lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.
Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/26/2018
Date Data Arrived at EDR: 03/27/2018
Date Made Active in Reports: 06/08/2018
Number of Days to Update: 73
Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 09/25/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

SPILLS: Reported Spills
Spills reported to the Spill Prevention, Preparedness and Response Division.

Date of Government Version: 09/12/2018
Date Data Arrived at EDR: 09/14/2018
Date Made Active in Reports: 09/25/2018
Number of Days to Update: 11
Source: Department of Ecology
Telephone: 360-407-6950
Last EDR Contact: 08/30/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Semi-Annually

SPILLS 90: SPILLS90 data from FirstSearch
Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 05/23/2006
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 03/06/2013
Number of Days to Update: 62
Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated
RCRAInfo is EPA’s comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86
Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites
The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015
Date Data Arrived at EDR: 07/08/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 97
Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 08/24/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Varies
DOD: Department of Defense Sites
This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 10/12/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 10/12/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing
The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 08/17/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information
All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/27/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 100

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 09/25/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST
EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 98

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 08/03/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Quarterly
2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/10/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 198

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/21/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 01/10/2018
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 2

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/24/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 57

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 10/04/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Annually

RMP: Risk Management Plans
When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g. the fire department) should an accident occur.

RAATS: RCRA Administrative Action Tracking System
RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

PADS: PCB Activity Database System
PCB Activity Database. PADS identifies generators, transporters, commercial storers and/or brokers and disposers of PCB’s who are required to notify the EPA of such activities.

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.
FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

Source: EPA
Telephone: 202-566-1667

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016
Date Data Arrived at EDR: 09/08/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 43
Last EDR Contact: 09/28/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Quarterly

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76
Last EDR Contact: 09/07/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Varies

Source: Department of Energy
Telephone: 202-586-8719

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40
Last EDR Contact: 09/04/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Varies

Source: Environmental Protection Agency
Telephone: N/A

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 05/24/2017
Date Data Arrived at EDR: 11/30/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 15
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

Source: Environmental Protection Agency
Telephone: 202-566-0517

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Source: N/A
HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The
information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA
(Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions
are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters
with updated records, it was decided to create a HIST FTTS database. It included records that may not be included
in the newer FTTS database updates. This database is no longer updated.

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA
regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation
of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some
EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing
EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that
may not be included in the newer FTTS database updates. This database is no longer updated.

DOT OPS: Incident and Accident Data
Department of Transportation, Office of Pipeline Safety Incident and Accident data.

CONSENT: Superfund (CERCLA) Consent Decrees
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released
periodically by United States District Courts after settlement by parties to litigation matters.

BRS: Biennial Reporting System
The Biennial Reporting System is a national system administered by the EPA that collects data on the generation
and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG)
and Treatment, Storage, and Disposal Facilities.
INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546
Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 10/09/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program
DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3
Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 09/11/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites
Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 06/23/2017
Date Data Arrived at EDR: 10/11/2017
Date Made Active in Reports: 11/03/2017
Number of Days to Update: 23
Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/20/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 57
Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 10/04/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites
A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust.

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36
Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)
The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.
GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

US MINES: Mines Master Index File
Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing
This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

US MINES 3: Active Mines & Mineral Plants Database Listing
Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

ABANDONED MINES: Abandoned Mines
An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.
FINDS: Facility Index System/Facility Registry System
FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 08/07/2018  
Date Data Arrived at EDR: 09/05/2018  
Date Made Active in Reports: 10/05/2018  
Number of Days to Update: 30  
Source: EPA  
Telephone: (206) 553-1200  
Last EDR Contact: 09/18/2018  
Next Scheduled EDR Contact: 12/17/2018  
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites
A listing of unexploded ordnance site locations

Date of Government Version: 09/30/2017  
Date Data Arrived at EDR: 06/19/2018  
Date Made Active in Reports: 09/14/2018  
Number of Days to Update: 87  
Source: Department of Defense  
Telephone: 703-704-1564  
Last EDR Contact: 10/15/2018  
Next Scheduled EDR Contact: 01/28/2019  
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information
ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 09/02/2018  
Date Data Arrived at EDR: 09/05/2018  
Date Made Active in Reports: 09/14/2018  
Number of Days to Update: 9  
Source: Environmental Protection Agency  
Telephone: 202-564-2280  
Last EDR Contact: 09/05/2018  
Next Scheduled EDR Contact: 12/17/2018  
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing
A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018  
Date Data Arrived at EDR: 07/26/2018  
Date Made Active in Reports: 10/05/2018  
Number of Days to Update: 71  
Source: Environmental Protection Agency  
Telephone: 202-564-0527  
Last EDR Contact: 08/31/2018  
Next Scheduled EDR Contact: 12/10/2018  
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 08/22/2018  
Date Data Arrived at EDR: 08/22/2018  
Date Made Active in Reports: 10/05/2018  
Number of Days to Update: 44  
Source: EPA  
Telephone: 800-385-6164  
Last EDR Contact: 08/22/2018  
Next Scheduled EDR Contact: 12/03/2018  
Data Release Frequency: Quarterly

AIRS (EMI): Washington Emissions Data System
Emissions inventory data.

Date of Government Version: 04/23/2018  
Date Data Arrived at EDR: 04/25/2018  
Date Made Active in Reports: 06/04/2018  
Number of Days to Update: 40  
Source: Department of Ecology  
Telephone: 360-407-6040  
Last EDR Contact: 09/17/2018  
Next Scheduled EDR Contact: 12/31/2018  
Data Release Frequency: Annually
ASBESTOS: Asbestos Notification Listing
Asbestos sites
- Date of Government Version: 07/31/2018
- Date Data Arrived at EDR: 08/02/2018
- Date Made Active in Reports: 09/06/2018
- Number of Days to Update: 35
- Source: Department of Labor & Industries
- Telephone: 360-902-6209
- Last EDR Contact: 08/02/2018
- Next Scheduled EDR Contact: 12/03/2018
- Data Release Frequency: Varies

COAL ASH: Coal Ash Disposal Site Listing
A listing of coal ash disposal site locations.
- Date of Government Version: 09/05/2018
- Date Data Arrived at EDR: 09/07/2018
- Date Made Active in Reports: 09/25/2018
- Number of Days to Update: 18
- Source: Department of Ecology
- Telephone: 360-407-6933
- Last EDR Contact: 08/30/2018
- Next Scheduled EDR Contact: 12/17/2018
- Data Release Frequency: Varies

DRYCLEANERS: Drycleaner List
A listing of registered drycleaners who registered with the Department of Ecology (using the SIC code of 7215 and 7216) as hazardous waste generators.
- Date of Government Version: 07/17/2018
- Date Data Arrived at EDR: 07/24/2018
- Date Made Active in Reports: 09/05/2018
- Number of Days to Update: 43
- Source: Department of Ecology
- Telephone: 360-407-6732
- Last EDR Contact: 10/15/2018
- Next Scheduled EDR Contact: 01/28/2019
- Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
A listing of financial assurance information for underground storage tank facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.
- Date of Government Version: 07/31/2018
- Date Data Arrived at EDR: 08/02/2018
- Date Made Active in Reports: 09/05/2018
- Number of Days to Update: 34
- Source: Department of Ecology
- Telephone: 360-586-1060
- Last EDR Contact: 08/27/2018
- Next Scheduled EDR Contact: 12/10/2018
- Data Release Frequency: No Update Planned

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for hazardous waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.
- Date of Government Version: 06/01/2018
- Date Data Arrived at EDR: 06/05/2018
- Date Made Active in Reports: 07/24/2018
- Number of Days to Update: 49
- Source: Department of Ecology
- Telephone: 360-407-6754
- Last EDR Contact: 08/08/2018
- Next Scheduled EDR Contact: 11/26/2018
- Data Release Frequency: Varies

Financial Assurance 3: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.
- Date of Government Version: 11/15/2017
- Date Data Arrived at EDR: 11/20/2017
- Date Made Active in Reports: 01/04/2018
- Number of Days to Update: 45
- Source: Department of Ecology
- Telephone: 360-407-6136
- Last EDR Contact: 08/08/2018
- Next Scheduled EDR Contact: 11/26/2018
- Data Release Frequency: No Update Planned
INACTIVE DRYCLEANERS: Inactive Drycleaners
A listing of inactive drycleaner facility locations.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 07/24/2018
Date Made Active in Reports: 09/05/2018
Number of Days to Update: 43
Source: Department of Ecology
Telephone: 360-407-6732
Last EDR Contact: 10/15/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Annually

WA MANIFEST: Hazardous Waste Manifest Data
Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/04/2018
Number of Days to Update: 40
Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 09/17/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Annually

NPDES: Water Quality Permit System Data
A listing of permitted wastewater facilities.

Date of Government Version: 07/16/2018
Date Data Arrived at EDR: 07/20/2018
Date Made Active in Reports: 09/06/2018
Number of Days to Update: 48
Source: Department of Ecology
Telephone: 360-407-6073
Last EDR Contact: 10/18/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Quarterly

UIC: Underground Injection Wells Listing
A listing of underground injection wells.

Date of Government Version: 07/16/2018
Date Data Arrived at EDR: 07/20/2018
Date Made Active in Reports: 09/06/2018
Number of Days to Update: 48
Source: Department of Ecology
Telephone: 360-407-6143
Last EDR Contact: 10/18/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Quarterly

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR’s researchers. Manufactured gas sites were used in the United States from the 1800’s to 1950’s to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A
Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations
EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR’s review was limited to those categories of sources that might, in EDR’s opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as “High Risk Historical Records”, or HRHR. EDR’s HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A
Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned
EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR’s review was limited to those categories of sources that might, in EDR’s opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as “High Risk Historical Records”, or HRHR. EDR’s HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

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EDR RECOVERED GOVERNMENT ARCHIVES

**Exclusive Recovered Govt. Archives**

**RGA HWS:** Recovered Government Archive State Hazardous Waste Facilities List

The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Ecology in Washington.

<table>
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**RGA LF:** Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Ecology in Washington.

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<td>Date Made Active in Reports: 01/10/2014</td>
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**RGA LUST:** Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Ecology in Washington.

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<td>Data Release Frequency: Varies</td>
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</table>
COUNTY RECORDS

KING COUNTY:

LF KING: Abandoned Landfill Study in King County
The King County Abandoned Landfill Survey was conducted from October through December 1984 by the Health Department’s Environmental Health Division at the request of the King County Council. The primary objective of the survey was to determine if any public health problems existed at the predetermined 24 sites.

Date of Government Version: 04/30/1985
Source: Seattle-King County Department of Public Health
Date Data Arrived at EDR: 11/07/1994
Telephone: 206-296-4785
Date Made Active in Reports: N/A
Last EDR Contact: 10/21/1994
Number of Days to Update: 0
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SEATTLE COUNTY:

LF SEATTLE CITY: Abandoned Landfill Study in the City of Seattle
The Seattle Abandoned Landfill Survey was conducted in June and July of 1984 by the Health Department’s Environmental Health Division at the request of the Mayor’s Office. The primary objective of the survey was to determine if any public health problems existed at the predetermined 12 sites.

Date of Government Version: 07/30/1984
Source: Seattle - King County Department of Public Health
Date Data Arrived at EDR: 11/07/1994
Telephone: 206-296-4785
Date Made Active in Reports: N/A
Last EDR Contact: 10/21/1994
Number of Days to Update: 0
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SEATTLE/KING COUNTY:

LF SEATTLE/KING: Seattle - King County Abandoned Landfill Toxicity / Hazard Assessment Project
This report presents the Seattle-King County Health Department’s follow-up investigation of two city owned and four county owned abandoned landfills which was conducted from February to December 1986.

Date of Government Version: 12/31/1986
Source: Department of Public Health
Date Data Arrived at EDR: 08/18/1995
Telephone: 206-296-4785
Date Made Active in Reports: 09/20/1995
Last EDR Contact: 08/14/1995
Number of Days to Update: 33
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SNOHOMISH COUNTY:

LF SNOHOMISH: Solid Waste Sites of Record at Snohomish Health District
Solid waste disposal and/or utilization sites in Snohomish County.

Date of Government Version: 11/16/2011
Source: Snohomish Health District
Date Data Arrived at EDR: 03/29/2012
Telephone: 206-339-5250
Date Made Active in Reports: 05/03/2012
Last EDR Contact: 09/21/2018
Number of Days to Update: 35
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Semi-Annually

TACOMA/PIERCE COUNTY:

LF TACOMA/PIERCE: Closed Landfill Survey
Following numerous requests for information about closed dumpsites and landfills in Pierce County, the Tacoma-Pierce County Health Department decided to conduct a study on the matter. The aim of the study was to evaluate public health risks associated with the closed dumpsites and landfills, and to determine the need, if any, for further investigations of a more detailed nature. The sites represent all of the known dumpsites and landfills closed after 1950.
OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

- Date of Government Version: 08/10/2018
- Date Data Arrived at EDR: 08/10/2018
- Date Made Active in Reports: 09/10/2018
- Number of Days to Update: 31
- Source: Department of Energy & Environmental Protection
- Telephone: 860-424-3375
- Last EDR Contact: 08/09/2018
- Next Scheduled EDR Contact: 11/26/2018
- Data Release Frequency: No Update Planned

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

- Date of Government Version: 07/01/2018
- Date Data Arrived at EDR: 08/01/2018
- Date Made Active in Reports: 08/31/2018
- Number of Days to Update: 30
- Source: Department of Environmental Conservation
- Telephone: 518-402-8651
- Last EDR Contact: 08/01/2018
- Next Scheduled EDR Contact: 11/12/2018
- Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

- Date of Government Version: 12/31/2016
- Date Data Arrived at EDR: 07/25/2017
- Date Made Active in Reports: 09/25/2017
- Number of Days to Update: 62
- Source: Department of Environmental Protection
- Telephone: 717-783-8990
- Last EDR Contact: 10/15/2018
- Next Scheduled EDR Contact: 01/28/2019
- Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

- Date of Government Version: 12/31/2017
- Date Data Arrived at EDR: 06/15/2018
- Date Made Active in Reports: 07/09/2018
- Number of Days to Update: 24
- Source: Department of Natural Resources
- Telephone: N/A
- Last EDR Contact: 09/06/2018
- Next Scheduled EDR Contact: 12/24/2018
- Data Release Frequency: Annually

Oil/Gas Pipelines
Source: PennWell Corporation
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data
Source: PennWell Corporation
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.
Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Daycare Center Listing
Source: Department of Social & Health Services
Telephone: 253-383-1735

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Ecology
Telephone: 360-407-6121

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey
Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.
GROUNDWATER FLOW DIRECTION INFORMATION
Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

TOPOGRAPHIC INFORMATION
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY
General Topographic Gradient: General South

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES

Source: Topography has been determined from the USGS 7.5’ Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.
HYDROLOGIC INFORMATION
Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

<table>
<thead>
<tr>
<th>Flood Plain Panel at Target Property</th>
<th>FEMA Source Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>53033C0360F</td>
<td>FEMA Q3 Flood data</td>
</tr>
<tr>
<td>Additional Panels in search area:</td>
<td></td>
</tr>
<tr>
<td>53033C0352F</td>
<td>FEMA Q3 Flood data</td>
</tr>
<tr>
<td>53033C0354F</td>
<td>FEMA Q3 Flood data</td>
</tr>
</tbody>
</table>

NATIONAL WETLAND INVENTORY

<table>
<thead>
<tr>
<th>NWI Quad at Target Property</th>
<th>Data Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIRKLAND</td>
<td>YES - refer to the Overview Map and Detail Map</td>
</tr>
</tbody>
</table>

HYDROGEOLOGIC INFORMATION
Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:
- Search Radius: 1.25 miles
- Location Relative to TP: 1/2 - 1 Mile NE
- Site Name: GOLDEN PENN OIL CO OF SEATTLE
- Site EPA ID Number: WAD08S197945
- Groundwater Flow Direction: NOT AVAILABLE
- Inferred Depth to Water: 10 feet to 30 feet
- Hydraulic Connection: The near-surface aquifer is located in a sand and gravel outwash beneath the Vashon till.
- Sole Source Aquifer: No information about a sole source aquifer is available
- Data Quality: Information is inferred in the CERCLIS investigation report(s)

AQUIFLOW®
Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<table>
<thead>
<tr>
<th>MAP ID</th>
<th>LOCATION FROM TP</th>
<th>GENERAL DIRECTION GROUNDWATER FLOW</th>
</tr>
</thead>
</table>

* ©1996 Site-specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.
### GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

<table>
<thead>
<tr>
<th>MAP ID</th>
<th>LOCATION</th>
<th>GENERAL DIRECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/8 - 1/4 Mile SSE</td>
<td>NNW</td>
</tr>
<tr>
<td>1G</td>
<td>1/8 - 1/4 Mile SSE</td>
<td>NNW</td>
</tr>
</tbody>
</table>

For additional site information, refer to Physical Setting Source Map Findings.
GROUNDWATER FLOW VELOCITY INFORMATION
Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY
Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

**ROCK STRATIGRAPHIC UNIT**

**GEOLOGIC AGE IDENTIFICATION**

<table>
<thead>
<tr>
<th>Era</th>
<th>Cenozoic</th>
<th>Category: Stratified Sequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>System</td>
<td>Quaternary</td>
<td></td>
</tr>
<tr>
<td>Series</td>
<td>Quaternary</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Q</td>
<td>(decoded above as Era, System &amp; Series)</td>
</tr>
</tbody>
</table>

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture’s (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

---

**Soil Map ID: 1**

Soil Component Name: Seattle
Soil Surface Texture: muck
Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.
Soil Drainage Class: Very poorly drained
Hydric Status: All hydric
Corrosion Potential - Uncoated Steel: High
Depth to Bedrock Min: > 0 inches
Depth to Watertable Min: > 0 inches

<table>
<thead>
<tr>
<th>Layer</th>
<th>Boundary</th>
<th>Classification</th>
<th>Saturated hydraulic conductivity micro m/sec</th>
<th>Soil Reaction (pH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0 inches</td>
<td>muck</td>
<td>A-8</td>
<td>Highly organic soils, Peat.</td>
</tr>
<tr>
<td></td>
<td>11 inches</td>
<td></td>
<td></td>
<td>Max: 14 Min: 4</td>
</tr>
<tr>
<td>2</td>
<td>11 inches</td>
<td>stratified mucky peat to muck</td>
<td>A-8</td>
<td>Highly organic soils, Peat.</td>
</tr>
</tbody>
</table>

---

**Soil Map ID: 2**

Soil Component Name: Everett
Soil Surface Texture: gravelly sandy loam
Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.
Soil Drainage Class: Somewhat excessively drained
Hydric Status: Not hydric
Corrosion Potential - Uncoated Steel: Moderate
Depth to Bedrock Min: > 0 inches
Depth to Watertable Min: > 0 inches

### Soil Layer Information

<table>
<thead>
<tr>
<th>Layer</th>
<th>Boundary</th>
<th>Soil Texture Class</th>
<th>Classification</th>
<th>Unified Soil</th>
<th>Saturated hydraulic conductivity micro m/sec</th>
<th>Soil Reaction (pH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0 inches</td>
<td>gravelly sandy loam</td>
<td>Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.</td>
<td>COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel. COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel.</td>
<td>Max: 705 Min: 141</td>
<td>Max: 6.5 Min: 5.6</td>
</tr>
<tr>
<td>2</td>
<td>16 inches</td>
<td>very gravelly sandy loam</td>
<td>Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.</td>
<td>COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel. COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel.</td>
<td>Max: 705 Min: 141</td>
<td>Max: 6.5 Min: 5.6</td>
</tr>
<tr>
<td>3</td>
<td>31 inches</td>
<td>very gravelly coarse sand</td>
<td>Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.</td>
<td>COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel. COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel.</td>
<td>Max: 705 Min: 141</td>
<td>Max: 6.5 Min: 5.6</td>
</tr>
</tbody>
</table>

**Soil Map ID: 3**

Soil Component Name: Water
Soil Surface Texture: gravelly sandy loam
Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.
Soil Drainage Class:
Hydric Status: Not hydric
Corrosion Potential - Uncoated Steel: Not Reported
Depth to Bedrock Min: > 0 inches
Depth to Watertable Min: > 0 inches
No Layer Information available.

---

**Soil Map ID: 4**

<table>
<thead>
<tr>
<th>Soil Component Name:</th>
<th>Kitsap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil Surface Texture:</td>
<td>silt loam</td>
</tr>
<tr>
<td>Hydrologic Group:</td>
<td>Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.</td>
</tr>
<tr>
<td>Soil Drainage Class:</td>
<td>Moderately well drained</td>
</tr>
<tr>
<td>Hydric Status:</td>
<td>Not hydric</td>
</tr>
<tr>
<td>Corrosion Potential - Uncoated Steel:</td>
<td>Moderate</td>
</tr>
<tr>
<td>Depth to Bedrock Min:</td>
<td>&gt; 0 inches</td>
</tr>
<tr>
<td>Depth to Watertable Min:</td>
<td>&gt; 69 inches</td>
</tr>
</tbody>
</table>

---

## Soil Layer Information

<table>
<thead>
<tr>
<th>Boundary</th>
<th>Classification</th>
<th>Saturated hydraulic conductivity micro m/sec</th>
<th>Soil Reaction (pH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layer</td>
<td>Upper</td>
<td>Lower</td>
<td>Soil Texture Class</td>
</tr>
<tr>
<td>1</td>
<td>0 inches</td>
<td>5 inches</td>
<td>silt loam</td>
</tr>
<tr>
<td>2</td>
<td>5 inches</td>
<td>24 inches</td>
<td>silt loam</td>
</tr>
<tr>
<td>3</td>
<td>24 inches</td>
<td>59 inches</td>
<td>stratified silt to silty clay loam</td>
</tr>
</tbody>
</table>
Soil Map ID: 5

Soil Component Name: Indianola
Soil Surface Texture: loamy fine sand
Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.
Soil Drainage Class: Somewhat excessively drained
Hydric Status: Not hydric
Corrosion Potential - Uncoated Steel: Moderate
Depth to Bedrock Min: > 0 inches
Depth to Watertable Min: > 0 inches

<table>
<thead>
<tr>
<th>Layer</th>
<th>Boundary</th>
<th>Soil Texture Class</th>
<th>Classification</th>
<th>Saturated hydraulic conductivity micro m/sec</th>
<th>Soil Reaction (pH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0 inches</td>
<td>5 inches</td>
<td>loamy fine sand</td>
<td>Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.</td>
<td>COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.</td>
</tr>
<tr>
<td>2</td>
<td>5 inches</td>
<td>29 inches</td>
<td>loamy fine sand</td>
<td>Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.</td>
<td>COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.</td>
</tr>
<tr>
<td>3</td>
<td>29 inches</td>
<td>59 inches</td>
<td>sand</td>
<td>Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.</td>
<td>COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.</td>
</tr>
</tbody>
</table>

Soil Map ID: 6

Soil Component Name: Urban land
Soil Surface Texture: loamy fine sand
Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.
Soil Drainage Class:
Hydric Status: Not hydric
Corrosion Potential - Uncoated Steel: Not Reported
Depth to Bedrock Min: > 0 inches
Depth to Watertable Min: > 0 inches
No Layer Information available.

**Soil Map ID: 7**

Soil Component Name: Alderwood
Soil Surface Texture: gravelly sandy loam
Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.
Soil Drainage Class: Moderately well drained
Hydric Status: Not hydric
Corrosion Potential - Uncoated Steel: Moderate
Depth to Bedrock Min: > 0 inches
Depth to Watertable Min: > 84 inches

<table>
<thead>
<tr>
<th>Layer</th>
<th>Boundary</th>
<th>Classification</th>
<th>Saturated hydraulic conductivity micro m/sec</th>
<th>Soil Reaction (pH)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Upper</td>
<td>Lower</td>
<td>Soil Texture Class</td>
<td>AASHTO Group</td>
</tr>
<tr>
<td>1</td>
<td>0 inches</td>
<td>11 inches</td>
<td>gravelly sandy loam</td>
<td>Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.</td>
</tr>
<tr>
<td>2</td>
<td>11 inches</td>
<td>26 inches</td>
<td>very gravelly sandy loam</td>
<td>Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.</td>
</tr>
</tbody>
</table>
### Soil Layer Information

<table>
<thead>
<tr>
<th>Layer</th>
<th>Upper</th>
<th>Lower</th>
<th>Soil Texture Class</th>
<th>Classification</th>
<th>Saturated hydraulic conductivity micro m/sec</th>
<th>Soil Reaction (pH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>26 inches</td>
<td>59 inches</td>
<td>very gravelly sandy loam</td>
<td>Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.</td>
<td>Max: 0.42 Min: 0.01</td>
<td>Max: 6 Min: 5.1</td>
</tr>
</tbody>
</table>

---

**Soil Map ID: 8**

- **Soil Component Name:** Everett
- **Soil Surface Texture:** gravelly sandy loam
- **Hydrologic Group:** Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.
- **Soil Drainage Class:** Somewhat excessively drained
- **Hydric Status:** Not hydric
- **Corrosion Potential - Uncoated Steel:** Moderate
- **Depth to Bedrock Min:** > 0 inches
- **Depth to Watertable Min:** > 0 inches

### Soil Layer Information

<table>
<thead>
<tr>
<th>Layer</th>
<th>Upper</th>
<th>Lower</th>
<th>Soil Texture Class</th>
<th>Classification</th>
<th>Saturated hydraulic conductivity micro m/sec</th>
<th>Soil Reaction (pH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0 inches</td>
<td>16 inches</td>
<td>gravelly sandy loam</td>
<td>Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.</td>
<td>Max: 705 Min: 141</td>
<td>Max: 6.5 Min: 5.6</td>
</tr>
</tbody>
</table>
GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information

<table>
<thead>
<tr>
<th>Layer</th>
<th>Upper</th>
<th>Lower</th>
<th>Soil Texture Class</th>
<th>Classification</th>
<th>Saturated hydraulic conductivity micro m/sec</th>
<th>Soil Reaction (pH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>16 inches</td>
<td>31 inches</td>
<td>very gravely sandy loam</td>
<td>Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.</td>
<td>COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel.</td>
<td>Max: 705 Min: 141</td>
</tr>
<tr>
<td>3</td>
<td>31 inches</td>
<td>59 inches</td>
<td>very gravely coarse sand</td>
<td>Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.</td>
<td>COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel.</td>
<td>Max: 705 Min: 141</td>
</tr>
</tbody>
</table>

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

<table>
<thead>
<tr>
<th>DATABASE</th>
<th>SEARCH DISTANCE (miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal USGS</td>
<td>1.000</td>
</tr>
<tr>
<td>Federal FRDS PWS</td>
<td>Nearest PWS within 0.001 miles</td>
</tr>
<tr>
<td>State Database</td>
<td>1.000</td>
</tr>
</tbody>
</table>

FEDERAL USGS WELL INFORMATION

<table>
<thead>
<tr>
<th>MAP ID</th>
<th>WELL ID</th>
<th>LOCATION FROM TP</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>USGS40001269087</td>
<td>1/4 - 1/2 Mile ESE</td>
</tr>
<tr>
<td>3</td>
<td>USGS40001269250</td>
<td>1/4 - 1/2 Mile WNW</td>
</tr>
<tr>
<td>4</td>
<td>USGS40001269088</td>
<td>1/4 - 1/2 Mile WSW</td>
</tr>
</tbody>
</table>
STATE DATABASE WELL INFORMATION

MAP ID  WELL ID  LOCATION FROM TP

No Wells Found

Note: PWS System location is not always the same as well location.

FEDERAL USGS WELL INFORMATION

<table>
<thead>
<tr>
<th>MAP ID</th>
<th>WELL ID</th>
<th>LOCATION FROM TP</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>USGS40001269030</td>
<td>1/4 - 1/2 Mile ESE</td>
</tr>
<tr>
<td>6</td>
<td>USGS40001269203</td>
<td>1/4 - 1/2 Mile West</td>
</tr>
<tr>
<td>7</td>
<td>USGS40001269086</td>
<td>1/4 - 1/2 Mile ESE</td>
</tr>
<tr>
<td>A8</td>
<td>USGS40001269347</td>
<td>1/4 - 1/2 Mile NW</td>
</tr>
<tr>
<td>A9</td>
<td>USGS40001269378</td>
<td>1/4 - 1/2 Mile NW</td>
</tr>
<tr>
<td>10</td>
<td>USGS40001269377</td>
<td>1/2 - 1 Mile NE</td>
</tr>
<tr>
<td>A11</td>
<td>USGS40001269395</td>
<td>1/2 - 1 Mile NW</td>
</tr>
<tr>
<td>12</td>
<td>USGS40001269089</td>
<td>1/2 - 1 Mile WSW</td>
</tr>
<tr>
<td>B13</td>
<td>USGS40001268891</td>
<td>1/2 - 1 Mile SW</td>
</tr>
<tr>
<td>14</td>
<td>USGS40001269436</td>
<td>1/2 - 1 Mile NW</td>
</tr>
<tr>
<td>15</td>
<td>USGS40001269478</td>
<td>1/2 - 1 Mile NNE</td>
</tr>
<tr>
<td>B16</td>
<td>USGS40001268876</td>
<td>1/2 - 1 Mile SW</td>
</tr>
<tr>
<td>17</td>
<td>USGS40001269360</td>
<td>1/2 - 1 Mile NW</td>
</tr>
<tr>
<td>B18</td>
<td>USGS40001268864</td>
<td>1/2 - 1 Mile SW</td>
</tr>
<tr>
<td>19</td>
<td>USGS40001268863</td>
<td>1/2 - 1 Mile SE</td>
</tr>
<tr>
<td>20</td>
<td>USGS40001268877</td>
<td>1/2 - 1 Mile SW</td>
</tr>
<tr>
<td>C21</td>
<td>USGS40001269359</td>
<td>1/2 - 1 Mile ENE</td>
</tr>
<tr>
<td>22</td>
<td>USGS40001269162</td>
<td>1/2 - 1 Mile West</td>
</tr>
<tr>
<td>23</td>
<td>USGS40001268822</td>
<td>1/2 - 1 Mile SE</td>
</tr>
<tr>
<td>C24</td>
<td>USGS40001269394</td>
<td>1/2 - 1 Mile ENE</td>
</tr>
<tr>
<td>25</td>
<td>USGS40001269676</td>
<td>1/2 - 1 Mile North</td>
</tr>
<tr>
<td>D26</td>
<td>USGS40001269653</td>
<td>1/2 - 1 Mile NNW</td>
</tr>
<tr>
<td>E27</td>
<td>USGS40001269461</td>
<td>1/2 - 1 Mile NE</td>
</tr>
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FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID  WELL ID  LOCATION FROM TP

No PWS System Found

Note: PWS System location is not always the same as well location.
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|        |            |          | Monitor Location: 26N/05E-28M01 |          | Well |
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Feet below surface: 40

Level reading date: 1951-11-06

Feet to sea level: Not Reported

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**5 ESE 1/4 - 1/2 Mile Higher**

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Ground water levels, Number of Measurements: 1

Feet below surface: 4

Level reading date: 1951-04-26

Feet to sea level: Not Reported

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**6 West 1/4 - 1/2 Mile Lower**

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**7 ESE 1/4 - 1/2 Mile Higher**

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TC5463995.2s  Page A-17
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Ground water levels, Number of Measurements: 1
Feet below surface: 46
Note: Not Reported

Level reading date: 1951-05-24
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Feet to sea level: Not Reported
Note: Not Reported

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Feet to sea level: Not Reported
Note: Not Reported

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</tr>
</tbody>
</table>

### B18
#### SW
##### 1/2 - 1 Mile Higher
<table>
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<tr>
<td>19</td>
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<td>20</td>
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### 22
#### West
##### 1/2 - 1 Mile
##### Higher

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### 23
#### SE
##### 1/2 - 1 Mile
##### Higher

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### C24
#### ENE
##### 1/2 - 1 Mile
##### Higher

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Well Depth: 82.5
Well Hole Depth: Not Reported

Ground water levels, Number of Measurements: 1
Feet below surface: 63
Note: Not Reported

Level reading date: 1951-06-21
Feet to sea level: Not Reported

Well Type: 26N/05E-21N04

17110012 HUC: Not Reported
Description: Not Reported

Monitor Location: USGS Washington Water Science Center
Organization Name: USGS-WA
Organization ID: E27 NE 1/2 - 1 Mile Higher
Note: Not Reported

Feet to sea level: 58

Well Hole Depth Units: Not Reported
Well Depth Units: ft

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Well Depth: 190 ft
Well Hole Depth: Not Reported

Ground water levels, Number of Measurements: 1
Level reading date: 1951-06-19
Note: Not Reported

Monitor Location: 26N/05E-21LD1
Type: Well

Organization ID: USGS-WA
Organization Name: USGS Washington Water Science Center
HUC: 17110012

Drainage Area: Not Reported
Drainage Area Units: Not Reported

Contrib Drainage Area: Not Reported
Contrib Drainage Area Units: Not Reported

Aquifer Type: Not Reported
Formation Type: Not Reported
Construction Date: 19010101

Well Depth: 63
Well Depth Units: ft

Well Hole Depth: Not Reported
Well Hole Depth Units: Not Reported

D26 NNW 1/2 - 1 Mile Higher

Well Depth: 66
Well Hole Depth: Not Reported

Ground water levels, Number of Measurements: 1
Level reading date: 1951-05-04
Note: Not Reported

Monitor Location: 26N/05E-21M01
Type: Well

Organization ID: USGS-WA
Organization Name: USGS Washington Water Science Center
HUC: 17110012

Drainage Area: Not Reported
Drainage Area Units: Not Reported

Contrib Drainage Area: Not Reported
Contrib Drainage Area Units: Not Reported

Aquifer Type: Not Reported
Formation Type: Not Reported
Construction Date: 19010101

Well Depth: 58
Well Depth Units: ft

Well Hole Depth: Not Reported
Well Hole Depth Units: Not Reported

E27 NE 1/2 - 1 Mile Higher

Well Depth: Not Reported
Well Hole Depth: Not Reported

Ground water levels, Number of Measurements: 1
Level reading date: 1951-05-04
Note: Not Reported

Monitor Location: 26N/05E-21N04
Type: Well

Organization ID: USGS-WA
Organization Name: USGS Washington Water Science Center
HUC: 17110012

Drainage Area: Not Reported
Drainage Area Units: Not Reported

Contrib Drainage Area: Not Reported
Contrib Drainage Area Units: Not Reported

Aquifer Type: Not Reported
Formation Type: Not Reported
Construction Date: 19010101

Well Depth: Not Reported
Well Depth Units: ft

Well Hole Depth: Not Reported
Well Hole Depth Units: Not Reported
### F28

**NNE**  
1/2 - 1 Mile  
Higher

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<tr>
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**Ground water levels, Number of Measurements:** 1  
**Level reading date:** 1951-07-17  
**Feet below surface:** 143  
**Note:** Not Reported

### D29

**NNW**  
1/2 - 1 Mile  
Higher

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<td>Aquifer Type</td>
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<tr>
<td>Well Hole Depth Units</td>
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**Ground water levels, Number of Measurements:** 1  
**Level reading date:** 1944-02-07  
**Feet below surface:** 10  
**Note:** Not Reported
### E30

**Location:** USGS Washington Water Science Center

**Monitor Location:** 26N/05E-21N02

**Well Type:** Well

**Construction Date:** Not Reported

**Aquifer Type:** Not Reported

**Formation Type:** Not Reported

**Aquifer:** Not Reported

**Contrib Drainage Area:** Not Reported

**Drainage Area:** Not Reported

**Well Depth:** 123 ft

**Well Hole Depth:** Not Reported

**Description:** Not Reported

**HUC:** 17110012

**Ground water levels, Number of Measurements:** 1

**Level reading date:** 1944-02-07

**Feet below surface:** 119

**Feet to sea level:** Not Reported

**Note:** Not Reported

### F31

**Location:** USGS Washington Water Science Center

**Monitor Location:** 26N/05E-21K02

**Well Type:** Well

**Construction Date:** Not Reported

**Aquifer Type:** Not Reported

**Formation Type:** Not Reported

**Aquifer:** Not Reported

**Contrib Drainage Area:** Not Reported

**Drainage Area:** Not Reported

**Well Depth:** 21 ft

**Well Hole Depth:** Not Reported

**Description:** Not Reported

**HUC:** 17110012

**Ground water levels, Number of Measurements:** 1

**Level reading date:** 1944-02-07

**Feet below surface:** 18

**Feet to sea level:** Not Reported

**Note:** Not Reported

### 32

**Location:** USGS Washington Water Science Center

**Monitor Location:** 26N/05E-21K03

**Well Type:** Well

**Construction Date:** Not Reported

**Aquifer Type:** Not Reported

**Formation Type:** Not Reported

**Aquifer:** Not Reported

**Contrib Drainage Area:** Not Reported

**Drainage Area:** Not Reported

**Well Depth:** 75 ft

**Well Hole Depth:** Not Reported

**Description:** Not Reported

**HUC:** 17110012

**Ground water levels, Number of Measurements:** 1

**Level reading date:** 1944-02-07

**Feet below surface:** Not Reported

**Feet to sea level:** Not Reported

**Note:** Not Reported
Ground water levels, Number of Measurements: 1
Feet below surface: 53
Note: Not Reported

| Organization ID: | USGS-WA |
| Organization Name: | USGS Washington Water Science Center |
| Monitor Location: | 26N05E-21N03 |
| Description: | Not Reported |
| Drainage Area: | Not Reported |
| Contrib Drainage Area: | Not Reported |
| Aquifer: | Not Reported |
| Aquifer Type: | Not Reported |
| Well Depth: | 110 |
| Well Hole Depth: | Not Reported |

33 NE 1/2 - 1 Mile Higher

| Organization ID: | H35 |
| Organization Name: | USGS-WA |
| Monitor Location: | 26N05E-32B02 |
| Description: | Not Reported |
| Drainage Area: | Not Reported |
| Contrib Drainage Area: | Not Reported |
| Aquifer: | Not Reported |
| Aquifer Type: | Not Reported |
| Well Depth: | 35 |
| Well Hole Depth: | Not Reported |

Ground water levels, Number of Measurements: 1
Level reading date: 1958-02-26
Feet below surface: 105
Note: Not Reported

G34 SW 1/2 - 1 Mile Higher

| Organization ID: | G34 |
| Organization Name: | USGS-WA |
| Monitor Location: | 26N05E-29Q02 |
| Description: | Not Reported |
| Drainage Area: | Not Reported |
| Contrib Drainage Area: | Not Reported |
| Aquifer: | Not Reported |
| Aquifer Type: | Not Reported |
| Well Depth: | 4 |
| Well Hole Depth: | Not Reported |

Ground water levels, Number of Measurements: 1
Level reading date: 1951-04-27
Feet below surface: 4
Note: Not Reported

H35 WSW 1/2 - 1 Mile Higher

| Organization ID: | H35 |
| Organization Name: | USGS-WA |
| Monitor Location: | 26N05E-29Q02 |
| Description: | Not Reported |
| Drainage Area: | Not Reported |
| Contrib Drainage Area: | Not Reported |
| Aquifer: | Not Reported |
| Aquifer Type: | Not Reported |

Ground water levels, Number of Measurements: 1
Level reading date: 19010101
Feet below surface: Not Reported
Note: Not Reported
### G36
**SW**
**1/2 - 1 Mile**
**Higher**
- **Organization ID:** USGS-WA
- **Organization Name:** USGS Washington Water Science Center
- **Monitor Location:** 26N/05E-32B01
- **Type:** Well
- **HUC:** 17110012
- **Well Depth Units:** ft
- **Well Depth:** 34 ft
- **Well Hole Depth Units:** Not Reported
- **Well Hole Depth:** Not Reported
- **Ground water levels, Number of Measurements:** 1
- **Level reading date:** 1951-04-26
- **Feet below surface:** 7
- **Foot sea level:** Not Reported
- **Note:** Not Reported

### H37
**WSW**
**1/2 - 1 Mile**
**Higher**
- **Organization ID:** USGS-WA
- **Organization Name:** USGS Washington Water Science Center
- **Monitor Location:** 26N/05E-29Q01
- **Type:** Well
- **HUC:** 17110012
- **Well Depth Units:** ft
- **Well Depth:** 53.2 ft
- **Well Hole Depth Units:** Not Reported
- **Well Hole Depth:** Not Reported
- **Ground water levels, Number of Measurements:** 1
- **Level reading date:** 1951-04-26
- **Feet below surface:** 14
- **Foot sea level:** Not Reported
- **Note:** Not Reported

### 1G
**SSE**
**1/8 - 1/4 Mile**
**Lower**
- **Site ID:** 5642
- **Groundwater Flow:** NNW
- **Shallowest Water Table Depth:** 6.77
- **Deepest Water Table Depth:** 10.52
- **Average Water Table Depth:** Not Reported
- **Date:** 06/28/1995
- **AQUIFLOW:** 61329

---

**Note:**
- **Feet to sea level:** Not Reported
- **Level reading date:** Not Reported
- **Number of Measurements:** Not Reported
- **Well Hole Depth Units:** Not Reported
- **Well Hole Depth:** Not Reported
- **Contrib Drainage Area Units:** Not Reported
- **Contrib Drainage Area:** Not Reported
- **Formation Type:** Not Reported
- **Construction Date:** Not Reported
AREA RADON INFORMATION

Federal EPA Radon Zone for KING County:  3

Note: Zone 1 indoor average level > 4 pCi/L.
  : Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
  : Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code:  98034
Number of sites tested: 3

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<td>33%</td>
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TOPOGRAPHIC INFORMATION

USGS 7.5’ Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5’ Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Ecology
Telephone: 360-407-6121

HYDROGEOLOGIC INFORMATION

AQUIFLOW® Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture’s (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.
LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Wells
Source: Department of Health
Telephone: 360-236-3148
Group A and B well locations.

Water Well Listing
Source: Public Utility District
Telephone: 206-779-7656
A listing of water well locations in Kitsap County.

OTHER STATE DATABASE INFORMATION

Oil and Gas Well Listing
Source: Department of Natural Resources
Telephone: 360-902-1450
Locations that represent oil and gas test well sites in Washington State from 1890 to present.

RADON

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR’s Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey.
Totem Lake Park Ph I
12031 NE TOTEM LAKE WAY
Kirkland, WA 98034

Inquiry Number: 5463995.8
October 25, 2018
Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR’s professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

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<td>Flight Date: July 09, 1973</td>
<td>NOAA</td>
</tr>
<tr>
<td>1968</td>
<td>1”=500'</td>
<td>Flight Date: September 02, 1968</td>
<td>USGS</td>
</tr>
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<td>1965</td>
<td>1”=500'</td>
<td>Flight Date: July 06, 1965</td>
<td>NRWA</td>
</tr>
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<td>1952</td>
<td>1”=500'</td>
<td>Flight Date: July 01, 1952</td>
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<tr>
<td>1944</td>
<td>1”=500'</td>
<td>Flight Date: April 27, 1944</td>
<td>DIA</td>
</tr>
<tr>
<td>1941</td>
<td>1”=500'</td>
<td>Flight Date: June 11, 1941</td>
<td>USDA</td>
</tr>
</tbody>
</table>

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**PARCEL DATA**

<table>
<thead>
<tr>
<th>Parcel</th>
<th>692840-0032</th>
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<tbody>
<tr>
<td>Name</td>
<td>Kirkland City of</td>
</tr>
<tr>
<td>Site Address</td>
<td>12031 NE Totem Lake Way 98034</td>
</tr>
<tr>
<td>Geo Area</td>
<td>85-25</td>
</tr>
<tr>
<td>Spec Area</td>
<td></td>
</tr>
<tr>
<td>Property Name</td>
<td>Retail Building</td>
</tr>
<tr>
<td>Jurisdiction</td>
<td>Kirkland</td>
</tr>
<tr>
<td>Levy Code</td>
<td>1806</td>
</tr>
<tr>
<td>Property Type</td>
<td>C</td>
</tr>
<tr>
<td>Plat Block / Building Number</td>
<td></td>
</tr>
<tr>
<td>Plat Lot / Unit Number</td>
<td>TR C</td>
</tr>
</tbody>
</table>

**Legal Description**

PUGET SOUND CENTER POR LY SLY OF FOLG DESC LN BEG SE COR TR G SD PLAT TH N 78-30-00 W 163.00 FT ALG SLY LN SD TR G TH 122.60 FT C/A 46-49-44 ALG ARC OF A CIRCULAR CURVE TO LFT SD CURVE HAVING RAD OF 150.00 FT WCH BEARS N 11-30-00 E FR THE CURVE CENTER TO CURVE BEG TH S 54-40-16 W 478.16 FT TH 151.80 FT C/A 21-55-17 ALG ARC OF CURVE TO RGT SD CURVE HAVING RAD 396.75 FT WCH BEARS S 35-19-44 E FR THE CURVE CTR TO CURVE BEG TH 58.08 FT C/A 95-04-22 ALG ARC OF A CURVE TO RGT SD CURVE HAVING A RAD OF 35.00 FT WCH BEARS S 13-24-27 E FR CURVE CTR TO THE CURVE BEG TO ELY RW MG N OF 120 AVE NE & TERMINUS OF LN ALSO LESS POR BEG N 1/4 COR SEC 28 TWP 28 RNG 5 TH S 01-43-38 W ALG E LN W 1/2 SD SEC 3020.27 FT TH N 88-16-22 W 700.01 FT TO N RW LN OF KINGSGATE WAY NE & TPOB TH N 09-43-38 E 214 FT TH N 17-49-33 E 175 FT TH N 26-36-57 W 133.49 FT TH ALG CRV RGT RAD 446.75 C/A 13-12-30 ARC DIST 102.99 FT TH ALG CRV LFT RAD 72.24 C/A 67-58-39 85.71 FT TH ALG CRV RGT RAD 465 FT C/A 09-12-39 ARC DIST 74.75 FT TH S 17-49-33 W ALG E RW LN 120 AVE NE 269.78 FT TO BEG OF CRV LFT TH ALG SD CRV RAD 25 FT C/A 92-24-59 ARC DIST 40.32 FT TO N RW LN KINGSGATE WAY NE SD PT BEING COMPOUND CRV CTR BEARING N 15-24-34 E 1210.92 FT TH ALG SD CRV LFT RAD 1210.92 FT C/A 05-40-56 ARC DIST 120.09 FT TH CONT ALG SD LN S 80-16-22 E 87.89 FT TO TPOB AKA LOTS C & D & POR KNOWN OF REFFERED TO AS TOTEM LAKE WAY OF KIRKLAND SHORT PLAT 77-4-14 AF # 7704210659 LESS POR PLATTED TOTEM LAKE SOUTH - 1980 PLAT

**LAND DATA**

<table>
<thead>
<tr>
<th>Highest &amp; Best Use As If Vacant</th>
<th>Retail/Wholesale</th>
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<tbody>
<tr>
<td>Highest &amp; Best Use As Improved</td>
<td>Present Use</td>
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<tr>
<td>Present Use</td>
<td>Retail Store</td>
</tr>
<tr>
<td>Land SqFt</td>
<td>69,540</td>
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<tr>
<td>Acres</td>
<td>1.60</td>
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**Views**

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<tr>
<td>Olympics</td>
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<tr>
<td>Cascades</td>
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<tr>
<td>Seattle Skyline</td>
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<tr>
<td>Puget Sound</td>
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<tr>
<td>Lake Washington</td>
<td></td>
</tr>
<tr>
<td>Lake Sammamish</td>
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</tr>
<tr>
<td>Lake/River/Creek</td>
<td>GOOD</td>
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<tr>
<td>Other View</td>
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**Designations**

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<th>Historic Site</th>
<th>Current Use</th>
<th>(none)</th>
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<td>Nbr Bld Sites</td>
<td>Adjacent to Golf Fairway</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td>Adjacent to Greenbelt</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td>Other Designation</td>
<td>NO</td>
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<tr>
<td></td>
<td>Deed Restrictions</td>
<td>NO</td>
</tr>
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<td></td>
<td>Development Rights Purchased</td>
<td>NO</td>
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<td></td>
<td>Easements</td>
<td>NO</td>
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<td></td>
<td>Native Growth Protection Easement</td>
<td>NO</td>
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<tr>
<td></td>
<td>DNR Lease</td>
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**Nuisances**

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<thead>
<tr>
<th>Topography</th>
<th>Traffic Noise</th>
<th>Airport Noise</th>
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<tr>
<td></td>
<td>Power Lines</td>
<td>Other Nuisances</td>
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<tr>
<td></td>
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<td>NO</td>
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**Problems**

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<tr>
<th>Water Problems</th>
<th>Transportation Concurrency</th>
<th>Other Problems</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>NO</td>
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</tbody>
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**Environmental**

| Environmental | |
|---------------||
|                | NO |
**Building Information**

<table>
<thead>
<tr>
<th><strong>Building Number</strong></th>
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<tbody>
<tr>
<td><strong>Building Description</strong></td>
<td>Retail Building</td>
</tr>
<tr>
<td><strong>Number Of Buildings Aggregated</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Predominant Use</strong></td>
<td>RETAIL STORE (353)</td>
</tr>
<tr>
<td><strong>Shape</strong></td>
<td>Rect or Slight Irreg</td>
</tr>
<tr>
<td><strong>Construction Class</strong></td>
<td>WOOD FRAME</td>
</tr>
<tr>
<td><strong>Building Quality</strong></td>
<td>AVERAGE</td>
</tr>
<tr>
<td><strong>Stories</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Building Gross Sq Ft</strong></td>
<td>7,000</td>
</tr>
<tr>
<td><strong>Building Net Sq Ft</strong></td>
<td>7,000</td>
</tr>
<tr>
<td><strong>Year Built</strong></td>
<td>1979</td>
</tr>
<tr>
<td><strong>Eff. Year</strong></td>
<td>1985</td>
</tr>
<tr>
<td><strong>Percentage Complete</strong></td>
<td>100</td>
</tr>
<tr>
<td><strong>Heating System</strong></td>
<td>WARMED AND COOLED AIR</td>
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<tr>
<td><strong>Sprinklers</strong></td>
<td>No</td>
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<tr>
<td><strong>Elevators</strong></td>
<td>Click the camera to see more pictures.</td>
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**Section(s) Of Building Number:** 1

<table>
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<tr>
<th>Section Number</th>
<th>Section Use</th>
<th>Description</th>
<th>Stories</th>
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<th>Floor Number</th>
<th>Gross Sq Ft</th>
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<tr>
<td>1</td>
<td>RETAIL STORE (353)</td>
<td>1 14</td>
<td>7,000</td>
<td>7,000</td>
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<td></td>
<td></td>
</tr>
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**Tax Roll History**

This is a government owned parcel.

Change to state law (RCW 84.40.045 and 84.40.175) by the 2013 Legislature eliminated revaluation of government owned parcels.

**Sales History**

<table>
<thead>
<tr>
<th>Excise Number</th>
<th>Recording Number</th>
<th>Document Date</th>
<th>Sale Price</th>
<th>Seller Name</th>
<th>Buyer Name</th>
<th>Instrument</th>
<th>Sale Reason</th>
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<tbody>
<tr>
<td>2653963</td>
<td>20140219000403</td>
<td>2/5/2014</td>
<td>$2,340,000.00</td>
<td>ROSARITA L L C</td>
<td>KIRKLAND CITY OF</td>
<td>Statutory Warranty Deed</td>
<td>None</td>
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<tr>
<td>2090311</td>
<td>20041215002776</td>
<td>12/14/2004</td>
<td>$1,718,500.00</td>
<td>ROSARITA LLC</td>
<td>ROSARITA LLC</td>
<td>Statutory Warranty Deed</td>
<td>None</td>
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<tr>
<td>204491</td>
<td>20040603002790</td>
<td>5/26/2004</td>
<td>$0.00</td>
<td>CHRISTOPHER GORDON+VIESER WILLIAM</td>
<td>VIESER LLC</td>
<td>Quit Claim Deed</td>
<td>Other</td>
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<tr>
<td>1613292</td>
<td>199805210229</td>
<td>5/10/1998</td>
<td>$0.00</td>
<td>VIESER COMPANY THE</td>
<td>VIESER LLC</td>
<td>Quit Claim Deed</td>
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**Review History**

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<tr>
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<th>Review Type</th>
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<th>Hearing Date</th>
<th>Settlement Value</th>
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<th>Status</th>
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<tr>
<td>2010</td>
<td>0908269</td>
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<td>1/1/1900</td>
<td>$1,476,300</td>
<td>REVISE, ASSESSOR RECOMMENDED</td>
<td>Completed</td>
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<td>1989</td>
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<td>Completed</td>
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<td>1985</td>
<td>8404213</td>
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<td>$0</td>
<td>1/1/1900</td>
<td>$0</td>
<td>REVISE</td>
<td>Completed</td>
</tr>
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**Permit History**

**Home Improvement Exemption**

New Search | Property Tax Bill | Map This Property | Glossary of Terms | Area Report | Print Property Details

Advertisement
APPENDIX F

ENVIRONMENTAL LIENS AND ACTIVITY AND USE LIMITATIONS
EDR Environmental Lien and AUL Search
The EDR Environmental Lien and AUL Search Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied address information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' offices, registries of deeds, county clerk's offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved, and description); and
- provide a copy of the deed or cite documents reviewed.

Thank you for your business.
Please contact EDR at 1-800-352-0050 with any questions or comments.

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EDR Environmental Lien and AUL Search

TARGET PROPERTY INFORMATION

ADDRESS
12031 NE TOTEM LAKE WAY
Totem Lake Park Ph I
Kirkland, WA  98034
Source 1:
  King Recorder
  King, WA
Deed 1:

Type of Deed: Statutory Warranty Deed
Title is vested in: City of Kirkland
Title received from: Rosarita LLC
Deed Dated: 2/12/2014
Deed Recorded: 2/19/2014
Book: NA
Page: NA
Volume: NA
Instrument: 20140219000403
Docket: NA
Land Record Comments: see exhibit
Miscellaneous Comments: NA

Legal Description: see exhibit

Legal Current Owner: City of Kirkland

Parcel # / Property Identifier: 692-840-0032

Comments: see exhibit
Deed Exhibit 1
STATUTORY WARRANTY DEED

THE GRANTOR(S), Rosarita, LLC, a Washington limited liability company for and in consideration of Ten Dollars and other good and valuable consideration in hand paid, conveys and warrants to City of Kirkland the following described real estate, situated in the County of King, State of Washington:

LEGAL DESCRIPTION ON EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF.

Subject to: This conveyance is subject to covenants, conditions, restrictions and easements, if any affecting title which may appear in the public record, including those shown on any recorded plat or survey.

Abbreviated Legal: (Required if full legal not shown above.)
Lot C of City of Kirkland Short Plat No. 77-4-14 (Short Plat of Totem Lake South), Recording No. 7704210659 and corrected under Recording No. 790308059

Tax Parcel Number(s): 682840-0032

Dated: February 12th, 2014

ROSARITA, LLC

Brian Lurie
Sole Member

State of Washington
County of King

I certify that I know or have satisfactory evidence that BRIAN LURIE signed this instrument, on oath stated that HE is authorized to execute the instrument and acknowledged it as the SOLE MEMBER of ROSARITA LLC to be the free and voluntary act of such party for the uses and purposes mentioned in this instrument.

Dated: February 13th, 2014

Name: Nicole M Johnson
Notary Public in and for the State of WASHINGTON, residing at NORTH BEND
My appointment expires: March 20, 2017

NICOLE M. JOHNSON
STATE OF WASHINGTON
NOTARY PUBLIC
MY COMMISSION EXPIRES 03-20-17
LOT C OF CITY OF KIRKLAND SHORT PLAT NUMBER 77-4-14 (SHORT PLAT OF TOTEM LAKE SOUTH), RECORDED UNDER RECORDING NUMBER 7704210659, AND AS CORRECTED BY CITY OF KIRKLAND LOT LINE ADJUSTMENT NUMBER KROLL 424W G&B ESTATES, RECORDED UNDER RECORDING NUMBER 7903080659, IN KING COUNTY, WASHINGTON;

TOGETHER WITH THAT PORTION, IF ANY, OF ADJOINING TOTEM LAKE WAY, WHICH, IF VACATED, ATTACHED TO SAID PREMISES BY OPERATION OF LAW;

EXCEPT ANY PORTION THEREOF LYING WITHIN THE CORRECTION MAP OF TOTEM LAKE SOUTH, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 110, OF PLATS, PAGES 92 AND 93, IN KING COUNTY, WASHINGTON.
Figure 1 Subject property, front of commercial building

Figure 2 Subject property, front of commercial building
Figure 3 Parking lot, western portion of Subject Property

Figure 4 Parking lot, western portion of Subject Property
Figure 5 Temporary construction office trailer adjacent south of Subject Property commercial building

Figure 6 Interior of commercial building utilized as temporary office space
Figure 7 Interior of commercial building utilized as temporary office space

Figure 8 Interior of commercial building utilized as temporary office space
Figure 9 Interior of commercial building utilized as temporary office space

Figure 10 Utility closet with maintenance supplies
Figure 11 Store room with deicing supplies

Figure 12 Restroom with floor drain
Figure 13 Flammables cabinet

Figure 14 Park boardwalk and access, adjacent south of Subject Property
Figure 15 Totem Lake shoreline, adjacent south of Subject Property

Figure 16 Trail access and hotel property, adjacent east of Subject Property
Figure 17  Hotel property, adjacent east of Subject Property

Figure 18  Parcel under construction, adjacent north of Subject Property
Figure 19 Commercial/retail development adjacent north-northwest of subject property

Figure 20 Restaurant, adjacent west of Subject Property
Figure 21 Excavating foundation with AESI personnel and contractor

Figure 22 Treated wood pile exposed under building, sample TP1-2 location
Figure 23 Location of second pile (not visible), sample TP1-S location
APPENDIX H

PROFESSIONAL QUALIFICATIONS
Vance Atkins, LG/LHG/CPG

Summary of Relevant Experience
Mr Atkins has acted as task and project manager on a wide range of site investigations and remediations in the Puget Sound region, including preparing sampling and analysis plans, conducting investigations and directing remedial activities. He provides on-call hazardous materials consulting services for pre-construction and construction activities.

Specific Experience

On-Call Environmental Due Diligence Consulting – As the Project Manager for Seattle Parks, Mr. Atkins performed on-call environmental services included performing Phase II soil and ground water sampling at parcels under consideration for property transfer and development, preparation of remedial options and engineering cost estimates, sampling and characterization of soils prior to construction for disposal requirements, and client meetings with affect parties during purchase and sale discussions.

On-Call Hazardous Material Consulting – Mr. Atkins is the project manager for on-call environmental services for client construction projects at the Port of Everett facility. On-call tasks include sampling and characterization of soils prior to construction for disposal requirements, rapid response to assess unforeseen or stockpiled contaminated soils encountered during construction, preparation of Contained-in requests for soils containing chlorinated solvents, and review of construction specifications associated with contaminated materials handling and disposal.

Hazardous Material Consulting and Management – As the Project Manager for pre-construction and construction-phase hazardous materials management for Seattle Department of Transportation, work included delineation of halogenated solvent-contaminated soils and securing Contained-in determination prior to construction. Mr. Atkins also reviewed project specifications and assisted the client and contractor in selecting a waste disposal facility and ongoing waste management. The Contained-in determination was subsequently updated due to project schedule extensions and changes in waste soil volumes due to project changes. He prepared a project closure report summarizing source areas, soil volumes, and analytical results.

Multi-Site Characterization and Remediation of Multiple Contaminants – Mr. Atkins completed initial due diligence ESAs of eight properties for negotiation and purchase by the City of Bothell. He developed sampling and analysis plans for the properties, conducted on-site investigations to delineate contaminated areas, and identified construction impacts. These included petroleum, polycyclic aromatic hydrocarbons and metals contamination in soils and ground water. Mr. Atkins oversaw and managed subsequent excavation of contaminated soils from four properties, conducted confirmation sampling and day-to-day management with the client’s project engineer and general contractor. Daily management included tracking of disposed multiple waste streams from multiple parcels for Ecology reimbursement. He prepared the cleanup reports. The work was performed under both Ecology Agreed Orders and the Voluntary Cleanup Program.

Petroleum-Affected Soil Remediation – Mr. Atkins acted as project and task manager for petroleum-affected soil remediation in preparation for future property redevelopment by the City of Everett. He conducted delineation to segregate clean overburden from underlying petroleum-affected soils prior to mass excavation. Mr. Atkins directed remediation contractor during excavation activities, collected confirmation samples, directed the placement of Oxygen Release Compound® along excavation sidewalls inaccessible to excavation. The work was performed under the Voluntary Cleanup Program.
Remedial Investigation/Feasibility Study, Halogenated Solvents. – Mr. Atkins managed and performed an RI/FS within a Washington State correctional facility to assess sources of halogenated solvents in ground water. He reviewed previous investigations, and conducted multiple phases of subsurface investigations including geophysics, test pits, and well drilling. The work was performed within the secure perimeter, necessitating clearances, daily inspections, and flexible working hours. The investigation was performed with direct oversight by and coordination with Corrections’ environmental manager and Ecology’s project manager. The site is currently under consideration for a No Further Action determination.

Phase I ESAs and Environmental Due Diligence – Mr. Atkins has performed and/or managed over 150 single- and multiple-site Phase I ESAs for residential, commercial and industrial properties throughout Washington, Oregon and Alaska. Assessments were conducted in general accordance with ASTM E-1527-13 and other applicable standards. Additionally, he has completed several corridor studies and historical due diligence as part of roadway or utility project design and engineering to determine if additional investigations or modified project specifications will be necessary.

Pre-Construction Due Diligence Corridor Study – Mr. Atkins prepared a corridor study to assess the potential for encountering contaminated soils and/or ground water during an arterial widening and reconstruction project in Burien, Washington. The project footprint was comprised of one-half mile of roadway with 26 adjoining parcels. Potential environmental impacts from past and current land use were assessed by review of historical tax records and aerial photographs, environmental database review, regulatory file review, and reconnaissance. Mr. Atkins reviewed construction specifications and contractor submittals, and prepared health and safety and monitoring plans for the excavation and handling of petroleum and solvent contaminated soils and ground water during construction. The review was based on hazardous material investigation procedures described in the WSDOT Environmental Procedures Manual.

NEPA Discipline Reports – Mr. Atkins completed geology and hazardous materials discipline reports to identify potential effects to the proposed project resulting from hazardous materials, soils, and site geology, and to formulate mitigation measures to reduce or eliminate these effects. The reports were completed in accordance with WSDOT guidances.

Corridor Study and Phase I ESA – Mr. Atkins performed a corridor study of approximately 7,700 linear feet of roadway in Snohomish County, Washington. The study was performed to assess the potential to encounter contaminated soil and ground water during roadway improvements, which included roadway widening, drainage improvements, and utilities. A subsequent Phase I ESA was performed for a parcel under consideration for purchase for siting of a storm water facility. The assessments were performed, in part, to meet Snohomish County environmental checklist requirements, in addition to ASTM standards.

Large-Scale Forestlands Phase I ESA – Mr. Atkins managed and performed a Phase I ESA on a subject property comprised of 20 discontinuous parcels adjoining the Hoh River in the western Olympic Peninsula. The property is undeveloped forest land, except for periodic timber harvesting. The 2,057-acre property was transferred from timber company ownership to temporary land conservancy ownership prior to transfer to public land.
APPENDIX I

TERMINOLOGY
TERMINOLOGY

The following provides definitions and descriptions of certain terms that may be used in this report. Italics indicate terms that are defined by ASTM Standard Practice E 1527-13. The Standard Practice should be referenced for further detail related definitions or additional explanation regarding the meaning of terms.

**Recognized environmental condition(s) (REC):** The presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimis conditions.

**De minimis conditions:** Conditions that generally do not present threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis are not recognized environmental conditions.

**Historical recognized environmental condition(s) (HREC):** Environmental condition which in the past would have been considered a recognized environmental condition, but which may or may not be considered a recognized environmental condition currently. The final decision rests with the environmental professional and will be influenced by the current impact of the historical recognized environmental condition on the property. If a past release of any hazardous substances or petroleum products has occurred in connection with the property, with such remediation accepted by the responsible regulatory agency (for example, as evidenced by the issuance of a no further action letter or equivalent), this condition shall be considered a historical recognized environmental condition.

**Material threat:** A physically observable or obvious threat which is reasonably likely to lead to a release that, in the opinion of the environmental professional, is threatening and might result in impact to public health or the environment. An example might include an aboveground storage tank that contains a hazardous substance and which shows evidence of damage such that it may cause or contribute to tank integrity failure with a release of contents to the environment.
**Material impact to public health or environment:** A substantial risk of harm to public health or the environment resulting from the presence or likely presence of an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property. An example might include a release of a hazardous substance in concentrations exceeding applicable governmental agency standards under conditions that could reasonably and foreseeably result in substantial exposure to humans or substantial damage to natural resources. The risk of that exposure or damage would represent a material impact to public health or environment.

**General risk of enforcement action:** The likelihood that an environmental condition would be subject to enforcement action if brought to the attention of appropriate governmental agencies. If the circumstances suggest an enforcement action would be more likely than not, then the condition is considered a general risk of enforcement action.

**Data failure:** A failure to achieve the historical research objectives, even after reviewing the standard historical sources that are reasonably ascertainable and likely to be useful. Data failure is one type of data gap.

**Data gap:** A lack of or inability to obtain information required by this practice despite good faith efforts by the environmental professional to gather such information. Data gaps may result from incompleteness in any of the activities required by this practice, including, but not limited to site reconnaissance (for example, an inability to conduct the site visit), and interviews (for example, an inability to interview the key site manager, regulatory officials, etc.).
O'Neill Service Group
Vance Atkins
17619 NE 67th Court, Suite 100
Redmond, WA 98052

RE: Kirkland Totom Lake
Work Order Number: 1811297

November 28, 2018

Attention Vance Atkins:

Fremont Analytical, Inc. received 3 sample(s) on 11/19/2018 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Mercury by EPA Method 7471
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

[Signature]

Mike Ridgeway
Laboratory Director
### Work Order Sample Summary

<table>
<thead>
<tr>
<th>Lab Sample ID</th>
<th>Client Sample ID</th>
<th>Date/Time Collected</th>
<th>Date/Time Received</th>
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Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned.
I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.
Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate
### Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

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<tr>
<th>Component</th>
<th>Result</th>
<th>RL</th>
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<th>Units</th>
<th>Date Analyzed</th>
<th>Batch ID</th>
<th>Analyst</th>
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**NOTES:**
- Heavy Oil Range Organics - Indicates the presence of unresolved compounds in the Lube+ Oil ranges.

### Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

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</tr>
<tr>
<td>Acenaphthylene</td>
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<tr>
<td>Anthracene</td>
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<td>µg/Kg-dry</td>
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<tr>
<td>Benzo(k)fluoranthene</td>
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<td>Benzo(a)pyrene</td>
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<td>µg/Kg-dry</td>
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<tr>
<td>Indeno(1,2,3-cd)pyrene</td>
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<td>Qual</td>
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<tr>
<td>Dibenz(a,h)anthracene</td>
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<tr>
<td>Benzo(g,h,i)perylene</td>
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<td>Surr: Terphenyl-d14 (surr)</td>
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### Mercury by EPA Method 7471

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### Total Metals by EPA Method 6020

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<th>Date Analyzed</th>
<th>Batch ID</th>
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<td>Cadmium</td>
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### Client: O'Neill Service Group

**Project:** Kirkland Totom Lake

**Lab ID:** 1811297-001

**Client Sample ID:** TP-1-4

<table>
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<th>Result</th>
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<th>Qual</th>
<th>Units</th>
<th>Date Analyzed</th>
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<td>Chromium</td>
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<td>Lead</td>
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<td>Percent Moisture</td>
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<td>wt%</td>
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Client: O'Neill Service Group  
Collection Date: 11/18/2018 9:00:00 AM

Matrix: Soil

<table>
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<th>DF</th>
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NOTES: Heavy Oil Range Organics - Indicates the presence of unresolved compounds in the Lube+ Oil ranges.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

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<td>µg/Kg-dry</td>
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<tr>
<td>1-Methylnaphthalene</td>
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<td>Acenaphthylene</td>
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<td>Fluorene</td>
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<tr>
<td>Benzo(k)fluoranthene</td>
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<td>Dibenz(a,h)anthracene</td>
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<tr>
<td>Surr: 2-Fluorobiphenyl</td>
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<tr>
<td>Surr: Terphenyl-d14 (surr)</td>
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Mercury by EPA Method 7471

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Total Metals by EPA Method 6020

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<td>5.99</td>
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<tr>
<td>Cadmium</td>
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**Client:** O'Neill Service Group  
**Project:** Kirkland Totom Lake  
**Lab ID:** 1811297-002  
**Client Sample ID:** TP-1-2

### Total Metals by EPA Method 6020

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<td>Lead</td>
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### Sample Moisture (Percent Moisture)

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### Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

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<th>DF</th>
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<td>Heavy Oil</td>
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<td>mg/Kg-dry</td>
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<td>Heavy Oil Range Organics (C24-37)</td>
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<td>Surr: o-Terphenyl</td>
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**NOTES:**
Heavy Oil Range Organics - Indicates the presence of unresolved compounds in the Lube+ Oil ranges.

### Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

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<tr>
<td>Benz(a)anthracene</td>
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<tr>
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<tr>
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<td>Benzo(g,h,i)perylene</td>
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### Mercury by EPA Method 7471

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### Total Metals by EPA Method 6020

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Client: O'Neill Service Group
Project: Kirkland Totom Lake
Lab ID: 1811297-003
Client Sample ID: TP-1-5

Collection Date: 11/18/2018 9:30:00 AM
Matrix: Soil

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### QC SUMMARY REPORT

**Total Metals by EPA Method 6020**

**Sample ID**: MB-22717  
**Client ID**: MBLKS  
**Batch ID**: 22717  
**Units**: mg/Kg

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**Sample ID**: LCS-22717  
**Client ID**: LCSS  
**Batch ID**: 22717  
**Units**: mg/Kg

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**Sample ID**: 1811173-001ADUP  
**Client ID**: BATCH  
**Batch ID**: 22717  
**Units**: mg/Kg-dry

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**Sample ID**: 1811173-001AMS  
**Client ID**: BATCH  
**Batch ID**: 22717  
**Units**: mg/Kg-dry

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### QC SUMMARY REPORT

**Total Metals by EPA Method 6020**

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**RunNo:** 47865  
**Analysis Date:** 11/26/2018  
**SeqNo:** 934478

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**RunNo:** 47865  
**Analysis Date:** 11/26/2018  
**SeqNo:** 934479

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**Work Order:** 1811297  
**CLIENT:** O'Neil Service Group  
**Project:** Kirkland Totom Lake
### Mercury by EPA Method 7471

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## QC SUMMARY REPORT

**Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.**

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Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

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## QC SUMMARY REPORT

### Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

**Sample ID:** LCS-22722  
**SampType:** LCS  
**Client ID:** LCSS  
**Batch ID:** 22722

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### Sample ID: 1811281-007ADUP  
**SampType:** DUP  
**Client ID:** BATCH  
**Batch ID:** 22722

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## QC SUMMARY REPORT

**Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)**

### Sample ID 1811281-007ADUP

**SampType:** DUP  
**Units:** µg/Kg-dry  
**Prep Date:** 11/26/2018  
**Analysis Date:** 11/28/2018  
**RunNo:** 47926  
**SeqNo:** 935818

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### Sample ID 1811281-007AMS

**SampType:** MS  
**Units:** µg/Kg-dry  
**Prep Date:** 11/26/2018  
**Analysis Date:** 11/28/2018  
**RunNo:** 47926  
**SeqNo:** 935819

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### QC SUMMARY REPORT

**Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)**

- **Work Order:** 1811297
- **CLIENT:** O'Neill Service Group
- **Project:** Kirkland Totom Lake

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<th>SPK Ref Val</th>
<th>%REC</th>
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<th>HighLimit</th>
<th>RPD Ref Val</th>
<th>%RPD</th>
<th>RPD Limit</th>
<th>Qual</th>
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- **Sample ID:** 1811281-007AMSD
- **SampType:** MSD
- **Units:** µg/Kg-dry
- **Prep Date:** 11/26/2018
- **RunNo:** 47926
- **Client ID:** BATCH
- **Batch ID:** 22722
- **Analysis Date:** 11/28/2018
- **SeqNo:** 935820

---

**Note:** The image contains the header information and the table details as described above. The table includes columns for analytes, results, measurement units, and various quality control parameters such as %REC, LowLimit, HighLimit, RPD Ref Val, %RPD, RPD Limit, and Qual.
### QC SUMMARY REPORT

**Sample Moisture (Percent Moisture)**

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<th>Units</th>
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<th>SeqNo</th>
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<table>
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<th>%REC</th>
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</table>
**Sample Log-In Check List**

**Client Name:** ONEILL  
**Work Order Number:** 1811297

**Logged by:** Clare Griggs  
**Date Received:** 11/19/2018 5:50:00 PM

---

**Chain of Custody**

1. Is Chain of Custody complete?  
   - Yes ☑️  
   - No ☐  
   - Not Present ☐

2. How was the sample delivered?  
   - Client

---

**Log In**

3. Coolers are present?  
   - Yes ☑️  
   - No ☐  
   - NA ☐

4. Shipping container/cooler in good condition?  
   - Yes ☑️  
   - No ☐

5. Custody Seals present on shipping container/cooler?  
   - Yes ☑️  
   - No ☐  
   - Not Required ☑️

   (Refer to comments for Custody Seals not intact)

6. Was an attempt made to cool the samples?  
   - Yes ☑️  
   - No ☐

   NA ☐

7. Were all items received at a temperature of >0°C to 10.0°C *  
   - Yes ☑️  
   - No ☐  
   - NA ☐

8. Sample(s) in proper container(s)?  
   - Yes ☑️  
   - No ☐

9. Sufficient sample volume for indicated test(s)?  
   - Yes ☑️  
   - No ☐

10. Are samples properly preserved?  
    - Yes ☑️  
    - No ☐

11. Was preservative added to bottles?  
    - Yes ☑️  
    - No ☐

   NA ☐

12. Is there headspace in the VOA vials?  
    - Yes ☑️  
    - No ☐  
    - NA ☑️

13. Did all samples containers arrive in good condition(unbroken)?  
    - Yes ☑️  
    - No ☐

14. Does paperwork match bottle labels?  
    - Yes ☑️  
    - No ☐

15. Are matrices correctly identified on Chain of Custody?  
    - Yes ☑️  
    - No ☐

16. Is it clear what analyses were requested?  
    - Yes ☑️  
    - No ☐

17. Were all holding times able to be met?  
    - Yes ☑️  
    - No ☐

**Special Handling (if applicable)**

18. Was client notified of all discrepancies with this order?  
    - Yes ☑️  
    - No ☐  
    - NA ☑️

---

**Person Notified:**  
**Date:**

**By Whom:**  
**Via:** ☐ eMail ☐ Phone ☐ Fax ☐ In Person

**Regarding:**

**Client Instructions:**

---

**Item Information**

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<td>Sample</td>
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* Note: DoD/ELAP and TNI require items to be received at 4ºC +/- 2ºC
Focus on **Treated Wood Exclusion**

With increased attention being focused on the safety of treated wood, there is a need to clarify the dangerous waste exclusion for treated wood and to clarify the disposal and recycling options. The exclusion is divided into two parts in the *Dangerous Waste Regulations*. Arsenical-treated wood is discussed in WAC 173-303-071(3) (g) (i) and wood treated with other preservatives (typically pentachlorophenol and creosote) is covered in WAC 173-303-071(3) (g) (ii).

**Arсенical-Treated Wood (WAC 173-303-071(3)(g))**

In simple terms, the conditions for the arsenical-treated wood exclusion are:

1. **it designates only for the federal toxicity characteristic or for state criteria, and**
2. **the wood product has previously been used for its intended purpose as a treated wood (not to include treated wood wastes from manufacturers or sawmills that has never been used).**

Once the treated wood meets these conditions, it is excluded from being a dangerous waste. It may go into a permitted solid waste landfill, or be reused for normal treated wood applications.

This exclusion applies to arsenical-treated wood that is designated as dangerous waste for toxicity characteristic D004 through D017 or state criteria (toxicity or persistence). The term “arsenical-treated wood” does not mean the exclusion only applies to treated wood that fails the toxicity characteristic leaching procedure (TCLP) *solely* for arsenic. The exclusion is intended to apply to treated wood that fails TCLP for any of the other fourteen toxicity characteristic (D004-D017) constituents. Typically, copper chromated arsenic (CCA) treated wood fits this description. Ammoniacal copper zinc arsenate (ACZA) preservative is another example, but it is used less frequently to treat wood.

What does “**generated by persons who utilize the arsenical-treated wood for the material’s intended end use**” mean? EPA intended for the exclusion to apply to treated wood products that have been *previously* used as a treated wood and are now a waste. The exclusion does not apply to wastes from sawmills (such as cut ends) or wood preserving facilities, since the waste has not been previously used as treated wood.
Once the treated wood has been used by the consumer, it fulfills the conditions of the exclusion. According to WAC 173-303-071(3), it becomes “excluded from the requirements of chapter 173-303 WAC, except for sections -050, -145 and -960.” These sections cover spills and releases, clean up, and Ecology’s ability to take action if an activity would cause harm to human health or the environment.

Example
CCA treated wood was used to construct municipal park playground equipment and the parks department now wants to remove the structure. What are the disposal options? It is known the wood is treated with CCA and may possibly designate for chrome (D007) and arsenic (D004), but it would not designate for D018-D043 based on information such as a Material Safety Data Sheet (MSDS). The parks department may offer the treated wood for reuse by others, dispose of the treated wood at a permitted municipal solid waste landfill (if local regulations allow) or at a treatment, storage and disposal (TSD) facility. If the wood is given to others for reuse, they would have the same disposal options once they were through using the wood.

Wood Treated With Other Preservatives (WAC 173-303-071(3) (g) (ii))
In 1993, Ecology amended the Dangerous Waste Regulations to exclude wood treated with preservatives other than those covered by the arsenical-treated wood exclusion. This exclusion is available only for wood waste that designates for state toxicity or persistence. Typically this includes wood treated with pentachlorophenol and creosote. Wood treated with these chemicals does not often designate as a hazardous waste under the TCLP test, but it may designate under state dangerous waste criteria.

Disposal Options
The exclusion allows disposal of state-only treated wood waste in a municipal solid waste landfill permitted under chapter 173-351 WAC. Treated wood waste must go to a lined landfill with a leachate collection system. This landfill option cannot be used for wood waste that designates because it is listed or fails the TCLP test, but it may be sent to a non-permitted facility that will treat or recycle it. It may also be sent to a permitted TSD facility. An additional part of the exclusion applies only to creosote treated wood. Creosote treated wood may be burned for energy recovery in a regulated commercial or industrial furnace or boiler.

With any of these disposal options, the treated wood waste does not have to be managed or reported as a dangerous waste, but it must be removed from the generator’s site within 180 days. Any residue or ash resulting from treating or burning creosote treated wood must be designated and managed appropriately.
Ecology encourages the reuse of this kind of treated wood as a preferred management alternative. If the wood is reused, it is not regulated as a dangerous waste provided that the reuse is consistent with the intended end use of the treated wood. Examples of reuse include: fence posts, retaining walls, landscaping, decks, and general construction.

For More Information

Call your nearest regional office:

If you have special formatting needs for this publication, call (voice) 360-407-6759 (voice) or 711 or 800-833-6388 (TTY).
APPENDIX O

YUPPIE PAWN
HAZARDOUS
MATERIALS SURVEY
HAZARDOUS MATERIALS REPORT

Tax Parcel 2724200525
12031 Northeast Totem Lake Way
Kirkland, Washington 98034

Submitted to:

O’Neill Service Group
17619 Northeast 67th Court, Suite 100
Redmond, Washington 98052

Prepared by:

Med-Tox Northwest
Post Office Box 1446
Auburn, WA 98071-1446
MTNW Project A-8570.53
Telephone: 253-351-0677

Jon A. Havelock
Jón A. Havelock, CSP, CHMM
AHERA BI # ABIR0907180004N15667 Exp. 09/07/2019

December 28, 2018
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Acronyms

AAS    atomic absorption spectroscopy
ACM    asbestos-containing materials
AHERA  Asbestos Hazard Emergency Response Act
ASHARA Asbestos Schools Hazard Abatement Reauthorization Act
ASTM   American Society of Testing and Materials
CFC    chlorofluorocarbons
CFR    Code of Federal Regulation
DEHP   Di (2-ethylhexyl) phthalate
EPA    U.S. Environmental Protection Agency
GWB    gypsum wallboard
HBM    hazardous building materials
HVAC   heating, ventilation, and air conditioning
LBP    lead-based paint
mg/cm² milligrams per square centimeter
mg/kg  milligrams per kilogram
MTNW   Med-Tox Northwest
NVLAP  National Voluntary Laboratory Accreditation Program
OSHA   Occupational Safety and Health Administration
PCB    polychlorinated biphenyl
PLM    polarized light microscopy
ppm    parts per million
PSCAA  Puget Sound Clean Air Agency
SAT    Seattle Asbestos Test
SVF    sheet vinyl flooring
TCLP   toxicity characteristic leaching procedure
TSI    thermal system insulation
WAC    Washington Administration Code
WDOC   Washington Department of Commerce
WISHA  Washington Industrial Safety and Health Act
XRF    x-ray fluorescence
% wt.  percent in weight
Survey Summary

On November 14, 2018, Jon Havelock, Eric Jarvis and Jason Carlson of Med-Tox Northwest (MTNW) conducted a hazardous building materials (HBM) survey of the property located at 12031 Northeast Totem Lake Way in Kirkland, Washington. This work was conducted on behalf of O’Neill Service Group. The building was occupied at the time of the survey; however, at the request of property management, only limited destructive sampling was allowed.

This report identifies building materials that contain asbestos, estimates the quantity of asbestos-containing material (ACM) present and documents building materials that potentially contain lead-based paint (LBP), polychlorinated biphenyls (PCBs), and other hazardous materials that require removal or management as part of demolition activities. Washington Administrative Code (WAC) 296-155-775 requires identification of asbestos and hazardous materials and their hazards eliminated before demolition is started.

As required by WAC 296-62-077 and Puget Sound Clean Air Agency (PSCAA), building inspectors certified under the Asbestos Hazard Emergency Response Act (AHERA) and employed by MTNW conducted the asbestos portion of the survey. Copies of the inspector’s AHERA Building Inspector certificate and Washington Department of Commerce (WDOC) LBP Inspector/Risk Assessor certificates are included in Appendix A.

No previous HBM surveys or as-built construction documents were available as part of the survey.

Building Information

Photographic documentation of the structure and the major systems described herein are provided in Appendix B.

General and Structural: Originally constructed in 1979 the structure at 12031 NE Totem Lake Way is approximately 7000 square feet (SF) in size. The building is currently occupied by two different companies which use their areas as office space. Prior to the current tenants, this building was used as a retail store.

There is one main floor to the building with the addition of a second tier wrap around storage area. The interior of the building is divided into three main areas; an entry way and two office spaces. The entryway consists of two restrooms, a custodial closet, and one office room.

Office 1 is composed of a main office area, a long meeting room, a back-office area, a conference room, a closet area, a bathroom, and an electrical room. Office 2 consisted of one open office space with a closet space in the SE corner.
The building is constructed on a concrete slab foundation, is wood-framed and finished with plywood siding on the bottom portion and silver rib-metal paneling on the upper portion. Exterior windows were vinyl-framed, and aluminum-framed with steel rebar stretching horizontally over the interior portion of the windows. Interior doors are hollow core wood and metal, exterior doors were metal and wood framed. The roof is a combination of a pitched roof and built up roof. The pitched roof sections of the building were finished with brown rib-metal paneling. The built-up roofing system was inaccessible during the time of the survey. The roof for the entrance overhang was finished with gray rib-metal paneling.

A 120 SF detached wood-framed shed is located east of the southeast section of the building. The shed was finished with the same plywood siding as the building. The roof was finished with multiple layers of asphalt roofing shingles. The interior walls and ceiling of the shed were finished with sprayed on yellow foam insulation.

**Heating and Mechanical Systems:** Heat for the building is provided by electric baseboards and central heating, ventilation, and air conditioning (HVAC) system. Pipes that were observed either had a polyethylene wrap or they were un-insulated.

**Walls/Ceiling:** Interior walls of the building were finished with a heavy textured gypsum wallboard (GWB) system, an orange peel textured GWB system, untextured GWB, lap wood siding, and vinyl sheet board. Bathroom walls were finished with ceramic wall tiles. In addition, walls were also finished with wood, brick, ceramic tile, and vinyl cove base. Ceilings of the building were finished with a heavy textured GWB system, an orange peel textured GWB system, untextured GWB, or horizontal wood planks.

**Floor Systems:** Floors of the building were primarily a concrete sub-floor, with wood sub-floor found in elevated areas of Office 1. Offices and the entry way were primarily finished with glued-down carpet. Office 1 and 2 also had parquet wood tiles, sheet vinyl tiles, sheet vinyl flooring (SVF), and ceramic tiles. Bathrooms floors were finished with ceramic tiles.

**Asbestos Survey**

The AHERA regulation, 40 Code of Federal Regulation (CFR) 763, is the primary governing regulation when performing asbestos surveys. This regulation was originally enacted for school buildings but has since been applied to public and commercial buildings by the Asbestos School Hazard Abatement Reauthorization Act (ASHARA) in 1994 and by the Occupational Safety and Health Administration’s (OSHA) worker protection regulations in 1995, specifically 29 CFR 1926.1101(k).

PSCAA also requires compliance with AHERA’s survey and sampling requirements. This applies to any renovation or demolition activities where suspect ACM may be disturbed. PSCAA is a local agency that receives statutory authority from the U.S. Environmental Protection Agency (EPA) to enforce environmental regulations.
AHERA divides suspect ACM into three categories; “surfacing materials” (i.e., sprayed fireproofing, popcorn ceiling texture, etc.), “thermal system insulation” (TSI) (i.e., pipe or building insulation, etc.), and “miscellaneous materials” (i.e., flooring material, roofing, construction mastics, etc.). The following sections summarize the potential ACMs identified for each of these three categories. For a complete listing of suspect materials sampled, see Appendix C. See Appendix J for drawings of asbestos and lead sample locations and material types.

The following sections summarize the potential ACMs identified by homogeneous material (HM) description as they relate to each of the AHERA categories and clarify location along with the number of samples collected for regulatory compliance.

**Surfacing Materials**

There were four surfacing materials observed in the building.

- **Heavy Troweled Textured GWB system (HM-01).** HM-01 was identified on the walls throughout the building. Nine samples of HM-01 were collected between the two offices and entrance. After being analyzed for asbestos content HM-01 was determined to be negative for asbestos.

- **Untextured GWB (HM-02).** Untextured GWB was present in the entrance area and in Office 1. Five samples were collected between the two areas and analyzed for asbestos content; HM-02 was found to be negative for asbestos.

- **Orange peel textured GWB system (HM-03).** Orange peel textured GWB was present in the entrance area restrooms, entry way office, custodial closet, and in the conference room of Office 1. Seven samples of HM-03 were collected from seven different locations then analyzed for asbestos content. HM-03 was found to be negative for asbestos.

- **Sprayed on yellow foam insulation (HM-26).** HM-26 was observed on the walls and ceilings of the shed. Three samples of HM-26 were collected and analyzed for asbestos content; no asbestos detected.

**Thermal System Insulation**

There was one TSI material observed in the building.

- **Pink wall insulation (HM-23).** HM-23 was found in an exposed area of the wall inside the electrical room. Three samples were collected and analyzed for asbestos content; no asbestos was detected.

**Miscellaneous Materials**

- **Wall laminate board with yellow mastic (HM-04).** HM-04 was identified on the NW wall of the meeting room in Office 1. Two samples of HM-04 were collected and analyzed for asbestos content. HM-04 was determined to be negative for asbestos.
Wall laminate board with orange mastic (HM-05). HM-05 was identified on the N wall of the meeting room hallway in Office 1. Two samples of HM-05 were collected and analyzed for asbestos content. HM-05 was determined to be negative for asbestos.

Wall laminate board with brown mastic (HM-06). HM-06 was found in the NW corner of the meeting room in Office 1 on the E wall. Two samples were collected and analyzed for asbestos content; no asbestos was detected.

3- x 3-inch brown wall tile with grout (HM-07). HM-07 was present in the men’s and women’s restroom. Two samples were collected and analyzed for asbestos content; this material was determined to be negative for asbestos.

3- x 3-inch brown wall with yellow and green mastic (HM-08). HM-08 was found in the men’s restroom. Two samples were collected and analyzed for asbestos content; no asbestos was detected.

6- x 6-inch red floor tile with grout (HM-09). This material was present in Office 2, the electric room, and both the men’s and women’s restroom. Two samples were collected and analyzed for asbestos content; no asbestos was detected.

Dark gray and red carpet with yellow mastic (HM-10). HM-10 was present in the entry way, Office 1, and Office 2. Three samples (one from each area) were collected and analyzed for asbestos content; HM-10 was found to be negative for asbestos.

Blue and gray carpet with yellow mastic (HM-11). HM-11 was present in the entry way, Office 1, and Office 2. Three samples (one from each area) were collected and analyzed for asbestos content; HM-11 was found to be negative for asbestos.

Parquet wood floor tile with white mastic and grout (HM-12). HM-12 was identified in the main office area of Office 1. Two samples were collected and analyzed for asbestos content; no asbestos was detected.

Parquet wood floor tile with dark yellow mastic (HM-13). HM-13 was identified in Office 2. Two samples were collected and analyzed for asbestos content; no asbestos was detected.

12- x 12-inch green and yellow SVT with yellow mastic (HM-14). HM-14 was discovered in the main office of Office 1 under HM-10. Two samples were collected and analyzed for asbestos content; no asbestos was detected.

6- x 6-inch brown/white square pattern SVF with brown binder (HM-15). This material was observed in the electrical room hallway. Three samples were collected and analyzed for asbestos; no asbestos was detected.
Brick wall base with white paint and grout (HM-16). This material was observed in the NW corner of the meeting room in Office 1. Two samples were collected and analyzed for asbestos; no asbestos was detected.

Gray wall base grout with white paint (HM-17). This material was found in the conference room of Office 1. Two samples were collected and analyzed for asbestos content; no asbestos was detected.

Black vinyl cove base with yellow mastic (HM-18). HM-18 was identified in the entry way office. Two samples were collected and analyzed for asbestos content; this material was determined to be negative for asbestos.

Gray vinyl cove base with brown mastic (HM-19). HM-19 was identified in Office 2. Two samples were collected and analyzed for asbestos content; HM-19 was determined to be negative for asbestos.

Tan cove base with yellow mastic (HM-20). HM-20 was identified in the SE bathroom of Office 1. Two samples were collected and analyzed for asbestos content; no asbestos was detected.

Brown wall base sealant (HM-21). HM-21 found along the N wall of the meeting room hallway in Office 1. Two samples were collected and analyzed for asbestos content; no asbestos was detected.

Extterior window caulking (HM-22). This material was observed on exterior window frames. Three samples were collected and analyzed for asbestos; this material was determined to be negative for asbestos.

Wall VBP (HM-24). HM-24 was found under the GWB of the second level storage area. Three samples were collected and analyzed for asbestos content; no asbestos was detected.

Asphalt roofing shingles and VBP (HM-25). The shed roof was covered by multiple layers of asphalt roof shingles with VBP over the plywood sheathing. Three samples were collected and analyzed for asbestos content; no asbestos was detected.

**Table 1** summarizes ACM identified in the residence surveyed by MTNW.

<table>
<thead>
<tr>
<th>Material</th>
<th>Location</th>
<th>Friable</th>
<th>Quantity*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brick wall base with white paint and grout</td>
<td>NW meeting room in Office 1</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Gray wall base grout with white paint</td>
<td>Conference room in Office 1</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Black vinyl cove base with yellow mastic</td>
<td>Entry way office</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Gray vinyl cove base with brown mastic</td>
<td>Office 2</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Tan cove base with yellow mastic</td>
<td>SE bathroom Office 1</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Brown wall base sealant</td>
<td>Meeting room hallway Office 1</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Exterior window caulking</td>
<td>Exterior window frames</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Wall VBP</td>
<td>Second level storage area</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Asphalt roofing shingles and VBP</td>
<td>Shed roof</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

There were no asbestos-containing materials identified at 8808.2.

**Note:** This table is not to be used without the complete survey document including appendices for additional information.

**Table 2** lists all suspect materials sampled that have been determined to be non-asbestos containing.
Table 2. Summary of Suspect Materials Determined Non-Asbestos Containing

<table>
<thead>
<tr>
<th>Material Location</th>
<th>Material Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interior</td>
<td>Heavy Troweled Textured GWB system</td>
</tr>
<tr>
<td>Interior</td>
<td>Untextured GWB</td>
</tr>
<tr>
<td>Interior</td>
<td>Orange peel textured GWB system</td>
</tr>
<tr>
<td>Meeting room – Office 1</td>
<td>Wall laminate board with yellow mastic</td>
</tr>
<tr>
<td>Meeting room hallway – Office 1</td>
<td>Wall laminate board with orange mastic</td>
</tr>
<tr>
<td>Meeting room – Office 1</td>
<td>Wall laminate board with brown mastic</td>
</tr>
<tr>
<td>Restroom’s</td>
<td>3- x 3-inch brown wall tile with grout</td>
</tr>
<tr>
<td>Men’s restroom</td>
<td>3- x 3-inch brown wall with yellow and green mastic</td>
</tr>
<tr>
<td>Office 2, electric room, restrooms</td>
<td>6- x 6-inch red floor tile with grout</td>
</tr>
<tr>
<td>Interior</td>
<td>Dark gray and red carpet with yellow mastic</td>
</tr>
<tr>
<td>Interior</td>
<td>Blue and gray carpet with yellow mastic</td>
</tr>
<tr>
<td>Office 1</td>
<td>Parquet wood floor tile with white mastic and grout</td>
</tr>
<tr>
<td>Office 2</td>
<td>Parquet wood floor tile with dark yellow mastic</td>
</tr>
<tr>
<td>Main office – Office 1</td>
<td>12- x 12-inch green and yellow SVT with yellow mastic</td>
</tr>
<tr>
<td>Electrical room hallway</td>
<td>6- x 6-inch brown/white square pattern SVF with brown binder</td>
</tr>
<tr>
<td>Meeting room – Office 1</td>
<td>Brick wall base with white paint and grout</td>
</tr>
<tr>
<td>Conference room – Office 1</td>
<td>Gray wall base grout with white paint</td>
</tr>
<tr>
<td>Entry way - office</td>
<td>Black vinyl cove base with yellow mastic</td>
</tr>
<tr>
<td>Office 2</td>
<td>Gray vinyl cove base with brown mastic</td>
</tr>
<tr>
<td>Bathroom – Office 1</td>
<td>Tan cove base with yellow mastic</td>
</tr>
<tr>
<td>Meeting room hallway – Office 1</td>
<td>Brown wall base sealant</td>
</tr>
<tr>
<td>Exterior</td>
<td>Exterior window caulking</td>
</tr>
<tr>
<td>Electrical room</td>
<td>Pink wall insulation</td>
</tr>
<tr>
<td>Interior - second level storage area</td>
<td>Wall VBP</td>
</tr>
<tr>
<td>Shed - roof</td>
<td>Asphalt roofing shingles and VBP</td>
</tr>
<tr>
<td>Shed - interior</td>
<td>Sprayed on yellow foam insulation</td>
</tr>
</tbody>
</table>

Note: This table is not to be used without the complete survey document including appendices for additional information.

Lead-Based Paint Summary

Lead was commonly used in most paint products until 1978, when it was banned from residential paints at concentrations greater than 600 parts per million (ppm) and then reduced to 90 ppm in 2012; however, commercial applications with lead are still utilized and available. Lead is poisonous to the human body and presents a potential health hazard during any kind of disturbance (such as maintenance, including grinding,
welding, and cutting) and if improperly disposed, where lead can enter drinking water supplies.

EPA defines LBP as a concentration of 1.0 milligrams per square centimeter (mg/cm²) or greater by x-ray fluorescence (XRF) or 0.5 percent in weight (% wt.) or greater by total lead analysis; equivalent to 5,000 milligrams per kilogram (mg/kg). This EPA action level triggers requirements for protection of the environment, maintenance workers, and building occupants in child occupied facilities as defined by 40 CFR 745. Additionally, building components exceeding EPA lead levels may cause demolition waste streams to fail waste designation sampling performed for compliance with WAC 173-303 Dangerous Waste Regulations.

Washington Department of Occupational Safety and Health (DOSH) worker protection regulations have not defined a minimum concentration for regulating lead and has clarified that lead at any detectable concentration shall be considered regulated by WAC 296-155-176, Lead. Paint sample results can be expressed in mg/kg (same as ppm), % wt. or mg/cm² by area depending on the type of analytical method used. Any positive result, regardless of the reporting method by the laboratory, will require compliance with WAC 296-155-176.

**Lead in Painted Surfaces**

Interior painted surfaces were tested for lead content using bulk sample collection and chemical analysis. A total of nine paint chip samples were collected. Analytical results are provided in **Table 3**.

**Table 3. Summary of Bulk Paint Chip Sample Results**

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Location</th>
<th>Component</th>
<th>Substrate</th>
<th>Color</th>
<th>Result (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Totem Lake Retail</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2-EJ-01Pb</td>
<td>Entry way; S wall</td>
<td>Wall</td>
<td>GWB</td>
<td>Beige</td>
<td>&lt;94</td>
</tr>
<tr>
<td>8808.2-EJ-02Pb</td>
<td>Office 2; W wall</td>
<td>Wall</td>
<td>GWB</td>
<td>Green</td>
<td>&lt;91</td>
</tr>
<tr>
<td>8808.2-EJ-03Pb</td>
<td>Custodial closet; S wall</td>
<td>Wall</td>
<td>GWB</td>
<td>White</td>
<td>&lt;96</td>
</tr>
<tr>
<td>8808.2-EJ-04Pb</td>
<td>Entry way; W wall</td>
<td>Siding</td>
<td>Wood</td>
<td>Brown</td>
<td>&lt;85</td>
</tr>
<tr>
<td>8808.2-EJ-05Pb</td>
<td>Entry way; N wall</td>
<td>Siding</td>
<td>Wood</td>
<td>Gray</td>
<td>&lt;91</td>
</tr>
<tr>
<td>8808.2-EJ-06Pb</td>
<td>Entry way – 2nd level; N wall</td>
<td>Siding</td>
<td>Wood</td>
<td>Tan</td>
<td>&lt;86</td>
</tr>
<tr>
<td>Exterior</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2-EJ-07Pb</td>
<td>E Wall</td>
<td>Window</td>
<td>Wood</td>
<td>White</td>
<td>&lt;82</td>
</tr>
<tr>
<td>8808.2-EJ-08Pb</td>
<td>W wall</td>
<td>Siding</td>
<td>Wood</td>
<td>Red</td>
<td>&lt;88</td>
</tr>
<tr>
<td>8808.2-EJ-09Pb</td>
<td>Door frame</td>
<td>Trim</td>
<td>Wood</td>
<td>Dark Red</td>
<td>&lt;89</td>
</tr>
</tbody>
</table>

_ppm = parts per million. Note: This table is not to be used without the complete survey document including appendices for additional information._
Waste Designation Survey

Construction waste or demolition debris expected as a result of 8808.2 consists of most of the building materials due to limited recycling value for the type of construction. Due to no Pb, toxicity characteristic leaching procedure (TCLP) samples were not collected.

All nine samples analyzed were determined to contain lead less than the detection limit of the analytical method. Based on these results, the demolition waste from the building can be disposed of as general construction debris.

Other Hazardous Building Materials

Chlorofluorocarbons
MTNW inspected the building for cooling systems with potential chlorofluorocarbons (CFCs); none were observed.

PCB Light Ballasts and Fluorescent Light Tubes

Older fluorescent light ballasts have small capacitors that may contain high concentrations of PCBs. Nearly all ballasts manufactured before 1979 contain PCBs. All ballasts manufactured after July 1, 1978 that do not contain PCBs are required to be clearly marked "No PCBs". Unmarked ballasts or ballasts without a date code should be assumed to be PCB ballasts. PCBs are toxic chemicals according to the EPA. While there is only a small amount, about one ounce, of PCBs in each light ballast capacitor, there are a large number of ballasts in the United States. A "No PCB" label means there are less than 50 ppm PCBs; however, in the state of Washington, PCB in oils are regulated at 2 ppm (WAC 173-303-9904).

There were fluorescent light fixtures observed at 8808.2. Smoke detectors may be regulated as universal or hazardous waste and will require dismantling and special handling. Table 4 provides a summary of these items in the building:

<table>
<thead>
<tr>
<th>Location</th>
<th>4-foot, 4-bulb</th>
<th>4-foot, 2-bulb</th>
<th>4-foot, 1-bulb</th>
<th>Exit signs</th>
<th>Door closers</th>
<th>Smoke Detectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Throughout</td>
<td>6</td>
<td>54</td>
<td>32</td>
<td>7</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6</strong></td>
<td><strong>54</strong></td>
<td><strong>32</strong></td>
<td><strong>7</strong></td>
<td><strong>8</strong></td>
<td><strong>25</strong></td>
</tr>
</tbody>
</table>

Note: This table is not to be used without the complete survey document including appendices for additional information.

Typically, there is one ballast for every two-light tubes in a fluorescent light fixture; accordingly, there are approximately two ballasts in the light fixture requiring recycling or PCB hazardous waste disposal. There are also four four-foot tubes that will need to be recycled during demolition along individual 4-foot tubes.
PCB in Caulking and Paint

PCBs were used in paint and caulk formulations as drying oils (resins) and plasticizers or softening agents (liquids). Concrete surfaces and equipment, as well as marine or waterproofing applications may have painted surfaces containing PCBs.

PCBs were tested in representative caulking and paint on the exterior of 12031. **Table 6** below provides a summary of PCB sample results.

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Location</th>
<th>Material</th>
<th>Result (mg/kg*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8808.2-EJ-01PCB</td>
<td>Exterior north window</td>
<td>Window caulk</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-02PCB</td>
<td>West exterior wall</td>
<td>CMU</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-03PCB</td>
<td>Exterior north wall</td>
<td>Red paint</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-04PCB</td>
<td>Exterior door frame</td>
<td>Dark Red paint</td>
<td>None Detected</td>
</tr>
</tbody>
</table>

Note: Do not use this table without the complete survey document.

Mercury Containing Switches

Heating system thermostats were investigated for mercury containing systems. All the thermostats observed were electric.

Laboratory Analytical Methods

Asbestos-Containing Materials

Bulk samples were analyzed by Polarized Light Microscopy (PLM) dispersion staining EPA Method 600/R-93/116 and by 400 Point Count Analysis by Seattle Asbestos Test (SAT). SAT is accredited through the National Voluntary Laboratory Accreditation Program (NVLAP) of the U.S. Department of Commerce. This accreditation does not constitute endorsement, but rather a finding of laboratory competence. The NVLAP participant number for SAT is 200768-0 (certification copies are in Appendix D). Analytical results are in Appendix E.

Lead-Based Paint

Bulk paint chip samples were submitted to EMSL Analytical, Inc. for analysis using atomic absorption spectroscopy (AAS) to determine the presence and percentage of lead. Procedures for analyzing metals are found in the American Society of Testing and Materials (ASTM) D-3335-78 and EPA Method Manual SW-846, Method 6010. EMSL used SW 846-7000B, an equivalent analytical method.
Analytical results for paint chip results are provided in **Appendix F**. EMSL Analytical, Inc., laboratory certification is attached in **Appendix G**.

Sample and material location drawings are provided in **Appendix I**.

**PCB**

Bulk PCB samples were submitted to On-Site Environmental, Inc., for analysis using gas chromatography (GC) equipped with electron capture detectors (ECD). The samples were analyzed using EPA Method SW-846 8082A and the analytical results are provided in **Appendix H**. On-Site Environmental, Inc. laboratory certification is attached in **Appendix I**.

Sample and material location drawings are provided in **Appendix J**.
Comments and Recommendations

Asbestos-Containing Materials

MTNW recommends that this survey report be placed on-site during renovation and/or demolition and copies provided to the contractor(s) bidding and performing work. Washington Industrial Safety and Health Act (WISHA), OSHA and PSCAA require that the report be on-site and available for review during the entire project duration.

No materials containing asbestos content were found during the survey. The building was occupied at the time of the survey. A limited destructive investigation was conducted during the survey; however, additional destructive investigation will be required prior to demolition.

1. Electrical systems were not sampled due to power being live. Sample and verify that asbestos is not present prior to building demolition.
2. The doors to the structure did not appear to be fire doors with suspect asbestos content. Prior to any activity that will impact the doors, drill into the doors and door frames to determine if suspect fire protection is located inside.
3. Perform destructive investigation inside wall and ceiling cavities to verify suspect asbestos is not hidden or present prior to demolition.
4. Perform destructive investigation to verify if additional layers of flooring suspected of containing asbestos are not hidden or present prior to demolition.
5. If during demolition, pipe or pipe fitting insulation suspected of containing ACM is made visible, the material(s) must be sampled by an AHERA building inspector prior to being disturbed.

WAC 296-65 requires ACM be removed by trained and licensed contractors using certified asbestos abatement workers and supervisors (except for deregulated roofing sealants, mastics, and coatings). A 10-day prior notification is also required before abatement can begin. In addition, PSCAA requires notification and fees prior to beginning removal of friable ACM.

If additional destructive investigations uncover asbestos-containing materials, MTNW recommends third party oversight of asbestos abatement and renovation activities by an AHERA accredited building inspector to ensure regulatory compliance and completion of the additional destructive methods recommended herein.

Lead-Based Paint

Lead in painted surfaces were not detected in this building. All samples were analyzed to contain lead less than the detection of the analytical method and based on these results, the demolition waste from the building can be disposed of as general construction debris.
PCB

There were no PCB’s detected in the bulk samples collected. MTNW recommends that the asbestos abatement contractor be tasked with dismantling light fixtures, collecting all lighting ballasts for proper disposal, and recycling the light tubes. Ballasts without “No-PCB” labels are considered PCB-containing and must be disposed as a hazardous waste. “No-PCB” and Di (2-ethylhexyl) phthalate (DEHP) ballasts may designate as Washington Dangerous Waste and should be sent to an EPA licensed facility for proper disposal.

Other Hazardous Building Materials

Smoke detectors should be collected and recycled/disposed of appropriately.

Limitations

A good faith effort has been made to identify ACM, LBP and other HBM in preparation for building demolition. This survey was performed for complete demolition of the building. Additional destructive investigation and sampling will be required depending on inaccessible building systems including mechanical spaces and/or mechanical/electrical system routing.

Sampling was performed consistent with the level of care and skill ordinarily exercised by professionals currently practicing under similar conditions in the area. No other warranty, expressed or implied, is made.

This report has been prepared for the exclusive use of O’Neill Service Group and it designates for this project only. The analyses, conclusions, and recommendations presented in this report are based on conditions encountered at the time of our survey and our experience and judgment. MTNW cannot be held responsible for interpretation by others of the data contained in this report; any use of this report shall include the entire document. This survey is not intended for use as abatement plans and/or specifications which MTNW recommends for regulatory compliance.
Appendix A
AHERA Building Inspector and WDOC Lead Inspector/Risk Assessor Certificates
Certificate Of Completion
Asbestos Building Inspector Refresher Course
DOSH #:CA-015-06

Jon Havelock
ABIR0907180004N15667

Paul Semper
Principal Instructor

Michael W. Horner
Training Director

9/7/2018
Course Start Date

9/7/2018
Course End Date

9/7/2018
Exam Date

9/7/2019
Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California.

NATEC International, Inc.
National Association of Training and Environmental Consulting
1100 Technology Circle - Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts
CAL-OSHA: Ph# (916) 574-2993
Web: www.dir.ca.gov or calosh.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax# (909) 396-3342

BAAQMD: Ph# (415) 749-4762

NATEC International, Inc.
National Association of Training and Environmental Consulting
Anahiem, CA • Oakland, CA • Fresno, CA • Sacramento, CA

Asbestos - Lead - Mold - HAZWOPER

P.O. Box 25205 Anaheim, CA 92825-5205
(714) 678-2750, (800) 969-3228, Fax (714) 678-2757
www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
Holds Training Certification For
Asbestos Building Inspector Refresher Course
(Valid for 12 months)

9/7/2018
Training Date
Certificate No: ABIR0907180004N15667
Michael W. Horner
Training Director
STATE OF WASHINGTON
Department of Commerce
Lead-Based Paint Abatement Program

Jon A Havelock

Has fulfilled the certification requirements of WAC 365-230
and has been certified to conduct lead-based paint activities as a Risk Assessor New

<table>
<thead>
<tr>
<th>Certification #</th>
<th>Issuance Date</th>
<th>Expiration Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>0241</td>
<td>01/23/2017</td>
<td>12/03/2019</td>
</tr>
</tbody>
</table>
Certificate of Completion

This is to certify that

Erich T. Jarvis

has satisfactorily completed

24 hours of training as an

AHORA Building Inspector

to comply with the training requirements of

TSCA Title II, 40 CFR 763 (AHORA)

Date(s) of Training:

Oct 15 - 17, 2018

Exam Score:

88%

Certificate Number:

169779

Instructor:

EPA Provider # 1085

ARGUS PACIFIC, INC. / 21905 64th Ave, Suite 100 / MOUNTLAKE TERRACE, WASHINGTON 98043 / 206.285.3373 / ARGUSPACIFIC.COM
Certificate of Completion

This is to certify that

Jason S. Carlson

has satisfactorily completed

4 hours of refresher training as an

AHERA Building Inspector

to comply with the training requirements of

TSCA Title II, 40 CFR 763 (AHERA)

Expire in 1 year:

Sep 12, 2018

Date(s) of Training

Exam Score: N/A

If appropriate:

PACIFIC
TRAINING CONSULTING
A Terrorism Company

ARGUS PACIFIC, INC. / 7930 WEST NICKERSON ST, SUITE 315 / SEATTLE/WASHINGTON 98119 / 206.235.3773 / ARGUSPACIFIC.COM

Certificate Number

169363

EPA Provider # 1085

Instructor

Signature
Appendix B

Building and Building System Photographic Documentation
Hazardous Building Materials Survey – Totem Lake Way

Photo 1: West side of 8808.2 looking east.

Photo 2: Northwest corner of building looking east.
Photo 3: Northeast corner of building looking southwest. Wood deck patio area enclosed by a wood fence. Windows at 88008.2 have rebar over the windows internally for security purposes.

Photo 4: East side-south end of building looking west. A detached shed is located east of the building. The area is fenced off with the same metal siding that is found on the main structure.
Photo 5: Southwest corner of the building looking northeast.

Photo 6: View of entry area looking east. Office 1 is to the right and Office 2 straight ahead. To the left are the restrooms, janitors closet, and entry area office.
Photo 7: View of upper storage area in entry area facing west. The previous tenants built miniature store fronts along the upper level for decorative purposes.

Photo 8: Men’s restroom looking northwest. The women’s restroom is composed of the same building materials.
Photo 9: Office 1 – Main office area looking south.

Photo 10: Looking east into the long meeting room of Office 1 from the south end of the main office area.
Photo 11: From the north end of the long meeting room looking east down the conference room hallway. To the right is the conference room, straight ahead is a storage closet.

Photo 12: North end of conference room facing south.
Photo 13. North end of conference room looking east. The blanket on the wall is used to cover the door way that leads to the electrical room and the exit for the storage shed.

Photo 14. North end of electric room hallway facing south towards the electrical room.
Photo 15. Electric room facing south.

Photo 16. Looking east from the door of the east office space in Office 1.
Photo 17. West side of Office 2 at entrance looking northeast.

Photo 18. West side of Office 2 at entrance looking southeast.

Photo 20. North end top view of Office 2 from upper storage area facing south.
Photo 21. Upper storage area of entry way facing west.

Photo 22. Upper storage area northwest corner perimeter wall.
Photo 23. Storage area north wall above Office 2.

Photo 24. North of detached shed facing south.
Hazardous Building Materials Survey – Totem Lake Way

Photo 25. South door of shed with yellow sprayed on foam insulation.

Photo 26. South door way of shed facing southeast. Yellow foam insulation covers the interior walls and ceiling of the shed.
Photo 27. South doorway of shed facing north.

Photo 28. Southeast corner of shed, floors of the shed are bare concrete.
Appendix C

Summary of Materials Sampled for Asbestos
<table>
<thead>
<tr>
<th>Sample</th>
<th>Material</th>
<th>Location</th>
<th>AHERA Type</th>
<th>HM</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Totem Lake Retail</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2-EJ-001</td>
<td>Heavy Troweled Textured GWB system</td>
<td>Entry Way; S wall, W side</td>
<td>Surfacing</td>
<td>01</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-002</td>
<td>Heavy Troweled Textured GWB system</td>
<td>Entry way; S wall, E side</td>
<td>Surfacing</td>
<td>01</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-003</td>
<td>Heavy Troweled Textured GWB system</td>
<td>Office 1 – E Side Main Office, S wall</td>
<td>Surfacing</td>
<td>01</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-004</td>
<td>Heavy Troweled Textured GWB system</td>
<td>Office 1 – Main Office; W wall, center</td>
<td>Surfacing</td>
<td>01</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-005</td>
<td>Heavy Troweled Textured GWB system</td>
<td>Office 1 – Main Office, NE corner</td>
<td>Surfacing</td>
<td>01</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-006</td>
<td>Heavy Troweled Textured GWB system</td>
<td>Office 1 – W Side Main Office, E wall</td>
<td>Surfacing</td>
<td>01</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-007</td>
<td>Heavy Troweled Textured GWB system</td>
<td>Office 2; E wall</td>
<td>Surfacing</td>
<td>01</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-008</td>
<td>Heavy Troweled Textured GWB system</td>
<td>Office 2; W wall, NW corner</td>
<td>Surfacing</td>
<td>01</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-009</td>
<td>Heavy Troweled Textured GWB system</td>
<td>Office 2; S wall, center</td>
<td>Surfacing</td>
<td>01</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-010</td>
<td>Untextured GWB system</td>
<td>Entry way; S Wall</td>
<td>Surfacing</td>
<td>02</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-011</td>
<td>Untextured GWB system</td>
<td>Entry way, SE corner</td>
<td>Surfacing</td>
<td>02</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-012</td>
<td>Untextured GWB system</td>
<td>Office 1 – Main Office; N wall, center</td>
<td>Surfacing</td>
<td>02</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-013</td>
<td>Untextured GWB system</td>
<td>Office 1 – Main Office, N wall, NE corner</td>
<td>Surfacing</td>
<td>02</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-014</td>
<td>Untextured GWB system</td>
<td>Office 1 – W side Main Office; S wall</td>
<td>Surfacing</td>
<td>02</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-015</td>
<td>Orange peel textured GWB system</td>
<td>Office 1 – Conference room; N wall</td>
<td>Surfacing</td>
<td>03</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-016</td>
<td>Orange peel textured GWB system</td>
<td>Women’s restroom; SW corner</td>
<td>Surfacing</td>
<td>03</td>
<td>None Detected</td>
</tr>
</tbody>
</table>
**Hazardous Building Materials Survey — Totem Lake Retail**

<table>
<thead>
<tr>
<th>Sample</th>
<th>Material</th>
<th>Location</th>
<th>AHERA Type</th>
<th>HM</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>8808.2-EJ-017</td>
<td>Orange peel textured GWB system</td>
<td>Men’s restroom; SW corner</td>
<td>Surfacing</td>
<td>03</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-018</td>
<td>Orange peel textured GWB system</td>
<td>Entry way Office; N wall corner</td>
<td>Surfacing</td>
<td>03</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-019</td>
<td>Orange peel textured GWB system</td>
<td>Entry way Office; SW corner</td>
<td>Surfacing</td>
<td>03</td>
<td>None Detected</td>
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<tr>
<td>8808.2-EJ-020</td>
<td>Orange peel textured GWB system</td>
<td>Custodial closet; E wall corner</td>
<td>Surfacing</td>
<td>03</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-021</td>
<td>Orange peel textured GWB system</td>
<td>Custodial closet; N wall corner</td>
<td>Surfacing</td>
<td>03</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-022</td>
<td>White Textured Plastic Wall Board with Yellow mastic</td>
<td>Meeting room; NW wall</td>
<td>Misc.</td>
<td>04</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-023</td>
<td>White Textured Plastic Wall Board with Yellow mastic</td>
<td>Meeting room; NW wall</td>
<td>Misc.</td>
<td>04</td>
<td>None Detected</td>
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<tr>
<td>8808.2-EJ-024</td>
<td>White Textured Plastic Wall Board with Orange mastic</td>
<td>Meeting room hallway; N wall</td>
<td>Misc.</td>
<td>05</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-025</td>
<td>White Textured Plastic Wall Board with Orange mastic</td>
<td>Meeting room hallway; N wall</td>
<td>Misc.</td>
<td>05</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-026</td>
<td>White Textured Plastic Wall Board with brown mastic</td>
<td>Meeting room; NW corner, E wall</td>
<td>Misc.</td>
<td>06</td>
<td>None Detected</td>
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<tr>
<td>8808.2-EJ-027</td>
<td>White Textured Plastic Wall Board with brown mastic</td>
<td>Meeting room; NW corner, E wall</td>
<td>Misc.</td>
<td>06</td>
<td>None Detected</td>
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<tr>
<td>8808.2-EJ-028</td>
<td>3-inch brown wall tile with grout</td>
<td>Men’s Restroom; NW corner</td>
<td>Misc.</td>
<td>07</td>
<td>None Detected</td>
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<tr>
<td>8808.2-EJ-029</td>
<td>3-inch brown wall tile with grout</td>
<td>Men’s restroom; N wall corner</td>
<td>Misc.</td>
<td>07</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-030</td>
<td>3-inch brown wall tile with yellow mastic and green mastic</td>
<td>Men’s Restroom; NW corner</td>
<td>Misc.</td>
<td>08</td>
<td>None Detected</td>
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<tr>
<td>8808.2-EJ-031</td>
<td>3-inch brown wall tile with yellow mastic and green mastic</td>
<td>Men’s restroom; N wall corner</td>
<td>Misc.</td>
<td>08</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-032</td>
<td>6-inch red floor tile with grout</td>
<td>Men’s restroom</td>
<td>Misc.</td>
<td>09</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-033</td>
<td>6-inch red floor tile with grout</td>
<td>Office 2; S wall</td>
<td>Misc.</td>
<td>09</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-034</td>
<td>Dark gray and red carpet with yellow mastic</td>
<td>Office 2; E wall</td>
<td>Misc.</td>
<td>10</td>
<td>None Detected</td>
</tr>
<tr>
<td>Sample</td>
<td>Material</td>
<td>Location</td>
<td>AHERA Type</td>
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<tr>
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</tr>
<tr>
<td>8808.2-EJ-035</td>
<td>Dark gray and red carpet with yellow mastic</td>
<td>Office 1; E wall</td>
<td>Misc.</td>
<td>10</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-036</td>
<td>Dark gray and red carpet with yellow mastic</td>
<td>Entry way, between restrooms</td>
<td>Misc.</td>
<td>10</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-037</td>
<td>Blue and gray carpet with yellow mastic</td>
<td>Office 2; E wall</td>
<td>Misc.</td>
<td>11</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-038</td>
<td>Blue and gray carpet with yellow mastic</td>
<td>Office 1 – Conference room, W wall</td>
<td>Misc.</td>
<td>11</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-039</td>
<td>Blue and gray carpet with yellow mastic</td>
<td>Entry way; NW corner</td>
<td>Misc.</td>
<td>11</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-040</td>
<td>Wood square floor tile with white mastic and grout</td>
<td>Office 1 – Main office; N wall, W of door</td>
<td>Misc.</td>
<td>12</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-041</td>
<td>Wood square floor tile with white mastic and grout</td>
<td>Office 1 – Main office; N wall, W of door</td>
<td>Misc.</td>
<td>12</td>
<td>None Detected</td>
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<tr>
<td>8808.2-EJ-042</td>
<td>Wood square floor tile with dark yellow mastic</td>
<td>Office 2; N wall</td>
<td>Misc.</td>
<td>13</td>
<td>None Detected</td>
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<tr>
<td>8808.2-EJ-043</td>
<td>Wood square floor tile with dark yellow mastic</td>
<td>Office 2; N wall</td>
<td>Misc.</td>
<td>13</td>
<td>None Detected</td>
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<tr>
<td>8808.2-EJ-044</td>
<td>12-inch green and yellow SVT with yellow mastic</td>
<td>Office 1 – Main office, W wall under dark gray and red carpet</td>
<td>Misc.</td>
<td>14</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-045</td>
<td>12-inch green and yellow SVT with yellow mastic</td>
<td>Office 1 – Main office, W wall under dark gray and red carpet</td>
<td>Misc.</td>
<td>14</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-046</td>
<td>6-inch brown and white square pattern SVF with brown binder</td>
<td>Electric room hallway</td>
<td>Misc.</td>
<td>15</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-047</td>
<td>6-inch brown and white square pattern SVF with brown binder</td>
<td>Electric room hallway</td>
<td>Misc.</td>
<td>15</td>
<td>None Detected</td>
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<tr>
<td>8808.2-EJ-048</td>
<td>6-inch brown and white square pattern SVF with brown binder</td>
<td>Electric room hallway</td>
<td>Misc.</td>
<td>15</td>
<td>None Detected</td>
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<tr>
<td>8808.2-EJ-049</td>
<td>Red brick with white paint wall base with grout</td>
<td>Office 1 – Meeting room; NW corner</td>
<td>Misc.</td>
<td>16</td>
<td>None Detected</td>
</tr>
</tbody>
</table>
**Hazardous Building Materials Survey — Totem Lake Retail**

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<th>Result</th>
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<tr>
<td>8808.2-EJ-050</td>
<td>Red brick with white paint wall base with grout</td>
<td>Office 1 – Meeting room; N wall</td>
<td>Misc.</td>
<td>16</td>
<td>None Detected</td>
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<tr>
<td>8808.2-EJ-051</td>
<td>Gray wall base grout with white paint</td>
<td>Office 1 – Conference room; S wall</td>
<td>Misc.</td>
<td>17</td>
<td>None Detected</td>
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<tr>
<td>8808.2-EJ-052</td>
<td>Gray wall base grout with white paint</td>
<td>Office 1 – Conference room; E wall</td>
<td>Misc.</td>
<td>17</td>
<td>None Detected</td>
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<tr>
<td>8808.2-EJ-053</td>
<td>Black vinyl cove base with yellow mastic</td>
<td>Entry way office; SW corner</td>
<td>Misc.</td>
<td>18</td>
<td>None Detected</td>
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<tr>
<td>8808.2-EJ-054</td>
<td>Black vinyl cove base with yellow mastic</td>
<td>Entry way office; S wall</td>
<td>Misc.</td>
<td>18</td>
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<tr>
<td>8808.2-EJ-055</td>
<td>Gray vinyl cove base with brown mastic</td>
<td>Office 2; SE corner</td>
<td>Misc.</td>
<td>19</td>
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<tr>
<td>8808.2-EJ-056</td>
<td>Gray vinyl cove base with brown mastic</td>
<td>Office 2; E wall</td>
<td>Misc.</td>
<td>19</td>
<td>None Detected</td>
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<td>8808.2-EJ-057</td>
<td>Tan cove base with yellow mastic</td>
<td>SE restroom; N wall</td>
<td>Misc.</td>
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<td>None Detected</td>
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<tr>
<td>8808.2-EJ-058</td>
<td>Tan cove base with yellow mastic</td>
<td>SE restroom; NW corner</td>
<td>Misc.</td>
<td>20</td>
<td>None Detected</td>
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<tr>
<td>8808.2-EJ-059</td>
<td>Brown wall base sealant</td>
<td>Office 1 – Meeting room hallway; N wall</td>
<td>Misc.</td>
<td>21</td>
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<tr>
<td>8808.2-EJ-060</td>
<td>Brown wall base sealant</td>
<td>Office 1 – Meeting room hallway; N wall</td>
<td>Misc.</td>
<td>21</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-061</td>
<td>Exterior window caulking</td>
<td>E side of building</td>
<td>Misc.</td>
<td>22</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-062</td>
<td>Exterior window caulking</td>
<td>E side of building</td>
<td>Misc.</td>
<td>22</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-063</td>
<td>Exterior window caulking</td>
<td>W side of building</td>
<td>Misc.</td>
<td>22</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-064</td>
<td>Wall insulation</td>
<td>Electrical room; E wall</td>
<td>Misc.</td>
<td>23</td>
<td>None Detected</td>
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<tr>
<td>8808.2-EJ-065</td>
<td>Wall insulation</td>
<td>Electrical room; E wall</td>
<td>Misc.</td>
<td>23</td>
<td>None Detected</td>
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<td>8808.2-EJ-066</td>
<td>Wall insulation</td>
<td>Electrical room; E wall</td>
<td>Misc.</td>
<td>23</td>
<td>None Detected</td>
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<td>8808.2-EJ-067</td>
<td>Wall VBP</td>
<td>Entry way; W wall above entrance</td>
<td>Misc.</td>
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<tr>
<td>8808.2-EJ-068</td>
<td>Wall VBP</td>
<td>Entry way; NW corner above restrooms</td>
<td>Misc.</td>
<td>24</td>
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<tr>
<td>8808.2-EJ-069</td>
<td>Wall VBP</td>
<td>Entry way; W wall</td>
<td>Misc.</td>
<td>24</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-070</td>
<td>Asphalt roof shingles and VBP</td>
<td>Shed; N end</td>
<td>Misc.</td>
<td>25</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-071</td>
<td>Asphalt roof shingles and VBP</td>
<td>Shed; S end</td>
<td>Misc.</td>
<td>25</td>
<td>None Detected</td>
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<tr>
<td>8808.2-EJ-072</td>
<td>Asphalt roof shingles and VBP</td>
<td>Shed; W side</td>
<td>Misc.</td>
<td>25</td>
<td>None Detected</td>
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<tr>
<td>Sample</td>
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<td>HM</td>
<td>Result</td>
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<td>------------</td>
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<td>-------------------</td>
</tr>
<tr>
<td>8808.2-EJ-073</td>
<td>Sprayed on yellow insulation</td>
<td>Shed; Ceiling</td>
<td>Surfacing</td>
<td>26</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-074</td>
<td>Sprayed on yellow insulation</td>
<td>Shed; W wall</td>
<td>Surfacing</td>
<td>26</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-075</td>
<td>Sprayed on yellow insulation</td>
<td>Shed; S door</td>
<td>Surfacing</td>
<td>26</td>
<td>None Detected</td>
</tr>
<tr>
<td>8808.2-EJ-076</td>
<td>Orange peel textured GWB system</td>
<td>SE restroom; N wall</td>
<td>Surfacing</td>
<td>03</td>
<td>None Detected</td>
</tr>
</tbody>
</table>

CHR = Chrysotile asbestos, E = East, GWB = gypsum wallboard, HM = homogeneous material, Misc. = miscellaneous, N = north, S = south, SE = southeast, SVF = sheet vinyl flooring, SW = southwest, TSI = thermal system insulation, TVF = tile vinyl flooring, VBP = vapor barrier paper, W = west.
Appendix D

SAT National Voluntary Laboratory Accreditation Program Certificate
United States Department of Commerce
National Institute of Standards and Technology

NV L A P®

Certificate of Accreditation to ISO/IEC 17025:2005

NV L A P LAB CODE: 200768-0

Seattle Asbestos Test, LLC
Lynnwood, WA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).

2018-10-01 through 2019-09-30
Effective Dates

For the National Voluntary Laboratory Accreditation Program
Appendix E
Analytical Reports- Asbestos
# CHAIN OF CUSTODY

Analysis Type: Bulk Analysis _X_  
Point Count 400 _ _  Point Count 1000 _ _  Point Count Gravimetric _ _  

Turn Around Time 5 Day  
Number of Samples 76  
Client Job # 8808.2  

Client Name: **Med-Tox Northwest**  
Address: **Post Office Box 1446**  
City: **Auburn**  
State: **WA**  
Zip: **98071-1446**  

Phone: **253-351-0677**  
Fax: **253-351-0688**  
Email: **havelockj@medtoxnw.com**  

Project Location: **12031 Northeast Totem Lake Way, Kirkland WA**  
Project Manager: **Jon Havelock**  

<table>
<thead>
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Seattle Asbestos Test warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted, and disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. Seattle Asbestos Test accepts no legal responsibility for the purpose for which the client uses test results. By signing on this form, the clients agree to relieve Seattle Asbestos Test of any liability that may arise from the test results. Late payment may be charged of interest, invoives goes to collection causes 17-25% of collection fee. NSF is $50.

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Fax___  
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Pick Up Report___
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November 2018

GeoEngineers, Inc.
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<td>Wall VBP</td>
<td>Entry way; NW corner above restrooms</td>
<td>Misc.</td>
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<td>Wall VBP</td>
<td>Entry way; W wall</td>
<td>Misc.</td>
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<td>Shed; N end</td>
<td>Misc.</td>
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<td>Shed; S end</td>
<td>Misc.</td>
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<td>8808.2-EJ-076</td>
<td>Orange peel textured GWB system</td>
<td>SE restroom; N wall</td>
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CHR = Chrysotile asbestos, E = East, GWB = gypsum wallboard, HM = homogeneous material, Misc. = miscellaneous, N = north, S = south, SE = southeast, SVF = sheet vinyl flooring, SW = southwest, TSI = thermal system insulation, TVF = tile vinyl flooring, VBP = vapor barrier paper, W = west.
<table>
<thead>
<tr>
<th>Lab ID</th>
<th>Client Sample ID</th>
<th>Layer</th>
<th>Description</th>
<th>% Asbestos Fibers</th>
<th>Non-fibrous Components</th>
<th>% Non-asbestos Fibers</th>
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## SEATTLE ASBESTOS TEST

Lynnwood Laboratory: 19701 Scriber Lake Road, Suite 103, Lynnwood, WA 98036, Tel: 425.673.9850, Fax: 425.673.9810, NVLAP Lab Code: 200768-0

Disclaimer: This report must not be used by the client to claim product certification, approval, or endorsement by Seattle Asbestos Test, LLC, NVLAP, NIST, or any agency of the Federal government.

## ANALYTICAL LABORATORY REPORT

**PLM by Method EPA/600/R-93/116**

<table>
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<th>Non-fibrous Components</th>
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## Analytical Laboratory Report

**PLM by Method EPA/600/R-93/116**

### Details
- **Job#:** 8808.2
- **Batch#:** 201813507
- **Samples Receiued:** 76
- **Date Analyzed:** 11/26/2018

### Project Location
12031 Northeast Totem Lake Way, Kirkland, WA

### Results

<table>
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<tr>
<th>Lab ID</th>
<th>Client Sample ID</th>
<th>Layer</th>
<th>Description</th>
<th>Asbestos Fibers</th>
<th>Non-fibrous Components</th>
<th>% Non-asbestos Fibers</th>
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Page 7 of 9
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<th>Layer</th>
<th>Description</th>
<th>% Asbestos Fibers</th>
<th>Non-fibrous Components</th>
<th>% Non-asbestos Fibers</th>
</tr>
</thead>
<tbody>
<tr>
<td>67</td>
<td>8808.2-EJ-067</td>
<td>1</td>
<td>Black asphaltic fibrous material</td>
<td>None detected</td>
<td>Asphalt/binder, Filler/binder</td>
<td>64 Cellulose</td>
</tr>
<tr>
<td>68</td>
<td>8808.2-EJ-068</td>
<td>1</td>
<td>Black asphaltic fibrous material</td>
<td>None detected</td>
<td>Asphalt/binder, Filler/binder</td>
<td>68 Cellulose</td>
</tr>
<tr>
<td>69</td>
<td>8808.2-EJ-069</td>
<td>1</td>
<td>Black asphaltic fibrous material</td>
<td>None detected</td>
<td>Asphalt/binder, Filler/binder</td>
<td>61 Cellulose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>Black asphaltic material with sand</td>
<td>None detected</td>
<td>Asphalt/binder, Sand</td>
<td>24 Glass fibers</td>
</tr>
<tr>
<td>70</td>
<td>8808.2-EJ-070</td>
<td>2</td>
<td>Trace black asphaltic material</td>
<td>None detected</td>
<td>Asphalt, Binder</td>
<td>2 Cellulose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>Black asphaltic material with sand</td>
<td>None detected</td>
<td>Asphalt/binder, Sand</td>
<td>27 Glass fibers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>Black asphaltic material</td>
<td>None detected</td>
<td>Asphalt, Binder</td>
<td>3 Cellulose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>Clear plastic</td>
<td>None detected</td>
<td>Plastic</td>
<td>None detected</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>Black asphaltic fibrous material</td>
<td>None detected</td>
<td>Asphalt/binder, Filler/binder</td>
<td>63 Cellulose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>Black asphaltic material with sand</td>
<td>None detected</td>
<td>Asphalt/binder, Sand</td>
<td>21 Glass fibers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Red paint</td>
<td>None detected</td>
<td>Filler, Paint</td>
<td>2 Cellulose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>Black asphaltic material</td>
<td>None detected</td>
<td>Asphalt, Binder</td>
<td>3 Cellulose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>Clear plastic</td>
<td>None detected</td>
<td>Plastic</td>
<td>None detected</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>Black asphaltic fibrous material</td>
<td>None detected</td>
<td>Asphalt/binder, Filler/binder</td>
<td>65 Cellulose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td>Trace brown wood debris</td>
<td>None detected</td>
<td>Wood debris</td>
<td>4 Cellulose</td>
</tr>
<tr>
<td>71</td>
<td>8808.2-EJ-071</td>
<td>1</td>
<td>Black asphaltic material with sand</td>
<td>None detected</td>
<td>Asphalt/binder, Sand</td>
<td>25 Glass fibers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Black asphaltic material</td>
<td>None detected</td>
<td>Asphalt, Binder</td>
<td>2 Cellulose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>Clear plastic</td>
<td>None detected</td>
<td>Plastic</td>
<td>None detected</td>
</tr>
<tr>
<td>72</td>
<td>8808.2-EJ-072</td>
<td>4</td>
<td>Black asphaltic fibrous material</td>
<td>None detected</td>
<td>Asphalt/binder, Filler/binder</td>
<td>67 Cellulose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>Trace brown wood debris</td>
<td>None detected</td>
<td>Wood debris</td>
<td>5 Cellulose</td>
</tr>
<tr>
<td>73</td>
<td>8808.2-EJ-073</td>
<td>1</td>
<td>Yellow foamy material</td>
<td>None detected</td>
<td>Foam</td>
<td>None detected</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Yellow mastic</td>
<td>None detected</td>
<td>Mastic/binder</td>
<td>2 Cellulose</td>
</tr>
<tr>
<td>74</td>
<td>8808.2-EJ-074</td>
<td>1</td>
<td>Yellow foamy material</td>
<td>None detected</td>
<td>Foam</td>
<td>None detected</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Yellow mastic</td>
<td>None detected</td>
<td>Mastic/binder</td>
<td>3 Cellulose</td>
</tr>
</tbody>
</table>
## Analytical Laboratory Report

**Attn.:** Mr. Jon Havelock  
**Job #:** 6808.2  
**Date Received:** 11/21/2018  
**Samples Analyzed:** 76  
**Project #:** 12031 Northeast Totem Lake Way, Kirkland, WA

<table>
<thead>
<tr>
<th>Lab ID</th>
<th>Client Sample ID</th>
<th>Layer</th>
<th>Description</th>
<th>% Asbestos Fibers</th>
<th>Non-Fibrous Components</th>
<th>% Non-asbestos Fibers</th>
</tr>
</thead>
<tbody>
<tr>
<td>75</td>
<td>8808.2-EJ-075</td>
<td>1</td>
<td>Yellow foamy material</td>
<td>None detected</td>
<td>Foam</td>
<td>None detected</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Yellow mastic</td>
<td>None detected</td>
<td>Mastic/binder</td>
<td>2</td>
</tr>
<tr>
<td>76</td>
<td>8808.2-EJ-076</td>
<td>1</td>
<td>White powdery material with paint</td>
<td>None detected</td>
<td>Binder, Filler, Paint</td>
<td>3</td>
</tr>
</tbody>
</table>

**Address:** PO Box 1446, Auburn, WA 98071-1446

**Date Analyzed:** 11/26/2018

**Samples Received:** 76

**Client:** Med-Tox, Northwest

**Date Received:** 11/21/2018

**Samples Analyzed:** 76

**Project #:** 12031 Northeast Totem Lake Way, Kirkland, WA

**Reviewed by:** Steve (Fayyes) Zhang, President

**Analyzed by:** Carolyn Yoe
Appendix F
Analytical Report- Lead
Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

<table>
<thead>
<tr>
<th>Client Sample Description</th>
<th>Collected</th>
<th>Analyzed</th>
<th>Weight</th>
<th>RDL</th>
<th>Lead Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>8808.2 - EJ - 01PB</td>
<td>11/14/2018</td>
<td>11/27/2018</td>
<td>0.213 g</td>
<td>94 ppm</td>
<td>&lt;94 ppm</td>
</tr>
<tr>
<td>Site: TOTEM LAKE RETAIL - ENTRY WAY; S WALL - WALL - GWB - BEIGE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2 - EJ - 02PB</td>
<td>11/14/2018</td>
<td>11/27/2018</td>
<td>0.2208 g</td>
<td>91 ppm</td>
<td>&lt;91 ppm</td>
</tr>
<tr>
<td>Site: TOTEM LAKE RETAIL - OFFICE 2; W WALL - WALL - GWB - GREEN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2 - EJ - 03PB</td>
<td>11/14/2018</td>
<td>11/27/2018</td>
<td>0.2082 g</td>
<td>96 ppm</td>
<td>&lt;96 ppm</td>
</tr>
<tr>
<td>Site: TOTEM LAKE RETAIL - CUSTODIAL CLOSET; S WALL - WALL - GWB - WHITE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2 - EJ - 04PB</td>
<td>11/14/2018</td>
<td>11/27/2018</td>
<td>0.2353 g</td>
<td>85 ppm</td>
<td>&lt;85 ppm</td>
</tr>
<tr>
<td>Site: TOTEM LAKE RETAIL - ENTRY WAY; W WALL - SIDING - WOOD - BROWN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2 - EJ - 05PB</td>
<td>11/14/2018</td>
<td>11/27/2018</td>
<td>0.2194 g</td>
<td>91 ppm</td>
<td>&lt;91 ppm</td>
</tr>
<tr>
<td>Site: TOTEM LAKE RETAIL - ENTRY WAY; N WALL - SIDING - WOOD - GRAY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2 - EJ - 06PB</td>
<td>11/14/2018</td>
<td>11/27/2018</td>
<td>0.2327 g</td>
<td>86 ppm</td>
<td>&lt;86 ppm</td>
</tr>
<tr>
<td>Site: TOTEM LAKE RETAIL - ENTRY WAY - 2ND LEVEL; N WALL - SIDING - WOOD - TAN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2 - EJ - 07PB</td>
<td>11/14/2018</td>
<td>11/27/2018</td>
<td>0.2449 g</td>
<td>82 ppm</td>
<td>&lt;82 ppm</td>
</tr>
<tr>
<td>Site: EXTERIOR - E WALL - WINDOW - WOOD - WHITE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2 - EJ - 08PB</td>
<td>11/14/2018</td>
<td>11/27/2018</td>
<td>0.2276 g</td>
<td>88 ppm</td>
<td>&lt;88 ppm</td>
</tr>
<tr>
<td>Site: EXTERIOR - W WALL - SIDING - WOOD - RED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2 - EJ - 09PB</td>
<td>11/14/2018</td>
<td>11/27/2018</td>
<td>0.2253 g</td>
<td>89 ppm</td>
<td>&lt;89 ppm</td>
</tr>
<tr>
<td>Site: EXTERIOR - DOOR FRAME - TRIM - WOOD - DARK RED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Analytical, Inc. Indianapolis, IN AIHA-LAP, LLC--ELLAP 157245, OH E10040
# Lead (Pb) Chain of Custody

**EMSL Order ID (Lab Use Only):**

**OrderID:** 161823205

### Company Information
- **Company:** Med-Tox Northwest
- **Address:** PO Box 1446, Auburn, WA 98001
- **Report To (Name):** Jon Havelock
- **Email Address:** havelock@medtoxnw.com, jasrav@medtoxnw.com
- **Project Name/Number:** Totem Lake / 8808.2
- **U.S. State Samples Taken:** WA

### Billing Information
- **EMSL-Bill to:** Different
- **Telephone #:** 253-351-0677
- **Fax #:** 253-351-0688
- **Country:** US

### Turnaround Time (TAT) Options

- **3 Hour**
- **6 Hour**
- **24 Hour**
- **48 Hour**
- **72 Hour**
- **96 Hour**
- **1 Week**
- **2 Week**

### Matrix Details

<table>
<thead>
<tr>
<th>Matrix</th>
<th>Method</th>
<th>Instrument</th>
<th>Reporting Limit</th>
<th>Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chips</td>
<td>SW846-7000B</td>
<td>Flame Atomic Absorption</td>
<td>0.01%</td>
<td>✔️</td>
</tr>
<tr>
<td>Air</td>
<td>NIOSH 7082</td>
<td>Flame Atomic Absorption</td>
<td>4 µg/filter</td>
<td>✔️</td>
</tr>
<tr>
<td></td>
<td>NIOSH 7105</td>
<td>Graphite Furnace AA</td>
<td>0.03 µg/filter</td>
<td>✔️</td>
</tr>
<tr>
<td></td>
<td>NIOSH 7300 modified</td>
<td>ICP-AES/ICP-MS</td>
<td>0.5 µg/filter</td>
<td>✔️</td>
</tr>
<tr>
<td>Wipe*</td>
<td>SW846-7000B</td>
<td>Flame Atomic Absorption</td>
<td>10 µg/wipe</td>
<td>✔️</td>
</tr>
<tr>
<td></td>
<td>SW846-6010B or C</td>
<td>ICP-AES</td>
<td>1.0 µg/wipe</td>
<td>✔️</td>
</tr>
<tr>
<td></td>
<td>SW846-7000B/7010</td>
<td>Graphite Furnace AA</td>
<td>0.075 µg/wipe</td>
<td>✔️</td>
</tr>
<tr>
<td>TCLP</td>
<td>SW846-1311/7000B/SM 3111B</td>
<td>Flame Atomic Absorption</td>
<td>0.4 mg/L (ppm)</td>
<td>✔️</td>
</tr>
<tr>
<td></td>
<td>SW846-1131/SW846-6010B or C</td>
<td>ICP-AES</td>
<td>0.1 mg/L (ppm)</td>
<td>✔️</td>
</tr>
<tr>
<td>Soil</td>
<td>SW846-7000B</td>
<td>Flame Atomic Absorption</td>
<td>40 mg/kg (ppm)</td>
<td>✔️</td>
</tr>
<tr>
<td></td>
<td>SW846-7010</td>
<td>Graphite Furnace AA</td>
<td>0.3 mg/kg (ppm)</td>
<td>✔️</td>
</tr>
<tr>
<td></td>
<td>SW846-6010B or C</td>
<td>ICP-AES</td>
<td>2 mg/kg (ppm)</td>
<td>✔️</td>
</tr>
<tr>
<td>Wastewater Unpreserved</td>
<td>SM3111B/SW846-7000B</td>
<td>Flame Atomic Absorption</td>
<td>0.4 mg/L (ppm)</td>
<td>✔️</td>
</tr>
<tr>
<td>Preserved with HNO₃ pH &lt; 2</td>
<td>EPA 200.9</td>
<td>Graphite Furnace AA</td>
<td>0.003 mg/L (ppm)</td>
<td>✔️</td>
</tr>
<tr>
<td></td>
<td>EPA 200.7</td>
<td>ICP-AES</td>
<td>0.020 mg/L (ppm)</td>
<td>✔️</td>
</tr>
<tr>
<td>Drinking Water Unpreserved</td>
<td>EPA 200.9</td>
<td>Graphite Furnace AA</td>
<td>0.003 mg/L (ppm)</td>
<td>✔️</td>
</tr>
<tr>
<td>Preserved with HNO₃ pH &lt; 2</td>
<td>EPA 200.8</td>
<td>ICP-MS</td>
<td>0.001 mg/L (ppm)</td>
<td>✔️</td>
</tr>
<tr>
<td>TSP/SPM Filter</td>
<td>40 CFR Part 50</td>
<td>ICP-AES</td>
<td>12 µg/filter</td>
<td>✔️</td>
</tr>
<tr>
<td></td>
<td>40 CFR Part 50</td>
<td>Graphite Furnace AA</td>
<td>3.6 µg/filter</td>
<td>✔️</td>
</tr>
</tbody>
</table>

### Other Details
- **Name of Sampler:** Eric Jarvis
- **Signature of Sampler:**

### Sample Information

<table>
<thead>
<tr>
<th>Sample #</th>
<th>Location</th>
<th>Volume/Area</th>
<th>Date/Time Sampled</th>
</tr>
</thead>
<tbody>
<tr>
<td>8808.2-EJ-01Pb</td>
<td>See attached Table</td>
<td></td>
<td>11-14-18 / 1500</td>
</tr>
<tr>
<td></td>
<td>Through</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8808.2-EJ-09Pb</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Client Sample #s

- **Client Sample #s:** 8808.2-EJ-01Pb to 09Pb
- **Total # of Samples:** 9

### Relinquished (Client):

- **Date:** 11/20/18
- **Time:** 12:30

### Received (Lab):

- **Date:** 11/21/18
- **Time:** 10:00

**Comments:**

---

Page 1 of 2
# Table 3. Summary of Bulk Paint Chip Sample Results

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Location</th>
<th>Component</th>
<th>Substrate</th>
<th>Color</th>
<th>Result (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Totem Lake Retail</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2-EJ-01Pb</td>
<td>Entry way; S wall</td>
<td>Wall</td>
<td>GWB</td>
<td>Beige</td>
<td></td>
</tr>
<tr>
<td>8808.2-EJ-02Pb</td>
<td>Office 2; W wall</td>
<td>Wall</td>
<td>GWB</td>
<td>Green</td>
<td></td>
</tr>
<tr>
<td>8808.2-EJ-03Pb</td>
<td>Custodial closet; S wall</td>
<td>Wall</td>
<td>GWB</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td>8808.2-EJ-04Pb</td>
<td>Entry way; W wall</td>
<td>Siding</td>
<td>Wood</td>
<td>Brown</td>
<td></td>
</tr>
<tr>
<td>8808.2-EJ-05Pb</td>
<td>Entry way; N wall</td>
<td>Siding</td>
<td>Wood</td>
<td>Gray</td>
<td></td>
</tr>
<tr>
<td>8808.2-EJ-06Pb</td>
<td>Entry way – 2nd level; N wall</td>
<td>Siding</td>
<td>Wood</td>
<td>Tan</td>
<td></td>
</tr>
<tr>
<td><strong>Exterior</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2-EJ-07Pb</td>
<td>E Wall</td>
<td>Window</td>
<td>Wood</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td>8808.2-EJ-08Pb</td>
<td>W wall</td>
<td>Siding</td>
<td>Wood</td>
<td>Red</td>
<td></td>
</tr>
<tr>
<td>8808.2-EJ-09Pb</td>
<td>Door frame</td>
<td>Trim</td>
<td>Wood</td>
<td>Dark Red</td>
<td></td>
</tr>
</tbody>
</table>

GWB = gypsum wallboard, ppm = parts per million. **Bolded values** – bulk paint chip samples with lead detected above the laboratory reporting limit have been bolded. The Washington Industrial Safety and Health Administration (WISHA) worker protection regulations have stated that lead at any detectable concentration shall be considered regulated (Washington Administrative Code [WAC] 296-155-176, Lead).
Appendix G
EMSL Analytical, Inc. Laboratory
Certifications
AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.
6340 Castleplace Drive, Indianapolis, IN 46250
Laboratory ID: 157245

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, General Requirements for the Competence of Testing and Calibration Laboratories in the following:

LABORATORY ACCREDITATION PROGRAMS

✓ INDUSTRIAL HYGIENE  Accreditation Expires: June 01, 2019
✓ ENVIRONMENTAL LEAD  Accreditation Expires: June 01, 2019
✓ ENVIRONMENTAL MICROBIOLOGY  Accreditation Expires: June 01, 2019
☐ FOOD  Accreditation Expires:
☐ UNIQUE SCOPES  Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached Scope of Accreditation. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached Scope of Accreditation. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

William Walsh, CIH
Chairperson, Analytical Accreditation Board

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 15: 03/30/2016  Date Issued: 05/31/2017
The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory’s current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

The EPA recognizes the AIHA-LAP, LLC ELLAP program as meeting the requirements of the National Lead Laboratory Accreditation Program (NLLAP) established under Title X of the Residential Lead-Based Paint Hazard Reduction Act of 1992 and includes paint, soil and dust wipe analysis. Air and composited wipes analyses are not included as part of the NLLAP.

### Environmental Lead Laboratory Accreditation Program (ELLAP)

**Initial Accreditation Date:** 09/01/2002

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</table>

A complete listing of currently accredited Environmental Lead laboratories is available on the AIHA-LAP, LLC website at: [http://www.aihaaccreditedlabs.org](http://www.aihaaccreditedlabs.org)
Appendix H
Analytical Results – PCBs
November 28, 2018

Jon Havelock  
MED-TOX  
P.O. Box 1146  
Auburn, WA 98071

Re: Analytical Data for Project 8808.2  
Laboratory Reference No. 1811-194

Dear Jon:

Enclosed are the analytical results and associated quality control data for samples submitted on November 21, 2018.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

[Signature]

David Baumeister  
Project Manager

Enclosures
Date of Report: November 28, 2018
Samples Submitted: November 21, 2018
Laboratory Reference: 1811-194
Project: 8808.2

Case Narrative

Samples were collected on November 14, 2018 and received by the laboratory on November 21, 2018. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.
This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

**PCBs EPA 8082A**

**Matrix:** Solid  
**Units:** mg/Kg (ppm)

<table>
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<th>Analyte</th>
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<th>PQL</th>
<th>Method</th>
<th>Date Prepared</th>
<th>Date Analyzed</th>
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**Surrogate:** Percent Recovery  87  Control Limits  39-130

**Client ID:** 8808.2-EJ-02PCB  
**Laboratory ID:** 11-194-02

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**Surrogate:** Percent Recovery  92  Control Limits  39-130

**Client ID:** 8808.2-EJ-03PCB  
**Laboratory ID:** 11-194-03

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**Surrogate:** Percent Recovery  93  Control Limits  39-130
Date of Report: November 28, 2018  
Samples Submitted: November 21, 2018  
Laboratory Reference: 1811-194  
Project: 8808.2  

**PCBs EPA 8082A**

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**Surrogate:**  
**Percent Recovery**  
**Control Limits**  

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Date of Report: November 28, 2018  
Samples Submitted: November 21, 2018  
Laboratory Reference: 1811-194  
Project: 8808.2

PCBs EPA 8082A  
QUALITY CONTROL

Matrix: Soil  
Units: mg/Kg (ppm)

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Surrogate:  
DCB  
Percent Recovery  Control Limits
82    39-130

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<th>Source Result</th>
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Surrogate:  
DCB  
85    84    39-130
Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
B - The analyte indicated was also found in the blank sample.
C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
E - The value reported exceeds the quantitation range and is an estimate.
F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
I - Compound recovery is outside of the control limits.
J - The value reported was below the practical quantitation limit. The value is an estimate.
K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
L - The RPD is outside of the control limits.
M - Hydrocarbons in the gasoline range are impacting the diesel range result.
M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
N - Hydrocarbons in the lube oil range are impacting the diesel range result.
N1 - Hydrocarbons in diesel range are impacting lube oil range results.
O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
P - The RPD of the detected concentrations between the two columns is greater than 40.
Q - Surrogate recovery is outside of the control limits.
S - Surrogate recovery data is not available due to the necessary dilution of the sample.
T - The sample chromatogram is not similar to a typical ____________.
U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
U1 - The practical quantitation limit is elevated due to interferences present in the sample.
V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
X - Sample extract treated with a mercury cleanup procedure.
X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
Z -
ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference
Appendix I
OnSite Environmental Laboratory Accreditation
OnSite Environmental, Inc.
Redmond, WA

has complied with provisions set forth in Chapter 173-50 WAC and is hereby recognized by the
Department of Ecology as an ACCREDITED LABORATORY for the analytical parameters
listed on the accompanying Scope of Accreditation. This certificate is effective July 27, 2018
and shall expire July 26, 2019.

Witnessed under my hand on August 10, 2018

Rebecca Wood
Lab Accreditation Unit Supervisor

Laboratory ID
C591
Appendix J
Sample and Material Location Drawing
May 15, 2019

Mr. Vance Atkins
O’Neill Service Group
17619 Northeast 67th Court, Suite 100
Redmond, Washington 98052

Subject: Destructive Investigation Survey Update
12031 Northeast Totem Lake Way
Kirkland, Washington
Med-Tox Northwest Proposal No. 8808.2Arev

Dear Vance:

On April 2, 2019 and May 9, 2019, Anthony Fullerton, Eric Jarvis and Jason Carlson of Med-Tox Northwest (MTNW) conducted a follow-up survey to address the limitations identified in the Hazardous Building Survey Report dated December 2018 for 12031 Northeast Totem Lake Way in Kirkland, Washington. The initial survey for the building was conducted on November 14, 2018.

As required by Washington Administrative Code (WAC) 296-62-077 and Puget Sound Clean Air Agency (PSCAA) Regulation III, Article 4, an Asbestos Hazard Emergency Response Act (AHERA) accredited building inspectors performed the survey. Copies of the inspectors AHERA building inspector certificates are attached.

As part of this investigation, MTNW performed the following:

1. Drilled into the doors and door frames to determine if suspect fire protection was located inside.
2. Performed destructive investigation inside wall and ceiling cavities to verify suspect asbestos was not hidden or present.
3. Performed destructive investigation to verify if additional layers of flooring suspected of containing asbestos were not hidden or present.
4. Inspected and sampled the roof and systems found on the roof for asbestos.
5. Inspected and sampled electrical systems.

There were twelve homogenous materials (HM) identified during the follow-up surveys. From these twelve materials, twenty-six samples were collected and sent in for laboratory analysis. There were two materials determined to be asbestos-containing by polarized light microscopy (PLM) analysis. Black sealant on the heating, ventilation and air conditioning (HVAC) ductwork (HM-02) was found to contain 3% - 4% Chrysotile asbestos. Gray sealant on ductwork (HM-04) was found to contain 3% Chrysotile asbestos.
Photographic documentation of the asbestos-containing materials is attached. For a complete listing of suspect materials sampled please refer to Table 1 below.

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<th>Material</th>
<th>Location</th>
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<th>HM</th>
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<td>Vapor barrier under corrugated roof</td>
<td>Roof</td>
<td>Miscellaneous</td>
<td>08</td>
<td>ND</td>
</tr>
<tr>
<td>8808.2a-EJ-018</td>
<td>Vapor barrier under corrugated roof</td>
<td>Roof</td>
<td>Miscellaneous</td>
<td>08</td>
<td>ND</td>
</tr>
<tr>
<td>8808.2a-EJ-019</td>
<td>Vapor barrier</td>
<td>Parapet</td>
<td>Miscellaneous</td>
<td>09</td>
<td>ND</td>
</tr>
<tr>
<td>8808.2a-EJ-020</td>
<td>Vapor barrier</td>
<td>Parapet</td>
<td>Miscellaneous</td>
<td>09</td>
<td>ND</td>
</tr>
</tbody>
</table>
CHR = Chrysotile asbestos, HM = homogeneous material, HVAC = heating, ventilation and air conditioning, ND = None detected.

Bulk samples were analyzed by PLM dispersion staining U.S. Environmental Protection Agency (EPA) Method 600/R-93/116 by Seattle Asbestos Test, LLC. (SAT). SAT is accredited through the National Voluntary Laboratory Accreditation Program (NVLAP) of the U.S. Department of Commerce. This accreditation does not constitute endorsement, but rather a finding of laboratory competence (certification copy is attached).

Table 2 summarizes asbestos containing materials identified in the building surveyed by MTNW. Friability was determined by conditions observed during the survey and by how the material behaves during mechanical demolition.

Table 2. Summary of Asbestos-Containing Materials

<table>
<thead>
<tr>
<th>Material</th>
<th>Location</th>
<th>Friability</th>
<th>Quantity¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black sealant on HVAC duct (HM-02)</td>
<td>Roof</td>
<td>Non-friable</td>
<td>60 LF</td>
</tr>
<tr>
<td>Gray sealant on duct (HM-04)</td>
<td>Roof</td>
<td>Non-friable</td>
<td>60 LF</td>
</tr>
</tbody>
</table>

¹ Material quantity is approximate.
COMMENTS AND RECOMMENDATIONS

The asbestos-containing materials identified in Table 2 must be removed by a certified abatement contractor prior to demolition or renovation activities that may disturb the materials.

A good faith effort has been made by Med-Tox Northwest to identify hazardous materials, which could be impacted during the renovation and/or demolition process.

Although not expected, additional suspect materials may become visible during the renovation and/or demolition process. If additional suspect materials become visible, they must be sampled by an AHERA building inspector, analyzed by an accredited laboratory and determined to be negative for asbestos prior to any activities that will impact them. If determined to be asbestos-containing they must be removed by a certified asbestos-abatement contractor.

WAC 296-65 requires asbestos-containing material (ACM) be removed by trained and licensed contractors using certified asbestos abatement workers and supervisors (except for deregulated roofing sealants, mastics, and coatings). A 10-day prior notification is also required before abatement can begin. In addition, PSCAA requires notification and fees prior to beginning removal of friable ACM.

MTNW recommends that this survey report be placed on-site during renovation and/or demolition process and copies provided to the contractor(s) bidding and performing work. Washington Industrial Safety and Health Act (WISHA), Occupational Safety and Health Administration’s (OSHA) and PSCAA require that the report be on-site and available for review during the entire project duration.

If you have any questions or need additional information, please contact us at (253) 351-0677.

Sincerely,

Eric Jarvis

Med-Tox Northwest
P.O. Box 1446
Auburn, Washington 98071
Office: (253)351-0677
Cell: (253)830-4080
Email: jarvise@medtoxnw.com

Attachments
Photo 1: Black sealant on HVAC duct with 3-4% Chrysotile asbestos – Roof.

Photo 2: Gray sealant on duct with 3% Chrysotile asbestos – Roof.
Enclosed please find the test results for the bulk samples submitted to our laboratory for asbestos analysis. Analysis was performed using polarized light microscopy (PLM) in accordance with Test Method US EPA 600/R-93/116.

Percentages for this report are done by visual estimate and relate to the suggested acceptable error ranges by the method. Since variation in data increases as the quantity of asbestos decreases toward the limit of detection, the EPA recommends point counting for samples containing between <1% and 10% asbestos (NESHAP, 40 CFR Part 61). Statistically, point counting is a more accurate method. If you feel a point count might be beneficial, please feel free to call and request one.

The test results refer only to the samples or items submitted and tested. The accuracy with which these samples represent the actual materials is totally dependent on the acuity of the person who took the samples. This report must not be used by the client to claim product certification, approval, or endorsement by Seattle Asbestos Test, LLC, NVLAP, NIST, or any agency of the Federal government. The test report or calibration certificate shall not be reproduced except in full, without written approval of the laboratory.

This report is highly confidential and will not be released without your consent. Samples are archived for 30 days after the analysis, and disposed of as hazardous waste thereafter.

Thank you for using our service and let us know if we can further assist you.

Sincerely

Zhang

Steve (Fanyao) Zhang
President
SEATTLE ASBESTOS TEST, LLC  
19711 Serrano Lake Rd. Suite D, Lynnwood, WA 98036  
Tel: (425) 673-9850, Fax: (425) 673-9810  
Website: seattleasbestostest.com  

CHAIN OF CUSTODY

Analysis Type: Bulk Analysis X  
Point Count 400  
Point Count 1000  
Point Count Gravimetric  

Turn Around Time 24 Hour  
Number of Samples 20  
Client Job # 8808.2a  

Client Name Med-Tox Northwest  
Address Post Office Box 1446  
City Auburn  
State WA  
Zip 98071-1446  
Phone 253-351-0677  
Fax 253-351-0688  
Email havelocki@medtoxnw.com & jarvise@medtoxnw.com  

Project Location 12031 Northeast Totem Lake Way, Kirkland WA  
Project Manager Jon Havelock  

Sample Condition: Good Damaged Severe Damage(Spillage)

<table>
<thead>
<tr>
<th>SEQ#</th>
<th>SAMPLE ID</th>
<th>SAMPLE DESCRIPTION</th>
<th>Lab ID</th>
<th>Comment</th>
<th>A/R</th>
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<td>8808.2a-EJ-001</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Through</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>8808.2a-EJ-020</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>7</td>
<td></td>
<td>SEE ATTACHED TABLE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
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<tr>
<td>15</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Sampled by Eric Jarvis  
Relinquished by Eric Jarvis  
Delivered by  
Received by  
Analyzed by  
Result reported by  

Seattle Asbestos Test warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted, and disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. Seattle Asbestos Test accepts no legal responsibility for the purpose for which the client uses test results. By signing on this form, the clients agree to relieve Seattle Asbestos Test of any liability that may arise from the test results. Late payment may be charged of interest, invoices goes to collection causes 17-22% of collection fee. NSF is $50.

Result Reporting method:  
Phone  
Fax  
Email X  
Pick Up Report  

BATCH # 01/9/009
Table C-1. Summary of Materials Sampled for Asbestos

<table>
<thead>
<tr>
<th>Sample</th>
<th>Material</th>
<th>Location</th>
<th>AHERA Type</th>
<th>HM</th>
<th>Result</th>
</tr>
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<tbody>
<tr>
<td>Totem Lake Retail</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-001</td>
<td>White laminate wallboard</td>
<td>Conference room, North wall</td>
<td>Miscellaneous</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-002</td>
<td>with yellow adhesive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-003</td>
<td>Black sealant on HVAC</td>
<td>Roof</td>
<td>Miscellaneous</td>
<td>02</td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-004</td>
<td>duct</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-005</td>
<td>Silver coating on duct</td>
<td>Roof</td>
<td>Miscellaneous</td>
<td>03</td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-006</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-007</td>
<td>Silver coating on duct</td>
<td>Roof</td>
<td>Miscellaneous</td>
<td>03</td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-008</td>
<td>Gray sealant on duct</td>
<td>Roof</td>
<td>Miscellaneous</td>
<td>04</td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-009</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-010</td>
<td>Black vibration damper</td>
<td>Roof</td>
<td>Miscellaneous</td>
<td>05</td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-011</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-012</td>
<td>Black vibration damper</td>
<td>Roof</td>
<td>Miscellaneous</td>
<td>05</td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-013</td>
<td>Black tar</td>
<td>Parapet</td>
<td>Miscellaneous</td>
<td>06</td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-014</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-015</td>
<td>Roof core</td>
<td>Roof</td>
<td>Miscellaneous</td>
<td>07</td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-016</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-017</td>
<td>Vapor barrier under</td>
<td>Roof</td>
<td>Miscellaneous</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-018</td>
<td>corrugated roof</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-019</td>
<td>Vapor barrier</td>
<td>Parapet</td>
<td>Miscellaneous</td>
<td>09</td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-020</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

CHR = Chrysotile asbestos, HM = homogeneous material.
# Analytical Laboratory Report

**PLM by Method EPA/600/R-93/116**

<table>
<thead>
<tr>
<th>Lab ID</th>
<th>Client Sample ID</th>
<th>Layer</th>
<th>Description</th>
<th>% Asbestos Fibers</th>
<th>Non-fibrous Components</th>
<th>% Non-asbestos Fibers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8808.2a-EJ-001</td>
<td>1</td>
<td>White brittle/rigid material with fibrous material and paint</td>
<td>None detected</td>
<td>Filler, Binder, Fine particles, Paint</td>
<td>68 Cellulose, Glass fibrous</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Yellow mastic</td>
<td>None detected</td>
<td>Mastic/binder</td>
<td>4 Cellulose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>White chalky material with paper</td>
<td>None detected</td>
<td>Binder/filler, Gypsum/binder</td>
<td>25 Cellulose</td>
</tr>
<tr>
<td>2</td>
<td>8808.2a-EJ-002</td>
<td>1</td>
<td>White brittle/rigid material with fibrous material and paint</td>
<td>None detected</td>
<td>Filler, Binder, Fine particles, Paint</td>
<td>62 Cellulose, Glass fibrous</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Yellow mastic</td>
<td>None detected</td>
<td>Mastic/binder</td>
<td>3 Cellulose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>White chalky material with paper</td>
<td>None detected</td>
<td>Binder/filler, Gypsum/binder</td>
<td>27 Cellulose</td>
</tr>
<tr>
<td>3</td>
<td>8808.2a-EJ-003</td>
<td>1</td>
<td>Black asphalitic material</td>
<td>3 Chrysotile</td>
<td>Asphalt/binder</td>
<td>3 Cellulose</td>
</tr>
<tr>
<td></td>
<td>8808.2a-EJ-004</td>
<td>1</td>
<td>Black asphalitic material</td>
<td>4 Chrysotile</td>
<td>Asphalt/binder</td>
<td>3 Cellulose</td>
</tr>
<tr>
<td>5</td>
<td>8808-2a-EJ-005</td>
<td>1</td>
<td>Silver paint</td>
<td>None detected</td>
<td>Paint, Filler</td>
<td>4 Cellulose</td>
</tr>
<tr>
<td>6</td>
<td>8808-2a-EJ-006</td>
<td>1</td>
<td>Silver paint</td>
<td>None detected</td>
<td>Paint, Filler</td>
<td>3 Cellulose</td>
</tr>
<tr>
<td>7</td>
<td>8808-2a-EJ-007</td>
<td>1</td>
<td>Silver paint</td>
<td>None detected</td>
<td>Paint, Filler</td>
<td>4 Cellulose</td>
</tr>
<tr>
<td>8</td>
<td>8808-2a-EJ-008</td>
<td>1</td>
<td>Gray/silver brittle material</td>
<td>3 Chrysotile</td>
<td>Filler, Binder</td>
<td>2 Cellulose</td>
</tr>
<tr>
<td>9</td>
<td>8808-2a-EJ-009</td>
<td>1</td>
<td>Gray/silver brittle material</td>
<td>3 Chrysotile</td>
<td>Filler, Binder</td>
<td>2 Cellulose</td>
</tr>
<tr>
<td>10</td>
<td>8808-2a-EJ-010</td>
<td>1</td>
<td>Black soft/elastic material with woven fibrous material</td>
<td>None detected</td>
<td>Binder, Filler</td>
<td>20 Synthetic fibers</td>
</tr>
<tr>
<td>11</td>
<td>8808-2a-EJ-011</td>
<td>1</td>
<td>Black soft/elastic material with woven fibrous material</td>
<td>None detected</td>
<td>Binder, Filler</td>
<td>21 Synthetic fibers</td>
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<tr>
<td>12</td>
<td>8808-2a-EJ-012</td>
<td>1</td>
<td>Clear soft/elastic material</td>
<td>None detected</td>
<td>Binder, Filler</td>
<td>3 Cellulose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Black soft/elastic material with woven fibrous material</td>
<td>None detected</td>
<td>Binder, Filler</td>
<td>20 Synthetic fibers</td>
</tr>
<tr>
<td>13</td>
<td>8808-2a-EJ-013</td>
<td>1</td>
<td>Black asphalitic material with fibrous material</td>
<td>None detected</td>
<td>Asphalt/binder, Filler</td>
<td>28 Synthetic fibers, Cellulose</td>
</tr>
</tbody>
</table>
### SEATTLE ASBESTOS TEST

**Lynnwood Laboratory:** 19701 Sorber Lake Road, Suite 103, Lynnwood, WA 98036, Tel: 425.673.9850, Fax: 425.673.9810, NVLAP Lab Code: 200768-1

Disclaimer: This report must not be used by the client to claim product certification, approval, or endorsement by Seattle Asbestos Test, LLC, NVLAP, NIST, or any agency of the Federal government.

**ANALYTICAL LABORATORY REPORT**

**PLM by Method EPA/600/R-93/116**

<table>
<thead>
<tr>
<th>Client</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Med-Tox, Northwest</td>
<td>PO Box 1446, Auburn, WA 98071-1446</td>
</tr>
</tbody>
</table>

| samples received: 20 | analyzed: 20 |
| 12031 Northeast Totem Lake Way, Kirkland, WA |

<table>
<thead>
<tr>
<th>Lab ID</th>
<th>Client Sample ID</th>
<th>Layer</th>
<th>Description</th>
<th>Asbestos Fibers</th>
<th>Non-asbestos Components</th>
<th>%</th>
<th>Non-asbestos fibers</th>
</tr>
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<tbody>
<tr>
<td>14</td>
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<td>1</td>
<td>Black asphaltic material with fibrous material</td>
<td>None detected</td>
<td>Asphalt/binder, Filler</td>
<td>27</td>
<td>Synthetic fibers, Cellulose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Black asphaltic material with sand</td>
<td>None detected</td>
<td>Asphalt/binder, Sand</td>
<td>24</td>
<td>Glass fibers</td>
</tr>
<tr>
<td>15</td>
<td>8808-2a-EJ-015</td>
<td>1</td>
<td>Black asphaltic material</td>
<td>None detected</td>
<td>Asphalt/binder</td>
<td>3</td>
<td>Cellulose</td>
</tr>
<tr>
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<td>Black asphaltic material with fibrous material</td>
<td>None detected</td>
<td>Asphalt/binder, Filler</td>
<td>25</td>
<td>Synthetic fibers, Cellulose</td>
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<tr>
<td></td>
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<td>3</td>
<td>Black asphaltic fibrous material</td>
<td>None detected</td>
<td>Filler, Asphalt, Binder</td>
<td>70</td>
<td>Cellulose</td>
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<td></td>
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<td>4</td>
<td>Brown fibrous material</td>
<td>None detected</td>
<td>Binder, Filler, Perlite</td>
<td>82</td>
<td>Cellulose</td>
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<td>16</td>
<td>8808-2a-EJ-016</td>
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<td>None detected</td>
<td>Asphalt/binder</td>
<td>3</td>
<td>Cellulose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>Black asphaltic material with fibrous material</td>
<td>None detected</td>
<td>Asphalt/binder, Filler</td>
<td>21</td>
<td>Synthetic fibers, Cellulose</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>Black asphaltic fibrous material</td>
<td>None detected</td>
<td>Filler, Asphalt, Binder</td>
<td>69</td>
<td>Cellulose</td>
</tr>
<tr>
<td></td>
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<td>Brown fibrous material</td>
<td>None detected</td>
<td>Binder, Filler, Perlite</td>
<td>80</td>
<td>Cellulose</td>
</tr>
<tr>
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<td>8808-2a-EJ-017</td>
<td>1</td>
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<td>None detected</td>
<td>Binder, Filler, Perlite</td>
<td>77</td>
<td>Cellulose</td>
</tr>
<tr>
<td>18</td>
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<td>Brown fibrous material</td>
<td>None detected</td>
<td>Binder, Filler, Perlite</td>
<td>75</td>
<td>Cellulose</td>
</tr>
<tr>
<td>19</td>
<td>8808-2a-EJ-019</td>
<td>1</td>
<td>Black asphaltic fibrous material</td>
<td>None detected</td>
<td>Filler, Asphalt, Binder</td>
<td>70</td>
<td>Cellulose</td>
</tr>
<tr>
<td>20</td>
<td>8808-2a-EJ-020</td>
<td>1</td>
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<td>None detected</td>
<td>Filler, Asphalt, Binder</td>
<td>72</td>
<td>Cellulose</td>
</tr>
</tbody>
</table>
Enclosed please find the test results for the bulk samples submitted to our laboratory for asbestos analysis. Analysis was performed using polarized light microscopy (PLM) in accordance with Test Method US EPA/600/R-93/110.

Percentages for this report are done by visual estimate and relate to the suggested acceptable error ranges by the method. Since variation in data increases as the quantity of asbestos decreases toward the limit of detection, the EPA recommends point counting for samples containing between <1% and 1% asbestos (NESHAP, 40 CFR Part 61). Statistically, point counting is a more accurate method. If you feel a point count might be beneficial, please feel free to call and request one.

The test results refer only to the samples or items submitted and tested. The accuracy with which these samples represent the actual materials is totally dependent on the acuity of the person who took the samples. This report must not be used by the client to claim product certification, approval, or endorsement by Seattle Asbestos Test, LLC, NVLAP, NIST, or any agency of the Federal government. The test report or calibration certificate shall not be reproduced except in full, without written approval of the laboratory.

This report is highly confidential and will not be released without your consent. Samples are archived for 30 days after the analysis, and disposed of as hazardous waste thereafter.

Thank you for using our service and let us know if we can further assist you.

Sincerely,

Steve (Fanyeo) Zhang
President
### Chain of Custody

- Quick Asbestos: 1 Day
- 1 Hour
- 2 Hours
- Same day (4 to 6 Hrs.)

Tel: 253-351-0677
Fax:

# of Samples: 6
Job#: RS08.2a
Project Location: Totem Lake Way

Project Manager: Jari
Cell: 253-351-0677
Email: jari@medtronw.com

### Sample Information

<table>
<thead>
<tr>
<th>SEQ#</th>
<th>CLIENT SAMPLE #</th>
<th>SAMPLE DESCRIPTION</th>
<th>LOCATION</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RS08.2a-E5-021</td>
<td>Black wire jacket</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>E5-022</td>
<td>Black wire jacket</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>E5-023</td>
<td>Brown paper inside electrical panel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>E5-024</td>
<td>Brown paper inside electrical panel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>E5-025</td>
<td>Black plastic circuit breaker</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>E5-026</td>
<td>Black plastic circuit breaker</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Acknowledgments

Print Name: ERIC JARVIS
Signature: [Signature]
Company: MED TOX NW
Date: 5-9-19
Time: 10:30

Received by: Carolyn Yee
Delivered by: Carolyn Yee
Analysis by: Carolyn Yee
Reported by: Carolyn Yee

Seattle Asbestos Test warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted and disclaims any other warranties, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. Seattle Asbestos Test accepts no legal responsibility for the purpose for which the client uses the test results. By signing on this form, the client agrees to relieve Seattle Asbestos Test of any liability that may arise from the test results. It is the client's responsibility to make sure the samples are appropriately taken according to federal and local regulations. Invoices paid late may be charged of interest, and invoices go to collection may be charged 17% to 25% of collection fee. NSF checks will be charged of $50.

Results recording method:
- Phone
- Fax
- Email
- Pick-up

- Composite all wallboard samples
- Text result to phone
- Print count: ....% or less asbestos

Page 1 of 1
Table 1. Summary of Materials Sampled for Asbestos

<table>
<thead>
<tr>
<th>Sample</th>
<th>Material</th>
<th>Location</th>
<th>AHERA Type</th>
<th>HM</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>8808.2a-EJ-021</td>
<td>Black wire jacket</td>
<td>Electrical room; south electrical panel</td>
<td>Miscellaneous</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-022</td>
<td>Black wire jacket</td>
<td>Electrical room; south electrical panel</td>
<td>Miscellaneous</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-023</td>
<td>Brown paper breaker backing</td>
<td>Electrical room; east electrical panel</td>
<td>Miscellaneous</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-024</td>
<td>Brown paper breaker backing</td>
<td>Electrical room; east electrical panel</td>
<td>Miscellaneous</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-025</td>
<td>Black plastic circuit break</td>
<td>Electrical room; west electrical panel</td>
<td>Miscellaneous</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>8808.2a-EJ-026</td>
<td>Black plastic circuit breaker</td>
<td>Electrical room; west electrical panel</td>
<td>Miscellaneous</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

CHR = Chrysotile asbestos, HM = homogenous material, ND = None detected
## Analytical Laboratory Report

**PLM by Method EPA/690/R-93/116**

**SEATTLE ASBESTOS TEST**  
Seattle Laboratory: 4500 9th Ave. NE, Suite 300, Seattle, WA 98105, Tel: 206.633.1111, Fax: 206.633.4747, NVLAP Lab Code: 201057-0  
Disclaimer: This report must not be used by the client to claim product certification, approval, or endorsement by Seattle Asbestos Test, LLC, NVLAP, NIST, or any agency of the Federal government.

**Att.: Mr. Jon Havelock**  
**Job#:** 8808.2a

<table>
<thead>
<tr>
<th>Lab ID</th>
<th>Client Sample ID</th>
<th>Layer</th>
<th>Description</th>
<th>Asbestos Fibers</th>
<th>Non-fibrous Components</th>
<th>%</th>
<th>Non-asbestos Fibers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8808.2a-EJ-021</td>
<td>1</td>
<td>Black rubbery material</td>
<td>None detected</td>
<td>Rubber/binder</td>
<td>2</td>
<td>Cellulose</td>
</tr>
<tr>
<td>2</td>
<td>8808.2a-EJ-022</td>
<td>1</td>
<td>Black rubbery material</td>
<td>None detected</td>
<td>Rubber/binder</td>
<td>3</td>
<td>Cellulose</td>
</tr>
<tr>
<td>3</td>
<td>8808.2a-EJ-023</td>
<td>1</td>
<td>Brown paper</td>
<td>None detected</td>
<td>Filler</td>
<td>77</td>
<td>Cellulose</td>
</tr>
<tr>
<td>4</td>
<td>8808.2a-EJ-024</td>
<td>1</td>
<td>Brown paper</td>
<td>None detected</td>
<td>Filler</td>
<td>78</td>
<td>Cellulose</td>
</tr>
<tr>
<td>5</td>
<td>8808.2a-EJ-025</td>
<td>1</td>
<td>Black hard material</td>
<td>None detected</td>
<td>Binder, Filler</td>
<td>4</td>
<td>Cellulose</td>
</tr>
<tr>
<td>6</td>
<td>8808.2a-EJ-026</td>
<td>1</td>
<td>Black hard material</td>
<td>None detected</td>
<td>Binder, Filler, Wood debris</td>
<td>5</td>
<td>Cellulose, Glass fibers</td>
</tr>
</tbody>
</table>

**Address:** PO Box 1445, Auburn, WA 98007-1446  
**Date Received:** 5/9/2019  
**Samples Analyzed:** 6  
**Date Analyzed:** 5/10/2019  
**Project Loc.:** Totem Lake Way  
**Reviewed by:** Steve (Fajian) Zhang, President  
**Signed:** [Signature]  
**Prepared by:** Carolyn Yed
United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 200768-0

Seattle Asbestos Test, LLC
Lynnwood, WA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).

2018-10-01 through 2019-09-30

Effective Dates

For the National Voluntary Laboratory Accreditation Program
Certificate of Completion

This is to certify that

Anthony L. Fullerton

has satisfactorily completed
4 hours of refresher training as an
AHERA Building Inspector

to comply with the training requirements of
TSCA Title II, 40 CFR 763 (AHERA)

EPA Provider # 1085

169219
Certificate Number

Aug 29, 2018
Date(s) of Training

Exam Score: N/A
Expires in 1 year.

Instructor

ARGUS PACIFIC, INC / 1900 WEST NICKERSON ST, SUITE 315 / SEATTLE, WASHINGTON 98119 / 206.285.3373 / ARGUSPACIFIC.COM
Certificate of Completion

This is to certify that

Eric T. Jarvis

has satisfactorily completed
24 hours of training as an
AHERA Building Inspector

to comply with the training requirements of
TSCA Title II, 40 CFR 763 (AHERA)

EPA Provider # 1085

Certificate Number 169779

Oct 15 - 17, 2018 Expires in 1 year.

Date(s) of Training

Exam Score: 88%

ARGUS PACIFIC TRAINING+CONSULTING A Terracon Company

ARGUS PACIFIC, INC / 21905 64th AVE W, SUITE 100 / MOUNTLAKE TERRACE, WASHINGTON 98043 / 206.285.3373 / ARGUSPACIFIC.COM
Certificate of Completion

This is to certify that

Jason S. Carlson

has satisfactorily completed
4 hours of refresher training as an
AHERA Building Inspector

to comply with the training requirements of
TSCA Title II, 40 CFR 763 (AHERA)

EPA Provider # 1085

169363
Certificate Number

Sep 12, 2018
Expires in 1 year.

Date(s) of Training

Exam Score: N/A

ARGUS PACIFIC
TRAINING-CONSULTING
A Terragon Company

Instructor

ARGUS PACIFIC, INC / 1900 WEST NICKERSON ST, SUITE 315 / SEATTLE, WASHINGTON 98119 / 206.285.3373 / ARGUSPACIFIC.COM