PORT OF TACOMA

TACOMA, WASHINGTON

PARCEL 117 CRITICAL SITE REDEVELOPMENT SNAIL ERADICATION

PROCUREMENT NO. 022026-1019

PROJECT NO. 101690.01

CONTRACT NO. PA000000411

Thais Howard, PE

Sr. Director, Engineering

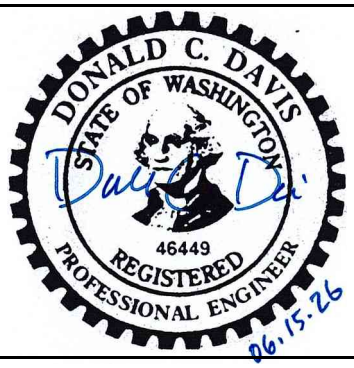
Elly Bulega, PE

Project Manager

END OF SECTION

The undersigned Engineer of Record hereby certifies that the Technical Specifications for the following portions of this project were written by me, or under my direct supervision, and that I am duly registered under the laws of the State of Washington, and hereby affix my Professional Seal and signature.

Those Sections prepared under my direct supervision and being certified by my seal and signature below are as follows:

SEAL & SIGNATURE	SECTION(S)
	01 57 13 ESC and CSWPPP 02 41 13 Site Demolition 31 05 16 Aggregates 31 10 00 Site Clearing 31 20 00 Earthwork 31 23 19 Dewatering 32 12 16 Asphalt Paving 33 05 13 Utility Structures 33 41 00 Storm Drain Utility Piping

END OF SECTION

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END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. Contract Drawings: The following drawings are a part of the Contract Documents:

SITE DEVELOPMENT PLANS		
SHEET NO.	**DRAWING NO.**	**DRAWING TITLE**
1	T1.00	COVER PAGE
2	G1.01	CIVIL LEGEND AND GENERAL NOTES
3	G1.03	CIVIL GENERAL NOTES
4	C1.00	DEMOTION AND TESC PLAN
5	C2.00	SUBGRADE PLAN
6	C2.01	FINAL GRADING AND DRAINAGE PLAN AND PROFILE
7	C2.02	SITE PROFILES
8	C3.00	SURFACING AND LAYOUT PLAN
9	C4.00	PROJECT DETAILS
WORK ORDER PLANS		
SHEET NO.	**DRAWING NO.**	**DRAWING TITLE**
1	W00.00	COVER SHEET
2	W00.01	CIVIL LEGEND AND GENERAL NOTES
3	W00.02	CIVIL GENERAL NOTES
4	W00.03	OVERALL SITE PLAN
5	W01.00	DEMOLITION AND TESC PLAN
6	W02.00	GRADING AND DRAINAGE PLAN AND PROFILE
7	W03.00	SURFACING AND LAYOUT PLAN
8	W04.00	PROJECT DETIALS
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10	W04.02	PROJECT DETAILS
11	W04.03	COT RIGHT OF WAY GENERAL NOTES
12	TTC1.00	TEMPORARY TRAFFIC CONTROL PLAN

PART 2 - PRODUCTS - NOT USED

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END OF SECTION

PARCEL 117 CRITICAL SITE REDEVELOPMENT SNAIL ERADICATION

PROJECT NO. 101690.01 | CONTRACT NO. PA000000411

Scope of Work: The Work required for this Project includes:
Eradicating an invasive snail species by removing its habitat through re-grading and filling the entire site with crushed surface top course. Work will also include installation of stormwater utilities and construction of a containment cell to cap an area on the site with existing contamination

Bid Estimate: Estimated cost range is $1,351,000 to $1,601,000,
plus Washington State Sales Tax (WSST).
In accordance with RCW 39.04.320, fifteen (15) percent apprenticeship participation is required for certain projects estimated to cost one million ($1,000,000) dollars or more. Bidders may contact the Department of Labor and Industries, Specialty Compliance Services Division, Apprenticeship Section, P.O. Box 44530, Olympia, WA 98504-4530, by phone (360) 902-5320, or e-mail at Apprentice@lni.wa.gov, to obtain information on available apprenticeship programs.
In accordance with new legislation HB 1050 all port districts are required to add the requirement that **apprentices must perform** 15% or more of the total labor hours in public works contracts estimated at $1 million or more. If the 15% apprenticeship labor hours is met the contractor will receive an incentive fee of $1,000. If less than 15% apprenticeship labor hours is used a $500 decrease in the total amount of the contract will be taken for not meeting the required apprenticeship labor hours. L&I will monitor apprenticeship labor hours.

Sealed Bid Date/ Time/Location: Bids will be received at the Front Reception Desk, Port Administration Office, One Sitcum Plaza, Tacoma, Washington 98421 until **2:00 P.M. on** July 22, 2026, at which time they will be publicly opened and read aloud and the apparent low bid will be determined.

Pre-Bid Conference and Site Tour: A pre-Bid conference and site visit have been set for July 08, 2026 at 11:00 AM. The site visit will convene at the project site.
The following Personal Protective Equipment is required for the site visit: sturdy shoes, reflective vest, gloves, safety glasses, hearing protection, and hardhat.
Attendees will be required to sign a Release and Acceptance of Responsibility and Acknowledgement of Risks Form prior to entering the site and shall provide their own Personal Protection Equipment (PPE) as required above.

Bid Security:	Each Bid must be accompanied by a Bid security in an amount equal to five (5) percent of the Base Bid in a form allowed by the Instructions to Bidders.
Contact Information:	Any questions to the Port may be submitted to the Procurement Department through the Procurement and Question Submission Portal (Portal link is accessible via this specific procurements website. See left side of page.). A direct link is also available here: Procurement and Question Portal Link. No oral responses will be binding by the Port. Instructions for utilizing the portal can be found here: Procurement and Question Submission Portal Instructions. Questions will not be accepted after seven (7) days prior to the Bid Date.
Bidding Documents:	Plans, Specifications, Addenda, and Plan Holders List for this Project are available on-line through The Port of Tacoma's Website portoftacoma.com. Click on "Contracts," "Procurement," and then the Procurement Number 022026-1019. Bidders must subscribe to the Holder's List on the right hand side of the screen in order to receive automatic email notification of future addenda and to be placed on the Holder's List. Holder's Lists will be updated regularly and posted to the specific procurements page. Additional Instructions available in Section 00 21 00 - Instructions to Bidders.
Public Works Training Requirements:	Effective July 1, 2019, all businesses are required to have training before bidding on public works projects and prevailing wage under RCW 39.04.359 and RCW 39.12, or is on the list of exempt businesses maintained by the Department of Labor and Industries. The bidder must designate a person or persons to be trained on these requirements. The training will be provided by the Department of Labor and Industries or by a training provider whose curriculum is approved by the Department of Labor and Industries. Please refer to Labor and Industries' web site (https://www.lni.wa.gov/TradesLicensing/PrevWage/Contractors/Training.asp?utm_medium=email&utm_source=govdelivery) for more information and training dates, requirements, and exemptions. Failure to attend this training could result in a determination of "not responsible" and the bidder not being awarded a public works contract.

END OF SECTION

PART 1 - SUMMARY

1.01 DEFINITIONS

All definitions set forth in the Agreement, the General Conditions of the Contract for Construction, and in other Contract Documents are applicable to the Bidding Documents.

A. "Addenda" are written or graphic instruments issued prior to the execution of the Contract which modify or interpret the Bidding Documents by additions, deletions, clarifications, or corrections. The contents of an Addendum are issued in no particular order and therefore should be carefully and completely reviewed.

B. An “Apprentice” is a worker for whom an apprenticeship agreement has been registered and approved by the Washington State Apprenticeship and Training Council (RCW 49.04 and WAC 296-05).

C. "Award" means the formal decision by the Port of Tacoma (“Port”) notifying a Responsible Bidder with the lowest responsive Bid of the Port’s acceptance of their Bid and intent to enter into a Contract with the Bidder.

D. The “Award Requirements” include the statutory requirements as a condition precedent to Award.

E. The “Base Bid” is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids.

F. A “Bid” is a complete and properly signed proposal to do the Work, submitted in accordance with the Bidding Documents, for the sums therein stipulated and supported by any data called for by the Bidding Documents.

G. The “Bid Date” is the day and hour specified in the Bidding Documents, as may be changed through an Addendum, by which Bidders are required to submit Bids to the Port.

H. The “Bid Form” is the form(s) included with the Bidding Documents, with Specification Section 00 41 00, through which a Bidder submits a Bid.

I. A “Bidder” is a person or entity who submits a Bid.

J. The “Bidding Documents” include the Advertisement or Invitation to Bid, Instructions to Bidders, the Bid Form, any other sample bidding and contract forms, including those provided by reference, the Bid security, and the proposed Contract Documents, including any Addenda issued prior to the Bid Date.

K. The “Contract Documents” proposed for the Work consist of the Agreement, the General Conditions of the Contract (as well as any Supplemental, Special, or other conditions included in the Project Manual), the Drawings, the Specifications, and all Addenda issued prior to, and all modifications issued after, execution of the Contract.

L. The “Schedule of Unit Prices” is a separate schedule on the Bid Form for Unit Pricing as an all-inclusive price per unit of measurement for materials, equipment, or services as described in the Bidding Documents or in the proposed Contract Documents for the optional use of the Port. Quantities are not predictions of amounts anticipated. The Port may, but is not obligated to, accept a Schedule of Unit Price if it accepts the Base Bid. The Schedule of Unit Prices are not factored into the evaluation of determining the low bid amount and are not included as part of the bid award amount.

M. A “Sub-Bidder” is a person or entity of any tier who submits a bid or proposal to or through the Bidder for materials, equipment or labor for a portion of the Work.

1.02 BIDDER’S REPRESENTATIONS

By making its Bid, each Bidder represents that:

A. BIDDING DOCUMENTS. The Bidder has read and understands the Bidding Documents, and its Bid is made in accordance with them.

B. PRE-BID MEETING. The Bidder has attended pre-Bid meeting(s) required by the Bidding Documents. Attendance at a mandatory meeting or training session means that, in the sole opinion of the Port, a Project representative of a Bidder has attended all or substantially all of such meeting or session.

C. BASIS. Its Bid is based upon the materials, systems, services, and equipment required by the Bidding Documents, and is made without exception.

D. EXAMINATION. The Bidder has carefully examined and understands the Bidding Documents, the Contract Documents including, but not limited to, any liquidated damages, insurance provisions, and the Project site, including any existing buildings, it has familiarized itself with the local conditions under which the Work is to be performed, has correlated its observations with the requirements of the proposed Contract Documents, and it has satisfied itself as to the nature, location, character, quality, and quantity of the Work, the labor, materials, equipment, goods, supplies, work, services, and other items to be furnished, and all other requirements of the Contract Documents. The Bidder has also satisfied itself as to the conditions and other matters that may be encountered at the Project site or that may affect performance of the Work or the cost or difficulty thereof, including, but not limited to, those conditions and matters affecting transportation, access, disposal, handling and storage of materials, equipment and other items; availability and quality of labor, water, electric power, and utilities; availability and condition of roads; climatic conditions and seasons; physical conditions at the Project site and the surrounding locality; topography and ground surface conditions; and equipment and facilities needed preliminary to, and at all times during, the performance of the Work. The failure of the Bidder to fully acquaint itself with any applicable condition or matter shall not in any way relieve the Bidder from the responsibility for performing the Work in accordance with, and for the Contract Sum and within the Contract Time provided for in, the Contract Documents.

E. PROJECT MANUAL. The Bidder has checked its copies of the Project Manual (if any) with the table of contents bound therein to ensure the Project Manual is complete.

F. SEPARATE WORK. The Bidder has examined and coordinated all Drawings, Contract Documents, and Specifications with any other contracts to be awarded separately from, but in connection with, the Work being Bid upon, so that the Bidder is fully informed as to conditions affecting the Work under the Contract being Bid upon.

G. LICENSE REQUIREMENTS. The Bidders and Sub-Bidders are registered and hold all licenses required by the laws of Washington, including a certificate of registration in compliance with RCW 18.27, for the performance of the Work specified in the Contract Documents.

H. CERTIFICATION. The Bidder verifies under penalty of perjury that the Bidder has not have 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 Chapters 49.46, 49.48, or 49.52 RCW within the three (3) year period immediately preceding the Bid Date.

I. NO EXCEPTIONS. Bids must be based upon the materials, systems, and equipment described and required by the Bidding Documents, without exception.

1.03 BIDDING DOCUMENTS

A. COPIES

1. Bidders may obtain complete sets of the Bidding Documents from The Port of Tacoma's Website www.portoftacoma.com. Click on "Contracts" then "Procurement."

2. Complete Sets. Bidders shall use complete sets of Bidding Documents in preparing Bids and are solely responsible for obtaining updated information. The Port does not assume any responsibility for errors or misinterpretations resulting from the use of incomplete and/or superseded sets of Bidding Documents.

3. Conditions. The Port makes copies of the Bidding Documents available only for the purpose of obtaining Bids on the Work and does not confer a license or grant permission for any other use.

4. Legible Documents. To the extent any Drawings, Specifications, or other Bidding Documents are not legible, it is the Bidder's responsibility to obtain legible documents.

B. INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

1. Format. The Contract Documents are divided into parts, divisions, and sections for convenient organization and reference. Generally, there has been no attempt to divide the Specification sections into Work performed by the various building trades, any Work by separate contractors, or any Work required for separate facilities in, or phases of the Project.

2. Duty to Notify. Bidders shall promptly notify the Port in writing of any ambiguity, inconsistency, or error that they may discover upon examination of the Bidding Documents or of the site and local conditions.

3. Products and Installation. All Bidders shall thoroughly familiarize themselves with specified products and installation procedures and submit to the Port any objections (in writing) no later than seven (7) days prior to the Bid Date. The submittal of the Bid constitutes acceptance of products and procedures specified as sufficient, adequate, and satisfactory for completion of the Contract.

4. Written Request. Bidders requiring clarification or interpretation of the Bidding Documents shall make a written request to the Procurement Department through the Procurement and Question Submission Portal at least seven (7) days prior to the Bid Date (Portal link is accessible via this specific procurements website. See left side of page.). A direct link is also available here: Procurement and Question Portal Link. No oral responses will be binding by the Port.

   Instructions for utilizing the portal can be found here: Procurement and Question Submission Portal Instructions.

5. Request to Modify Responsibility Criteria. No later than seven (7) days prior to the Bid Date, a potential Bidder may request in writing that the Port modify the Responsibility Criteria. The Port will evaluate the information submitted by the potential Bidder and respond before the Bid Date. If the evaluation results in a change of the Criteria, the Port will issue an Addendum identifying the new Criteria.

6. Addenda. The Bidder shall not rely on oral information provided at any pre-Bid meetings or during site visits. Verbal statements made by representatives of the Port are for informational purposes only. Any interpretation, correction, or change of the Bidding Documents will be made solely by written Addendum. Interpretations, corrections, or changes of the Bidding Documents made in any manner other than by written Addendum, including but not limited to, oral statements will not be binding, and Bidders shall not rely upon such statements, interpretations, corrections, or changes. The Port is not responsible for explanations or interpretations of the Bidding Documents other than in a written Addendum.
7. Site Visits. Any site visits are provided as a courtesy to potential Bidders to assist them in becoming familiar with the Project site conditions. However, only the Bidding Documents, including any issued Addenda, may be relied upon by Bidders.
8. Singular References. Reference in the singular to an article, device, or piece of equipment shall include as many of such articles, devices, or pieces as are indicated in the Contract Documents or as are required to complete the installation.
9. Utilities and Runs. The Bidder should assume that the exact locations of any underground or hidden utilities, underground fuel tanks, and plumbing and electrical runs may be somewhat different from any location indicated in the surveys or Contract Documents.

C. SUBSTITUTIONS

1. For substitutions during bidding, refer to Section 00 26 00 – Substitution Procedures.

D. ADDENDA

1. Distribution. All Addenda will be written and will be made available on the Port's website or any other source specified by the Port for the Project.
2. Copies. Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.
3. Verification and Acknowledgment of Receipt. Prior to submitting a Bid, each Bidder shall ascertain that it has received all Addenda issued. Each Bidder shall acknowledge its receipt and consideration of all Addenda in its Bid.

1.04 BIDDING PROCEDURE

A. FORM AND STYLE OF BIDS

1. Form. Bids (including required attachments) shall be submitted on forms identical to the Bid Form included with the Bidding Documents. No oral, email, or telephonic responses or modifications will be considered.
2. Entries on the Bid Form. All blanks on the Bid Form shall be filled in by typewriter, printer, or manually in ink.
3. Figures. All sums shall be expressed in figures, not words. Portions of the Bid Form may require the addition or multiplication of component bids to a total or the identification of component amounts within a total. In case of discrepancy between unit prices listed and their sum(s), the unit prices listed shall govern (rather than the sum).
4. Initial Changes. Any interlineation, alteration, or erasure shall be initialed by an authorized representative of the Bidder.

5. Bid Breakdown. The Bid Form may contain, for the Port's accounting purposes only, a breakdown of some or all of the components included in the Base Bid.
    a. For lump-sum Bids, the total Contract Sum shall be submitted.
    b. For unit-price Bids, a price shall be submitted for each item of the Work, an extension thereof, and, if requested, the total Contract Sum.
6. Schedule of Unit Prices. All Unit Prices under this schedule shall be bid. The Port reserves the right, but is not obligated, to reject any Bid on which all requested Schedule of Unit Prices are not Bid.
7. No Conditions. The Bidder shall make no conditions or stipulations on the Bid Form, nor qualify its Bid in any manner.
8. Identity of Bidder. The Bidder shall include in the specified location on the Bid Form, the legal name of the Bidder and, if requested, a description of the Bidder as a sole proprietor, a partnership, a joint venture, a corporation, or another described form of legal entity. The Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. The Port verifies signature authority on the Labor and Industries website under the contractor registration business owner information. If the business owner information is not current, the Bidder shall show proof of authority to sign at the request of the Port. A Bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder
9. Bid Amounts Do Not Include Sales Tax. The Work to be performed constitutes a "retail sale" as this term is defined in RCW 82.04.050. Thus, the Base Bid amount shall include in the sum stated all taxes imposed by law, EXCEPT WASHINGTON STATE AND LOCAL SALES TAX due on the Base Bid. The engaged Contractor will pay retail sales tax on all consumables used during the performance of the Work and on all items that are not incorporated into the final Work; this tax shall be included in the Base Bid price and in any other prices set forth on the Bid Form. The Port will pay state and local retail sales tax due on each progress payment and final payment to the engaged Contractor for transmittal by the Contractor to the Washington State Department of Revenue or to the applicable local government.

B. POTENTIAL LISTING OF SUB-BIDDERS (SUBCONTRACTORS)

1. Procedure. On projects equal to or greater than $1,000,000, the Bid Form includes a requirement that certain Sub-Bidders be listed, in which case the Bidder must complete the required list. In these circumstances, and regardless of the anticipated cost of the Project, the Bidder must name the Sub-Bidder or Sub-Bidders with whom the Bidder, if awarded the Contract, will subcontract directly (i.e., not lower-tier Sub-Bidders) for performance of the Work of:
    a. HVAC (heating, ventilation, and air conditioning) Work;
    b. Plumbing Work as described in RCW 18.106;
    c. Electrical Work as described in RCW 19.28; and
    d. Any other categories of Work listed on the Sub-Bidder listing form and/or Bid Form.
2. Self-Performance. If the Bidder intends to self-perform any of these categories of Work, it must name itself for each such category of Work.

3. Multiple Entries. The Bidder shall not list more than one (1) entity for a particular category of Work identified, unless a Sub-Bidder will vary based on an Alternate Bid, in which case the Bidder shall identify the Sub-Bidder to be used for the Alternate and the affected portion of the Work.
4. Failure to Submit. In accordance with RCW 39.30.060, failure of a Bidder to submit, as part of the Bid, the names of such proposed HVAC, plumbing, and electrical Sub-Bidders, or to name itself to perform such Work, or the naming of two (2) or more Sub-Bidders to perform the same Work, shall render the Bidder's Bid non-responsive and; therefore, void.
5. Requirement to Subcontract. The Bidder, if Awarded the Contract, will subcontract with the listed Sub-Bidders for performance of the portion of the Work designated on the Bid Form, subject to the provisions of the Contract for Construction and RCW 39.30.060. The Bidder shall not substitute a listed Sub-Bidder in furtherance of bid shopping or bid peddling.
6. Sub-Bidder Qualification. Listed Sub-Bidders may be required to provide evidence of their qualifications, including a statement of experience and references, prior to Award, or at any time during the Contract Time. Such information shall be provided within twenty-four (24) hours of request. This evidence shall demonstrate that the Sub-Bidder meets or exceeds all requirements for experience, qualifications, manufacturer's certifications, or any other requirements specified in any of the technical sections of the Contract Documents for which the Sub-Bidder proposes to perform Work.
7. Replacement. If a listed Sub-Bidder fails to provide adequate evidence of qualifications, is unable to comply with any bonding requirements of the Bidding Documents or with other requirements of the Contract or Bidding Documents, is not properly licensed, or fails to meet the Responsibility Criteria of the Bidding Documents, the Port may require the Bidder to replace the Sub-Bidder with another subcontractor reasonably acceptable to the Port at no change in the Contract Sum or Contract Time.
8. Sub-Bidder Standards. Sub-Bidders shall meet contractual and technical qualification standards, and provide specialized certification, licensing, and/or payment and performance bonding, if required.
9. MWBE, Veteran-owned, and small business participation encouraged. The Port's policy is to encourage the Contractor to solicit and document participation, and to provide and promote the maximum lawful, practicable opportunity for increased participation, by MWBE firms certified by the Office of Minority and Women's Business Enterprises (OMWBE), Veteran-owned businesses (defined in RCW 43.60.010, and Small, Mini and Micro business enterprises (defined in RCW 39.26.010).

C. BID SECURITY

1. Purpose and Procedure. Each Bid shall be accompanied by Bid security payable to the Port in the form required by the Bidding Documents and equal to five (5) percent of the Base Bid only (i.e., not including any Alternates or Unit Prices). The Bid security constitutes a pledge by the Bidder to the Port that the Bidder will enter into the Contract with the Port in the form provided, in a timely manner, and on the terms stated in its Bid, and will furnish in a timely manner, the payment and performance bonds, certificates of insurance, and all other documents required in the Contract Documents. Should the Bidder fail or refuse to enter into the Contract or fail to furnish such documents, the amount of the Bid security shall be forfeited to the Port as liquidated damages, not as a penalty. By submitting a Bid, each Bidder represents and agrees that the Bid security, if forfeited, is a reasonable prediction on the Bid Date of future damages to the Port. Failure of the Bidder to provide Bid Security as required shall render the bid non-responsive.
2. Form. The Bid security shall be in the form of a certified or bank cashier's check payable to the Port or a Bid bond executed by a bonding company reasonably acceptable to the Port, licensed in the State of Washington, registered with the Washington State Insurance Commissioner, possess an A.M. Best rating of "A-," Fiscal Size Category (FSC) six (6) or better, and be authorized by the U.S. Department of the Treasury. The Bid security shall be signed by the person or persons legally authorized to bind the Bidder. Bid bonds shall be submitted using the form included with the Bidding Documents.
3. Retaining Bid Security. The Port will have the right to retain the Bid security of Bidders to whom an Award is being considered until the earliest of either: (a) mutual execution of the Contract, and the Port's receipt of payment and performance bonds, (b) the specified time has elapsed so that Bids may be withdrawn, or (c) when all Bids have been rejected.
4. Return of Bid Security. Within sixty (60) days after the Bid Date, the Port will release or return Bid securities to Bidders whose Bids are not to be further considered in awarding the Contract. Bid securities of the three apparent low Bidders will be held until the Contract has been finally executed, after which all un-forfeited Bid securities will be returned. Bid security may be returned in the form provided or by separate payment.

D. SUBMISSION OF BIDS

1. Procedure. The Bid, the Bid security, and other documents required to be submitted with the Bid, shall be enclosed in a sealed envelope identified with the Project name and number and the Bidder's name and address. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face of the mailing envelope.
    a. If a Bid is mailed, it shall be addressed to the Port of Tacoma, Contracts Department, 1 Sitcum Plaza, Tacoma, WA 98421.
    b. If a Bid is delivered, it shall be delivered to the Front Reception Desk, Port of Tacoma, 1 Sitcum Plaza, Tacoma, WA 98421.
    c. The time stamp clock at the Front Reception Desk at 1 Sitcum Plaza is the Port's official clock.
2. Deposit. Bids shall be deposited at the designated location prior to the Bid Date indicated in the Advertisement or Invitation to Bid, or any extension thereof made by Addendum. Bids received after the Bid Date and time specified shall be returned without consideration at the discretion of the Port, or rejected at the time of receipt.

3. Delivery. The Bidder assumes full responsibility for timely delivery at the location designated for receipt of Bids.

4. Form. Oral, facsimile, telephonic, electronic, or email Bids are invalid and will not be considered.

E. MODIFICATION OR WITHDRAWAL OF BID

1. After the Bid Date. A Bid may not be modified, withdrawn, or canceled by the Bidder during a ninety (90) day period following the Bid Date, and each Bidder so agrees by virtue of submitting its Bid.

2. Before the Bid Date. Prior to the Bid Date, any Bid submitted may be modified or withdrawn only by notice to the party receiving Bids at the place designated for receipt of Bids. The notice shall be in writing, with the signature of the Bidder, and shall be worded so as not to reveal the amount of the original Bid. Email notice will not be accepted. It shall be the Bidder's sole responsibility to verify that the notice has been received by the Port in time to be withdrawn before the Bid opening.

3. Resubmittal. Withdrawn Bids may be resubmitted up to the time designated for the receipt of Bids, provided that they are then fully in conformance with these Instructions to Bidders.

4. Bid Security with Resubmission. Bid security shall be in an amount sufficient for the Bid as modified or resubmitted.

F. COMMUNICATIONS

Communications from a Bidder related to these Instructions to Bidders must be in writing to the Procurement Department through the Procurement and Question Submission Portal (Portal link is accessible via this specific procurements website. See left side of page.). A direct link is also available here: Procurement and Question Portal Link. Communications, including but not limited to, notices and requests by Sub-Bidders shall be made through the Bidder and not directly by a Sub-Bidder to the Port. No oral responses will be binding by the Port.

Instructions for utilizing the portal can be found here: Procurement and Question Submission Portal Instructions.

1.05 CONSIDERATION OF BIDS

A. OPENING OF BIDS. Unless stated otherwise in the Advertisement or Invitation to Bid or an Addendum, the properly identified Bids received on time will be opened publicly and will be read aloud. An abstract of the Base Bids and any Alternate Bids will promptly (and generally within twenty-four (24) hours) be made available to Bidders and other interested parties.

B. REJECTION OF BIDS. The Port shall have the right, but not the obligation, to reject any or all Bids for any reason, or for no reason, to reject a Bid not accompanied by the required Bid security, or to reject a Bid which is in any way incomplete or irregular.

C. BIDDING MISTAKES. The Port will not be obligated to consider notice of claimed Bid mistakes received more than twenty-four (24) hours after the Bid Date. In accordance with Washington law, a low Bidder that claims error and fails to enter into the Contract is prohibited from Bidding on the Project if a subsequent call for Bids is made for the Project.

D. ACCEPTANCE OF BID (AWARD)

1. Intent to Accept. The Port intends, but is not bound, to Award a Contract to the Responsible Bidder with the lowest responsive Bid, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The Port has the right to waive any informality or irregularity in any Bid(s) received and to accept the Bid which, in its judgment, is in its own best interests.

2. Requirements for Award. Before the Award, the lowest responsive Bidder must be deemed Responsible by the Port and must satisfy all Award Requirements.

E. BID PROTEST PROCEDURES

1. Procedure. A Bidder protesting, for any reason, the Bidding Documents, a Bidding procedure, the Port's objection to a Bidder or a person or entity proposed by the Bidder, including but not limited to, a finding of non-Responsibility, the Award of the Contract or any other aspect arising from, or relating in any way to, the Bidding, shall cause a written protest to be filed with the Port within two (2) business days of the event giving rise to the protest. (Intermediate Saturdays, Sundays, and legal holidays are not counted as business days.) The written protest shall include the name of the protesting Bidder, the bid solicitation number and title under which the protest is submitted, a detailed description of the specific factual and legal grounds for the protest, copies of all supporting documents, evidence that the apparent low bidder has been given notice of the protest, and the specific relief requested. The written protest shall be sent by email to procurement@portoftacoma.com.

2. Consideration. Upon receipt of the written protest, the Port will consider the protest. The Port may, within three (3) business days of the Port's receipt of the protest, provide any other affected Bidder(s) the opportunity to respond in writing to the protest. If the protest is not resolved by mutual agreement of the protesting Bidder and the Port, the Contracts Director of the Port, or his or her designee, will review the issues and promptly furnish a final and binding written decision to the protesting Bidder, and any other affected Bidder(s), within six (6) business days of the Port's receipt of the protest. (If more than one (1) protest is filed, the Port's decision will be provided within six (6) business days of the Port's receipt of the last protest.) If no reply is received from the Port during the six (6) business-day period, the protest will be deemed rejected.

3. Waiver. Failure to comply with these protest procedures will render a protest waived.

4. Condition Precedent. Timely and proper compliance with, and exhaustion of, these protest procedures shall be a condition precedent to any otherwise permissible judicial consideration of a protest.

1.06 POST BID INFORMATION

A. THE LOWEST RESPONSIVE BIDDER SHALL:

1. Responsibility Detail Form. Within 24 hours of the Low Responsive Bidder Selection Notification, the apparent low Bidder shall submit to the Port the Responsibility Detail Form and other required documents (Section 00 45 13) executed by an authorized company officer. As requested from the Port, the low responsive Bidder shall provide written confirmation that the person signing the Bid on behalf of the Bidder was duly authorized at the time of bid, a detailed breakdown of the Bid in a form acceptable to the Port, and other information required by the Port.

2. The apparent low Bidder shall submit to the Port upon request:

a. Additional information regarding the use of the Bidder's own forces and the use of subcontractors and suppliers;

b. The names of the persons or entities (including a designation of the Work to be performed with the Bidder's own forces, and the names of those who are to furnish materials or equipment fabricated to a special design) proposed for each of the principal portions of the Work (i.e., either a listed Sub-Bidder or a Sub-Bidder performing Work valued at least ten (10) percent of the Base Bid), consistent with the listing required with the Bid; and

c. The proprietary names and the suppliers of the principal items or systems of materials and equipment proposed for the Work.

3. Failure to provide any of the above information in a timely manner will constitute an event of breach permitting forfeiture of the Bid security.

4. Bidder Responsibility. The Bidder will be required to establish, to the satisfaction of the Port, the reliability and responsibility of itself and the persons or entities proposed to furnish and perform the Work described in the Bidding Documents. If requested, the Bidder shall meet with the Port to discuss the Bid, including any pricing, the Bid components, and any assumptions made by the Bidder.

5. Sub-Bidder Responsibility. The Responsibility of the Bidder may be judged in part by the Responsibility of Sub-Bidders. Bidders must verify the Responsibility Criteria for each first-tier Sub-Bidder. A Sub-Bidder of any tier that hires other Sub-Bidders must verify Responsibility Criteria for each of its lower-tier Sub-Bidders. The verification shall include a representation that each Sub-Bidder, at the time of subcontract execution, is Responsible and possesses required licenses.

6. Objection. Prior to an Award of the Contract, the Port will notify the Bidder in writing if the Port, after due investigation, has reasonable objection to the Bidder or a person or entity proposed by the Bidder. Upon receiving such objection, the Bidder may, at Bidder's option: (a) withdraw their Bid, (b) submit an acceptable substitute person or entity with no change in the Contract Time and no adjustment in the Base Bid or any Alternate Bid, even if there is a cost to the Bidder occasioned by such substitution, or (c) file a protest in accordance with the Bidding Documents.

7. Change. Persons and entities proposed by the Bidder to whom the Port has made no reasonable objection must be used on the Work for which they were proposed and shall not be changed, except with the written consent of the Port.

8. Right to Terminate. The Bidder's representations concerning its qualifications will be construed as a covenant under the Contract. If a Bidder makes a material misrepresentation on a Qualification Statement, the Port has the right to terminate the Contract for cause and may then pursue any remedies that exist under the Contract or that are otherwise available.

B. INFORMATION FROM OTHER BIDDERS: All other Bidders designated by the Port as under consideration for Award of a Contract shall also provide a properly executed Qualification Statement, if so requested by the Port.

1.07 PERFORMANCE BOND, LABOR AND MATERIAL PAYMENT BOND, AND INSURANCE

A. BOND REQUIREMENTS. Within ten (10) days after the Port's Notice of Award of the Contract, the successful Bidder shall obtain and furnish statutory bonds pursuant to RCW 39.08 covering the faithful performance of the Contract and the payment of all obligations arising thereunder in the form and amount prescribed in the Contract Documents. Bonds shall be written for one hundred (100) percent of the contract award amount, plus Washington State Sales Tax and Change Orders. The cost of such bonds shall be included in the Base Bid.

1. On contracts of one hundred fifty thousand dollars ($150,000) or less, at the option of the Contractor or the General Contractor/Construction Manager as defined in RCW 39.10.210, the Port may, in lieu of the bond, retain ten (10) percent of the contract amount for a period of thirty days after date of final acceptance, or until receipt of all necessary releases from the department of revenue, the employment security department, and the department of labor and industries and settlement of any liens filed under RCW 60.28, whichever is later. The recovery of unpaid wages and benefits must be the first priority for any actions filed against retainage held by a state agency or authorized local government.

2. On contracts of one hundred fifty thousand dollars ($150,000) or less, the Port may accept a full payment and performance bond from an individual surety or sureties.

B. TIME OF DELIVERY AND FORM OF BONDS. The successful Bidder shall deliver an original copy of the required bonds to the Port, 1 Sitcum Plaza, Tacoma, WA 98421, within the time specified in the Contract Documents.

C. INSURANCE. The successful Bidder shall deliver a certificate of insurance from the Bidder's insurance company that meets or exceeds all requirements of the Contract Documents.

D. GOVERNMENTAL REQUIREMENTS. Notwithstanding anything in the Bidding or Contract Documents to the contrary, the Bidder shall provide all bonding, insurance, and permit documentation as required by governmental authorities having jurisdiction for any portions of the Project.

1.08 FORM OF AGREEMENT

A. FORM TO BE USED. The Contract for the Work will be written on the form(s) contained in the Bidding Documents, including any General, Supplemental, or Special Conditions, and the other Contract Documents included with the project manual.

B. CONFLICTS. In case of conflict between the provisions of these Instructions and any other Bidding Document, these Instructions shall govern. In case of conflict between the provisions of the Bidding Documents and the Contract Documents, the Contract Documents shall govern.

C. CONTRACT DELIVERY. Within ten (10) days after Notice of Award, the Bidder shall submit a signed Contract to the Port in the form tendered to the Bidder and without modification.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes administrative and procedural requirements for substitutions.

1.02 DEFINITIONS/CLARIFICATIONS

A. Substitutions. Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

B. The Contract Documents include performance specifications for products and equipment which meet Project requirements. In those cases where a representative item or manufacturer is named in the specification, it is provided for the sole purpose of identifying a product meeting the required functional performance, and where the words “or equal” are used, a substitution request as further described, is not required.

C. Where non-competitive or sole source products or manufacturers are explicitly specified with the words “or approved equal,” or “Engineer approved equal,” or “as approved by the Engineer” are used, they shall be taken to mean “or approved equal.” In these cases a substitution request as further described in this Section, is required.

1.03 SUBMITTALS

A. Substitution Request Form. Use copy of form located at the end of this Section.

B. Pre-Bid Substitution Requests. Submit one (1) PDF of the Substitution Request Form along with all supporting documentation for consideration of each request. Identify product, fabrication, or installation method to be replaced. Include Drawing numbers and titles. Substitution requests prior to the Bid Date may originate directly from a prime Bidder, or from a prospective Sub-Bidder.

1. Documentation. Show compliance with requirements for substitutions with the following, as applicable:

a. Statement indicating why specified product, fabrication, or installation cannot be provided.

b. Coordination information, including a list of changes or modifications needed to other parts of the Work that will be necessary to accommodate proposed substitution.

c. Product Data, including drawings and descriptions of products, fabrication, and installation procedures.

d. Samples, where applicable or requested.

e. Certificates and qualification data, where applicable or requested.

f. Research reports evidencing compliance with building code in effect for the Project.

2. Engineer's Action. Engineer will review substitution requests if received through the Procurement and Question Submission Portal at least seven (7) days prior to the Bid Date (Portal link is accessible via this specific procurements website. See left side of page.) A direct link is also available here: Procurement and Question Portal Link. No oral responses will be binding by the Port.

a. Forms of Acceptance. Substitution requests will be formally accepted via written addendum prior to the Bid Date. Bidders shall not rely upon approvals made in any other manner.

b. Use product originally specified if Engineer does not issue a decision on use of a proposed substitution within time allocated.

c. The Port's decision of approval or disapproval of a proposed substitution shall be final.

Instructions for utilizing the portal can be found here: Procurement and Question Submission Portal Instructions.

C. Post-Award Substitution Requests must be submitted by the Contractor and not a Subcontractor nor Supplier.

1. Documentation. Show compliance with requirements for substitutions with the following, as applicable:

a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.

b. Coordination information, including a list of changes or modifications needed to other parts of the Work that will be necessary to accommodate proposed substitution.

c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification Section. Significant qualities may include, but are not limited to, attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified. ·

d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.

e. Samples, where applicable or requested.

f. Certificates and qualification data, where applicable or requested.

g. List of similar installations for completed projects with project names and addresses. Also provide names and addresses of the applicable architect, engineer, and owner.

h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.

i. Research reports evidencing compliance with building code in effect for the Project.

j. Comparison of the approved Baseline Project Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.

k. Cost information, including a proposal of change, if any, in the Contract Sum.

l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.

m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

2. Engineer's Action. If necessary, Engineer will request additional information or documentation for evaluation within seven (7) calendar days of receipt of a request for substitution. Engineer will notify Contractor through Port of acceptance or rejection of proposed substitution within fifteen (15) calendar days of receipt of request, or seven (7) calendar days of receipt of additional information or documentation, whichever is later.
    a. Forms of Acceptance. Change Order or Minor Change in Work.
    b. Use product originally specified if Engineer does not issue a decision on use of a proposed substitution within time allocated.
3. Substitutions for Cause. Submit requests for substitution immediately upon discovery of need for change, but not later than fourteen (14) days prior to date required for preparation and review of related submittals.
    a. Conditions. Engineer will consider Contractor's request for substitution when the following conditions are satisfied:
        1) Requested substitution is consistent with the Contract Documents and will produce indicated results.
        2) Requested substitution will not adversely affect the Baseline Project Schedule.
        3) Requested substitution has received necessary approvals of authorities having jurisdiction.
        4) Requested substitution is compatible with other portions of the Work.
        5) Requested substitution has been coordinated with other portions of the Work.
        6) Requested substitution provides specified warranty.
        7) If requested substitution involves more than one (1) contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
4. Substitutions for Convenience. Engineer will consider Contractor’s requests for substitution if received within fourteen (14) days after the Notice of Award.
    a. Conditions. Engineer will consider Contractor's request for substitution when the following conditions are satisfied:
        1) Requested substitution offers Port a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities· Port must assume. Port's additional responsibilities may include compensation to Engineer for redesign and evaluation services, increased cost of other construction by Port, and similar considerations.
        2) Requested substitution does not require extensive revisions to the Contract Documents.
        3) Requested substitution is consistent with the Contract Documents and will produce indicated results.
        4) Requested substitution will not adversely affect the Baseline Project Schedule.
        5) Requested substitution has received necessary approvals of authorities having jurisdiction.

6) Requested substitution is compatible with other portions of the Work.

7) Requested substitution has been coordinated with other portions of the Work.

8) Requested substitution provides specified warranty.

9) If requested substitution involves more than one (1) contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

D. 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. Acceptance will require substantial revision of Contract Documents or other items of the Work.

3. Submittal for substitution request does not include point-by-point comparison of proposed substitution with specified product.

1.04 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

PROJECT TITLE: Parcel 117 Critical Site Redevelopment Snail Eradication PROJECT NO.: 101690.01

SUBMITTED BY: _____ CONTRACT NO.: PA000000411

PRIME/SUB/SUPPLIER: _____ DATE: _____

Specification Title: _____ Section No.: _____

Description: _____ Paragraph: _____

_____ Page No.: _____

Proposed Substitution: _____

Trade Name: _____ Model No.: _____

Manufacturer: _____

Address: _____ Phone No.: _____

Installer: _____

Address: _____ Phone No.: _____

Differences between proposed substitution and specified product: _____

_____

_____

☐ Point-by-Point comparative data attached - REQUIRED

Reason for not providing specified item: _____

_____

Similar Installation:

Project: _____ A/E: _____

Address: _____

Owner: _____ Date Installed: _____

Proposed substitution affects other parts of Work: ☐ No ☐ Yes; explain _____

Supporting Data Attached:

☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ Other:_____

_____

Applicable to Substitution Requests During Construction:

Proposed to Port for accepting substitution: $_____

Proposed substitution changes Contract Time: ☐ No ☐ Yes [Add] [Deduct] ____ # days.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay Baseline Project Schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted By: _____

Signed By: _____ Firm: _____

Address: _____

_____

Telephone: _____ Email: _____

Attachments: _____

_____

A/E's REVIEW AND RECOMMENDATION

☐ Approved Substitution

☐ Approved Substitution as Noted

☐ Reject Substitution - Use specified materials.

☐ Substitution Request received too late - Use specified materials.

Signed by: _____ Date: _____

ENGINEER'S REVIEW AND ACTION

☐ Substitution Approved - Make submittals in accordance with this Specification Section. If during construction, prepare Change Order.

☐ Substitution Approved as Noted - Make submittals in accordance with this Specification Section. If during construction, prepare Change Order.

☐ Substitution Rejected - Use specified materials.

☐ Substitution Request received too late - Use specified materials.

Signed by: _____ Date: _____

END OF SECTION

PART 1 - GENERAL

1.01 EXISTING CONDITIONS

A. Certain information relating to existing surface and subsurface conditions and structures is available to Bidders online at www.portoftacoma.com, but will not be part of the Contract Documents, as follows:

1. Site and Utility Survey: Entitled Boundary & Topographic Survey, dated 11/21/24. Appendix L

a. This survey identifies grade elevations prepared primarily for the use of Engineer in establishing new grades and identifying natural water shed.

1.02 AVAILABILITY

A. Reference Documents are available online through the Port of Tacoma's Website www.portoftacoma.com. Click on "Contracts," "Procurement," and then the Procurement Number.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. This Section provides the notification required for disclosure of hazardous materials.

1.02 HAZARDOUS MATERIALS NOTICE

A. The contractor is notified that certain portions of the Work area are known to contain invasive Mediterranean vineyard snails, lime waste, lime solvent sludge, auto fluff, and other waste materials, as detailed in

1. Hylebos Marsh Interim Action Workplan, Taylor Way and Alexander Fill Area dated February 26, 2026. (See Appendix A).

2. Tacoma Cogeneration Project Phase 2 Site Assessment dated May 16, 1991. (See Appendix B)

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

BIDDER'S NAME: _____

PROJECT TITLE: PARCEL 117 CRITICAL SITE REDEVELOPMENT SNAIL ERADICATION

The undersigned Bidder declares that it has read the Contract Documents (including documents provided by reference), understands the conditions under which the Work will be performed, has examined the Project site, and has determined for itself all situations affecting the Work herein Bid upon. Bidder proposes and agrees, if this Bid is accepted, to provide at Bidder's own expense, all labor, machinery, tools, materials, etc., including all Work incidental to, or described or implied as incidental to such items, according to the Contract Documents, and that the Bidder will complete the Work within the time stated, and that Bidder will accept in full the lump sum or unit price(s) set forth below:

ITEM NO.	DESCRIPTION OF ITEM	QTY	UOM	UNIT PRICE	EXTENDED PRICE (QTY. x UNIT PRICE)
1	Mobilization and Demobilization	1	LS		
2	Project Administration	1	LS		
3	Tree Removal	1	LS		
4	Site Grading	1	LS		
5	Crushed Surfacing Top Course Placement	6,110	CY		
6	Installation of Containment Cells and Cap	1	LS		
7	Storm Drain System Installation	1	LS		
8	Trench Safety Systems	1	LS		
9	Dewatering and Decontamination	1	LS		

TOTAL BID AMOUNT	
10.4% WASHINGTON STATE SALES TAX (WSST) ON BASE BID SUBTOTAL	
BID TOTAL (WITH WSST)	

Note: Show prices in figures only.

Evaluation of Bids. In accordance with the provisions of the Contract Documents, Bids will be evaluated to determine the lowest Base Bid Subtotal offered by a responsible Bidder submitting a responsive Bid.

Schedule of Unit Prices. The unit prices are proposed to apply only in the event of additions to, or deletions from, the work required and ordered. All prices shall include complete installation without Washington State Sales Tax. The bidder shall propose a price for each item; failure to propose a price for each item may render the bid non-responsive. The Port reserves the right to accept or reject the unit prices proposed.

Trench Excavation Safety Provision. If the bid amount contains work which requires trenching exceeding a depth of four (4) feet, all costs for trench safety shall be included in the Base Bid and indicated below for adequate trench safety systems in compliance with RCW 39.04 and WAC 296-155-650. Bidder shall include a lump sum amount, excluding Washington State Sales Tax. If trench excavation safety provisions do not pertain to the Work, the Bidder should enter “N.A.” or “Not Applicable” in the blank below.

Trench Excavation Safety: _____(Total in Written Figures Only)

Principal Subcontractors/Suppliers. For Bids greater than one million ($1,000,000) dollars, the Bidder shall list below the name of each subcontractor or supplier to whom the Bidder proposes to subcontract the portions of the work listed below, or name itself for the work, in accordance with RCW 39.30.060.

Work to be preformed	License Number	Name of Firm
HVAC (Heating, Ventilation, and Air Conditioning) Work		
Plumbing Work		
Electrical Work		
Structural Steel Installation		
Rebar Installation		

Non-Collusion Representation. The Bidder declares under penalty of perjury that the Bid submitted is genuine and not a sham or collusive bid, or made in the interest or on behalf of any person or firm not therein named; and further represents that the Bidder has not directly or indirectly induced or solicited any other bidder to submit a sham bid, or encouraged any other person or corporation to refrain from bidding; and that the Bidder has not in any manner sought by collusion to secure to the Bidder an advantage over any other bidder or bidders.

RCW 39.04.350 Certification. The Bidder represents and certifies, under penalty of perjury, that within the three- (3-) year period immediately preceding the Bid Date, the Bidder has not been determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries, nor 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 Chapters 49.46, 49.48, nor 49.52 RCW.

Addenda. Bidder acknowledges receipt and acceptance of all Addenda through No. ____ (Identify Last Addenda By Number)

Bid Security. A certified check, cashier’s check, or other obligation of a bank, or a bid bond in substantially the form set forth in Section 00 43 13, Bid Security Form for at least five (5) percent of the Base Bid Subtotal, shall be submitted with this Bid.

Apprenticeship Requirements. For Bids greater than one million ($1,000,000) dollars, the apprentice labor hours required for this project are fifteen (15) percent of the total labor hours. The Bidder agrees to utilize this level of apprentice participation.

Name of Firm	Date
Signature	By Title
Mailing Address	City, State Zip Code
Telephone Number	Email Address
WA State Contractor's License No.	Employment Security Department No.

Identification of Bidder as a sole proprietor, a partnership, a joint venture, a corporation, or another described form of legal entity

END OF SECTION

KNOW ALL MEN BY THESE PRESENTS:

That we, _____, as Principal, and _____, as Surety, are held and firmly bound unto the PORT OF TACOMA as Obligee, in the penal sum of _____ Dollars, for the payment of which the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigned, jointly and severally, by these present.

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

BY _____
PRINCIPAL

BY _____
SURETY

_____

_____

_____

AGENT AND ADDRESS

Note: Bidder may submit Surety's bid bond form, provided it is similar in substance, made out in the name of the Port of Tacoma, and that the agent’s name and address appear as specified. Bonds containing riders limiting responsibility for toxic waste or limiting the term of responsibility will be rejected.

END OF SECTION

THIS IS NOT TO BE SUBMITTED WITH A BID.

THE LOW RESPONSIVE BIDDER SHALL BE REQUIRED TO COMPLETE THIS RESPONSIBILITY DETAIL FORM AS SPECIFIED IN SECTION 00 21 00 - INSTRUCTIONS TO BIDDERS. **THIS COMPLETED RESPONSIBILITY DETAIL FORM SHALL BE SUBMITTED ELECTRONICALLY (PDF) VIA EMAIL TO THE CONTACT(S) IDENTIFIED IN THE LOW RESPONSIVE BIDDER SELECTION NOTIFICATION.**

BIDDER'S COMPANY NAME: _____

For the below Mandatory Bidder Responsibility Criteria, please mark the appropriate choice.

1.01 MANDATORY BIDDER RESPONSIBILITY CRITERIA

A. The Bidder shall meet the following mandatory responsibility criteria as described in RCW 39.04.350(1). The Bidder shall be rejected as not responsible if any answer to questions 1 through 5 is "No" or any answer to questions 6 through 8 is "Yes."

1. Does the Bidder have a Certificate of Registration in compliance with RCW 18.27?

   ☐ Yes ☐ No

2. Does the Bidder have a current Washington State Unified Business Identifier number?

   ☐ Yes ☐ No

3. Does the Bidder have Industrial Insurance Coverage for the Bidder's employees working in Washington State as required in RCW 51?

   ☐ Yes ☐ No

4. Does the Bidder have an Employment Security Department number as required in RCW 50?

   **__Attach__ letter dated within six (6) months of Bid Date.*

   **Request a letter electronically by clicking on the following link https://fortress.wa.gov/esd/twt/pwcinternet/ or by emailing a request to publicworks@esd.wa.gov.*

   ☐ Yes ☐ No

5. Does the Bidder have a Washington State Excise Tax Registration number as required in RCW 82?

   ☐ Yes ☐ No

6. Has the Bidder been disqualified from bidding on any public works project under RCW 39.06.010 or 39.12.065(3)?

   ☐ Yes ☐ No

7. Has the Bidder violated RCW 39.04.370 more than one (1) time as determined by the Washington State Department of Labor and Industries?

   ☐ Yes ☐ No

8. Has the Bidder ever been found to be out of compliance with Apprenticeship Utilization requirements of RCW 39.04.320?

   ☐ Yes ☐ No

9. Has the Bidder ever been found to have willfully violated, as defined in RCW 49.48.082, any provision of Chapters 49.46, 49.48, or 49.52 RCW within the three- (3-) year period immediately preceding the date of this bid solicitation?

   ☐ Yes ☐ No

10. Has the Bidder completed the training required by RCW 39.04.350, or is the Bidder on the list of exempt businesses maintained by the Department of Labor and Industries?

    ☐ Yes ☐ No

11. Has the bidder been subject to a revocation of a minor work permit under RCW 49.12.390.(4)?

    ☐ Yes ☐ No

If any answer to questions 1 through 5 is "No" or any answer to questions 6 through 11 is "Yes" - **STOP HERE** and contact the Contract Administrator. The Bidder is not responsible for this Work. Otherwise proceed to 1.02. **Provide attached to this completed form documentation to confirm responsibility criteria.**

For remaining criteria below, check or fill-out the appropriate item. Based upon the answer provided by the Bidder, the Port may request additional information or seek further explanation. As needed, provide backup documentation for any explanations listed below.

1.02 CONTRACT AND REGULATORY HISTORY

A. The Port will evaluate whether the Bidder's contract and regulatory history demonstrates an acceptable record of past project performance and consistent responsibility. The Bidder shall answer the following questions. The Bidder may be rejected as not responsible if any answer to questions 1 through 5 below is "Yes."

   1. Has the Bidder had a contract terminated for cause or default in the last five (5) years?

      ☐ Yes, **If YES, explain below.** ☐ No

      _____

   2. Has the Bidder required a Surety to take over all, or a portion of, a project to cure or respond to an asserted default or material breach of contract on the part of the Bidder on any public works project in the last five (5) years?

      ☐ Yes, **If YES, explain below.** ☐ No

      _____

3. Have the Bidder and major Sub-Bidders been in bankruptcy, reorganization, and/or receivership on any public works project in the last five (5) years?

   ☐ Yes, **If YES, explain below.** ☐ No

   _____

4. Have the Bidder and major Sub-Bidders been disqualified by any state or local agency from being awarded and/or participating on any public works project in the last five (5) years?

   ☐ Yes, **If YES, explain below.** ☐ No

   _____

5. Are the Bidder and major Sub-Bidders currently a party to a formal dispute resolution process with the Port (i.e., a pending mediation, arbitration, or litigation)?

   ☐ Yes, **If YES, explain below.** ☐ No

   _____

1.03 ACCIDENT/INJURY EXPERIENCE

A. The Port will evaluate the Bidder's accident/injury Experience Modification Factor ("EMF") from the Washington State Department of Labor and Industries to assess whether the Bidder has an acceptable safety record preventing personal injuries on projects.

B. List the Bidder's accident/injury EMF for the last five (5) years. An experience factor is calculated annually by the Washington State Department of Labor and Industries.

Year	Effective Year	Experience Factor
1		
2		
3		
4		
5		

If the Bidder has received an EMF of greater than 1.0 for any year, explain the cause(s) of the designation and what remedial steps were taken to correct the EMF. The Bidder may be rejected as not responsible if the Bidder's EMF is greater than 1.0 and sufficient remedial steps have not been implemented.

_____

1.04 WORK PERFORMED BY BIDDER

A. The Bidder shall state the amount of the Work, as an equivalent to the Base Bid, excluding taxes, insurance, and bonding, the Bidder will execute with its own forces.

   %

1.05 ADDITIONAL CONTRACTOR INFORMATION

A. As part of completing this Responsibility Detail Form, **submit the following information with the completed Responsibility Detail Form:**

1. Bidder's recent job resume, including a list of similar projects performed and contact information for the similar project owner(s), a brief description of work, start and end dates, and contract amount.
2. Resumes of Bidder's proposed project manager and job superintendent.

B. The Bidder's failure to provide the required project information may result in a determination of the Bidder being declared non-responsible by the Port.

C. The Bidder shall submit this completed, **SIGNED** Responsibility Detail Form electronically (PDF), with all requested backup documentation, via email to the contact(s) noted on the Low Responsive Bidder Selection Notification.

D. The Bidder and its subcontractors to verify that its subcontractors at each tier meet the responsibility criteria as required by RCW 39.06.020 and 39.04.350.

1. Bidder shall verify major subcontractors meet the responsibility criteria required. Fill out one Port of Tacoma Public Works Project Bidder Evaluation Checklist for Subcontractors for each major subcontractor and submit to the Port with this form. Backup documentation is not required to be submitted.

PROJECT: Parcel 117 Critical Site Redevelopment Snail Eradication

PROJECT NO.: 101690.01

CONTRACT NO.: PA000000411

Responsibility Certification Form

The Low responsive Bidder shall complete the Responsibility Detail Form, attach all documentation, and submit to the Port within twenty-four (24) hours following receipt of the Low Responsive Bidder Selection Notification. All forms shall be submitted electronically (PDF) via email to the contact(s) listed on the Selection Notice. Note, the same project may be used to demonstrate experience across multiple categories if applicable.

By completing and signing this Responsibility Detail Form, the Bidder is certifying that the information contained within the Form, the backup documentation, and any additional information requested by the Port is true and complete. The Bidder's failure to disclose the required information or the submittal of false or misleading information may result in the rejection of the Bidder's Bid, revocation of award, or contract termination.

The information provided herein is true and complete.

_____ _____

Signature of Authorized Representative Date

_____

Print Name and Title

PORT OF TACOMA PUBLIC WORKS PROJECT BIDDER EVALUATION CHECKLIST FOR SUBCONTRACTORS

PROJECT TITLE: Parcel 117 Critical Site Redevelopment Snail Eradication

BIDDER: _____

CONTRACT AND PROJECT NUMBER: PA000000411/ 101690.01

This checklist shall be completed by the Bidder and its subcontractors to verify that its subcontractors at each tier meet the responsibility criteria as required by RCW 39.06.020 and RCW 39.04.350.

This checklist should be submitted to the Port of Tacoma Contracts Administrator within twenty-four (24) hours of request.

Document verification information or backup data is not to be submitted to the Port, this information should remain on file with the Contractor and be presented to the Port if requested at a later date.

Item No.	Item	Initials/ Comments
1.	At the time of Bid submittal, have a certificate of registration in compliance with RCW 18.27: Check the Department of Labor & Industries web site sitehttps://secure.lni.wa.gov/verify/ Verify that a subcontractor has an electrical contractor license, if required by RCW 19.28, or an elevator contractor license, if required by RCW 70.87.	
2.	While reviewing registration information above, also check contractor's **Employer Liability Certificate** to verify workers' comp (industrial insurance) premium status – current account. Complete a "Submit Contractor Tracking Request" to be notified if the contractor fails to pay workers' comp premiums or renew their contractor registration or if their electrical contractor license is suspended or revoked within one year.	
3.	State excise tax registration number (Department of Revenue). (contractor's Washington State Unified Business Identifier and tax registration number) http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/.	
4.	Not disqualified from bidding on any public works contract under RCW 39.06.010 or RCW 39.12.065(3). Check the Department of Labor and Industries https://secure.lni.wa.gov/verify/	
5.	Verify subcontractors are registered with the Washington State Employment Security Department (ESD) and have an account number. Request a letter to be sent from the subcontractor electronically by clicking on the following link https://esd.wa.gov/ or by emailing a request to	

Item No.	Item	Initials/ Comments
	publicworks@esd.wa.gov. Include ESD#, UBI#, and business name in the email. Certificate of Coverage letter issued/dated within the last six (6) months. Document if subcontractor confirms in writing, under penalty of perjury, that it has no employees and this requirement does not apply.	

END OF SECTION

THIS AGREEMENT is made and entered into by and between the PORT OF TACOMA, a State of Washington municipal corporation, hereinafter designated as the "Port," and:

The "Contractor" is: _____ (Legal Name)

_____ (Address)

_____ (Address 2)

_____ (Phone No.)

The "Project" is: Parcel 117 Critical Site Redevelopment Snail Eradication (Title)

101690.01 | PA000000411 (Project/Contract No.)

1229 Alexander Ave E Tacoma WA 98421 (Project Address)

The "Engineer" is: Thais Howard, PE (Engineer)

Director of Engineering (Title)

thoward@portoftacoma.com (Email)

(253) 888-4718 (Phone No.)

The "Contractor's Representative" is: _____ (Representative)

_____ (Title)

_____ (Email)

_____ (Phone No.)

BACKGROUND AND REPRESENTATIONS:

The Port publicly solicited bids on the Contract Documents. The Contractor submitted a Bid to the Port on the _____ day of _____, 20___ to perform the Work.

The Contractor represents that it has the personnel, experience, qualifications, capabilities, and means to accomplish the Work in strict accordance with the Contract Documents, within the Contract Time and for the Contract Price, and that it and its Subcontractors satisfy the responsibility criteria set forth in the Contract Documents, including any supplemental responsibility criteria.

The Contractor further represents that it has carefully examined, and is fully familiar with, all provisions of the Contract Documents, including any Addenda, that it has fully satisfied itself as to the nature, location, difficulty, character, quality, and quantity of the Work required by the Contract Documents and the conditions and other matters that may be encountered at or near the Project site(s), or that may affect performance of the Work or the cost or difficulty thereof, including all applicable safety and site responsibilities, and that it understands and can satisfy all scheduling and coordination requirements and interim milestones.

AGREEMENT:

The Port and the Contractor agree as follows:

1.0 CONTRACTOR TO FULLY PERFORM THE WORK

The Contractor shall fully execute and complete the entire Work for the Project described in the Contract Documents, except to the extent specifically indicated in the Agreement, the General Conditions of the Contract (as well as any Supplemental, Special, or other conditions included in the Project Manual), the Drawings, the Specifications, and all Addenda issued prior to, and all modifications issued after, execution of the Contract.

2.0 DATE OF COMMENCEMENT

The date of commencement of the Work, which is the date from which the Contract Time is measured, shall be fixed as the date of execution of the Contract.

3.0 CONTRACT TIME AND LIQUIDATED DAMAGES

The Contractor shall achieve all interim milestones as set forth in the Contract Documents and Substantial Completion of the entire Work not later than 60 calendar days from execution of the Contract, subject to adjustments of this Contract Time as provided in the Contract Documents. The Contractor shall achieve Final Completion of the entire Work within 30 calendar days of the date on which Substantial Completion is achieved.

Provisions for liquidated damages as a reasonable estimate of future loss, as of the date of this Agreement, are included in the Contract Documents. The parties agree that the stated liquidated damages are reasonable and not penalties individually nor cumulatively.

The liquidated damages for failure to achieve Substantial Completion by the required date shall be $900 per calendar day. After the required Final Completion date, the liquidated damages for failure to achieve Final Completion shall be $90 per calendar day.

Liquidated damages assessed by the Port will be deducted from monies due to the Contractor, or from monies that will become due to the Contractor. The liquidated damages, as specified and calculated herein, shall be levied, cumulatively if applicable, for each and every calendar day that Substantial Completion and/or Final Completion of the Work is delayed beyond the required completion dates, or the completion dates modified by the Port for extensions of the Contract Time.

4.0 CONTRACT PRICE

In accordance with the Contractor's Bid dated _____, the Port shall pay the Contractor in current funds for the Contractor's performance of the Contract, the Contract Price of _____ Dollars ($_____), subject to additions and deductions as provided in the Contract Documents. State and local sales tax is not included in the Contract Price, but will be due and paid by the Port with each progress payment.

6.0 INSURANCE AND BONDS

The Contractor shall purchase and maintain insurance and provide bonds as set forth in the Contract Documents.

This Agreement is entered into as of the day and year first written above:

CONTRACTOR	PORT OF TACOMA
By: _____	By: _____
Title: _____	Title: _____
Date: _____	Execution Date: _____

END OF SECTION

PERFORMANCE BOND # _____

CONTRACTOR (NAME AND ADDRESS)	**SURETY (NAME AND PRINCIPLE PLACE OF BUSINESS)**
_____	_____
_____	_____
_____	_____
OWNER (NAME AND ADDRESS)	**AGENT OR BROKER (FOR INFORMATION ONLY)**
PORT OF TACOMA	_____
P.O. BOX 1837	_____
TACOMA, WA 98401-1837	_____

KNOW ALL MEN BY THESE PRESENTS:

That _____ as Principal, hereinafter called Contractor, and _____ as Surety, hereinafter called Surety, are held and firmly bound unto the Port of Tacoma as Obligee, hereinafter called the Port, in the amount of _____ Dollars ($_____) for the payment whereof Contractor and Surety bind themselves, their executors, administrators, legal representatives, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS:

Contractor shall execute an agreement with the Port for Parcel 117 Critical Site Redevelopment Snail Eradication, Project No. 101690.01/Contract No. PA000000411, a copy of which Contract is by reference made a part hereof (the term “Contract” as used herein to include the aforesaid agreement together with all the Contract Documents, addenda, modifications, all alterations, additions thereto, deletions therefrom, and any other document or provision incorporated into the Contract) and is hereinafter referred to as the Contract.

This bond is executed and issued pursuant to the provisions of RCW 39.08.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if Contractor shall promptly and faithfully perform said Contract, then this obligation shall be null and void; otherwise, it shall remain in full force and effect.

FURTHER:

A. Surety hereby waives notice of any alterations, change orders, modifications, or extensions of time made by the Port.

B. Surety recognizes that the Contract includes provisions for additions, deletions, and modifications to the Work and/or Contract Time and the amounts payable to the Contractor. Subject to the limitations contained in (A) above, Surety agrees that no such addition, deletion, or modification, or any combination thereof, shall avoid or impair Surety’s obligation hereunder.

C. Whenever Contractor has been declared by the Port to be in default, and the Port has given Surety notice of the Port’s determination of such default, Surety shall promptly (in no event more than fifteen (15) days following receipt of such notice) advise the Port of its intended action to:

   1. Remedy the default within fifteen (15) days following its advice to the Port as set forth above, or

2. Assume within fifteen (15) days, following its advice to the Port as set forth above, completion of the Contract in accordance with the Contract Documents and become entitled to payment of the balance of the Contract Sum, or

3. Pay the Port upon completion of the Contract, in cash, the cost of completion together with all other reasonable costs and expenses incurred by the Port as a result of the Contractor's default, including but not limited to, those reasonable costs and expenses incurred by the Port in its efforts to mitigate its losses, which may include, but are not limited to, attorney's fees and efforts to complete the Work prior to the Surety exercising the options available to it as set forth herein.

D. If the Port shall commence suit and obtain judgment against the Surety for recovery hereunder, then the Surety, in addition to such judgment, shall pay all costs and attorney's fees incurred by the Port in enforcement of its rights hereunder. Venue for any action arising out of, or in connection with, this bond shall be in Pierce County, Washington.

E. No right or action shall accrue on this bond to, or for the use of, any person or corporation other than the Port of Tacoma.

Signed and Sealed the _____ day of _____, 20____.

IMPORTANT: Surety companies executing bonds must have an A.M. Best Rating of "A-, FSC (6)" or higher, have an underwriting limitation of not less than the Contract Sum, and be authorized to transact business in the State of Washington.

SURETY	**CONTRACTOR**
_____	_____
Signature	Signature
_____	_____
Printed Name and Title	Printed Name and Title

Power of Attorney attached.

END OF SECTION

LABOR AND MATERIAL PAYMENT BOND # _____

CONTRACTOR (NAME AND ADDRESS)	**SURETY (NAME AND PRINCIPLE PLACE OF BUSINESS)**
_____	_____
_____	_____
_____	_____
OWNER (NAME AND ADDRESS)	**AGENT OR BROKER (FOR INFORMATION ONLY)**
PORT OF TACOMA	_____
P.O. BOX 1837	_____
TACOMA, WA 98401-1837	_____

KNOW ALL MEN BY THESE PRESENTS:

That _____ as Principal, hereinafter called Contractor, and _____ as Surety, hereinafter called Surety, are held and firmly bound unto the Port of Tacoma as Obligee, hereinafter called the Port, and all others entitled to recovery hereunder, in the amount of _____ Dollars ($_____) for the payment whereof Contractor and Surety bind themselves, their executors, administrators, legal representatives, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS:

Contractor shall execute an agreement with the Port for Parcel 117 Critical Site Redevelopment Snail Eradication, Project No. 101690.01/Contract No. PA000000411, a copy of which Contract is by reference made a part hereof (the term “Contract” as used herein to include the aforesaid agreement together with all the Contract Documents, addenda, modifications, alterations, additions thereto, deletions therefrom, and any other document or provision incorporated into the Contract) and is hereinafter referred to as the Contract.

This bond is executed pursuant to the provisions of RCW 39.08.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if Contractor shall promptly make payment to all claimants, as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract and shall indemnify and save the Port harmless from all cost and damage by reason of Contractor’s default, then this obligation shall be null and void; otherwise, it shall remain in full force and effect, subject to the following conditions.

A. Surety hereby waives notice of any alterations, change orders, modifications, or extensions of time made by the Port.

B. Surety recognizes that the Contract includes provisions for additions, deletions, and modifications to the Work and/or Contract Time and the amounts payable to the Contractor. Subject to the limitations contained in (A) above, Surety agrees that no such addition, deletion, or modification, or any combination thereof, shall avoid or impair Surety’s obligation hereunder.

C. Surety hereby agrees that every person protected under the provisions of RCW 39.08.010 who has not been paid as provided under the Contract, and pursuant to RCW 39.08.010, less any amounts withheld pursuant to statute, and less retainage withheld pursuant to RCW 60.28, after the expiration of a period of thirty (30) days after the date on which the completion of the Contract in accordance with RCW 39.08, may sue on this bond, prosecute the suit to final judgment as may be due claimant, and have execution thereon including recovery of reasonable costs and attorney's fees as provided by RCW 39.08. The Port shall not be liable for the payment of any costs or expenses of any such suit.

D. No suit or action shall be commenced hereunder by any claimant unless claimant shall have given the written notices to the Port, and where required, the Contractor, in accordance with RCW 39.08.030.

E. 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 claims which may be properly filed in accordance with RCW 39.08 whether or not suit is commenced under and against this bond.

F. If any Claimant shall commence suit and obtain judgment against the Surety for recovery hereunder, then the Surety, in addition to such judgment and attorney fees as provided by RCW 39.08.030, shall also pay such costs and attorney fees as may be incurred by the Port as a result of such suit. Venue for any action arising out of, or in connection with, this bond shall be in Pierce County, Washington.

Signed and Sealed the _____ day of _____, 20____.

IMPORTANT: Surety companies executing bonds must have an A.M. Best Rating of "A-, FSC (6)" or higher, have an underwriting limitation of not less than the Contract Sum, and be authorized to transact business in the State of Washington.

SURETY	**CONTRACTOR**
_____	_____
Signature	Signature
_____	_____
Printed Name and Title	Printed Name and Title

Power of Attorney attached.

END OF SECTION

BOND NO.: _____

PROJECT TITLE: Parcel 117 Critical Site Redevelopment Snail Eradication

PROJECT NO.: 101690.01

CONTRACT NO.: PA000000411

KNOW ALL MEN BY THESE PRESENTS: That we, _____ _____ a corporation 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 _____, a corporation organized and existing under the laws of the State of _____ and authorized to transact the business of surety in the State of Washington, as Surety, are jointly and severally held and bound unto the PORT OF TACOMA, hereinafter called Port, as Obligee, and are similarly held and bound unto the beneficiaries of the trust fund created by RCW 60.28 as their heirs, executors, administrators, successors, and assigns in the penal sum of _____($_____) plus five (5) percent of any increases in the Contract Price that have occurred or may occur, due to change orders, increases in the quantities, or the addition of any new item of work.

WHEREAS, on the _____ day of _____, the said Principal herein executed Contract No. PA000000411 with the Port for Parcel 117 Critical Site Redevelopment Snail Eradication, Project No. 101690.01.

WHEREAS, said Contract and RCW 60.28 require the Port to withhold from the Principal the sum of five (5) percent from monies earned by the Principal on estimates during the progress of the work, hereinafter referred to as earned retained funds.

WHEREAS, the Principal has requested that the Port accept a bond in lieu of earned retained funds as allowed under RCW 60.28.

NOW THEREFORE, this obligation is such that the Surety, its successors, and assigns are held and bound unto the Port and unto all beneficiaries of the trust fund created by RCW 60.28.011(1) in the aforesaid sum. This bond, including any proceeds therefrom, is subject to all claims and liens and in the same manner and priority as set forth for retained percentages in RCW 60.28. The condition of this obligation is also that if the Principal shall satisfy all payment obligations to persons who may lawfully claim under the trust fund created pursuant to RCW 60.28, to the Port, and indemnify and hold the Port harmless from any and all loss, costs, and damages that the Port may sustain by release of said retainage to Principal, then this obligation shall be null and void, provided the Surety is notified by the Port that the requirements of RCW 60.28.021 have been satisfied and the obligation is duly released by the Port.

IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable under this obligation as Principal. The Surety will not be discharged or released from liability for any act, omission, or defenses of any kind or nature that would not also discharge the Principal.

IT IS HEREBY FURTHER DECLARED AND AGREED that this obligation shall be binding upon and inure to the benefit of the Principal, the Surety, the Port, the beneficiaries of the trust fund created by RCW 60.28 and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, said Principal and said Surety have caused these presents to be duly signed and sealed this _____ day of _____, 20____.

_____

By: _____
Principal

Address: _____

City/ST/Zip: _____

Phone: _____

_____

Surety Name: _____

By: _____
Attorney-In-Fact

Address: _____

City/ST/Zip: _____

Phone: _____

IMPORTANT: Surety companies executing bonds must have an A.M. Best Rating of "A-, FSC (6)" or higher, and be authorized to transact business in the State of Washington.

END OF SECTION

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ARTICLE 1 - THE CONTRACT DOCUMENTS

1.01 GENERAL

A. Contract Documents form the Contract. The Contract Documents are enumerated in the Agreement between the Port and Contractor (“Agreement”). Together, the Contract Documents form the Contract. The Contract represents the entire integrated agreement between the parties and supersedes all prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only in writing and only as set forth in the Contract Documents.

B. Headings only for convenience. The titles or headings of the sections, divisions, parts, articles, paragraphs, and subparagraphs of the Contract Documents are intended only for convenience.

1.02 DEFINITIONS

A. "Contract Documents" proposed for the Work consist of the Agreement, the General Conditions of the Contract (as well as any Supplemental, Special, or other conditions included in the Project Manual), the Drawings, the Specifications, and all Addenda issued prior to, and all modifications issued after, execution of the Contract.

B. “Contractor” means the person or entity contracting to perform the Work under these Contract Documents. The term Contractor includes the Contractor’s authorized representative for purposes of identifying obligations and responsibilities under the Contract Documents, including the ability to receive notice and direction from the Port.

C. "Day" means a calendar day unless otherwise specifically designated.

D. "Drawings” are the graphic and pictorial portions of the Contract Documents showing the design, location, and dimensions of the Work, including plans, elevations, sections, details, and diagrams.

E. "Engineer” is the Port employee generally tasked with administering the Project on the Port’s behalf and the person with overall responsibility for managing, for the Port, the Project scope, budget, and schedule. To the extent empowered, the Engineer may delegate to others at the Port (such as a Project Manager or Inspector) the responsibility for performing delegated responsibilities of the Engineer’s under this Contract.

F. "Port” means the Port of Tacoma. The Port will designate in writing a representative (usually the Engineer) who shall have the authority to act on the Port’s behalf related to the Project. The “Port” does not include staff, maintenance, or safety workers, or other Port employees or consultants that may contact the Contractor or be present at the Project site.

G. “Project” is identified in the Agreement and is the total construction to be performed by or through the Port, of which the Work performed under the Contract Documents may be only a part.

H. "Specifications” are those portions of the Contract Documents that specify the written requirements for materials, equipment, systems, standards, and workmanship for the Work and for the performance of related services.

I. “Subcontractor” means a person or entity that contracts directly with the Contractor to perform any Work under the Contract Documents. “Subcontractor of any tier” includes Subcontractors as well as any other person or entity, including suppliers, that contracts with a Subcontractor or a lower-tier Subcontractor (also referred to as "Sub-subcontractors") to perform any of the Work.

J. "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all labor, tools, equipment, materials, services, and incidentals necessary to complete all obligations under the Contract Documents. The Work may constitute only a part of the Project, and may interface and need to be coordinated with the work of others.

1.03 INTENT OF THE CONTRACT DOCUMENTS

A. Intent of Contract Documents. The intent of the Contract Documents is to describe the complete Work and to include all items and information necessary for the proper execution and completion of the Work by the Contractor.

B. Contract Documents are complementary. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor is required to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

C. No third party contract rights. The Contract Documents shall not create a contractual relationship of any kind (1) between the Port and a Subcontractor of any tier (although the Port does not waive any third-party beneficiary rights it may otherwise have as to Subcontractors of any tier), (2) between the Contractor and the Engineer or other Port employees or consultants, or (3) between any persons or entities other than the Port and Contractor.

1.04 CORRELATION OF THE CONTRACT DOCUMENTS

A. Precedence. In the event of a conflict or discrepancy between or among the Contract Documents, the conflict or discrepancy will be resolved by the following order of precedence: with an addendum or Change Order having precedence over an earlier document, and computed dimensions having precedence over scaled dimensions, and large scale drawings take precedence over small scale drawings:

1. The signed Agreement
    a. Supplemental Conditions
    b. Division 00 General Conditions
    c. Division 01 General Requirements of Specifications
    d. All other Specifications, including all remaining divisions, material and system schedules and attachments, and Drawings
    e. All other sections in Division 00 not specifically identified herein by Section

B. Inconsistency between or among Contract Documents. If there is any inconsistency between the Drawings, schedules, or Specifications, or any attachments, the Contractor will make an inquiry to the Engineer to determine how to proceed, and, unless otherwise directed, the Contractor will provide the better quality or greater quantity of any work or materials, as reasonably interpreted by the Port, at no change in the Contract Sum or Contract Time. Thus, if Work is shown on Drawings, but not contained in Specifications or schedules, or contained in Specifications or schedules, but not shown on the Drawings, the Work as shown or contained will be provided at no change in the Contract Sum or Contract Time, according to Specifications or Drawings to be issued by the Port.

C. Inconsistency with law. In the event of a conflict between the Contract Documents and applicable laws, codes, ordinances, regulations, or orders of governmental authorities having jurisdiction over the Work, or in the event of any conflict between such laws, the most stringent requirements govern.

D. Organization of Contract Documents. The organization of the Specifications and Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of the Work to be performed. The Port assumes no responsibility for the division and proper coordination of Work between particular Subcontractors.

E. Bid quantities are estimates only. Any “bid quantities” set forth in the Contract Documents are estimates only. The Port does not warrant that the actual amount of Work will correspond to any estimates. The basis of payment will be the actual quantities performed in accordance with the Contract Documents.

1.05 OWNERSHIP OF THE CONTRACT DOCUMENTS

A. Port owns all Contract Documents. All Drawings, Specifications, and other Contract Documents furnished to the Contractor are Port property, and the Port retains all intellectual property rights, including copyrights. The Contract Documents are to be used only with respect to the Project.

ARTICLE 2 - PORT OF TACOMA

2.01 AUTHORITY OF THE ENGINEER

A. Engineer will be Port’s representative. The Engineer or the Engineer’s designee will be the Port’s representative during the Project and will administer the Project on the Port’s behalf.

B. Engineer may enforce all obligations. The Engineer has the authority to enforce all requirements imposed on the Contractor by the Contract Documents.

C. Only Engineer is agent of Port. Other than the Engineer, no other Port employee or consultant is an agent of the Port, and none are authorized to agree on behalf of the Port to changes in the Contract Sum or Contract Time, nor to waive provisions of the Contract Documents, nor to direct the Contractor to take actions that change the Contract Sum or Contract Time, nor to accept notice of protests or claims on behalf of the Port.

2.02 ADMINISTRATION OF THE CONTRACT

A. Port will administer Contract. The Port will provide administration of the Contract through the Engineer or the Engineer’s designee. All communications with the Port or its consultants related to the Contract will be through the designated representative.

B. Port not responsible for means and methods. The Port is not responsible for, and will have no control or charge of, the means, methods, techniques, sequences, or procedures of construction, or for safety precautions or programs incidental thereto, because these are the sole responsibility of the Contractor. If the Port makes any suggestion of means, methods, techniques, sequences, or procedures, the Contractor will exercise its independent judgment in deciding whether to adopt the suggestion, except as otherwise provided in the Contract Documents.

C. Port not responsible for acts or omissions of Contractor or Subcontractors. The Port is not responsible for, and will have no control or charge of, the acts or omissions of the Contractor, Subcontractors of any tier, suppliers, or any of their agents or employees, or any other persons performing a portion of the Work.

D. Port not responsible for the Work. The Port is not responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The presence of the Engineer or others at the Project site at any time does not relieve the Contractor from its responsibility for non-conforming Work.

E. Port will have access to the Work. The Port and its representatives will at all times have access to the Work in progress, and the Contractor will provide proper facilities for such access and for inspection.

2.03 INFORMATION PROVIDED BY THE PORT

A. Port to furnish information with reasonable promptness. The Port shall furnish information and services required of the Port by the Contract Documents with reasonable promptness.

B. Subsurface investigation. The Port may have undertaken a limited investigation of the soil and other subsurface conditions at the Project site for design purposes only. The results of these investigations will be available for the convenience of the Contractor, but they are not Contract Documents. There is no warranty or guarantee, express or implied, that the conditions indicated are representative of those existing at the site or that unforeseen developments may not occur. The Contractor is solely responsible for interpreting the information.

2.04 CONTRACTOR REVIEW OF PROJECT INFORMATION

A. Contractor to familiarize itself with site and conditions of Work. Prior to executing the Contract, the Contractor shall visit the site, become generally familiar with local conditions under which the Work is to be performed, and correlate personal observations with the requirements of the Contract Documents and all information provided with the Bid Documents. By signing the Contract, the Contractor confirms that the Contract Sum is reasonable compensation for the Work; that the Contract Time is adequate; that it has carefully examined the Contract Documents and the Project site; and that it has satisfied itself as to the nature, location, and character of the Work, the labor, materials, equipment, and other items required and all other requirements of the Contract Documents. The Contractor's failure fully to acquaint itself with any such condition does not relieve the Contractor from the responsibility for performing the Work in accordance with the Contract Documents, within the Contract Time, and for the Contract Sum.

B. Contractor to review Contract Documents. Because the Contract Documents are complementary, the Contractor will, before starting each portion of the Work, carefully study and compare the various Drawings, Specifications, and other Contract Documents, as well as all information furnished by the Port.

C. Contractor to confirm field conditions. Before starting each portion of the Work, the Contractor shall take field measurements of and verify any existing conditions, including all Work in place, and all general reference points; shall observe any conditions at the site affecting the Contractor; and shall carefully compare field measurements, conditions and other information known to the Contractor with the Contract Documents.

2.05 PORT'S RIGHT TO REJECT, STOP, AND/OR CARRY-OUT THE WORK

A. Port may reject Work. The Port has the authority, but not the obligation, to reject work, materials, and equipment that is defective or that otherwise does not conform to the Contract Documents, and to decide questions concerning the Contract Documents. However, the failure to so reject, or the presence of the Port at the site, shall not be construed as assurance that the Work is acceptable or being completed in compliance with the Contract Documents.

B. Port may stop Work. If the Contractor fails to correct Work that does not comply with the requirements of the Contract Documents, or repeatedly or materially fails to properly carry out the Work, the Port may issue an order to stop all or a portion of the Work until the cause for the order has been eliminated. The Port's right to stop the Work shall not impose a duty on the Port to exercise this right for the benefit of the Contractor or any third party.

C. Port may carry-out Work. If the Contractor fails to perform the Work properly, fails to perform any provision of this Contract, or fails to maintain the Baseline Project Schedule, or if the Port reasonably concludes that the Work will not be completed in the specified manner or within the Contract Time, then the Port may, after three (3) days' written notice to the Contractor and without prejudice to any other remedy the Port may have, perform itself or have performed any or all of the Work and may deduct the cost thereof from any payment then or later due the Contractor.

2.06 SEPARATE CONTRACTORS

A. Port may engage separate contractors or perform work with its own forces. The Port may contract with other contractors ("Separate Contractor") in connection with the Project or perform work with its own forces. The Contractor shall coordinate and cooperate with any Port forces or Separate Contractors, as applicable. The Contractor shall provide reasonable opportunity for the introduction and storage of materials and the execution of work by others.

B. Contractor to inspect work of others. If any part of the Contractor's Work depends on the work of the Port or any Separate Contractor, the Contractor shall inspect and promptly report to the Port, in writing, any defects that impact the Contractor. Failure of the Contractor to so inspect and report defects in writing shall constitute an acceptance by Contractor of the work of the Port or Separate Contractor.

C. Contractor to resolve claims of others. Should the Contractor, or any of its Subcontractors of any tier, cause damage of any kind, including but not limited to delay, to any Separate Contractor, the Contractor shall promptly, and using its best efforts, settle or otherwise resolve the dispute with the Separate Contractor. The Contractor shall also promptly remedy damage caused to completed or partially completed construction.

2.07 OFFICERS AND EMPLOYEES OF THE PORT

A. No personal liability. Officers, employees, and representatives of the Port, including the Commissioners, acting within the scope of their employment, shall not be personally liable to Contractor for any acts or omissions arising out of the Project.

ARTICLE 3 - CONTRACTOR'S RESPONSIBILITIES

3.01 DUTY TO PERFORM THE ENTIRE WORK

A. Contractor must perform entire Work in accordance with Contract Documents. The Contractor shall perform the entire Work required by the Contract in accordance with the Contract Documents. Unless otherwise specifically provided, the Contractor shall provide and pay for all labor, tools, equipment, materials, electricity, power, water, other utilities, transportation, and other facilities necessary for the execution and completion of the Work.

B. Contractor shall be independent contractor. The Contractor shall be, and operate as, an independent contractor in the performance of the Work. The Contractor is not authorized to enter into any agreements or undertakings for, or on behalf of, the Port and is not an agent or employee of the Port.

3.02 OBSERVED ERRORS, INCONSISTENCIES, OMISSIONS, OR VARIANCES IN THE CONTRACT DOCUMENTS

A. Contractor to notify Port of any discrepancy. The Contractor's obligations to review and carefully study the Contract Documents and field conditions are for the purpose of facilitating coordination and construction. If the Contractor at any time observes that the Contract Documents, including Drawings and Specifications, vary from the conditions of the Project site, are in error, or omit any necessary detail, the Contractor shall promptly notify the Engineer in writing through a Request for Information. Any Work done after such observation, until authorized by the Engineer, shall be at Contractor's risk. The Contractor shall also promptly report to the Engineer any observed error, inconsistency, omission, or variance with applicable laws through a Request for Information. If the Contractor fails either to carefully study and compare the Contract Documents, or to promptly report any observed error, inconsistency, omission, or variance, the Contractor shall assume full responsibility and shall bear all costs, liabilities, and damages attributable to the error, inconsistency, omission, or variance.

B. Requests for Information. The Contractor shall submit Requests for Information concerning the Contract Documents by following the procedure and using such form as the Port may require. The Contractor shall minimize Requests for Information by thoroughly studying the Contract Documents and reviewing all Subcontractor requests. The Contractor shall allow adequate time in its planning and scheduling for a response from the Port to a Request for Information.

C. Port may provide information to supplement Drawings and Specifications. Minor items of work or detail that are omitted from the Drawings and Specifications, but inferable from the information presented and normally provided by accepted good practice, shall be provided and/or performed by the Contractor as part of the Contract Sum and within the Contract Time. Similarly, the Engineer may furnish to the Contractor additional Drawings and clarifications, consistent with the Contract Documents, as necessary to detail and illustrate the Work. The Contractor shall conform its Work to such additional Drawings and clarifications at no increase in the Contract Sum or Contract Time.

3.03 SUPERVISION AND RESPONSIBILITY FOR SUBCONTRACTORS

A. Contractor responsible for Work and workers. The Contractor shall have complete control of the means, methods, techniques, sequences, or procedures related to the Work, and for all safety precautions or programs. The Contractor shall have complete control over, and responsibility for, all personnel performing the Work. The Contractor is also responsible for the acts and omissions of the Contractor's principals, employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors of any tier.

B. Contractor to supervise the Work. The Contractor shall continuously supervise and direct the Work using competent and skilled personnel and the Contractor's best skill and attention.

C. Contractor to enforce discipline and good order. The Contractor shall enforce strict discipline and good order among all workers on the Project, and shall not employ any unfit person or anyone not skilled in the work to which they are assigned. Incompetent, careless, or negligent workers shall immediately be removed from the Work. The Port may, but is not obligated to, require the Contractor to remove from the Work, at no change in the Contract Sum or Contract Time, anyone whom the Port considers objectionable.

3.04 MATERIALS AND EQUIPMENT

A. Material and equipment to be new. All materials and equipment to be incorporated into the Work shall be new, unless specifically provided otherwise in the Contract Documents. The Contractor shall, if required in writing by the Port, furnish satisfactory evidence regarding the kind and quality of any materials, identify the source, and warrant compliance with the Contract Documents. The Contractor shall ensure that all materials and equipment are protected, kept dry, and stored under cover in a manner to protect such materials and equipment.

B. Material and equipment shall conform to manufacturer instructions. All materials and equipment shall conform, and shall be applied, installed, used, maintained, and conditioned in accordance with the instructions of the applicable manufacturer, fabricator, or processor, unless otherwise specifically provided by the Engineer.

3.05 CONTRACTOR WARRANTIES

A. Work will be of good quality and performed in workmanlike manner. In addition to any specific warranties set forth in the Contract Documents, the Contractor warrants that the Work, including all materials and equipment furnished under the Contract, will be of good quality and new, will be performed in a skillful and workmanlike manner, and will conform to the requirements of the Contract Documents. Any Work not conforming to this warranty, including unapproved or unauthorized substitutions, shall be considered defective.

B. Work will be free from defects. The Contractor warrants that the Work will be free from defects for a period of one (1) year from the date of Substantial Completion of the Project.

C. Contractor to collect and deliver warranties to Port. The Contractor shall collect and deliver to the Port any written warranties required by the Contract Documents. These warranties shall be obtained and enforced by the Contractor for the benefit of the Port without the necessity of separate assignment. These warranties shall extend to the Port all rights, claims, benefits, and interests that the Contractor may have under express or implied warranties or guarantees against a Subcontractor of any tier, supplier, or manufacturer for defective or non-conforming Work. Warranty provisions that purport to limit or alter the Port's rights under the Contract Documents, or the laws of the State of Washington, are null and void.

D. General requirements. The Contractor is not relieved of its general warranty obligations by the specification of a particular product or procedure in the Contract Documents. Warranties in the Contract Documents shall survive completion, acceptance, and final payment.

3.06 REQUIRED WAGES

A. Contractor will pay required wages. The Contractor shall pay (and shall ensure that all Subcontractors of any tier pay) all prevailing wages and other wages (such as Davis-Bacon Act wages) applicable to the Project. See Specification Section 00 73 46.

B. The Contractor shall defend (at Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold the Port harmless from all liabilities, obligations, claims, demands, damages, disbursements, lawsuits, losses, fines, penalties, costs, and expenses, whether direct or indirect, and including, but not limited to, attorneys' fees and consultants' fees and other costs and expenses of litigation, from any violation or alleged violation by the Contractor or any Subcontractor of any tier of RCW 39.12 ("Prevailing Wages on Public Works") or Chapter 51 RCW ("Industrial Insurance").

3.07 STATE AND LOCAL TAXES

A. Contractor will pay taxes on consumables. The Contractor will pay the retail sales tax on all consumables used during performance of the Work and on all items that are not incorporated into the final Work; this tax shall be included in the Contract Sum.

B. Port will pay taxes on the Contract Sum. The Port will pay state and local retail sales tax on the Contract Sum with each progress payment, and on final payment, for transmittal by the Contractor to the Washington State Department of Revenue or to the applicable local taxing authority. Rule 170: WAC 458-20-170.

C. Direct all tax questions to the Department of Revenue. The Contractor should direct all questions concerning taxes on any portion of the Work to the State of Washington Department of Revenue or to the local taxing authority.

D. State Sales Tax - Rule 171: WAC 458-20-171. For work performed related 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, the Contractor shall include Washington State Retail Sales Taxes in the various schedule prices, or other contract amounts, including those that the Contractor pays on the purchase of materials, equipment, or supplies used or consumed in doing the Work.

1. The bid form will indicate which bid items are subject to Rule 171. Any such identification by the Port is not binding upon the Department of Revenue.

3.08 PERMITS, LICENSES, FEES, AND ROYALTIES

A. Contractor to provide and pay for permits unless otherwise specified. Unless otherwise specified, the Contractor shall procure and pay for all permits, licenses, and governmental inspection fees necessary or incidental to the performance of the Work. All costs related to these permits, licenses, and inspections shall be included in the Contract Sum. Any action taken by the Port to assist the Contractor in obtaining permits or licenses shall not relieve the Contractor of its sole responsibility to obtain and pay for permits, licenses, and inspections as part of the Contract Sum.

B. Contractor’s obligations when permit must be in Port’s name. When applicable law or agency requires a permit to be issued to a public agency, the Port will support the Contractor’s request for the permit and accept the permit in the Port’s name, if:

1. The Contractor takes all necessary steps required for the permit to be issued;

2. The permit applies to Work performed in connection with the Project; and

3. The Contractor agrees in writing to abide by all requirements of the permit and to defend and hold harmless the Port from any liability in connection with the permit.

C. Contractor to pay royalties. The Contractor shall pay all royalties and license fees required for the Work unless otherwise specified in the Contract Documents.

3.09 SAFETY

A. Contractor solely responsible for safety. The Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work and the performance of the Contract.

B. Port not responsible for safety. The Port may identify safety concerns to the Contractor; however, no action or inaction of the Port or any third party relating to safety will: (1) relieve the Contractor of its sole and complete responsibility for safety and sole liability for any consequences, (2) impose any obligation on the Port or a third party to inspect or review the Contractor’s safety program or precautions, (3) impose any continuing obligation on the Port or a third party to ensure the Contractor performs the Work safely, or (4) affect the Contractor’s responsibility for the protection of property, workers, and the general public.

C. Contractor to maintain a safe Work site. The Project site may be occupied during performance of the Work. The safety of these site occupants is of paramount importance to the Port. The Contractor shall maintain the Work site and perform the Work in a safe manner and in accordance with the Washington Industrial Safety and Health Act (WISHA) and all other applicable safety laws, rules, and regulations. This requirement shall apply continuously and not be limited to working hours.

D. Contractor to protect Work site and adjacent property until Final Completion. The Contractor shall continuously protect the Work and adjacent property from damage. At all times until Final Completion, the Contractor shall be responsible for, and protect from damage, weather, deterioration, theft, and vandalism, the Work and all materials, equipment, tools, and other items incorporated or to be incorporated in the Work, and shall repair any damage, injury, or loss.

3.10 CORRECTION OF WORK

A. Contractor to correct defective Work. The Contractor shall, at no cost to the Port, promptly correct Work that is defective or that otherwise fails to conform to the requirements of the Contract Documents. Such Work shall be corrected, whether before or after Substantial Completion, and even if it was previously inspected or observed by the Port.

B. One-year correction period. The Contractor shall correct all defects in the Work appearing within one (1) year of Substantial Completion or within any longer period prescribed by law or by the Contract Documents. The Contractor shall initiate remedial action within fourteen (14) days of receipt of notice from the Port and shall complete remedial work within a reasonable time. Work corrected by the Contractor shall be subject to the provisions of this Section 3.10 for an additional one-year period following the Port's acceptance of the corrected Work.

C. Contractor responsible for defects and failures to correct. The Contractor shall be responsible for any expenses incurred by the Port resulting from defects in the Work. If the Contractor refuses or neglects to correct the defects, or does not timely accomplish corrections, the Port may correct the Work and charge the Contractor the cost of the corrections. If damage or loss of service may result from a delay in correction, the corrections may be made by the Port and reimbursed by the Contractor.

D. Port may accept defective work. The Port may, at its sole option, elect to retain defective or nonconforming Work. In such a case, the Port shall reduce the Contract Sum by a reasonable amount to account for the defect or non-conformance.

E. No period of limitation established. Nothing contained in this Section 3.10 establishes a period of limitation with respect to any obligations under the Contract Documents or law. The establishment of the one (1) year correction period relates only to the specific obligation of the Contractor to correct defective or non-conforming Work.

3.11 UNCOVERING OF WORK

A. Contractor to uncover work covered prior to inspection. If any portion of the Work is covered prior to inspection and approval, the Contractor shall, at its expense, uncover or remove the Work for inspection by the Port or others, and replace the Work to the standard required by the Contract Documents.

B. Contractor to uncover work at Port's request. After initial inspection and observation, the Port may order a reexamination of Work, and the Work must be uncovered by the Contractor. If the uncovered Work complies with the Contract Documents, the Port shall pay the cost of reexamination and replacement. If the Work is found not to comply with the Contract Documents, the Contractor shall pay the cost of replacement, unless the Contractor demonstrates that it did not cause the defect in the Work.

3.12 RELOCATION OF UTILITIES

A. Contractor should assume underground utilities are in approximate locations. The Contractor should assume that the locations of any underground or hidden utilities, underground tanks, and plumbing or electrical runs indicated in surveys or the Contract Documents are shown in approximate locations. The accuracy of this information is not guaranteed by the Port and shall be verified by the Contractor. The Contractor shall comply with RCW 19.122.030 and utilize a utility locator service to locate utilities on Port property. The Contractor shall bear the risk of loss if any of its Work directly or indirectly damages or interrupts any utility service or causes or contributes to damages of any nature.

B. Utility relocation or removal. Where relocation or removal of utilities is necessary or required, it shall be performed at the Contractor's sole expense, unless the Contract Documents specify otherwise. If a utility owner is identified as being responsible for relocating or removing utilities, the work will be accomplished at the utility owner's convenience, either during, or in advance of, construction. Unless otherwise specified, it shall be the Contractor's sole responsibility to coordinate, schedule, and pay for work performed by a utility owner.

C. Contractor to notify Port of unknown utilities. If the Contractor discovers the presence of any unknown utilities, it shall immediately notify the Engineer in writing.

3.13 LABOR

A. Contractor responsible for labor peace. The Contractor is responsible for labor peace relating to the Work and shall cooperate in maintaining Project-wide labor harmony. The Contractor shall use its best efforts as an experienced contractor to adopt and implement policies and practices designed to avoid work stoppages, slowdowns, disputes, or strikes.

B. Contractor to minimize impact of labor disputes. The Contractor will take all necessary steps to prevent labor disputes from disrupting or otherwise interfering with access to Port property. If a labor dispute disrupts the progress of the Work or interferes with access, the Contractor shall promptly and expeditiously take all necessary action to eliminate or minimize the disruption or interference.

3.14 INDEMNIFICATION

A. Duty to defend, indemnify, and hold harmless. To the fullest extent permitted by law and subject to this Section 3.14, the Contractor shall defend (at the Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold harmless the Port and the Northwest Seaport Alliance, including their respective Commissions, officers, managers, and employees, the Engineer, any consultants, and the agents and employees, successors and assigns of any of them (the "Indemnified Parties") from and against claims, damages, lawsuits, losses (including loss of use), disbursements, liabilities, obligations, fines, penalties, costs, and expenses, whether direct and indirect or consequential, including but not limited to, consultants' fees, and attorneys' fees incurred on such claims and in proving the right to indemnification ("Claims"), arising out of, or resulting from, the acts or omissions of the Contractor, a Subcontractor of any tier, their agents, and anyone directly or indirectly employed by any of them or anyone for whose acts they may be liable (individually and collectively, the "Indemnitor").

B. Duty to defend, indemnify, and hold harmless for sole negligence. The Contractor will fully defend, indemnify, and hold harmless the Indemnified Parties for the sole negligence or willful misconduct of the Indemnitor.

C. Duty to defend, indemnify, and hold harmless for concurrent negligence. Where Claims arise from the concurrent negligence of (1) the Port; and (2) the Indemnitor, the Contractor's obligations to indemnify and defend the Indemnified Parties under this Section 3.14 shall be effective only to the extent of the Indemnitor's negligence.

D. Duty to indemnify not limited by workers' compensation or similar employee benefit acts. In claims against any of the Indemnified Parties by an employee of the Contractor, a Subcontractor of any tier, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under this Section 3.14 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable under workers' compensation acts, disability benefit acts, or other employee benefit acts. After mutual negotiation of the parties, the Contractor waives immunity as to the Indemnified Parties under Title 51 RCW, "Industrial Insurance."

E. Intellectual property indemnification. The Contractor will be liable for and shall defend (at the Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold the Indemnified Parties harmless for Claims for infringement by the Contractor of copyrights or patent rights arising out of, or relating to, the Project.

F. Labor peace indemnification. If the Contractor fails to satisfy its labor peace obligations under the Contract, the Contractor will be liable for and shall defend (at the Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold harmless the Indemnified Parties for Claims brought against the Port by third parties (including but not limited to lessees, tenants, contractors, customers, licensees, and invitees of the Port) for injunctive relief or monetary loss.

G. Cyber risk indemnification. Contractor shall defend, indemnify, and hold harmless the Indemnified Parties from and against any liability, expense, fines, penalties, cost, demand, or other obligation, resulting from or out of any cyber-related risk that includes theft, loss or misuse of data, release of private information as result of a network breach, penetration, compromise, or loss of IT systems control.

H. Joinder. The Contractor agrees to being added by the Port as a party to any arbitration or litigation with third parties in which the Port alleges indemnification or seeks contribution from the Indemnitor. The Contractor shall cause each of its Subcontractors of any tier to similarly stipulate in their subcontracts; in the event any does not, the Contractor shall be liable in place of such Subcontractor(s) of any tier.

I. Other. To the extent that any portion of this Section 3.14 is stricken by a court or arbitrator for any reason, all remaining provisions shall retain their vitality and effect. The obligations of the Contractor under this Section 3.14 shall not be construed to negate, abridge, or otherwise reduce any other right or obligations of indemnity which would otherwise exist. To the extent the wording of this Section 3.14 would reduce or eliminate an available insurance coverage, it shall be considered modified to the extent necessary so that the insurance coverage is not affected. This Section 3.14 shall survive completion, acceptance, final payment, and termination of the Contract.

3.15 WAIVER OF CONSEQUENTIAL DAMAGES

A. Mutual waiver of consequential damages. The Contractor and Port waive claims against each other for consequential damages arising out of, or relating to, this Contract. This mutual waiver includes, but is not limited to: (1) damages incurred by the Port for rental expenses, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons, and (2) damages incurred by the Contractor for principal and home office overhead and expenses including, but not limited to, the compensation of personnel stationed there, for losses of financing, business, and reputation, for losses on other projects, for loss of profit, and for interest or financing costs. This mutual waiver includes, but is not limited to, all consequential damages due to either party's termination.

B. Limitation. Nothing contained in this Section 3.15; however, shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents, to preclude damages specified in the Agreement, or to affect the Contractor's obligation to indemnify the Port for direct, indirect, or consequential damages alleged by a third party.

ARTICLE 4 - SUBCONTRACTORS AND SUPPLIERS

4.01 RESPONSIBILITY FOR ACTIONS OF SUBCONTRACTORS AND SUPPLIERS.

A. Contractor responsible for Subcontractors. The Contractor is fully responsible to the Port for the acts and omissions of its Subcontractors of any tier and all persons either directly or indirectly employed by the Contractor or its Subcontractors.

4.02 AWARD OF CONTRACTS TO SUBCONTRACTORS AND SUPPLIERS

A. Contractor to provide proposed Subcontractor information. The Contractor, within ten (10) days after the Port's notice of award of the Contract, shall provide the Engineer with the names of the persons or entities proposed to perform each of the principal portions of the Work (i.e., either a Subcontractor listed in a bid or proposal or a Subcontractor performing Work valued at least ten percent (10%) of the Contract Sum) and the proprietary names, and the suppliers of, the principal items or systems of materials and equipment proposed for the Work. No progress payment will become due until after this information has been furnished.

B. Port to respond promptly with objections. The Port may respond promptly to the Contractor in writing stating: (1) whether the Port has reasonable objection to any proposed person or entity, or (2) whether the Port requires additional time for review. If the Port makes a reasonable objection, the Contractor shall replace the Subcontractor with no increase to the Contract Sum or Contract Time. Such a replacement shall not relieve the Contractor of its responsibility for the performance of the Work and compliance with all of the requirements of the Contract within the Contract Sum and Contract Time.

C. Reasonable objection defined. "Reasonable objection" as used in this Section 4.02 includes, but is not limited to: (1) a proposed Subcontractor of any tier different from the entity listed with the bid, (2) lack of "responsibility" of the proposed Subcontractor, as defined by Washington law and the Bidding Documents, or lack of qualification or responsibility of the proposed Subcontractor based on the Contract or Bidding Documents, or (3) failure of the Subcontractor to perform satisfactorily in the Port's opinion (such as causing a material delay or submitting a claim that the Port considers inappropriate) on one or more projects for the Port within five (5) years of the bid date.

D. No substitution allowed without permission. The Contractor shall not substitute a Subcontractor, person, or organization without the Engineer's written consent.

4.03 SUBCONTRACTOR AND SUPPLIER RELATIONS

A. Contractor to schedule, supervise, and coordinate Subcontractors. The Contractor shall schedule, supervise, and coordinate the operations of all Subcontractors of any tier, including suppliers. The Contractor shall ensure that appropriate Subcontractors coordinate the Work of lower-tier Subcontractors.

B. Subcontractors to be bound to Contract Documents. By appropriate agreement, the Contractor shall require each Subcontractor and supplier to be bound to the terms of the Contract Documents and to assume toward the Contractor, to the extent of their Work, all of the obligations that the Contractor assumes toward the Port under the Contract Documents. Each subcontract shall preserve and protect the rights of the Port and shall allow to the Subcontractor, unless specifically provided in the subcontract, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Port. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with lower-tier Subcontractors.

C. Contractor to correct deficiencies in Subcontractor performance. When a portion of the Work subcontracted by the Contractor is not being prosecuted in accordance with the Contract Documents, or if such subcontracted Work is otherwise being performed in an unsatisfactory manner in the Port's opinion, the Contractor shall, on its own initiative or upon the written request of the Port, take immediate steps to correct the deficiency or remove the non-performing party from the Project. The Contractor shall replace inadequately performing Subcontractors upon request of the Port at no change in the Contract Sum or Contract Time.

D. Contractor to provide subcontracts. Upon request, the Contractor will provide the Port copies of written agreements between the Contractor and any Subcontractor.

ARTICLE 5 - WORKFORCE AND NON-DISCRIMINATION REQUIREMENTS

5.01 COMPLIANCE WITH NON-DISCRIMINATION LAWS

A. Contractor to comply with non-discrimination laws. The Contractor shall fully comply with all applicable laws, regulations, and ordinances pertaining to non-discrimination.

B. Nondiscrimination Provision

1. Nondiscrimination Requirement. During the term of this Contract, Contractor, including any subcontractor, shall not discriminate on the bases enumerated at RCW 49.60.530(3). In addition, Contractor, including any subcontractor, shall give written notice of this nondiscrimination requirement to any labor organizations with which Contractor, or subcontractor, has a collective bargaining or other agreement.

2. Obligation to Cooperate. Contractor, including any subcontractor, shall cooperate and comply with any Washington state agency investigation regarding any allegation that Contractor, including any subcontractor, has engaged in discrimination prohibited by this Contract pursuant to RCW 49.60.530(3).

3. Default. Notwithstanding any provision to the contrary, POT may suspend Contractor, including any subcontractor, upon notice of a failure to participate and cooperate with any state agency investigation into alleged discrimination prohibited by this Contract, pursuant to RCW 49.60.530(3). Any such suspension will remain in place until POT receives notification that Contractor, including any subcontractor, is cooperating with the investigating state agency. In the event Contractor, or subcontractor, is determined to have engaged in discrimination identified at RCW 49.60.530(3), POT may terminate this Contract in whole or in part, and Contractor, subcontractor, or both, may be referred for debarment as provided in RCW 39.26.200. Contractor or subcontractor may be given a reasonable time in which to cure this noncompliance, including implementing conditions consistent with any court-ordered injunctive relief or settlement agreement.

4. Remedies for Breach. Notwithstanding any provision to the contrary, in the event of Contract termination or suspension for engaging in discrimination, Contractor, subcontractor, or both, shall be liable for contract damages as authorized by law including, but not limited to, any cost difference between the original contract and the replacement or cover contract and all administrative costs directly related to the replacement contract, which damages are distinct from any penalties imposed under Chapter 49.60, RCW. POT shall have the right to deduct from any monies due to Contractor or subcontractor, or that thereafter become due, an amount for damages Contractor or subcontractor will owe POT for default under this provision.

5.02 MWBE, VETERAN-OWNED, AND SMALL BUSINESS ENTERPRISE PARTICIPATION.

A. In accordance with the legislative findings and policies set forth in RCW 39.19, the Port encourages participation in all of its contracts by MWBE firms certified by the Office of Minority and Women's Business Enterprises (OMWBE). Participation may be either on a direct basis in response to this invitation or as a subcontractor to a Bidder. However, unless required by federal statutes, regulations, grants, or contract terms referenced in the Contract Documents, no preference will be included in the evaluation of Bids, no minimum level of MWBE participation shall be required as a condition for receiving an award, and Bids will not be rejected or considered non-responsive on that basis. Any affirmative action requirements set forth in federal regulations or statutes included or referenced in the Contract Documents will apply.

   The Port encourages participation in all of its contracts by Veteran-owned businesses (defined in RCW 43.60.010) and located at http://www.dva.wa.gov/program/certified-veteran--and-servicemember-owned-businesses and Small, Mini, and Micro businesses (defined in RCW 39.26.010)

5.03 APPRENTICESHIP PARTICIPATION

A. In accordance with RCW 39.04.320, fifteen (15) percent Apprenticeship Participation is required for all projects estimated to cost one million ($1,000,000) dollars or more.

B. Apprentice participation, under this contract, may be counted towards the required percentage (%) only if the apprentices are from an apprenticeship program registered and approved by the Washington State Apprenticeship and Training Council (RCW 49.04 and WAC 296-05).

C. Bidders may contact the Department of Labor and Industries, Specialty Compliance Services Division, Apprenticeship Section, P.O. Box 44530, Olympia, WA 98504-4530 by phone at (360) 902-5320, or e-mail at Apprentice@lni.wa.gov, to obtain information on available apprenticeship programs.

D. For each project that has apprentice requirements, the contractor shall submit a "Statement of Apprentice and Journeyman Participation" on forms provided by the Port of Tacoma, with every request for project payment. The Contractor shall submit consolidated and cumulative data collected by the Contractor and collected from all subcontractors by the Contractor. The data to be collected and submitted includes the following:

1. Contractor name and address
2. Contract number
3. Project name
4. Contract value
5. Reporting period "Beginning Date" through "End Date"
6. Name and registration number of each apprentice by contractor
7. Total number of apprentices and labor hours worked by them, categorized by trade or craft.
8. Total number of journeymen and labor hours worked by them, categorized by trade or craft
9. Cumulative combined total of apprentice and journeymen labor hours
10. Total percentage of apprentice hours worked

E. No changes to the required percentage (%) of apprentice participation shall be allowed without written approval of the Port. In any request for the change, the Contractor shall clearly demonstrate a good faith effort to comply with the requirements for apprentice participation.

F. Labor hours used in the 15% labor hour calculation will include all employees working on the project who are subject to prevailing wage laws. The definition of Labor Hours is further clarified to include working supervisor and foreman hours if they are covered under prevailing wage laws based on the time spent performing laborious activities. Simply adding supervisor or foreman to the employee’s title does not exempt their hours from the calculation.

G. During the life of the project, Apprentice Utilization is actively monitored through LNIs Prevailing Wage Intents and Affidavits (PWIA) system using the certified payroll calculated percentage. In addition, the affidavit calculated percentage shown in PWIA must be at least 15.0% to be compliant. All affidavits must be filed before determining if the Apprentice Utilization Requirement was met. Failure to achieve at least 15.0% apprentice Utilization as shown in PWIA for certified payrolls and affidavits will cause a penalty of $500.00

ARTICLE 6 - CONTRACT TIME AND COMPLETION

6.01 CONTRACT TIME

A. Contract Time is measured from Contract execution. Unless otherwise provided in the Agreement, the Contract Time is the period of time, including authorized adjustments, specified in the Contract Documents from the date the Contract is executed to the date Substantial Completion of the Work is achieved.

B. Commencement of the Work. The Contractor shall begin Work in accordance with the notice of award and the notice to proceed and shall complete all Work within the Contract Time. When the Contractor's signed Agreement, required insurance certificate with endorsements, bonds, and other submittals required by the notice of award have been accepted by the Port, the Port will execute the Contract and, following receipt of other required pre-work submittals, will issue a notice to proceed to allow the Contractor to mobilize and commence physical Work at the Project site, as further described in these contract documents. No Work at the Project site may commence until the Port issues a notice to proceed.

C. Contractor shall achieve specified completion dates. The Contractor shall achieve Substantial Completion within the Contract Time and shall achieve Final Completion within the time period thereafter stated in the Contract Documents.

D. Time is of the essence. Time limits stated in the Contract Documents, including any interim milestones, are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

6.02 PROGRESS AND COMPLETION

A. Contractor to maintain schedule. The Contractor's sequence and method of operations, application of effort, and work force shall at all times be created and implemented to ensure the orderly, expeditious, and timely completion of the Work and performance of the Contract. The Contractor shall furnish sufficient forces and shall work such hours, including extra shifts, overtime operations, and weekend and holiday work as may be necessary to ensure completion of the Work within the Contract Time and the approved Baseline Project Schedule.

B. Contractor to take necessary steps to meet schedule. If the Contractor fails substantially to perform in a timely manner in accordance with the Contract Documents and, through the fault of the Contractor or Subcontractor(s) of any tier, fails to meet the Baseline Project Schedule, the Contractor shall take such steps as may be necessary to immediately improve its progress by increasing the number of workers, shifts, overtime operations, or days of work, or by other means and methods, all without additional cost to the Port. If the Contractor believes that any action or inaction of the Port constitutes acceleration, the Contractor shall immediately notify the Port in writing and shall not accelerate the Work until the Port either directs the acceleration in writing or denies the constructive acceleration.

C. Liquidated damages not exclusive. Any provisions in the Contract Documents for liquidated damages shall not preclude other damages due to breaches of Contract of the Contractor.

6.03 SUBSTANTIAL COMPLETION

A. Substantial Completion defined. Substantial Completion is the stage in the progress of the Work, or portion or phase thereof, when the Work or designated portion is sufficiently complete in accordance with the Contract Documents so that the Port can fully occupy or utilize the Work, or the designated portion thereof, for its intended use, all requirements in the Contract Documents for Substantial Completion have been achieved, and all required documentation has been properly submitted to the Port in accordance with the Contract Documents. All Work, other than incidental corrective or punch list Work and final cleaning, must be completed. The fact that the Port may occupy the Work or a designated portion thereof does not indicate that Substantial Completion has occurred or that the Work is acceptable in whole or in part.

B. Work not Substantially Complete unless Final Completion attainable. The Work is not Substantially Complete unless the Port reasonably judges that the Work can achieve Final Completion within the period of time specified in the Contract Documents.

C. Notice of Substantial Completion. When the Work or designated portion has achieved Substantial Completion, the Port will provide a notice to establish the date of Substantial Completion. The notice shall establish responsibilities of the Port and Contractor for security, maintenance, heat, utilities, damage to the Work, and insurance, and shall fix the time within which the Contractor shall finish all remaining Work. If the notice of Substantial Completion does not so state, all responsibility for the foregoing items shall remain with the Contractor until Final Completion.

6.04 COMPLETION OF PUNCH LIST

A. Contractor shall complete punch list items prior to Final Completion. The Contractor shall cause punch list items to be completed prior to Final Completion. If, after Substantial Completion, the Contractor does not expeditiously proceed to correct punch list items or if the Port considers that the punch list items, are unlikely to be completed prior to the date established for Final Completion (or such other period of time as is specified in the Contract Documents), the Port may, upon seven (7) days' written notice to the Contractor, take over and perform some or all of the punch list items. The Port may also take over and complete any portion of the Work at any time following Substantial Completion and deduct the actual cost of performing the Work (including direct and indirect costs) from the Contract Sum. The Port's rights under this Section 6.04 are not obligations and shall not relieve the Contractor of its responsibilities under any other provisions of the Contract Documents.

6.05 FINAL COMPLETION

A. Final Completion. Upon receipt of written notice from the Contractor that all punch list items and other Contract requirements are completed, the Contractor will notify the Port, and the Port will perform a final inspection. If the Port determines that some or all of the punch list items have not been addressed, the Contractor shall be responsible to the Port for all costs, including re-inspection fees, for any subsequent reviews to determine completion of the punch list. When the Port determines that all punch list items have been satisfactorily addressed, that the Work is acceptable under the Contract Documents, and that the Work has fully been performed, the Port will promptly notify the Contractor of Final Completion.

B. Contractor responsible for costs if Final Completion is not timely achieved. In addition to any liquidated damages, the Contractor is liable for, and the Port may deduct from any amounts due the Contractor, all costs incurred by the Port for services performed after the contractual date of Final Completion, whether or not those services would have been performed prior to that date had Final Completion been timely achieved.

C. Final Completion submittals. The Port is not obligated to accept the Project as complete until the Contractor has submitted all required submittals to the Port.

D. Contractor responsible for the Work until Final Completion. The Contractor shall assume the sole risk of loss and responsibility for all Work under the Contract, and all materials to be incorporated in the Work, whether in storage or at the Project site, until Final Completion. Damage from any cause to either permanent or temporary Work, utilities, materials, equipment, existing structures, the site, or other property owned by the Port or others, shall be repaired by the Contractor to the reasonable satisfaction of the Port at no change in the Contract Sum.

6.06 FINAL ACCEPTANCE

A. Final Acceptance. Final Acceptance is the formal action of the Port accepting the Project as complete.

B. Final Acceptance not an acceptance of defective Work. Final Acceptance shall not constitute acceptance by the Port of unauthorized or defective Work, and the Port shall not be prevented from requiring the Contractor to remove, replace, repair, or dispose of unauthorized or defective Work or recovering damages due to the same.

C. Completion of Work under RCW 60.28. Pursuant to RCW 60.28, “Lien for Labor, Materials, Taxes on Public Works,” completion of the Contract Work shall occur upon Final Acceptance.

6.07 PORT’S RIGHT TO USE THE PREMISES

A. Port has right to use and occupy Work. The Port reserves the right to occupy or use any part of the Work before or after Substantial Completion of some or all of the Work without relieving the Contractor of any of its obligations under the Contract. Such occupancy or use shall not constitute acceptance by the Port of any of the Work, and shall not cause any insurance to be canceled or lapse.

B. No compensation due if Port elects to use and occupy Work. No additional compensation shall be due to the Contractor as a result of the Port’s use or occupancy of the Work or a designated portion.

ARTICLE 7 - PAYMENT

7.01 ALL PAYMENTS SUBJECT TO APPLICABLE LAWS AND SCHEDULE OF VALUES

A. Payment of the Contract Sum. The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Port to the Contractor for performance of the Work under the Contract Documents. Payments made to the Contractor are subject to all laws applicable to the Port and the Contractor. Payment of the Contract Sum constitutes full compensation to the Contractor for performance of the Work, including all risk, loss, damages, or expense of whatever character arising out of the nature or prosecution of the Work. The Port is not obligated to pay for extra work or materials furnished without prior written approval of the Port.

B. Schedule of Values. All payments will be based upon an approved Schedule of Values. Prior to submitting its first Application for Payment, the Contractor shall submit a Schedule of Values to the Port allocating the entire Contract Sum to the various portions of the Work. The Schedule of Values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Port may require. This schedule, unless objected to by the Port, shall be used as a basis for reviewing the Contractor’s applications for payment.

7.02 APPLICATIONS FOR PAYMENT

A. Applications for Payment. Progress payments will be made monthly for Work duly certified, approved by the Engineer, and performed (based on the Schedule of Values and actual quantities of Work performed) during the calendar month preceding the Application for Payment. These amounts are paid in trust to the Contractor for distribution to Subcontractors to the extent, and in accordance with, the approved Application for Payment.

7.03 PROGRESS PAYMENTS

A. Progress payments. Following receipt of a complete Application for Payment, the Engineer will either authorize payment or indicate in writing to the Contractor the specific reasons why the payment request is being denied, in whole or in part, and the remedial action the Contractor must take to receive the withheld amount. After a complete Application for Payment has been received and approved by the Port, payment will be made within thirty (30) days. Any payments made by, or through, or following receipt of, payment from third parties will be made in accordance with the third party's policies and procedures.

B. Port may withhold payment. The Port may withhold payment in whole or in part as provided in the Contract Documents or to the extent reasonably necessary to protect the Port from loss or potential loss for which the Contractor is responsible, including loss resulting from the Contractor's acts and omissions.

7.04 PAYMENT BY CONTRACTOR TO SUBCONTRACTORS

A. Payment to Subcontractors. With each Application for Payment, the Contractor shall provide a list of Subcontractors to be paid by the Contractor. No payment request shall include amounts the Contractor does not intend to pay to a Subcontractor because of a dispute or other reason. If, however, after submitting an Application for Payment, but before paying a Subcontractor, the Contractor discovers that part or all of a payment otherwise due to the Subcontractor is subject to withholding from the Subcontractor under the subcontract (such as for unsatisfactory performance or non-payment of lower-tier Subcontractors), the Contractor may withhold the amount as allowed under the subcontract, but it shall give the Subcontractor and the Port written notice of the remedial actions that must be taken and pay the Subcontractor within eight (8) working days after the Subcontractor satisfactorily completes the remedial action identified in the notice.

B. Payment certification to be provided upon request. The Contractor shall provide, with each Application for Payment, a certification signed by Contractor attesting that all payments by the Contractor to Subcontractors from the last Application for Payment were made within ten (10) days of the Contractor's receipt of payment. The certification will also attest that the Contractor will make payment to Subcontractors for the current Application for Payment within ten (10) days of receipt of payment from the Port.

7.05 FINAL PAYMENT

A. Final payment. Final applications for payment are due within seven (7) days following Final Completion. Final payment of the unpaid balance of the Contract Sum, except retainage, will be made following Final Completion and within thirty (30) days of the Contractor's submission of an approved final Application for Payment.

B. Releases required for final payment. The final payment shall not become due until the Contractor delivers to the Port a complete release of all liens arising out of the Contract, as well as an affidavit stating that, to the best of Contractor's knowledge, its release includes all labor and materials for which a lien could be filed. If a Subcontractor of any tier refuses to furnish a release or waiver required by the Port, the Port may (a) retain in the fund, account, or escrow funds in such amount as to defray the cost of foreclosing the liens of such claims and to pay attorneys' fees, the total of which shall be no less than 150% of the claimed amount, or (b) accept a bond from the Contractor, satisfactory to the Port, to indemnify the Port against the lien. If any such lien remains unsatisfied after all payments from the retainage are made, the Contractor shall refund to the Port all moneys that the Port may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

C. Contractor to hold Port harmless from liens. The Contractor shall defend (at the Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold harmless the Port from any liens, claims, demands, lawsuits, losses, damages, disbursements, liabilities, obligations, fines, penalties, costs, and expenses, whether direct or indirect, including but not limited to, attorneys' fees and consultants' fees and other costs and expenses, except to the extent a lien has been filed because of the failure of the Port to make a contractually required payment.

7.06 RETAINAGE

A. Retainage to be withheld. In accordance with RCW 60.28, a sum equal to five percent (5%) of each approved Application for Payment shall be retained. Prior to submitting its first Application for Payment, the Contractor shall exercise one of the options listed below:

1. Retained percentages will be retained by the Port in a fund; or

2. Deposited by the Port in an interest-bearing account or escrow account in a bank, mutual savings bank, or savings and loan association designated by the Contractor, not subject to withdrawal until after the final acceptance of said improvement or work as completed, or until agreed to by both parties; provided that interest on such account shall be paid to the Contractor. Contractor to complete and submit Port provided Retainage Escrow Agreement (Section 00 61 23.13); or

3. If the Contractor provides a bond in place of retainage, it shall be in an amount equal to 5% of the Contract Sum plus Change Orders. The retainage bond shall be based on the form furnished in Section 00 61 23 or otherwise acceptable to the Port and duly completed and signed by a licensed surety or sureties registered with the Washington State Insurance Commissioner and on the currently authorized insurance list published by the Washington State Insurance Commissioner. The surety or sureties must be rated at least "A-, FSC(6)" or higher by A.M. Best Rating Guide and be authorized by the Federal Department of the Treasury. Attorneys-in-fact who sign the retainage bond must file with each bond a certified and effective Power of Attorney statement.

B. Contractor may withhold retainage from Subcontractors. The Contractor or a Subcontractor may withhold not more than five percent (5%) retainage from the monies earned by any Subcontractor or lower-tier Subcontractor, provided that the Contractor pays interest to the Subcontractor at the same interest rate it receives from its reserved funds. If requested by the Port, the Contractor shall specify the amount of retainage and interest due a Subcontractor.

C. Release of retainage. Retainage will be withheld and applied by the Port in a manner required by RCW 60.28 and released in accordance with the Contract Documents and statutory requirements. Release of the retainage will be processed in the ordinary course of business within sixty (60) days following Final Acceptance of the Work by the Port provided that no notice of lien has been given as provided in RCW 60.28, that no claims have been brought to the attention of the Port, that the Port has no claims under this Contract, and that release of retention has been duly authorized by the State. The following items must also be obtained prior to release of retainage: pursuant to RCW 60.28, a certificate from the Department of Revenue; pursuant to RCW 50.24, a certificate from the Department of Employment Security; and appropriate information from the Department of Labor and Industries including approved affidavits of wages paid for the Contractor and each subcontractor.

7.07 DISPUTED AMOUNTS

A. Disputed amounts. If the Contractor believes it is entitled to payment for Work performed during the prior calendar month in addition to the agreed-upon amount, the Contractor may submit to the Port, along with the approved Application for Payment, a separate written payment request specifying the exact additional amount claimed to be due, the category in the Schedule of Values to which the payment would apply, the specific Work for which additional payment is sought, and an explanation of why the Contractor believes additional payment is due.

7.08 EFFECT OF PAYMENT

A. Payment does not relieve Contractor of obligations. Payment to the Contractor of progress payments or final payment does not relieve the Contractor from its responsibility for the Work or its responsibility to repair, replace, or otherwise make good defective Work, materials, or equipment. Likewise, the making of a payment does not constitute a waiver of the Port's right to reject defective or non-conforming Work, materials, or equipment (even though they are covered by the payment), nor is it a waiver of any other rights of the Port.

B. Acceptance of final payment waives claims. Acceptance of final payment by the Contractor, a Subcontractor of any tier, or a supplier shall constitute a waiver of claims except those previously made in writing and identified as unsettled in Contractor's final Application for Payment.

C. Execution of Change Order waives claims. The execution of a Change Order shall constitute a waiver of claims by the Contractor arising out of the Work to be performed or deleted pursuant to the Change Order, except as specifically described in the Change Order.

7.09 LIENS

A. Contractor to discharge liens. The Contractor shall promptly pay (and secure the discharge of any liens asserted by) all persons properly furnishing labor, equipment, materials, or other items in connection with the performance of the Work including, but not limited to, any Subcontractors of any tier.

ARTICLE 8 - CHANGES IN THE WORK

8.01 CHANGES IN THE WORK

A. Changes in the Work authorized. Without invalidating the Contract and without notice to the Contractor's surety, the Port may authorize changes in the Work after execution of the Contract, including changes in the Contract Sum or Contract Time. Changes shall occur solely by Change Order, Unilateral Change Directive, or Minor Change in Work. All changes in the Work are effective immediately, and the Contractor shall proceed promptly to perform the change, unless otherwise provided in the Change Order or Directive.

B. Changes in the Work Defined.

1. A Change Order is a written instrument signed by the Port and Contractor stating their agreement to a change in the Work and the adjustment, if any, in the Contract Sum and/or Contract Time.

2. A Unilateral Change Directive is a written instrument issued by the Port to transmit new or revised Drawings, issue additions or modifications to the Contract, furnish other direction and documents adjustment, if any, to the Contract Sum and/or Contract Time. A Unilateral Change Directive is signed only by the Port, without requiring the consent or signature of the Contractor.

3. A Minor Change in the Work is a written order from the Port directing a change that does not involve an adjustment to the Contract Sum or the Contract Time.

C. Request for Proposal: At any time, the Port may issue a Proposal Request directing the Contractor to propose a change to the Contract Sum and/or Contract Time, if any, based on a proposed change in the Work. The Contractor shall submit a responsive Change Order proposal as soon as possible, and no later than fourteen (14) days after receipt, in which the Contractor specifies in good faith the extent to which the Contract Sum and/or Contract Time would change. All cost components shall be limited to the manner described in Section 8.02(B). If the Contractor fails to timely respond to a Proposal Request, the Port may issue the change as a Unilateral Change Directive.

1. Fixed price method is default for Contractor Change Order proposal. When the Port has requested that the Contractor submit a Change Order proposal, the Port may specify the basis on which the Contract Sum will be adjusted by the Contractor. The Engineer's preference, unless otherwise indicated, is for changes in the Work to be priced using Lump Sums or Unit Prices or on a time and material (Force Account) basis if unit pricing or lump sums cannot be negotiated or determined. In all instances, however, proposed changes shall include a not-to-exceed price for the change and shall be itemized for evaluation purposes in accordance with Section 8.02(B), as requested by the Engineer.

2. The Port may accept or reject the Contractor's Change Order proposal, request further documentation, or negotiate acceptable terms with the Contractor. If The Port and Contractor reach agreement on the terms of any change in the Work, including any adjustment in the Contract Sum or Contract Time, such agreement shall be incorporated in a Change Order.

3. The Change Order shall constitute full payment and final settlement of all claims for time and for direct, indirect, and consequential costs, including costs of delays, inconvenience, disruption of schedule, or loss of efficiency or productivity, related to any Work either covered or affected by the Change Order, or related to the events giving rise to the request for equitable adjustment. The Port may reject a proposal, in which case the Port may either not effectuate the change or issue a Unilateral Change Directive. The Port will not make payment to the Contractor for any work until that work has been incorporated into an executed Change Order.

D. Unforeseen Conditions: If the Contractor encounters conditions at the site that are: (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or any soils reports made available by the Port to the Contractor, or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall immediately provide oral notice to the Engineer before conditions are disturbed, followed within 24 hours by an initial written notice. The Contractor shall submit a detailed proposal no later than seven (7) days following discovery of differing site conditions. The Engineer will promptly investigate these conditions and, if the Engineer determines that they differ materially and cause an increase or decrease in the Contractor's cost or time required for performance of any part of the Work, will establish a change in the Contract Sum or Contract Time, or both, consistent with the requirements of the Contract Documents. If the Contractor disputes the Engineer's determination, the Contractor may proceed as provided in the dispute resolution procedure (Article 11). No increase to the Contract Sum or the Contract Time shall be allowed if the Contractor does not comply with the contractual requirements or if the Contractor knew, or reasonably should have known, of the concealed conditions prior to executing the Contract.

E. Proceed Immediately: Pending agreement on the terms of the Change Order or upon determination of a differing site condition as defined in 8.01(D), the Engineer may direct Contractor to proceed immediately with the change in the Work. Contractor shall not proceed with any change in the Work until it has obtained the Engineer's written approval and documentation of the following:

1. The scope of work
2. An agreed upon maximum not-to-exceed amount
3. The method of final cost determination
4. Estimated time to complete the changed work
5. As a change in the Work is performed, unless the parties have signed a written Change Order to establish the cost of the change, the Contractor shall maintain an itemized accounting of all costs related to the change based on the categories in Section 8.02(B) and provide such data to the Port upon request. This includes, without limitation, invoices, including freight and express bills, and other support for all material, equipment, Subcontractor, and other charges related to the change and, for material furnished from the Contractor's own inventory, a sworn affidavit certifying the actual cost of such material. Failure to provide data to the Port within seven (7) days of a request constitutes a waiver of any claim. The Port may furnish any material or equipment to the Contractor that it deems advisable, and the Contractor shall have no claim for any costs or fee on such material or equipment.

F. Procedure for Unilateral Change Directive. Whether or not the Port has rejected a Contractor's proposal, the Port may issue a Unilateral Change Directive and the Contractor shall promptly proceed with the specified Work. If the Contractor disagrees with a Unilateral Change Directive, the Contractor shall advise the Port in writing through a Change Order proposal within seven (7) days of receipt. The Contractor's Change Order proposal shall reasonably specify the reasons for any disagreement and the adjustment it proposes. Without this timely Change Order proposal, the Contractor shall conclusively be deemed to have accepted the Port's proposal.

G. Payment pending final determination of Force Account work. Pending final determination of the total cost of Force Account Work, and provided that the Work to be performed under Force Account is complete and any reservations of rights have been signed by the Port, the Contractor may request payment for amounts not in dispute in the next Application for Payment accompanied by documentation indicating the parties' agreement. Work done on a Force Account basis must be approved in writing on a daily basis by the Engineer or the Engineer's designee and invoices shall be submitted with an Application for Payment within sixty (60) days of performance of the Work.

8.02 CHANGES IN THE CONTRACT SUM

A. Port to Decide How Changes are Measured. The Port may elect, in its sole discretion, how changes in the Work will be measured for payment. Change in the Work may be priced on a lump sum basis, through Unit Prices, as Force Account, or by another method documented in the executed Change Order, Unilateral Change Directive, or Minor Change in the Work.

B. Determination of Cost of Change. The total cost of any change in the Work, including a claim under Article 11, shall not exceed the prevailing cost for the Work in the locality of the Project. In all circumstances, the change in the Work shall be limited to the reasonable, actual cost of the following components:

1. Direct labor costs: These are the actual labor costs determined by the number of additional craft hours at their normal hourly rate necessary to perform a change in the Work. The hourly cost of labor will be based upon the following:

    a. Basic wages and fringe benefits: The hourly wage (without markup or labor burden) and fringe benefits paid by the Contractor as established by the Washington Department of Labor and Industries or contributed to labor trust funds as itemized fringe benefits, whichever is applicable, not to exceed that specified in the applicable "Intent to Pay Prevailing Wage," for the laborers, apprentices, journeymen, and foremen performing or directly supervising the change in the Work on site. These wages do not include the cost of Contractor's project manager or superintendent or above, and the premium portion of overtime wages is not included unless pre-approved in writing by the Port. Costs paid or incurred by the Contractor for vacations, per diem, subsistence, housing, travel, bonuses, stock options, or discretionary payments to employees are not separately reimbursable. The Contractor shall provide to the Port copies of payroll records, including certified payroll statements for itself and Subcontractors of any tier, upon the Port's request.

    b. Workers' insurance: Direct contributions to the State of Washington as industrial insurance; medical aid; and supplemental pension by class and rates established by the Washington Department of Labor and Industries.

    c. Federal insurance: Direct contributions required by the Federal Insurance Compensation Act (FICA); Federal Unemployment Tax Act (FUTA); and State Unemployment Compensation Act (SUCA).

2. Direct material costs: This is an itemization, including material invoices, of the quantity and actual cost of additional materials necessary to perform the change in the Work. The cost will be the net cost after all discounts or rebates, freight costs, express charges, or special delivery costs, when applicable. No lump sum costs will be allowed unless approved in advance by the Port.

3. Construction equipment usage costs: This is an itemization of the actual length of time that construction equipment necessary and appropriate for the Work is used solely on the changed Work times the applicable rental cost as established by the lower of the local prevailing rates published in www.equipmentwatch.com, as modified by the AGC/WSDOT agreement, or the actual rate paid to an unrelated third party. If more than one rate is applicable, the lowest available rate will be utilized. Rates and quantities of equipment rented that exceed the local fair market rental costs shall be subject to the Port's prior written approval. Total rental charges for equipment or tools shall not exceed 75% of the fair market purchase value of the equipment or the tool. Actual, reasonable mobilization costs are permitted if the equipment is brought to the site solely for the change in the Work. Mobilization and standby costs shall not be charged for equipment already present on the site.

    The rates in effect at the time of the performance of the changed Work are the maximum rates allowable for equipment of modern design, and in good working condition, and include full compensation for furnishing all fuel, oil, lubrication, repairs, maintenance, and insurance. No gas surcharges are payable. Equipment not of modern design and/or not in good working condition will have lower rates. Hourly, weekly, and/or monthly rates, as appropriate, will be applied to yield the lowest total cost.

4. Subcontractor costs: These are payments the Contractor makes to Subcontractors for changed Work performed by Subcontractors. The Subcontractors' cost of changed Work shall be determined in the same manner as prescribed in this Section 8.02 and, among other things, shall not include consultant costs, attorneys' fees, or claim preparation expenses.

5. Service provider costs: These are payments the Contractor makes to service providers for changed Work performed by service providers. The service providers' cost of changed Work shall be determined in the same manner as prescribed in this Section 8.02.

6. Markup: This is the maximum total amount for overhead, profit, and other costs, including office, home office and site overhead (including purchasing, project manager, superintendent, project engineer, estimator, and their vehicles and clerical assistants), taxes (except for sales tax on the Contract Sum), warranty, safety costs, printing and copying, layout and control, quality control/assurance, small or hand tools (a tool that costs $500 or less and is normally furnished by the performing contractor), preparation of as-built drawings, impact on unchanged Work, Change Order and/or claim preparation, and delay and impact costs of any kind (cumulative, ripple, or otherwise), added to the total cost to the Port of any Change Order work. No markup shall be due, however, for direct settlements of Subcontractor claims by the Port after Substantial Completion. The markup shall be limited in all cases to the following schedule:

    a. Direct labor costs -- 20% markup on the direct cost of labor for the party (Contractor or Subcontractor) providing labor related to the change in the Work;

    b. Direct material costs -- 20% markup on the direct cost of material for the party (Contractor or Subcontractor) providing material related to the change in the Work;

    c. Construction equipment usage costs -- 10% markup on the direct cost of equipment for the party (Contractor or Subcontractor) providing equipment related to the change in the Work;

    d. Contractor markup on Subcontractor costs -- 10% markup for the Contractor on the direct cost (excluding markup) of a change in the Work performed by Subcontractors (and for Subcontractors, for a change in the Work performed by lower-tier Subcontractors); and

    e. Service provider costs -- 5% markup for the Contractor on the direct cost (excluding markup) of a change in the Work performed by service providers.

    The total summed markup of the Contractor and all Subcontractors of any tier shall not exceed 30% of the direct costs of the change in the Work. If the markup would otherwise exceed 30%, the Contractor shall proportionately reduce the markup for the Contractor and all Subcontractors of any tier.

7. Cost of change in insurance or bond premium. This is defined as:

    a. Contractor's liability insurance: The actual cost (expressed as a percentage submitted with the certificate of insurance provided under the Contract Documents and subject to audit) of the Contractor's liability insurance arising directly from the changed Work; and

    b. Public works bond: The actual cost (expressed as a percentage submitted under the Contract Documents and subject to audit) of the Contractor's performance and payment bond arising directly from the changed Work.

Upon request, the Contractor shall provide the Port with supporting documentation from its insurer or surety of any associated cost incurred. The cost of the insurance or bond premium together shall not exceed 2.0% of the cost of the changed Work.

8. Unit Prices. If Unit Prices are specified in the Contract Documents or established by agreement of the parties for certain Work, the Port may apply them to the changed Work. Unit Prices shall include pre-agreed rates for material quantities and shall include reimbursement for all direct and indirect costs of the Work, including overhead, profit, bond, and insurance costs arising out of, or related to, the Unit Priced item. Quantities must be supported by field measurement statements signed by the Port, and the Port shall have access as necessary for quantity measurement. The Port shall not be responsible for not-to-exceed limit(s) without its prior written approval.

8.03 CHANGES IN THE CONTRACT TIME

A. Extension of the Contract Time. If the Contractor is delayed at any time in the commencement or progress of the Work by events for which the Port is responsible, by unanticipated abnormal weather (subject to Section 8.03(E) below), or by other causes not the fault or responsibility of the Contractor that the Port determines may justify a delay in the Contract Time, then the Contract Time shall be extended by Change Order for such reasonable time as the Port may determine. In no event, however, shall the Contractor be entitled to any extension of time absent proof of: (1) delay to an activity on the critical path of the Project, or (2) delay transforming an activity to the critical path, so as to actually delay the anticipated date of Substantial Completion.

B. Allocation of responsibility for delay not caused by Port or Contractor. If a delay was not caused by the Port, the Contractor, or anyone acting on behalf of any of them, the Contractor is entitled only to an increase in the Contract Time but not an increase in the Contract Sum.

C. Allocation of responsibility for delay caused by Port. If a delay was caused by the Port or someone acting on behalf of the Port and affected the critical path, the Contractor shall be entitled to a change in the Contract Time and Contract Sum in accordance with Section 8.02. The Contractor shall not recover damages, an equitable adjustment, or an increase in the Contract Sum or Contract Time from the Port; however, where the Contractor could reasonably have avoided the delay. The Port is not obligated directly or indirectly for damages for any delay suffered by a Subcontractor of any tier that does not increase the Contract Time.

D. Allocation of responsibility for delay caused by Contractor. If a delay was caused by the Contractor, a Subcontractor of any tier, or anyone acting on behalf of any of them, the Contractor is not entitled to an increase in the Contract Time or in the Contract Sum.

E. Adverse weather. If adverse weather is identified as the basis for a claim for additional time, the claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not reasonably have been anticipated and had an adverse effect on the critical path of construction, and that the Work was on schedule (or not behind schedule through the fault of the Contractor) at the time the adverse weather conditions occurred. Neither the Contract Time nor the Contract Sum will be adjusted for normal inclement weather. For a claim based on adverse weather, the Contractor shall be eligible only for a change in the Contract Time (but not a change in the Contract Sum) if the Contractor can substantiate that there was significantly greater than normal inclement weather considering the full term of the Contract Time.

F. Damages for delay. In the event the Contractor (including any Subcontractors of any tier) is held to be entitled to damages from the Port for delay beyond the amount permitted in Section 8.02(B), the total combined damages to the Contractor and any Subcontractors of any tier for each day of delay shall be limited to the reasonable, actual costs of the delay for which the Port is wholly responsible. The limitation on damages set forth in this Section does not apply to any damages arising exclusively from delay to which the Contractor is entitled to recover under Section 8.03(F).

G. Limitation on damages. The Contractor shall not be entitled to damages arising out of loss of efficiency; morale, fatigue, attitude, or labor rhythm; constructive acceleration; home office overhead; expectant under run; trade stacking; reassignment of workers; rescheduling of Work, concurrent operations; dilution of supervision; learning curve; beneficial or joint occupancy; logistics; ripple; season change; extended or increased overhead or general conditions; profit upon damages for delay; impact damages including cumulative impacts; or similar damages. Any effect that such alleged costs may have upon the Contractor or its Subcontractors of any tier is fully compensated through the markup on Change Orders paid through Section 8.02(B).

8.04 RESERVATION OF RIGHTS

A. Reservations of rights void unless signed by Port. Reservations of rights will be deemed waived and are void unless any reserved rights are described in detail and are signed by the Contractor and the Port.

B. Procedure for unsigned reservations of rights. If the Contractor adds a reservation of rights not signed by the Port to any Change Order, Unilateral Change Directive, Change Order proposal, Application for Payment, or any other document, all amounts and all Work therein shall be considered disputed and not payable until costs are re-negotiated or the reservation is withdrawn or changed in a manner satisfactory to, and signed by, the Port. If the Port makes payment based on a document that contains a reservation of rights not signed by the Port, and if the Contractor cashes such payment, then the reservation of rights shall be deemed waived, withdrawn, and of no effect.

8.05 UNIT PRICES

A. Adjustment to Unit Prices. If Unit Prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed (less than eighty percent (80%) or more than one hundred and twenty percent (120%) of the quantity estimated) so that application of a Unit Price would be substantially unfair, the applicable Unit Price but not the Contract Time, shall be adjusted if the Port prospectively approves a Change Order revising the Unit Price.

B. Procedure to change Unit Prices. The Contractor or Port may request a Change Order revising a Unit Price by submitting information to support the change. A proposed change to a Unit Price will be evaluated by the Port based on the change in cost resulting solely from the change in quantity, any change in production rate or method as compared to the original plan, and the share, if any, of fixed expenses properly chargeable to the item. If the Port and Contractor agree on the change, a Change Order will be executed. If the parties cannot agree, the Contractor shall comply with the dispute resolution procedures (Article 11).

ARTICLE 9 - SUSPENSION AND TERMINATION OF CONTRACT

9.01 PORT'S RIGHT TO SUSPEND WORK

A. Port may suspend the Work. The Port may at any time suspend the Work, or any part thereof, by giving notice to the Contractor. The Work shall be resumed by the Contractor as soon as possible, but no later than fourteen (14) days after the date fixed in a notice to resume the Work. The Port shall reimburse the Contractor for appropriate and reasonable expenses consistent with Section 8.02 incurred by the Contractor as a result of the suspension, except where a suspension is the result of the Contractor repeatedly or materially failing to carry out or correct the Work in accordance with the Contract Documents, and the Contractor shall take all necessary steps to minimize expenses.

B. Contractor obligations. During any suspension of Work, the Contractor shall take every precaution to prevent damage to, or deterioration of, the Work. The Contractor shall be responsible for all damage or deterioration to the Work during the period of suspension and shall, at its sole expense, correct or restore the Work to a condition acceptable to the Port prior to resuming Work.

9.02 TERMINATION OF CONTRACT FOR CAUSE BY THE PORT

A. Port may terminate for cause. If the Contractor is adjudged bankrupt or makes a general assignment for the benefit of the Contractor's creditors, if a receiver is appointed due to the Contractor's insolvency, or if the Contractor, in the opinion of the Port, persistently or materially refuses or fails to supply enough properly skilled workmen or materials for proper completion of the Contract, fails to make prompt payment to Subcontractors or suppliers for material or labor, disregards laws, ordinances, or the instructions of the Port, fails to prosecute the Work continuously with promptness and diligence, or otherwise materially violates any provision of the Contract, then the Port, without prejudice to any other right or remedy, may terminate the Contractor after giving the Contractor seven (7) days' written notice (during which period the Contractor shall have the right to cure).

B. Procedure following termination for cause. Following a termination for cause, the Port may take possession of the Project site and all materials and equipment, and utilize such materials and equipment to finish the Work. The Port may also exclude the Contractor from the Project site(s). If the Port elects to complete all or a portion of the Work, it may do so as it sees fit. The Port shall not be required to accept the lowest bid for completion of the Work and may choose to complete all or a portion of the Work using its own work force. If the Port elects to complete all or a portion of the Work, the Contractor shall not be entitled to any further payment until the Work is finished. If the expense of finishing the Work, including compensation for additional managerial and administrative services of the Port, exceeds the unpaid balance of the Contract Sum, the excess shall be paid by the Contractor.

C. Port's remedies following termination for cause. The Port may exercise any rights, claims, or demands that the Contractor may have against third persons in connection with the Contract, and for this purpose the Contractor assigns and transfers to the Port all such rights, claims, and demands.

D. Inadequate termination for cause converted to termination for convenience. If, after the Contractor has been terminated for cause, it is determined that inadequate "cause" for such termination exists, then the termination shall be considered a termination for convenience pursuant to Section 9.03.

9.03 TERMINATION OF CONTRACT FOR CONVENIENCE BY THE PORT

A. Port may terminate for convenience. The Port may, at any time (without prejudice to any right or remedy of the Port), terminate all, or any portion of, the Contract for the Port's convenience and without cause. The Contractor shall be entitled to receive payment consistent with the Contract Documents only for Work properly executed through the date of termination, and costs necessarily incurred by reason of the termination (such as the cost of settling and paying claims arising out of the termination under subcontracts or orders), along with a fee of one percent (1%) of the Contract Sum not yet earned on the whole or part of the Work. The total amount to be paid to the Contractor shall not exceed the Contract Sum as reduced by the amount of payments otherwise made. The Port shall have title to all Work performed through the date of termination.

9.04 TERMINATION OF CONTRACT BY THE CONTRACTOR

A. Contractor may terminate for cause. The Contractor may terminate the Contract if the Work is stopped for a period of sixty (60) consecutive days through no act or fault of the Contractor or a Subcontractor of any tier, for either of the following reasons:

1. Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped; or

2. An act of government, such as a declaration of national emergency, that requires all Work to be stopped.

B. Procedure for Contractor termination. If one of the reasons described in Section 9.04A exists, the Contractor may, upon seven (7) days' written notice to the Port (during which period the Port has the opportunity to cure), terminate the Contract and recover from the Port payment for Work executed through the date of termination in accordance with the Contract Documents and for proven loss with respect to materials, equipment, tools, and construction equipment and machinery, including reasonable overhead and profit on Work executed and direct costs incurred by reason of such termination. The total recovery of the Contractor shall not exceed the unpaid balance of the Contract Sum.

C. Contractor may stop the Work for failure of Port to pay undisputed amounts. The Contractor may stop Work under the Contract if the Port does not pay undisputed amounts due and owing to the Contractor within fifteen (15) days of the date established in the Contract Documents. If the Port fails to pay undisputed amounts, the Contractor may, upon fifteen (15) additional days' written notice to the Port, during which the Port can cure, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately, and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay, and start-up.

9.05 SUBCONTRACT ASSIGNMENT UPON TERMINATION

A. Subcontracts assigned upon termination. Each subcontract is hereby assigned by the Contractor to the Port provided that:

1. The Port requests that the subcontract be assigned.

2. The assignment is effective only after termination by the Port and only for those subcontracts that the Port accepts in writing.

3. The assignment is subject to the prior rights of the surety, if any, under any bond issued in accordance with the Contract Documents.

When the Port accepts the assignment of a subcontract, the Port assumes the Contractor's rights and obligations under the subcontract, but only for events and payment obligations that arise after the date of the assignment.

ARTICLE 10 - BONDS

10.01 CONTRACTOR PERFORMANCE AND PAYMENT BONDS

A. Contractor to furnish performance and payment bonds. Within ten (10) days following its receipt of a notice of award, and as part of the Contract Sum, the Contractor shall secure and furnish duly executed performance and payment bonds using the forms furnished by the Port. The bonds shall be executed by a surety (or sureties) reasonably acceptable to the Port, admitted and licensed in the State of Washington, registered with the Washington State Insurance Commissioner, and possessing an A.M. Best rating of "A-, FSC (6)" or better and be authorized by the U.S. Department of the Treasury. Pursuant to RCW 39.08, the bonds shall be in an amount equal to the Contract Sum, and shall be conditioned only upon the faithful performance of the Contract by the Contractor within the Contract Time and upon the payment by the Contractor of all taxes, fees, and penalties to the State of Washington and all laborers, Subcontractors, and suppliers, and others who supply provisions, equipment, or supplies for the performance of the Work covered by this Contract. The bonds shall be signed by the person or persons legally authorized to bind the Contractor.

B. On contracts of one hundred fifty thousand dollars or less, at the option of the contractor as defined in RCW 39.10.210, the Port may, in lieu of the bond, retain ten percent of the contract amount for a period of thirty days after date of final acceptance, or until receipt of all necessary releases from the department of revenue, the Employment Security Department, and the Department of Labor and Industries and settlement of any liens filed under chapter 60.28 RCW, whichever is later. The recovery of unpaid wages and benefits must be the first priority for any actions filed against retainage held by a state agency or authorized local government.

   For contracts of one hundred fifty thousand dollars or less, the Port may accept a full payment and performance bond from an individual surety or sureties.

C. Port may notify surety. If the Port makes or receives a claim against the Contractor, the Port may, but is not obligated to, notify the Contractor's surety of the nature and amount of the claim. If the claim relates to a possibility of a Contractor's default, the Port may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

ARTICLE 11 - DISPUTE RESOLUTION

11.01 NOTICE OF PROTEST AND CLAIM

A. Dispute resolution procedure mandatory. All claims, direct or indirect, arising out of, or relating to, the Contract Documents or the breach thereof, shall be decided exclusively by the following alternative dispute resolution procedure, unless the parties mutually agree otherwise. If the Port and Contractor agree to a partnering process to assist in the resolution of disputes, the partnering process shall occur prior to, and not be in place of, the mandatory dispute resolution procedures set forth below.

B. Notice of protest defined. Except for claims requiring notice before proceeding with the affected Work as otherwise described in the Contract Documents, the Contractor shall provide immediate oral notice of protest to the Engineer prior to performing any disputed Work and shall submit a written notice of protest to the Port within seven (7) days of the occurrence of the event giving rise to the protest that includes a clear description of the event(s). The protest shall identify any point of disagreement, those portions of the Contract Documents believed to be applicable, and an estimate of quantities and costs involved. When a protest relates to cost, the Contractor shall keep full and complete records and shall permit the Port to have access to those records at any time as requested by the Port.

C. Claim defined. A claim is a demand by one of the parties seeking adjustment or interpretation of the Contract terms, payment of money, extension of time, or other relief with respect to the terms of the Contract Documents. The term “claim” also includes all disputes and matters in question between the Port and Contractor arising out of, or relating to, the Contract Documents. Claims must be initiated in writing and include a detailed factual statement and clear description of the claim providing all necessary dates, locations, and items of Work, the date or dates on which the events occurred that give rise to the claim, the names of employees or representatives knowledgeable about the claim, the specific provisions of the Contract Documents that support the claim, any documents or oral communications that support the claim, any proposed change in the Contract Sum (showing all components and calculations) and/or Contract Time (showing cause and analysis of the resultant delay in the critical path), and all other data supporting the claim. Claims shall also be submitted with a statement certifying, under penalty of perjury, that the claim as submitted is made in good faith, that the supporting cost and pricing data are true and accurate to the best of Contractor’s knowledge and belief, that the claim is fully supported, and that the amount requested accurately reflects the adjustment in the Contract Sum or Contract Time for which Contractor believes the Port is liable. A claim shall be deemed to include all changes, direct and indirect, in cost and in time to which the Contractor and Subcontractors of any tier are entitled and may not contain reservations of rights without the Port’s written approval; any unapproved reservations of rights shall be without effect.

D. Claim procedure. The Contractor shall submit a written claim within thirty (30) days of providing written notice of protest. The Contractor may delay submitting supporting data by an additional thirty (30) days if it notifies the Port in its claim that substantial data must be assembled. Any claim of a Subcontractor of any tier may be brought only through, and after review by and concurrence of, the Contractor.

E. Failure to comply with notice of protest and claim requirements waives claims. Any notice of protest by the Contractor and any claim of the Contractor, whether under the Contract or otherwise, must be made pursuant to, and in strict accordance with, the applicable provisions of the Contract. Failure to properly and timely submit a notice of protest or to timely submit a claim shall waive the claim. No act, omission, or knowledge, actual or constructive, of the Port shall waive the requirement for timely written notice of protest and a timely written claim, unless the Port and the Contractor sign an explicit, unequivocal written waiver approved by the Port. The Contractor expressly acknowledges and agrees that the Contractor’s failure to timely submit required notices of protest and/or timely submit claims has a substantial impact upon, and prejudices, the Port. For the purpose of calculating time periods, an “event giving rise to a claim,” among other things, is not a Request for Information, but rather is a response that the Contractor believes would change the Contract Sum and/or Contract Time.

F. False claims. The Contractor shall not make any fraudulent misrepresentations, concealments, errors, omissions, or inducements to the Port in the formation or performance of the Contract. If the Contractor or a Subcontractor of any tier submits a false or frivolous claim to the Port, which for purposes of this Section 11.01(F) is defined as a claim based in whole or in part on a materially incorrect fact, statement, representation, assertion, or record, the Port shall be entitled to collect from the Contractor by offset or otherwise (without prejudice to any right or remedy of the Port) any and all costs and expenses, including investigation and consultant costs, incurred by the Port in investigating, responding to, and defending against the false or frivolous claim.

G. Compliance with lien and retainage statutes required. If a claim relates to, or is the subject of, a lien or retainage claim, the party asserting the claim may proceed in accordance with applicable law to comply with the notice and filing deadlines prior to resolution of the claim by mediation or by litigation.

H. Performance required pending claim resolution. Pending final resolution of a claim, the Contractor shall continue to perform the Contract and maintain the Baseline Project Schedule, and the Port shall continue to make payments of undisputed amounts due in accordance with the Contract Documents.

11.02 MEDIATION

A. Claims must be subject to mediation. At any time following the Port's receipt of a written claim, the Port may require that an officer of the Contractor and the Port's designee (all with authority to settle) meet, confer, and attempt to resolve a claim. If the claim is not resolved during this meeting, the claim shall be subject to mandatory mediation as a condition precedent to the initiation of litigation. This requirement can be waived only by an explicit, written waiver signed by the Port and the Contractor.

B. Mediation procedure. A request for mediation shall be filed in writing with the other party to the Contract, and the parties shall promptly attempt to agree upon a mediator. If the parties have not reached agreement within thirty (30) days of the request, either party may file the request with the American Arbitration Association, or such other alternative dispute resolution service to which the parties mutually agree, with a copy to the other party, and the mediation shall be administered by the American Arbitration Association (or other agreed service). The parties to the mediation shall share the mediator's fee and any filing fees equally. The mediation shall be held in Pierce County, Washington, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof. Unless the Port and the Contractor mutually agree in writing otherwise, all claims shall be considered at a mediation session that shall occur prior to Final Completion.

11.03 LITIGATION

A. Claims not resolved by mediation are subject to litigation. Claims not resolved through mediation shall be resolved by litigation, unless the parties mutually agree otherwise. The venue for any litigation shall be Pierce County, Washington. The Contractor may bring no litigation on claims, unless such claims have been properly raised and considered in the procedures of this Article 11. The Contractor must demonstrate in any litigation that it complied with all requirements of this Article.

B. Litigation must be commenced promptly. All unresolved claims of the Contractor shall be waived and released, unless the Contractor has complied with the requirements of the Contract Documents, and litigation is served and filed within 180 days of the date of Substantial Completion approved in writing by the Port or termination of the Contract. The pendency of mediation (the time period between receipt by the non-requesting party of a written mediation request and the date of mediation) shall toll these deadlines until the earlier of the mediator providing written notice to the parties of impasse, or thirty (30) days after the date of the mediation session.

C. Port not responsible for attorneys' fees. Neither the Contractor nor a Subcontractor of any tier, whether claiming under a bond or lien statute or otherwise, shall be entitled to attorneys' fees directly or indirectly from the Port (but may recover attorneys' fees from the bond or statutory retainage fund itself to the extent allowable under law).

D. Port may join Contractor in dispute. The Port may join the Contractor as a party to any litigation or arbitration involving the alleged fault, responsibility, or breach of contract of the Contractor or Subcontractor of any tier.

ARTICLE 12 - MISCELLANEOUS

12.01 GENERAL

A. Rights and remedies are cumulative. The rights and remedies of the Port set forth in the Contract Documents are cumulative, and in addition to and not in limitation of, any rights and remedies otherwise available to the Port. The pursuit of any remedy by the Port shall not be construed to bar the Port from the pursuit of any other remedy in the event of similar, different, or subsequent breaches of this Contract. All such rights of the Port shall survive completion of the Project or termination of the Contractor.

B. Reserved rights do not give rise to duty. The rights reserved or possessed by the Port to take any action shall not give rise to a duty for the Port to exercise any such right.

12.02 WAIVER

A. Waiver must be in writing and authorized by Port. Waiver of any provisions of the Contract Documents must be in writing and authorized by the Port. No other waiver is valid on behalf of the Port.

B. Inaction or delay not a waiver. No action, delay in acting, or failure to act by the Port shall constitute a waiver of any right or remedy of the Port, or constitute an approval or acquiescence of any breach or defect in the Work, nor shall any delay or failure of the Port to act waive or otherwise prejudice the right of the Port to enforce a right or remedy at any subsequent time.

C. Claim negotiation not a waiver. The fact that the Port and the Contractor may consider, discuss, or negotiate a claim that has or may have been defective or untimely under the Contract, shall not constitute a waiver of the provisions of the Contract Documents, unless the Port and the Contractor sign an explicit, unequivocal waiver.

12.03 GOVERNING LAW

A. Washington law governs. This Contract and the rights and duties of the parties hereunder shall be governed by the internal laws of the State of Washington, without regard to its conflict of law principles.

12.04 COMPLIANCE WITH LAW

A. Contractor to comply with applicable laws. The Contractor shall at all times comply with all applicable Federal, State and local laws, ordinances, and regulations. This compliance shall include, but is not limited to, the payment of all applicable taxes, royalties, license fees, penalties, and duties.

B. Contractor to provide required notices. The Contractor shall give notices required by all applicable Federal, State and local laws, ordinances, and regulations bearing on the Work.

C. Contractor to confine operations at site to permitted areas. The Contractor shall confine operations at the Project site to areas permitted by applicable laws, ordinances, permits, rules and regulations, and lawful orders of public authorities and the Contract Documents.

12.05 ASSIGNMENT

A. Assignment. The Port and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to the other party and to the partners, successors, assigns, and legal representatives of such other party. The Contractor may not assign, transfer, or novate all or any portion of the Contract, including but not limited to, any claim or right to the Contract Sum, without the Port's prior written consent. If the Contractor attempts to make an assignment, transfer, or novation without the Port's consent, the assignment shall be of no effect, and Contractor shall nevertheless remain legally responsible for all obligations under the Contract. The Contractor also shall not assign or transfer, to any third party, any claims it may have against the Port arising under the Contract or otherwise related to the Project.

12.06 TIME LIMIT ON CAUSES OF ACTION

A. Time limit on causes of action. The Port and Contractor shall commence all causes of action, whether in contract, tort, breach of warranty, or otherwise, against the other arising out of, or related to, the Contract in accordance with the requirements of the dispute resolution procedure set forth in Article 11 of these General Conditions, within the time period specified by applicable law, and within the time limits identified in the Contract Documents. The Contractor waives all claims and causes of action not commenced in accordance with this Section 12.06.

12.07 SERVICE OF NOTICE

A. Notice. Written notice under the Contract Documents by either the Contractor or Port may be served on the other party by personal service, electronic or facsimile transmission, or delivery service to the last address provided in writing to the other party. For the purpose of measuring time, notice shall be deemed to be received by the other party on the next business day following the sender's electronic or facsimile transmittal or delivery by delivery service.

12.08 RECORDS

A. Contractor and Subcontractors to maintain records and cooperate with Port audit. The Contractor and Subcontractors of any tier shall maintain books, ledgers, records, documents, estimates, bids, correspondence, logs, schedules, emails, and other tangible and electronic data and evidence relating or pertaining to costs and/or performance of the Contract ("records") to such extent, and in such detail, as will properly reflect and fully support compliance with the Contract Documents and with all costs, charges, and other amounts of whatever nature. The Contractor shall preserve these records for a period of six (6) years following the date of Final Acceptance under the Contract. Within seven (7) days of the Port's request, both during the Project and for six (6) years following Final Acceptance, the Contractor and Subcontractors of any tier shall make available, at their office during normal business hours, all records for inspection, audit, and reproduction (including electronic reproduction) by the Port or its representatives; failure to fully comply with this requirement shall constitute a material breach of contract and a waiver of all claims by the Contractor and Subcontractors of any tier.

B. Rights under RCW 42.56. The Contractor agrees, on behalf of itself and Subcontractors of any tier, that any rights under Chapter 42.56 RCW will commence at Final Acceptance, and that the invocation of such rights at any time by the Contractor or a Subcontractor of any tier, or their respective representatives, shall initiate an equivalent right to disclosures from the Contractor and Subcontractors of any tier for the benefit of the Port.

12.09 STATUTES

A. Contractor to comply with Washington statutes. The Contractor shall abide by the provisions of all applicable statutes, regulations, and other laws. Although a number of statutes are referenced in the Contract Documents, these references are not meant to be, and are not, a complete list.

1. Pursuant to RCW 39.06, "Registration, Licensing of Contractors," the Contractor shall be registered and licensed as required by the laws of the State of Washington, including but not limited to RCW 18.27, "Registration of Contractors," and shall satisfy all State of Washington bonding and insurance requirements. The Contractor shall also have a current state Unified Business Identifier number; have industrial insurance coverage for the Contractor's employees working in Washington as required by Title 51 RCW; have an Employment Security Department number as required by Title 50 RCW; have a state excise tax registration number as required in Title 82 RCW; and not be disqualified from bidding on any public works contract under RCW 39.06.010 (unregistered or unlicensed contractors) or RCW 39.12.065(3) (prevailing wage violations).
2. The Contractor shall comply with all applicable provisions of RCW 49.28, "Hours of Labor."
3. The Contractor shall comply with pertinent statutory provisions relating to public works of RCW 49.60, "Discrimination."
4. The Contractor shall comply with pertinent statutory provisions relating to public works of RCW 70.92, "Provisions in Buildings for Aged and Handicapped Persons," and the Americans with Disabilities Act.
5. Pursuant to RCW 50.24, "Contributions by Employers," in general, and RCW 50.24.130 in particular, the Contractor shall pay contributions for wages for personal services performed under this Contract or arrange for an acceptable bond.
6. The Contractor shall comply with pertinent provisions of RCW 49.17, "Washington Industrial Safety and Health Act," and Chapter 296-155 WAC, "Safety Standards for Construction Work."

7. Pursuant to RCW 49.70, “Worker and Community Right to Know Act,” and WAC 296-62-054 et seq., the Contractor shall provide to the Port, and have copies available at the Project site, a workplace survey or material safety data sheets for all “hazardous” chemicals under the control or use of Contractor or any Subcontractor of any tier.
8. All products and materials incorporated into the Project as part of the Work shall be certified as “asbestos-free” and “lead-free” by United States standards, and shall also be free of all hazardous materials or substances. At the completion of the Project, the Contractor shall submit certifications of asbestos-free and of lead-free materials certifying that all materials and products incorporated into the Work meet the requirements of this Section, and shall also certify that materials and products incorporated into the Work are free of hazardous materials and substances.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes requirements for the Contractor's insurance.

1.02 SUBMITTAL REQUIREMENTS

A. Evidence of the required insurance within ten (10) days of the issued Notice of Award to the Contractor.

B. Updated evidence of insurance as required until final completion.

1.03 COMMERCIAL GENERAL LIABILITY (CGL) INSURANCE

A. The Contractor shall secure and maintain until Final Completion, at its sole cost and expense, the following insurance in carriers reasonably acceptable to the Port, licensed in the State of Washington, registered with the Washington State Insurance Commissioner, and possessing an A.M. Best rating of "A-, FSC six (6)" or better.

B. The Port of Tacoma (Port) will be included as additional insureds for both ongoing and completed operations by endorsement to the policy using ISO Form CG 20 10 11 85 or forms CG 20 10 04 13 and CG 20 37 04 13 (or equivalent coverage endorsements). The inclusion of the Port as additional insureds shall not create premium liability for the Port.

   Also, by endorsement to the policy, there shall be:

   1. An express waiver of subrogation in favor of the Port;
   2. A cross liabilities clause; and
   3. An endorsement stating that the Contractor's policy is primary and not contributory with any insurance carried by the Port.

C. If the Contractor, Supplier, or Subcontractors will perform any work requiring the use of a licensed professional, per RCW 18, the Contractor shall provide evidence to the Port of professional liability insurance in amounts not less than $1,000,000.

D. This insurance shall cover all of the Contractor's operations, of whatever nature, connected in any way with the Contract, including any operations performed by the Contractor's Subcontractors of any tier. **It is the obligation of the Contractor to ensure that all Subcontractors (at whatever level) carry a similar program that provides the identified types of coverage, limits of liability, inclusion of the Port as additional insured(s), waiver of subrogation and cross liabilities clause.** The Port reserves the right to reject any insurance policy as to company, form, or substance. Contractor's failure to provide, or the Port's acceptance of, the Contractor's certificate of insurance does not waive the Contractor's obligation to comply with the insurance requirements of the Contract as specifically described below:

   1. Commercial General Liability Insurance on an Occurrence Form Basis including, but not limited to:
      a. Bodily Injury Liability;
      b. Property Damage Liability;
      c. Contractual Liability;
      d. Products - Completed Operations Liability;

e. Personal Injury Liability;

f. By endorsement to the policy, not exclude work within fifty feet of any railroad track;

Alternatively, a Commercial General Liability (CGL) policy is acceptable if all of the above coverages are incorporated in the policy and there are no marine exclusions that will remove coverage for either vessels or work done by or above or around the water.

2. Comprehensive Automobile Liability including, but not limited to:

   a. Bodily Injury Liability;

   b. Property Damage Liability;

   c. Personal Injury Liability;

   d. Owned and Non-Owned Automobile Liability; and

   e. Hired and Borrowed Automobile Liability.

3. Railroad protective liability insurance naming the Port and Tacoma Rail as Insureds with coverage of at least $2,000,000 per occurrence and $6,000,000 in the aggregate. The policy must be issued on a standard ISO form CG 00 35 10 93 and include the following:

   a. Endorsed to include the Pollution Exclusion Amendment (ISO form CG 28 31 10 93);

   b. Endorsed to include the Limited Seepage and Pollution Endorsement;

   c. Endorsed to include Evacuation Expense Coverage Endorsement;

   d. No other endorsements restricting coverage may be added; and

   e. The original policy must be provided to the Port prior to execution of the Contract; within ten (10) days of Notice of Award.

4. Contractor’s Pollution Liability (CPL) covering claims for bodily injury, property damage and cleanup costs, and environmental damages from pollution conditions arising from the performance of covered operations.

   a. If the Work involves remediation or abatement of regulated waste to include, but not limited to asbestos containing materials, lead containing products, mercury, PCB, underground storage tanks, or other hazardous materials or substances, the CPL policy shall not exclude such coverage, or a specific policy covering such exposure shall be required from the Contractor and all Subcontractors performing such Work.

   b. If the Work involves transporting regulated materials or substances or waste, a separate policy or endorsement to the CPL policy specifically providing coverage for liability and cleanup arising from an upset or collision during transportation of hazardous materials or substances shall be required from the Contractor and all Subcontractors performing such Work.

   c. It is preferred that CPL insurance shall be on a true occurrence form without a sunset clause. However, if CPL insurance is provided on a Claims Made basis, the policy shall have a retroactive date prior to the start of this project, and this insurance shall be kept in force for at least three years after the final completion of this project. Alternatively, the contractor, at its option, may provide evidence of extended reporting period of not less than three (3) years in its place. The Contractor shall be responsible for providing the Port with certificates of insurance each year evidencing this coverage.

   d. The Port shall be named as an additional insured(s) on the CPL policy.

5. Technology Professional Liability Errors and Omissions Insurance appropriate to the Consultant's profession and work hereunder, with limits not less than $2,000,000 per occurrence. Coverage shall be sufficiently broad to respond to the duties and obligations as is undertaken by the Vendor in this agreement and shall include, but not be limited to, claims involving infringement of intellectual property, copyright, trademark, invasion of privacy violations, information theft, release of private information, extortion and network security. The policy shall provide coverage for breach response costs as well as regulatory fines and penalties as well as credit monitoring expenses with limits sufficient to respond to these obligations.

   The policy shall include, or be endorsed to include, **property damage liability coverage** for damage to, alteration of, loss of, or destruction of electronic data and/or information "property" of the Agency in the care, custody, or control of the Vendor.

E. Except where indicated above, the limits of all insurance required to be provided by the Contractor shall be not less than $2,000,000 for each occurrence. If the coverage is aggregated, the coverage shall be no less than two times the per occurrence or per claim limit. However, coverage in the amounts of these minimum limits shall not be construed as to relieve the Contractor from liability in excess of such limits. Any additional insured endorsement shall NOT be limited to the amounts specified by this Contract, unless expressly waived in writing by the Port.

F. Contractor shall certify that its operations are covered by the Washington State Worker's Compensation Fund. The Contractor shall provide its Account Number or, if self-insured, its Certificate of Qualification Number. The Contractor shall also provide evidence of Stop-Gap Employers' Liability Insurance.

G. The Contractor shall furnish, within ten (10) days following issuance of the Notice of Award, a certificate of insurance satisfactory to the Port evidencing that insurance in the types and minimum amounts required by the Contract Documents has been secured. The Certificate of Insurance shall be signed by an authorized representative of the insurer together with a copy of the endorsement, which shows that the Port are named as additional insured(s).

H. Contractor shall provide at least forty-five (45) days prior written notice to the Port of any termination or material change, or ten (10) day's-notice in the case of non-payment of premium(s).

I. If the Contractor is required to make corrections to the Work after Final Completion, the Contractor shall obtain at its own expense, prior to the commencement of any corrective work, insurance coverage as required by the Contract Documents, which coverage shall be maintained until the corrections to the Work have been completed and accepted by the Port.

1.04 BUILDER'S RISK INSURANCE

A. Until Final Completion of the Work, the construction Work is at the risk of the Contractor and no partial payment shall constitute acceptance of the Work or relieve the Contractor of responsibility of completing the Work under the Contract.

B. To the extent the Work provided under this Contract does not include the construction, rehabilitation or repair of any dam, road or bridge, and whenever the estimated cost of the Work is less than $5,000,000, the Port and Contractor acknowledge that the Port will purchase, or has purchased, from a company or companies lawfully authorized and admitted to do business in Washington, property insurance written on a Builder's Risk "all-risk" (including Earthquake and Flood with applicable sub-limits) or equivalent policy form to cover the course of construction in the amount of the full insurable value thereof. This property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made or until no person or entity other than the Port has an insurable interest in the property, whichever is later. Without further endorsement, the coverage afforded by this insurance includes the interests of the Port, the Contractor, and Subcontractors of any tier on the Project. Coverage for materials intended to be installed in the facility will be covered by the Builder's Risk policy. Losses up to the deductible amount, and payment of any deductible amount, shall be the responsibility of the Contractor. All tools and equipment not intended as part of the construction or installation (including but not limited to Contractor's equipment and tools) will NOT be covered by the policy.

C. To the extent the Work provided under this Contract involves any dam, roadway or bridge, the value of which exceeds $250,000, or whenever the estimated cost of the Work is equal to or greater than $5,000,000, Contractor will purchase from a company or companies lawfully authorized and admitted to do business in Washington, property insurance written on a Builder's Risk "all-risk" (excluding Earthquake and Flood with applicable sub-limits) or equivalent policy form to cover the course of construction in the amount of the full insurable value thereof. This Builder's Risk insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made or until no person or entity other than the Port has an insurable interest in the property, whichever is later. Contractor shall provide evidence satisfactory to the Port confirming the coverage afforded by this insurance shall include the interests of the Port, the Contractor, and Subcontractors of any tier on the Project. Coverage for materials intended to be installed in the facility will be covered by the Builder's Risk policy purchased by the Contractor. Losses up to the deductible amount, and payment of any deductible amount, shall be the responsibility of the Contractor.

   In all instances, the Contractor shall obtain property insurance for all Contractor-owned equipment and tools and, in the event of loss, payment of any deductible amount shall be the responsibility of the Contractor.

PART 2 - PRODUCTS - NOT USED

PART 3 - PRODUCTS - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 PREVAILING AND OTHER REQUIRED WAGES

A. The Contractor shall pay (and shall ensure that all Subcontractors of any tier pay) all prevailing wages and other wages (such as Davis-Bacon Act wages) applicable to the Project.

B. Pursuant to RCW 39.12, “Prevailing Wages on Public Works,” no worker, laborer, or mechanic employed in the performance of any part of the Work shall be paid less than the “prevailing rate of wage” in effect as of the date that bids are due.

1. Based on the Bid Date, the applicable effective date for prevailing wages for this Project is July 22, 2026.

C. The State of Washington prevailing wage rates applicable for this public works Project, which is located in Pierce County, may be found at the following website address of the Department of Labor and Industries:

https://www.lni.wa.gov/licensing-permits/public-works-projects/prevailing-wage-rates/

D. The schedule of the prevailing wage rates is made a part of the Contract Documents by reference as though fully set forth herein, and a printed copy of the applicable prevailing wage rates are also available for viewing at the Port Administration Building, located at 1 Sitcum Plaza, Tacoma, WA 98421 (253-383-5841). Upon request to the Procurement Department at procurement@portoftacoma.com, the Port will email or mail a hard copy of the applicable Journey Level prevailing wages for this Project.

E. Questions relating to prevailing wage data should be addressed to the Industrial Statistician.

Mailing Address: Washington State Department of Labor and Industries
Prevailing Wage Office
P.O. Box 44540
Olympia, WA 98504

Telephone: (360) 902-5335

Facsimile: (360) 902-5300

1. If there is any discrepancy between the provided schedule of prevailing wage rates and the published rates applicable under WAC 296-127-011, the applicable published rates shall apply with no increase in the Contract Sum. It is the Contractor’s responsibility to ensure that the correct prevailing wage rates are paid.

F. Statement to Pay Prevailing Wages

1. Prior to any payment being made by the Port under this Contract, the Contractor, and each Subcontractor of any tier, shall file a Statement of Intent to Pay Prevailing Wages with the Department of Labor and Industries for approval.

2. The statement shall include the hourly wage rate to be paid to each classification of workers entitled to prevailing wages, which shall not be less than the prevailing rate of wage, and the estimated number of workers in each classification employed on the Project by the Contractor or a Subcontractor of any tier, as well as the Contractor’s contractor registration number and other information required by the Department of Labor and Industries.

3. The statement, and any supplemental statements, shall be filed in accordance with the requirements of the Department of Labor and Industries. No progress payment shall be made until the Port receives such certified statement.

G. The Contractor shall post, in a location readily visible to workers, at the Project site: (i) a copy of the Statement of Intent to Pay Prevailing Wages approved by the Industrial Statistician of the Department of Labor and Industries and (ii) the address and telephone number of the Industrial Statistician of the Department of Labor and Industries to whom a complaint or inquiry concerning prevailing wages may be directed.

H. If a State of Washington prevailing wage rate conflicts with another applicable wage rate (such as Davis-Bacon Act wage rate) for the same labor classification, the higher of the two shall govern.

I. Pursuant to RCW 39.12.060, if any dispute arises concerning the appropriate prevailing wage rate for work of a similar nature, and the dispute cannot be adjusted by the parties in interest, including labor and management representatives, the matter shall be referred for arbitration to the Director of the Department of Labor and Industries, and his or her decision shall be final and conclusive and binding on all parties involved in the dispute.

J. Immediately following the end of all Work completed under this Contract, the Contractor and each Subcontractor of any tier, shall file an approved Affidavit of Wages Paid with the Department of Labor and Industries.

K. The Contractor shall defend (at the Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold the Port harmless from all liabilities, obligations, claims, demands, damages, disbursements, lawsuits, losses, fines, penalties, costs, and expenses, whether direct, indirect, including, but not limited to, attorneys' fees and consultants' fees and other costs and expenses, from any violation or alleged violation by the Contractor or any Subcontractor of any tier of RCW 39.12 ("Prevailing Wages on Public Works") or RCW Title 51 ("Industrial Insurance"), including, but not limited to, RCW 51.12.050.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 REQUIREMENTS APPLICABLE PORT-WIDE

A. The Contractor shall submit, prior to the start of Work, a list of emergency contact numbers for itself and its Subcontractors, Suppliers, and manufacturer representatives. Each person on the Project site shall have a valid identification card that is tamper proof with laminated photo identification, such as one (1) of the following:

1. State-issued Driver’s license (also required if driving a vehicle)
2. Card issued by a governmental agency
3. Passport
4. Pacific Maritime Association card
5. Labor organization identification card

B. Identification cards shall be visible while on the Project site or easily displayed when requested.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SCOPE

A. The accompanying Drawings and Specifications show and describe the location and type of Work to be performed under this project. Work is more specifically defined on the drawings listed in Section 00 01 15.

1. The Work under this contract is to provide, furnish and install all labor, materials and equipment required to complete the work, installed, tested, and ready for use, and as described in these documents.

2. The Parcel 117 Critical Site Redevelopment Snail Eradication consists of:

a. Removing an invasive species habitat through re-grading and filling the entire site with crushed surface top course.

b. Installation of stormwater utilities

c. The Parcel 117 Interim Remedial Action which consists of: containment and capping of auto fluff and other hazardous substances concurrent with wetland filling and grading to eradicate the invasive snails. Containment walls will be installed to the north, south, and west of soil containing autofluff to support the placement of clean fill material behind the containment wall. Following installation of the containment wall, demarcation fabric will be placed within the containment area, followed by placement of excavated and fill soil, gravel fill, and the placement of the asphalt cap.

d. Clearing, grubbing, and subsequent leveling of the site to prepare the area for crushed surfacing top course and snail bait. The contractor will remove and dispose of all vegetation and debris on the site. Some of the grasses, weeds, brushes, limbs, and all trees on the east parcel boundary will be cleared and incinerated on site. All Trees and stumps at the west parcel boundary will be logged, grubbed and disposed of at the landfill.

B. The accompanying Specifications describe the location and type of Work to be performed under this project.

1.02 LOCATION

A. The work is located at:

1229 Alexander Ave E Tacoma WA 98421

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. This Section specifies work sequence and constraints.

B. The purpose of the milestones, sequence and limitations of construction are to ensure that the Contractor understands the requirements and limitations on its work by the specific characteristics of the Contract, schedules and conducts work in a manner consistent with achieving these purposes, and complies with the construction schedule, the specific sequence, constraints, milestones and limitations of work specified.

C. Sequence of construction. Plan the sequence of construction to accommodate all the requirements of the specifications. The Contract Price shall include all specified requirements as described in this Section.

1.02 CONTRACTOR ACCESS AND USE OF PREMISES

A. Activity Regulations

1. Ensure Contractor personnel deployed to the project become familiar with and follow all regulations or restrictions established by the Engineer.

B. Work Site Regulations

1. Keep within the limits of work and assigned avenues of ingress and egress. Do not enter any areas outside the designated work location unless previously approved by the Engineer. The Contractor must comply with the following conditions:

a. Restore all common areas to a clean and useable condition that permits the resumption of Tenant operations after the Contractor ceases daily work.

b. Be responsible for control and security of Contractor-owned equipment and materials at the work site. Report to Port Security (phone (253) 383-9472) any missing/lost/stolen property.

c. Ensure all materials, tools and equipment will be removed from the site or secured within the designated laydown area at the end of each shift.

1.03 CONSTRAINTS - GENERAL

A. Constraints for Work at Site

1. Procurement and installation of ecology blocks and steel wire along the property boundary to be performed by Port maintenance

2. Schedule

a. To meet the project schedule, the contractor shall work every weekend until all the grading and excavation work is completed. The site needs to be graded, crushed surfacing top course placed, and the stormwater utilities installed during the dry hot months while the snails are dormant.

3. Noise:

a. Contractor to perform work in accordance with the City of Tacoma’s noise restrictions found in Tacoma Municipal Code Chapter 8.122.

4. Tenants Access:

a. Contractor to maintain and coordinate access for the business on Alexanda Ave.

PART 2 - PRODUCTS

PART 3 - EXECUTION

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. Procedures for preparation and submittal of applications for progress payments.

1.02 PAYMENT PROCEDURES

A. Monthly pay estimates shall clearly identify the work performed for the given time period based on the approved Schedule of Values.

1. At the Pre-construction meeting, the Engineer and the Contractor shall agree upon a date each month when payment applications shall be submitted.

B. For each pay estimate the Contractor shall submit the following:

1. Completed Contractor invoice and updated Schedule of Values tracking sheet as required by Division 01 or as established by the Engineer.

2. Baseline Project Schedule and narrative updated as required by Section 01 32 16 of the Project Manual.

3. Completed “Amounts Paid to Subcontracts and Suppliers” showing total contract amount, amount paid this estimate, total paid to date, and balance owing.

4. Completed “Conditional Release and Waiver of Liens and Claims.”

5. An estimated cashflow statement projecting the Contractor’s monthly billings on the project shall be submitted with each payment application.

C. Prior to submitting a payment application, the Contractor and Engineer shall meet each month to review the work accomplished to determine the actual quantities including labor, materials and equipment charges to be billed.

1. Prior to the payment application meeting, the Contractor shall submit to the Engineer all measurement documentation as referenced in these contract documents; to include all measurement by weight, volume or field.

2. For all change work being done on a force account basis, the Contractor shall submit prior to meeting with Engineer all Force Account back-up documentation as required to process the payment application where Force Account work is being billed. The Engineer and the Contractor shall review the documentation at the payment application meeting to verify quantities and review the work accomplished.

3. The Contractor shall bring a copy of all documentation to the pay application meeting with the Engineer.

4. The Contractor shall submit the updated baseline project schedule for review prior to submitting the payment application to ensure the payment processing is not held up due to necessary schedule revisions.

D. Following the Engineers’ review, the Contractor shall submit the agreed upon pay estimate electronically, with complete supporting documentation attached, using Adobe PDF file format to cpinvoices@portoftacoma.com.

1.03 PAYMENT PRICING

A. Pricing for the various lump sum or unit prices in the Bid Form, as further specified herein, 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 of the U.S. Department of Labor (OSHA).

C. No separate payment will be made for any item that is not specifically set forth in the Bid Form, and all costs therefore shall be included in the prices named in the Bid Form for the various appurtenant items of work.

D. 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 prices bid. Payment for work under one item will not be paid for under any other item.

E. The Port of Tacoma 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 LUMP SUM MEASUREMENT

A. Lump sum measurement will be for the entire item, unit of Work, structure, or combination thereof, as specified and as indicated in the Contractor’s submitted bid.

1. If the Contractor requests progress payments for lump sum items, such progress payments will be made in accordance with an approved Schedule of Values. The quantity for payment for completed work shall be an estimated percentage of the lump sum amount, agreed to between the Engineer and Contractor, payable in monthly progress payments in increments proportional to the work performed in amounts as agreed between the Engineer and the Contractor.

1.05 MEASUREMENT OF QUANTITIES FOR UNIT PRICES

A. Measurement Standards:

1. All Work to be paid for at a contract price per unit measurement, as indicated in the Contractor’s submitted bid, will be measured by the Engineer in accordance with United States Standard Measures.

B. Measurement by Weight:

1. Reinforcing steel, steel shapes, castings, miscellaneous metal, metal fabrications, and similar items to be paid for by weight shall be measured by scale or by handbook weights for the type and quantity of material actually furnished and incorporated into the Work.

2. Unless shipped by rail, material to be measured and paid for by weight shall be weighed on sealed scales regularly inspected by the Washington State Department of Agriculture's Weights and Measures Section or its designated representative. Measurement shall be furnished by and at the expense of the Contractor. All weighing, measuring, and metering devices shall be suitable for the purpose intended and shall conform to the tolerances and specifications as outlined in Washington State Department of Transportation Standard Specifications, Division 1, General Requirements, Article 1-09.2, Weighing Equipment.
3. Provide or utilize platform scales of sufficient size and capacity to permit the entire vehicle or combination of vehicles to rest on the scale platform while being weighed. Combination vehicles may be weighed as separate units provided they are disconnected while being weighed. Scales shall be inspected and certified as often as the Engineer may deem necessary to ascertain accuracy. Costs incurred as a result of regulating, adjusting, testing, inspecting, and certifying scales shall be borne by the Contractor.
4. A licensed weighmaster shall weigh all Contractor-furnished materials. The Engineer may be present to witness the weighing and to check and compile the daily record of such scale weights. However, in any case, the Engineer will require that the Contractor furnish weight slips and daily summary weigh sheets. In such cases, furnish a duplicate weight slip or a load slip for each vehicle weighed, and deliver the slip to the Engineer at the point of delivery of the material.
5. If the material is shipped by rail, the certified car weights will be accepted, provided only actual weight of material will be paid for and not minimum car weights used for assessing freight tariff. Car weights will not be acceptable for material to be passed through mixing plants. Material to be measured by weight shall be weighed separately for each bid item under which it is to be paid.
6. Trucks used to haul material being paid for by weight shall be weighed empty daily and at such additional times as the Engineer may require. Each truck shall bear a plainly legible identification mark. The Engineer may require the weight of the material be verified by weighing empty and loaded trucks on such other scales as the Engineer may designate.

C. Measurement by Volume:

1. Measurement by volume will be by the cubic dimension indicated in the Contractor's submitted bid. Method of volume measurement will be by the unit volume in place or removed as shown on the Contract Drawings or as specified.
2. When material is to be measured and paid for on a volume basis and it is impractical to determine the volume by the specified method of measurement, or when requested by the Contractor in writing and accepted by the Engineer in writing, the material may be weighed in accordance with the requirements specified for weight measurement. Such weights will be converted to volume measurement for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Resident Engineer and shall be agreed to by the Contractor before such method of measurement of pay quantities will be accepted.

D. Measurement by Area: Measurement by area will be by the square dimension shown on the Contract Drawings or as specified. Method of square measurement will be as specified.

E. Linear Measurement: Linear measurement will be by the linear dimension listed or indicated in the Contractor's submitted bid. Unless otherwise indicated, items, components, or Work to be measured on a linear basis will be measured at the centerline of the item in place.

F. Field Measurement for Payment:

1. The Contractor shall take all measurements by providing equipment, workers, and survey crews as required to measure quantities in accordance with the provisions for measurement specified herein. No allowance will be made for specified tolerances.

2. The Engineer will verify all quantities of Work performed by the Contractor on a unit-price basis, for progress payment purposes.

1.06 REJECTED, EXCESS, OR WASTED MATERIALS

A. Quantities of material wasted or disposed of in a manner not called for under the Contract; rejected loads of material, including material rejected after it has been placed by reasons of the failure of the Contractor to conform to the provisions of the Contract; material not unloaded from the transporting vehicle; material placed outside the lines indicated on the Contract Drawings or established by the Engineer; or material remaining on hand after completion of the Work, will not be paid for, and such quantities shall not be included in the final total quantities. No additional compensation will be permitted for loading, hauling, and disposing of rejected material.

1.07 MEASUREMENT AND PAYMENT

A. Item #1: Mobilization and Demobilization

1. Payment for Mobilization and Demobilization shall be for preparatory work and operations performed by the Contractor including, but not limited to, those necessary for the movement of its personnel, equipment, supplies and incidentals to and from the project site; temporary facilities and controls; for the establishment and removal of its offices, buildings and other facilities necessary for work on the project; for other work and operations which it must perform or costs it must incur before beginning production work on the various items on the project site, and for removal of personnel, equipment, supplies, offices, building facilities, sheds, fencing, and other incidentals from the site.

2. Mobilization and Demobilization shall be paid at the lump sum price listed in the Contractor’s submitted bid. Incremental payment shall be made for each location as follows:

a. 40% after completion of 5% of the total contract amount of other bid items have been earned.

b. 40% after completion of 20% of the total contract amount of other bid items have been earned.

c. 20% after completion of all work on the project has been completed, including cleanup and acceptance of the project by the Port.

B. Item #2: Project Administration

1. Item Description: The Work of this item includes all administrative costs associated with administering and supervising the project including, but not limited to supervision of personnel, coordination of all work activities, coordination of subcontractors and/or suppliers, preparation and transmittal of submittals, permit acquisitions, for premiums on bonds and insurance for the project, and project overhead.

2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.

3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values.

C. Item #3: Tree Removal

1. Item Description: The Work of this item includes but is not limited to all labor, equipment and materials required cut, chip, and all other work required for removal and disposal of all, trees as large as12 inches in diameter and stumps, as indicated on the project drawings and in the specifications.

2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.

3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values.

D. Item #4: Site Grading

1. Item Description: The Work of this item includes but is not limited to furnishing all labor, equipment, and materials required to survey, grade, cut, fill, shape, and all other work required to transform the existing sites ((Parcel 117 and City right of way) to the design grade, as specified in the project drawings and specifications.

2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.

3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values.

E. Item #5: Crushed Surfacing Top Course Placement

1. Item Description: The Work of this item includes but is not limited to furnishing all labor, equipment, materials and all other work required to place, crushed surfacing top course so the sites ((Parcel 117 and City right of way) reaches design grade, as specified in the project drawings and specifications.

2. Measurement: This item will be measured per cubic yard of material used. Measurement will be based on the furnished and accepted material from certified weight tickets or delivery receipts. Only material actually used for an approved purpose in accordance with these specifications will be considered part of the measurement. Imported material that is not used and is hauled away shall be deducted from the amount brought on site. The work also includes placing snail bait on top of the placed crushed surfacing top course.

3. Payment: This item will be paid for at the unit price indicated on the bid form and actual quantities for the period being billed and, in accordance with the approved Schedule of Values.

F. Item #6: Installation of Containment Cells and Cap

1. Item Description: The Work of this item includes but is not limited to furnishing all labor, equipment, materials and all other work required to install ecology block walls, asphalt pavement caps, structural fill, and demarcation fabric as indicated in the project drawings and specifications.

2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.

3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values.

G. Item #7: Storm Drain System Installation

1. Item Description: The Work of this item includes but is not limited to furnishing all labor, equipment, materials required to demolition and restore asphalt pavement, plug pipes, install and connect storm drainpipes, install catch basins, and all other work required to complete the scope shown on the Work Order project drawings and in the specifications.
2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values.

H. Item #8: Trench Safety Systems

1. Item Description: The Work of this item includes furnishing and installing shoring and safety systems for all trench excavations exceeding 4-foot depths.
2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values.

I. Item #9: Dewatering and Decontamination

1. Item Description: The Work of this item includes but is not limited to all labor, equipment, supplies, and materials required to furnish, mobilize, install, test, decontaminate, and demobilize the water management system equipment, and operate the system including inspection and maintenance, and record keeping, per the project drawings and specifications.
2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXEUCTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.02 SUBMITTALS

A. The Contractor shall submit for approval the following documentation to the Port for force account change orders:

1. List of Labor Rates

a. For the Contractor and each subcontractor, a list of labor rates for each trade applicable to the scope of work to be performed. These submitted rates shall be broken down to include the base wage, fringes, FICA, SUTA, FUTA, industrial insurance, and medical aid premiums as stated in the General Conditions. The rates shall not contain any travel time, safety, loss efficiency factors, overhead, or profit. Rates shall be submitted for straight time, overtime, and double time in a form acceptable to the Engineer. Contractor shall provide proof of all labor rate costs as required by the Engineer, including the submission of a copy of the most current Workers Compensation Rate Notice from Labor & Industries and a copy of the Unemployment Insurance Tax Rate notice from the Employment Security Department.

1) If labor rates change during the course of the project or additional labor rates become required to complete the work, the Contractor shall submit new rates for approval.

2. List of Equipment.

a. Submit for the Contractor and each subcontractor, a list of equipment and rates applicable to the scope of work to be performed. The equipment rates shall conform to the rates shown on Equipment Watch. A separate page from equipment watch detailing the hourly rate shall be submitted as backup documentation for each piece of equipment.

1) If the list of equipment and/or equipment rates changes during the course of the project or additional equipment becomes required to complete the work, the Contractor shall submit a new list and rates for approval.

1.03 METHOD TO CALCULATE ADJUSTMENTS TO CONTRACT PRICE

A. One of the following methods shall be used:

1. Unit Price Method;

2. Firm Fixed Price Method (Lump Sum); or,

3. Time and Materials Method (Force Account).

B. The Port preferred methods are firm fixed price or unit prices.

1.04 MINOR CHANGES IN THE WORK

A. Engineer will issue a written directive authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.

1.05 PROPOSAL REQUESTS

A. Port-Initiated Proposal Requests: The Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Work Change Proposal Requests issued by Engineer are not instructions either to stop work in progress or to execute the proposed change.

2. Contractor shall submit a written proposal within the time specified in the General Conditions. The proposal shall represent the Contractor's offer to perform the requested work, and the pricing set forth within the proposal shall represent full, complete, and final compensation for the proposed change and any impacts to any other Contract Work, including any adjustments in the Contract Time.

a. Include a breakdown of the changed work in sufficient detail that permits the Engineer to substantiate the costs.

1) Generally, the cost breakdown should be divided into the time and materials categories listed in the General Conditions under Article 8.02.B for either Lump Sum Proposals or Force Account Proposals.

2) For Unit Price Proposals, include the quantity and description of all work involved in the unit pricing being proposed, along with a not to exceed total cost.

b. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or differing site conditions require modifications to the Contract, the Contractor may initiate a claim by submitting a request for a change to the Engineer.

1. Notify the Engineer immediately upon finding differing conditions prior to disturbing the site.

2. Provide follow-up written notification and differing site conditions proposal within the time frames set forth in the General Conditions.

3. Provide the differing site condition change proposal in the same or similar manner as described above under 1.05.A.

4. Comply with requirements in Section 00 26 00 Substitution Procedures if the proposed change requires substitution of one product or system for product or system specified.

5. Proposal Request Form: Use form acceptable to Engineer.

1.06 PROCEEDING WITH CHANGED WORK

A. The Engineer may issue a directive instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order per the General Conditions, Article 8.01.E.

1. The directive will contain a description of change in the Work and a not-to-exceed amount. It will designate the method to be followed to determine the change in the Contract Sum or the Contract Time.

1.07 CHANGE ORDER PROCEDURES

A. Issuance of Change Order

1. On approval of the Contractor's proposal, and following successful negotiations, the Engineer will issue a Change Order for signature by the Contractor and execution by the Engineer.
    a. The Contractor shall sign and return the Change Order to the Engineer within **four (4) days** following receipt of the Change Order from the Engineer. If the Contractor fails to return the signed Change Order within the allotted time, the Engineer may issue a Unilateral Change Directive.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes specifications for preparation, format, and submittal of Schedule of Values.

B. The Schedule of Values will establish unit prices for individual items of work.

C. The Schedule of Values will be the basis for payment of contract work.

1.02 PREPARATION

A. To facilitate monthly pay requests, develop the Schedule of Values based on the Contractor's submitted Bid Items. The Schedule of Values shall be used to provide an allocation of the Work for measurement and payment to a level of detail to ensure accurate payment for the Work accomplished. The Schedule of Values is based on unit priced bid items and a breakdown of each lump-sum bid item. The total dollars for the Schedule of Values shall total the bid amount.

B. Obtain the agreement of the Contract Administrator and Engineer on the Schedule of Values. No payment will be made prior to an agreed upon Schedule of Values.

C. Include an updated version of the Schedule of Values as changes occur. Update the Schedule of Values to include:

1. Dollars earned and percent complete for the current progress payment period,
2. Dollars earned and percent complete to-date, excluding the current progress payment period,
3. Total dollars earned and percent complete to-date,
4. Total dollars remaining, and
5. Changes resulting from Change Orders.

D. The total value of the line items in the Schedule of Values plus any approved Change Orders shall be equal to the current approved contract price.

E. The value of stored material shall be identified in the Schedule of Values with both a material-purchase activity and a separate corresponding installation activity in the Construction Schedule(s).

F. Include as exhibits, drawings or sketches as necessary, to better define the limits of pay items that are in close proximity and that have no clear boundary in the Contract Drawings.

1.03 SUBMITTAL

A. Submit preliminary Schedule of Values within 10 days of the effective date of the Notice to Proceed.

B. Submit corrected Schedule of Values within 10 days upon receipt of reviewed Schedule of Values.

C. At the Contract administrator or Engineer's request, submit documentation substantiating the cost allocations for line items within the Schedule of Values.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 SCHEDULE OF VALUES

A. Submit the Schedule of Values in a form acceptable to the Contract Administrator and Engineer.

B. Provide updated Schedule of Values as required by the Contract Administrator or Engineer, and as indicated in the Contract Documents.

END OF SECTION

PART 1 - GENERAL

1.01 SCOPE

A. The purpose of this section is to provide the framework for communication between the Port and the Contractor by defining the types and timing of administrative tasks, including meetings and other items related to communications.

1.02 NOTICE TO PROCEED

A. Contract execution will be made per the requirements of the Contract Documents. Once the contract has been executed and all pre-work submittals have been received, the Engineer will issue a Notice to Proceed (NTP).

1. In certain instances, the Engineer may issue to the Contractor a Limited NTP for specified elements of the work described in these Contract Documents.

B. The Contractor shall submit all pre-work submittals within 7 days of contract execution.

1. No contract time extension shall be granted for any delays in issuance of the NTP by the Engineer due to the Contractor's failure to provide acceptable submittals required by the Contract Documents.

1.03 COORDINATION

A. The Contractor shall coordinate all its activities through the Engineer.

B. The Contractor shall coordinate construction operations as required to execute the Work efficiently, to obtain the best results where installation of one part of the Work depends on other portions.

1.04 PROJECT MEETINGS

A. Pre-Construction Meeting

1. After execution of the contract, but prior to commencement of any work at the site, a mandatory one time meeting will be scheduled by the Engineer to discuss and develop a mutual understanding relative to the administration of the safety program, preparation of the Schedule of Values, change orders, RFI’s, submittals, scheduling prosecution of the work. Major subcontractors who will engage in the work shall attend.

2. Suggested Agenda: The agenda will include items of significance to the project.

3. Location of the Pre-Construction Meeting will be held at the Port of Tacoma Administration Building located at One Sitcum Plaza.

B. Weekly Progress Meetings – Progress meetings include the Contractor, Engineer, consultants and others affected by decisions made.

1. The Engineer will arrange meetings, prepare standard agenda with copies for participants, preside at meetings, record minutes and distribute copies within ten working days to the Contractor, meeting participants, and others affected by decisions made.

a. The Engineer will approve submitted meeting minutes in writing within 10 working days.

2. Attendance is required for the Contractor's job superintendent, major subcontractors and suppliers, Engineer, and representatives of the Port as appropriate to the agenda topics for each meeting.

3. Standard Agenda
    a. Review minutes of previous meeting
    b. Review of work progress
    c. Field observations, problems, and decisions
    d. Identification of problems that impede planned progress
    e. Maintenance of Progress Schedule (3 weeks ahead; 1 week back)
    f. Corrective measures to regain projected schedules
    g. Planned progress during succeeding work period
    h. Coordination of projected progress
    i. Maintenance of quality and work standards
    j. Effect of proposed changes on progress schedule and coordination
    k. Demonstration that the project record drawings are up-to-date
    l. Other business relating to the work

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. The Port and Contractor shall use the Port's provided Project Management applications for electronic information exchange throughout the duration of the Contract, as later described. The joint use of these systems is to facilitate and coordinate the electronic exchange of Requests for Information, Submittals, Change Order Proposals, and project specific correspondence.

1.02 USER ACCESS LIMITATIONS

A. Contractor's access to Port provided applications is granted and controlled by the Engineer.

1. The users assigned by the Contractor shall be competent and experienced with the practices commonly employed in the industry for electronically submitting requests for information, submittals, product data, shop drawings and related items as required by the contract and the methods commonly used for project correspondence transmission and filing.

2. Any users assigned by the Contractor whom the Engineer determines is incapable of performing the prescribed tasks in an accurate, competent and efficient manner will be removed upon request from the Engineer. The qualifications and identity of a replacement user shall be submitted within 24 hours for consideration by the Engineer. Once accepted by the Engineer, the user account will be modified accordingly.

3. Each user must have their own account. Sharing accounts or login credentials is not allowed.

1.03 CONTRACTOR TECHNOLOGY REQUIREMENTS

A. The Contractor is responsible for providing and maintaining web enabled devices capable of operating the Trimble Unity Construct web based application and any additional project specific software required by the Engineer effectively.

1.04 CONTRACTOR SOFTWARE REQUIREMENTS

A. The Contractor is responsible for providing and maintaining the following:

1. An office suite that is Microsoft Office 2013 compatible for generation and manipulation of correspondence.

2. A program capable of editing, annotating and manipulating Adobe pdf files for inserting the Contractor's review stamp, clouding and adding notation to the files as necessary for review by the Engineer.

1.05 CONTRACTOR RESPONSIBILITY

A. Provide all the equipment, internet connections, software, personnel and expertise required to support the use of Trimble Unity Construct as described in the contract documents.

1. User account creation. Submit the full name and email of each requested user to the Engineer, or their designee. Trimble User Accounts cannot be shared and require a unique email for each user.

1.06 PORT RESPONSIBILITY

A. Provide the Contractor with the following:

1. Two (2) User Accounts to access Trimble Unity Construct as described above. Additional user accounts may be assigned at the Engineer’s discretion.
2. Information, basic user guides and requirements on methods for using Trimble Unity Construct.
3. Instruction for the Contractor's staff utilizing Trimble Unity Construct.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 UTILIZATION OF TRIMBLE UNITY CONSTRUCT

A. The Contractor shall provide required information in a timely manner that also supports the project schedule and meets the requirements of the Contract.

B. The Contractor shall provide and maintain competent and qualified personnel to perform the various tasks required to support the work within Trimble Unity Construct

C. The Port will not be liable for any delays associated from the usage of Trimble Unity Construct including, but not limited to: slow response time, Port maintenance and off-line periods, connectivity problems or loss of information. Under no circumstances shall the usage of Trimble Unity Construct software be grounds for a time extension or cost adjustment to the contract.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

A. This section includes the requirements to provide a preliminary schedule and construction progress schedule, bar chart type.

1.02 SUBMITTALS

A. Within 10 days following execution of the contract, submit a baseline project schedule defining planned operations.

B. If the baseline project schedule requires revision after review, submit revised baseline project schedule within 10 days.

C. Within 20 days after review of baseline project schedule, submit draft of proposed complete baseline project schedule for review.

D. Submit updated progress schedule monthly to the Engineer with each pay application as required in Section 01 20 00 Price and Payment Procedures.

1.03 QUALITY ASSURANCE

A. Scheduler: Contractor's personnel or Consultant specializing in Critical Path Method (CPM) scheduling with one year’s minimum experience in scheduling construction work of a complexity comparable to this Project, and having use of computer facilities capable of delivering a detailed graphic printout within 48 hours of request.

1.04 SCHEDULE FORMAT

A. The baseline project schedule shall be produced using the CPM format.

B. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.

C. Sheet Size: Multiples of 11 x 17 (280 x 432 mm).

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 BASELINE SCHEDULE

A. Prepare baseline project schedule in the form of a horizontal bar chart.

B. The baseline project schedule shall include all the activities listed in the Schedule of Values and be directly related to items listed in the Bid Form. The Contractor is encouraged to add sufficient activities to facilitate a clear understanding of the means and methods planned for the various work items.

C. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction and critical path. At a minimum it shall include and show the following:

1. A time scale showing the elementary work items needed to complete the work;

2. Estimated time durations for each activity, defined as any single identifiable work step within the project;

3. A graphical network diagram showing the logical sequence of activities, their precedence relationships, and estimated float or leeway available for each;

4. The different categories of work as distinguished by crew requirements, equipment requirements, and construction materials; and
5. The different areas of responsibility, such as distinctly separate or subcontracted work, and identifiable subdivisions of work.

D. It shall be maintained and updated as necessary to accurately reflect past progress and the most probable future progress.

E. Activities shown shall include submittals, milestones, and sufficient task breakdown for major components of work.

F. Identify work of separate stages and other logically grouped activities.

G. Provide sub-schedules to define critical portions of the entire schedule.

H. Provide separate schedule of submittal dates for shop drawings, product data, samples, owner-furnished products, products identified, and dates reviewed submittals will be required from the Engineer. Indicate decision dates for selection of finishes.

3.02 PROGRESS SCHEDULE

A. From the regularly-maintained baseline project schedule, progress schedules showing a three-week look-ahead, one-week look-back, shall be submitted and distributed at the weekly progress meetings. The progress schedule shall represent a practical plan to complete the work shown within the contract work window presented. At a minimum, the presentation, typically a Gantt-style chart, shall convey the task durations, a logical work sequence, task interdependencies, and identify important or critical constraints.

B. Submittal and distribution of progress schedules will be understood to be the Contractor’s representation that the scheduled work meets the requirements of the contract documents and that the work will be executed in the manner and sequence presented, and over the durations indicated.

C. The scheduling, coordination, and execution of construction in accordance with the contract documents are the responsibility of the Contractor. The Contractor shall involve, coordinate, and resolve scheduling with all subcontractors, material suppliers, or others affected in development of the progress schedules.

D. The progress schedule shall be used for coordination purposes for inspection and testing purposes as well as validation of work progress against the baseline schedule.

3.03 UPDATING SCHEDULE

A. Maintain schedules to record actual start and finish dates of completed activities.

B. Indicate progress of each activity to date of revision, with projected completion date of each activity.

C. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.

D. Indicate changes required to maintain Date of Substantial Completion.

E. Submit reports required to support recommended changes.

F. Contractor shall submit an updated progress schedule with each pay application and include a written narrative describing the overall progress of the work. The narrative shall include the following key aspects:

1. Progress in the last period.
2. Critical Path progress and schedule concerns.
3. Changes to schedule logic or sequencing of the work.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes the requirements to provide a submittal log and project submittals.

1.02 SUBMITTAL LOG

A. Contractor shall, within 14 days of contract execution prepare and submit for Engineer approval a detailed log of all the submittals required under this Contract, along with any other submittals identified by the Port or Contractor. The log shall include, but not be limited to, schedules, required construction Work plans, equipment and material cut sheets, shop drawings, project record documents, test results, survey records, record drawings, results of QC testing, and all other items for which a submittal is required. The submittal log shall be organized by CSI Specification Division, and Section number and include the following information:

1. Item Description
2. Category
3. Specification Section information of the applicable section
4. After the submittal log is reviewed and approved by the Engineer, it shall become the basis for the submittal of all items by Contractor.

1.03 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 Engineer based on these specifications.

1.04 SHOP DRAWINGS AND MANUFACTURERS' LITERATURE

A. The Port will not accept shop drawings that prohibit the Port from making copies for its own use.

B. Shop drawings shall be prepared accurately and 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 Engineer for approval shall be drawn to scale as ANSI D.

D. Required electronic formats for these drawings are as follows:

1. AutoCad DWG
2. PDF - Formatted to print to half-scale using 11x17 paper

E. 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. General catalogs or partial lists will not be accepted. Manufacturers' original electronic files are required for submitting.

1.05 SUBMITTAL REVIEW

A. After review of each of Contractor's submittals, the submittal will be returned to Contractor with a form indicating one or more of the following:

1. No Exceptions Taken - Means, accepted subject to its compatibility with future submittals and additional partial submittals for portions of the work not covered in this submittal. But it does not constitute approval or deletion of specified or required items not shown in the partial submittal.
2. Make Corrections Noted - Same as Item 1, except that minor corrections as noted shall be made by Contractor.
3. Reviewed - Submittal has been reviewed by the Port, does not constitute approval, and the Contractor is responsible for requirements in submittal.
4. Review as Noted - Submittal has to be reviewed by the Port with comments as noted.
5. Revise and Resubmit - Means, rejected because of major inconsistencies or errors. Resolve or correct before next submittal.
6. Rejected - Means, submitted material does not conform to the Contract Documents in a major respect (e.g., wrong material, size, capacity, model, etc.).

B. Submittals marked "No Exceptions Taken," "Make Corrections Noted," or “Reviewed as Noted” authorizes Contractor to proceed with construction covered by those data sheets or shop drawings with corrections, if any, incorporated.

C. When submittals or prints of shop drawings have been marked "Revise and Resubmit" or "Rejected," Contractor shall make the necessary corrections and submit required copies. Every revision shall be shown by number, date, and subject in a revision block, and each revised shop drawing shall have its latest revision numbers and items clearly indicated by clouding around the revised areas on the shop drawing.

D. Submittals authorized by the Engineer do not in any case supersede the Contract Documents. The approval by the Engineer shall not relieve the Contractor from responsibility to conform to the Drawings or Specifications, or correct details when in error, or ensure the proper fit of parts when installed. A favorable review by the Port of shop drawings, method of work, or information regarding material and equipment Contractor proposes to furnish shall not relieve Contractor of its responsibility for errors therein and shall not be regarded as assumption of risk or liability by the Port or its officers, employees, or representatives. Contractor shall have no claim under the Contract on account of failure or partial failure, or inefficiency or insufficiency of any plan or method of work, or material and equipment so accepted. Favorable review means that the Port has no objection to Contractor using, upon its own full responsibility, the plan or method of work proposed, or furnishing the material and equipment proposed.

E. It is considered reasonable that the Contractor’s submittals shall be complete and acceptable by at least the second submission of each submittal. The Port reserves the right to deduct monies from payments due Contractor to cover additional costs for review beyond the second submission.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 PREPARATION OF SUBMITTALS

A. The Contractor shall submit all shop drawings, catalog cuts, brochures and physical samples using Trinity Unity Construct (a web based construction management software). All post-document-generated notations such as notes, arrows, stamps, clouding, or other items, are required to be shown directly on the submittal document. **Each submittal shall be accompanied by a transmittal developed within the Trinity Unity Construct software.**

B. A separate submittal 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. Product submittals that cannot be accomplished electronically shall be submitted electronically without attachments, marked as being hand delivered, and accompanied by a printed version of a transmittal.

D. Shop and detail drawings shall be submitted in related packages. All equipment or material details which are interdependent, or are related in any way, must be submitted indicating the complete installation. Submittals shall not be altered once marked “No Exceptions Taken” Revisions shall be clearly marked and dated. Major revisions must be submitted for approval.

E. The Contractor shall thoroughly review all shop and detail drawings, prior to submittal, to assure coordination with other parts of the work.

F. Components or materials which require shop drawings and which arrive at the job site prior to approval of shop drawings shall be considered as not being made for this project and shall be subject to rejection and removal from the premises.

G. All submittal packages including, but not limited to, product data sheets, mix designs, shop drawings and other required information for submittal must be submitted, reviewed and approved before the relevant scheduled task may commence. It is the responsibility of the Contractor to provide the submittal information which may drive a task on the construction schedule to submit items well enough in advance as to provide adequate time for review and comment from the Engineer without adversely impacting the construction schedule.

H. When completing the Trinity Unity Construct submittal form, a Date Due field is required to be completed. This field is intended to inform the Port of the urgency of the submittal. Failure of the Port to return the submittal by the date provided by the Contractor will not be considered grounds for a contract time extension.

3.02 PRE-WORK SUBMITTALS

A. Prior to issuance of Notice to Proceed, the following submittals must be submitted and returned to the Contractor as No Exceptions Taken, Make Corrections Noted, Reviewed, or Reviewed as Noted.

1. Per 00 72 00 and 01 32 16, Baseline Project Schedule
2. Per 00 73 63, Emergency Contact Numbers
3. Per 01 35 29, Health and Safety Plan (HASP)
4. Per 01 35 29, Spill Prevention and Countermeasures Plan (SPCC)
5. Per 01 35 47, List of equipment and written certification

3.03 MAINTENANCE OF SUBMITTAL LOG

A. Prepare and submit for Port review a detailed submittal log conforming to the requirements of paragraph 1.02 of this section. When approved by the Engineer, use the submittal log to track the transmittal of submittals to the Engineer, the receipt of submittal comments from the Engineer, and all subsequent action with respect to each submittal. Provide an updated copy of the submittal log to the Engineer during each weekly progress meeting, unless otherwise approved by the Engineer.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. The work includes the requirements for health and safety provisions necessary for all work at the site for this project. The work also includes compliance with all laws, regulations and ordinances with respect to safety, noise, dust, fire and police action, civil disobedience, security or traffic.

B. Some of the work tasks may place workers in the potential position of coming into contact with regulated materials, waste, or environmental media. Detailed information regarding the known nature and extent of refuse and regulated materials in the project area is included in Section 00 31 26 Existing Hazardous Material Information.

C. The Contractor shall monitor site conditions for indications of identified and other potentially hazardous, dangerous, and/or regulated materials (suspicious material). Indicators of suspicious material include, but are not limited to, refuse, oily sheen or coloring on soil or water, or oily or chemical odors. If suspicious materials are encountered, the Contractor shall stop all work in that area and notify the Engineer immediately.

D. This project is a Washington State Department of Ecology (Ecology) Remedial Action, subject to Ecology oversight pursuant to Enforcement Order No DE19410.

E. Landfill have the potential to create hazardous conditions if not controlled or recognized. Some of the hazards include:

1. Fires that may start spontaneously from exposed and/or decomposed refuse.
2. Fires and explosions that may occur from the presence of methane gas.
3. Landfill gases and other trace gases may cause an oxygen deficiency in confined spaces such as trenches, vaults, conduits, and structures.
4. Hydrogen sulfide, a highly toxic and flammable gas, and/or other toxic gases may be present.
5. Possible caving of trenches and excavations when working over or in refuse fills.

1.02 SUBMITTALS

A. Prior to Notice to Proceed, the Contractor shall provide a site specific Health and Safety Plan (HASP), which meets all the requirements of local, state and federal laws, rules and regulations. The HASP shall address all requirements for general health and safety and shall include, but not be limited to:

1. Description of work to be performed and anticipated chemical and/or physical hazards associated with the work;
2. Map of the site(s) illustrating the location of the anticipated hazards and areas of control for those hazards (including containments, exclusion/work zones, and contaminant reduction/decontamination zones);
3. Hazardous material inventory and safety data sheets (SDSs) for all chemicals which will be brought on site;
4. Signage appropriate to warn site personnel and visitors of anticipated site hazards;
5. Documentation that the necessary workers have completed the required Hazardous Waste Operations and Emergency Response (HAZWOPER) training;

6. Engineering controls/equipment to be used to protect against anticipated hazards;
7. Personal protective equipment and clothing including head, foot, skin, eye, and respiratory protection;
8. Procedures which will be used for:
    a. Lockout/Tagout,
    b. Fall protection,
    c. Trenching and shoring,
    d. Hot work,
    e. Explosive conditions due to methane,
    f. Oxygen deficient conditions,
    g. Lead hazards,
    h. Suspicious materials and/or unidentified materials,
    i. Confined-space entry (could include dewatering storage tanks, manholes, or other items),
    j. Confined-space rescue.
9. Exposure monitoring to be used to evaluate actual hazards compared with anticipated conditions, including but not limited to arsenic exposure assessment;
10. Site housekeeping procedures and personal hygiene practices;
11. Personnel and equipment decontamination plan;
12. Administrative controls;
13. Emergency plan including locations of and route to nearest hospital;
14. Medical surveillance program for site personnel before, during, and after completion of site work;
15. Recordkeeping including:
    a. Documentation of appropriate employee training (e.g., Hazardous Waste Operations and Emergency Response [HAZWOPER] 40-hour training for staff involved with excavation and handling of soil),
    b. Respirator fit testing
    c. Arsenic exposure assessment results;
16. Name and qualification of person preparing the HASP and person designated to implement and enforce the HASP;
17. Name and qualifications for Certified Safety Professional (CSP) or Certified Industrial Hygienist (CIH) and a copy of the CIH's or CSP's certification and resume;
18. Excavation, stockpiling, and truck loading procedures;
19. Lighting and sanitation; and
20. Signatory page for site personnel to acknowledge receipt, understanding, and agreement to comply with the HASP.

B. Prior to the start of any Work, the Contractor shall provide a site specific Spill Prevention, Control and Countermeasures (SPCC) Plan, which meets all the requirements of local, state and federal laws, rules and regulations.

C. Contractor may submit the HASP and SPCC Plan as one comprehensive document or may submit the plans as separate documents.

1.03 POTENTIAL CHEMICAL HAZARDS

A. Site Contaminants

1. The Contractor must provide site workers with Hazard Communication standard information for potential site contaminants (in accordance with WAC 296-843). The Contractor shall ensure that all site workers are aware of and understand this information. Additional information shall also be provided by the Contractor, as necessary, to meet the Hazard Communication Standard and HASP requirements as noted in WAC 296-901-14010 and 296-843. Workers shall be instructed on basic methods or techniques to assist in detecting suspicious material.

2. The Project soils, in many areas, contain inorganic arsenic and the Contractor shall comply with all applicable requirements of Washington Department of Labor and Industries Division of Occupational Safety and Health (DOSH) Arsenic Standard, WAC 296-848 including but not limited to personal exposure monitoring, use of respirators and PPE, and worker training. Refer to WAC 296-848-100 Table 1 to determine applicable sections. Arsenic remnant soils are present throughout the site.

B. Potential Exposures Routes

1. Inhalation: Airborne dusts, fibers, particulates, or vapors may be released during site activities. Inhalation of airborne inorganic may occur.

2. Skin and Eye Contact: Dusts generated during site work activities may settle on the skin or clothing of site workers. Also, workers may contact potentially regulated sediments, or water, in the normal course of their work. Precautions to prevent skin or eye contact with hazardous materials will be included in the HASP.

3. Ingestion: Inadvertent transfer of site contaminants from hands or other objects to the mouth could occur if site workers eat, drink, smoke, chew tobacco, or engage in similar activities in work areas. This could result in ingestion of site contaminants. Precautions to prevent accidental or inadvertent ingestion of hazardous materials will be included in the HASP.

C. Chemical hazards may also result from Contractor operations resulting in inadvertent release of fuel, oil, or other chemicals in a manner that would expose workers.

1.04 POTENTIAL PHYSICAL AND OTHER HAZARDS

A. The Work of the Contractor is described elsewhere in these specifications. Precautions to prevent all anticipated physical and other hazards, including heavy equipment and vessels, shall be addressed in the HASP.

B. Specific aspects of construction resulting in physical hazards anticipated for this project include, but are not limited to the following:

1. Major hazards associated with earthwork impacts from moving construction vehicles and trucks, noise, thermal stress, contact with unguarded machines, excavation hazards (i.e., cave-in, utility, etc.), strains from heavy lifting, and reduced visibility and communications difficulties in work area; and
2. Operation of equipment, including excavators, loaders, and related equipment, presenting hazards of entrapment, ensnarement, and being struck by moving parts.

C. Other anticipated physical hazards:

1. Heat stress, such as that potentially caused by impermeable clothing (may reduce the cooling ability of the body due to evaporation reduction);
2. Cold stress, such as that potentially caused during times when temperatures are low, winds are high, especially when precipitation occurs during these conditions;
3. Biological hazards, such as mold, insect stings, or bites, poisonous plants (i.e., poison oak, sumac, etc.); and
4. Trips and falls.

D. Firewatch Procedures

1. A firewatch is implemented to ensure the fire-safety of a building, structure or area in the event of any act (e.g., hot work) or situation instigating an increased risk of fire. The term "firewatch" is used to describe a dedicated person or persons whose sole responsibility is to look for fires within an established area.
2. A firewatch is required when all hot work is being performed.
3. The firewatch is to perform the following functions:
    a. Firewatch personnel are to keep diligent watch for fires in the general area where the work is being performed.
    b. Firewatch personnel are to be familiar with facilities and procedures for sounding an alarm in the event of a fire.
    c. Firewatch personnel are to have fire extinguishing equipment readily available and be trained in its use, including practice on test fires.
    d. Firewatch personnel are to inspect the site prior to hot work activities to ensure that combustibles are removed or covered and that any nearby holes or penetrations in the ground and walls are sealed or covered with fire-safe materials.
    e. Firewatch personnel are to watch for fires in all exposed areas. If a fire is located, firewatch personnel are to sound the evacuation alarm immediately and after that try to extinguish the fire, only when obviously within the capacity of the equipment available.
    f. The firewatch is to be maintained for at least 120 minutes after completion of hot work such as cutting, welding, or other open flame operations, in order to detect and extinguish smoldering and flaming fires. During this time, the work area and other adjacent areas where sparks or flame may have traveled are to be searched for signs of combustion.

PART 2 - PRODUCTS

2.01 SAFETY SIGNAGE

A. The Contractor shall provide signage at strategic locations within the project site to alert jobsite workers and visitors of the remediation work, associated hazards, and required precautions.

2.02 PRODUCTS SPECIFIED FOR HEALTH AND SAFETY

A. Provide the equipment and supplies necessary to support the work as described in the site-specific HASP. Equipment and supplies may include, but are not limited to:

1. All chemicals to be used on site;
2. A hazardous materials inventory and SDSs for the chemicals brought on site;
3. Fencing and barriers;
4. Warning signs and labels;
5. Trenching equipment;
6. Fire extinguishers;
7. Equipment to support hot work;
8. Equipment to support lockout/tagout procedures;
9. Scaffolding and fall protection equipment;
10. Personal protective equipment (hard hats, foot gear, skin, eye, and respiratory protection);
11. Area and personnel exposure monitoring equipment;
12. Demolition equipment and supplies;
13. Decontamination equipment and supplies;
14. First aid equipment;
15. Spill response and spill prevention equipment; and
16. Field documentation logs/supplies.

PART 3 - EXECUTION

3.01 WORK AREA PREPARATION

A. Contractor shall comply with health and safety rules, regulations, ordinances promulgated by the local, state, and federal government, the various construction permits, and other sections of the Contract Documents. Such compliance shall include, but not be specifically limited to: any and all protective devices, equipment and clothing; guards; restraints; locks; latches; switches; and other safety provisions that may be required or necessitated by state and federal safety regulations. The Contractor shall determine the specific requirements for safety provisions and shall have inspections and reports by the appropriate safety authorities to be conducted to ensure compliance with the intent of the regulations.

B. Contractor shall inform employees, subcontractors and their employees of the potential danger in working with any potentially regulated materials, equipment, soils and groundwater at the project site.

1. The Contractor shall not proceed with jobsite activities that might result in exposure of employees to hazardous materials, until the HASP is reviewed by the Engineer.

2. In addition, the Engineer will submit a copy of the Contractor's HASP to Ecology for review. Ecology and the Engineer will review but not approve HASP.

C. All Contractor employees expected to work at the jobsite or individuals entering the jobsite shall read the Contractor HASP before they enter the jobsite, and will sign a statement provided by the Contractor that they have read and understand the HASP. A copy of the Contractor's HASP shall be readily available at the site at all times the work is being performed.

D. The Contractor's HASP shall be amended as needed by the CIH or CSP to include special work practices warranted by jobsite conditions actually encountered. Special practices could include provisions for decontamination of personnel and equipment, and the use of special equipment not covered in the initial plan.

E. Contractor shall perform whatever work is necessary for safety and be solely and completely responsible for conditions of the job site, including safety of all persons (including employees of the Engineer, Engineer's Representative, and Contractor) and property during the Contract period. This requirement applies continuously and is not limited to normal working hours.

F. The Engineer's review of the Contractor's performance does not include an opinion regarding the adequacy of, or approval of, the Contractor's safety supervisor, the site-specific HASP, safety program or safety measures taken in, on, or near the job site.

G. Accidents causing death, injury, or damage must be reported immediately to the Engineer and the Port Security Department in person or by telephone or messenger. In addition, promptly report in writing to the Engineer all accidents whatsoever arising out of, or in connection with, the performance of the work whether on, or adjacent to, the site, giving full details and statements of witnesses.

H. If a claim is made by anyone against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the facts in writing within 24 hours after occurrence, to the Engineer, giving full details of the claim.

3.02 SITE SAFETY AND HEALTH OFFICER

A. Contractor shall provide a person designated as the Site Safety and Health Officer, who is thoroughly trained in rescue procedures, has a minimum current 40-hour HAZWOPER certification (minimum), and trained to use all necessary safety equipment, air monitoring equipment, and gas detectors. The person must be available and/or present at all times while work is being performed, and conduct testing, as necessary.

B. The Site Safety and Health Officer shall be empowered with the delegated authority to order any person or worker on the project site to follow the safety rules. Failure to observe these rules is sufficient cause for removal of the person or worker(s) from this project.

C. The Site Safety and Health Officer is responsible for determining the extent to which any safety equipment must be utilized, depending on conditions encountered at the site.

3.03 SPILL PREVENTION AND CONTROL

A. The Contractor shall be responsible for prevention, containment and cleanup of spilling petroleum and other chemicals/hazardous materials used in the Contractor's operations. All such prevention, containment and cleanup costs shall be borne by the Contractor.

B. The Contractor is advised that discharge of oil, fuel, other petroleum, or any chemicals/hazardous materials from equipment or facilities into state waters or onto adjacent land is not permitted under state water quality regulations.

C. In the event of a discharge of oil, fuel or chemicals/hazardous materials into waters, or onto land with a potential for entry into waters, containment and cleanup efforts shall begin immediately and be completed as soon as possible, taking precedence over normal work. Cleanup shall include proper disposal of all spilled material and used cleanup materials.

D. The Contractor shall, at a minimum, take the following measures regarding spill prevention, containment and cleanup:

1. Fuel hoses, lubrication equipment, hydraulically operated equipment, oil drums and other equipment and facilities shall be inspected regularly for drips, leaks or signs of damage, and shall be maintained and stored properly to prevent spills. Proper security shall be maintained to discourage vandalism.

2. All land-based chemical, oil and products' storage tanks shall be diked, contained and/or located so as to prevent spills from escaping into the water. Dikes and containment area surfaces shall be lined with impervious material to prevent chemicals or oil from seeping through the ground and dikes.

3. All visible floating sheen shall be immediately contained with booms, dikes or other appropriate means and removed from the water prior to discharge into state waters. All visible spills on land shall be immediately contained using dikes, straw bales or other appropriate means and removed using sand, sawdust or other absorbent material, which shall be properly disposed of by the Contractor. Waste materials shall be temporarily stored in drums or other leak-proof containers after cleanup and during transport to disposal. Waste materials shall be disposed offsite in accordance with applicable local, state and federal regulations.

4. In the event of any oil or product discharges into public waters, or onto land with a potential for entry into public waters, the Contractor shall immediately notify the Port Security at their listed 24-hour response number:

    a. Port Security: 253-383-9472

E. The Contractor shall maintain the following materials (as a minimum) at each of the project sites:

1. Oil-absorbent booms: 100 feet;

2. Oil-absorbent pads or bulk material, adequate for coverage of 200 square feet of surface area;

3. Oil-skimming system; and

4. Oil dry-all, gloves, and plastic bags.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. This Section discloses procedures to follow if unknown regulated materials are encountered.

1.02 NOTIFICATION AND SUSPENSION

A. In the event the Contractor detects the presence of potentially regulated materials not previously identified in this specification, the Contractor shall stop work and immediately notify the Port. Following such notification by the Contractor, the Port shall in turn notify the various governmental and regulatory agencies concerned with the presence of regulated materials, if warranted. Depending upon the type of materials identified, the Port may suspend work in the vicinity of the discovery under the provisions of General Conditions.

1. Following completion of any further testing necessary to determine the nature of the materials involved, the Port will determine how the material shall be managed. Although the actual procedures used in resuming the work shall depend upon the nature and extent of the regulated material, the following alternate methods of operation are foreseen as possible:

a. Contractor to resume work as before the suspension.

b. Contractor to move its operations to another portion of the work until measures to eliminate any hazardous conditions can be developed and approved by the appropriate regulatory agencies.

c. The Port to direct the Contractor to dispose or treat the material in an approved manner.

d. The Port to terminate or modify the Contract accordingly, for unforeseen conditions.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. Only soils generated from Alexander Ave excavation during storm untility installation maybe exported from the site. (Soils from Parcel 117 shall not be exported from the site).

B. Soils that cannot be reused onsite and are anticipated to be exported to an off-site facility must have a completed soil profile prior to export. The Port will conduct testing of material as defined further in this specification.

C. Soils excavated within the Alexnder Ave area, as shown on the drawings, are anticipated to be free of regulated material; however, should the Contractor identify soil that cannot be reused as part of the project, the Contractor shall notify the Engineer to determine if the soil requires special handling.

1. Soil with unexpected regulated material, as identified by visual and/or olfactory methods, shall be segregated from other excavated material until such time as appropriate testing and analysis can be completed by the Port. Upon completion of the soil profile, the Engineer will inform the Contractor of any special handling requirements based on the results.

2. Soil beyond construction excavation limits will not require excavation unless free draining product is observed or other special conditions exist; in which case the Engineer will direct the Contractor in additional excavation. Soils determined to require special handling will be hauled and disposed of at an approved disposal facility.

D. No soil shall be removed from the site without prior notification to the Engineer. The notification shall include:

1.02 DEFINITIONS

A. Olfactory Indications (methods): Of or relating to the sense of smell. Soils containing petroleum and other volatile constituents typically exhibit characteristic odors that can be detected (and sometimes identified) by smell.

B. Regulated Material: Any chemical, physical, biological, or radiological substance that does not occur naturally in the environment, or that occurs at concentrations higher than natural background levels, and is regulated by agencies as to the disposal/recycling facility(ies) the material can and cannot go (i.e., EPA, Department of Ecology, Tacoma-Pierce County Health Department).

C. Soil (waste) Profile: A characterization of the chemical and physical properties of soil material designated for off-site disposal, including the presence of pollutants and their concentrations as measured by approved laboratory analytical methods. A profile is required by the receiving permitted disposal or recycling facility.

D. Special Handling: Refers to hauling and disposal of soils that cannot be reused in place as backfill or as general fill at another (off-site) location due to the presence of pollutants in concentrations above allowable limits. Such soils must be hauled to and managed at a permitted disposal facility.

E. Type A Regulated Soil: Soil that must be removed from the Project site and has been determined by the Engineer to contain pollutants in concentrations that exceed state or federal dangerous or hazardous designations (respectively), or other special Port-determined criteria. Type A Regulated Soil requires disposal at an approved Subtitle C hazardous waste landfill.

F. Type B Regulated Soil: Soil that must be removed from the Project site and has been determined by the Engineer to contain pollutants in concentrations that are below dangerous or hazardous levels, but could negatively impact the quality of air, waters of the state, soils or sediments, or pose a threat to the health of humans or other living organisms, depending on where the soil is disposed. Type B Regulated Soil requires disposal an approved Subtitle D solid waste landfill.

G. Type C Regulated Soil: Soil that must be removed from the Project site and has been determined by Engineer to contain unknown constituent(s) and/or in unknown concentration(s) and requires further analysis and characterization. Type C Regulated soil will require disposal at an approved Subtitle C hazardous waste landfill or Subtitle D solid waste landfill if additional soil characterization indicates special handling is required.

H. Type D Soil: Soil determined by the Engineer not to require special handling with regard to this Contract. Classification of material as Type D Soil by the Port is not a certification nor does it release the Contractor of liability or obligation to meet any disposal or storage facility acceptance or testing requirements.

I. Unexpected Regulated Material: Regulated material unexpectedly found in an excavation or in other locations where there is no prior knowledge, information, or history to indicate possible spills or releases of regulated material.

J. Visual Indications (methods): A preliminary evaluation of the potential presence of contamination based on visual observation. For example, soils containing petroleum are frequently discolored or stained relative to non-petroleum impacted native soils or clean fill.

1.03 HEALTH AND SAFETY

A. The Contractor is required to implement all health and safety provisions as required by Specification 01 35 29 – Health, Safety and Emergency Response. These provisions include any special monitoring, personal protective equipment, or work plans to accommodate regulated soil or material special handling. Use of environmental characterization data may not be appropriate for health and safety purposes.

1.04 SUBMITTALS

A. Prior to excavation of any subsurface materials, the Contractor shall submit a Soils Management Plan to the Engineer. The Soils Management Plan must be approved by the Engineer prior to any excavation of subsurface materials. The Soils Management Plan must include the following:

1. Identification of all soil disposal facilities anticipated to be used for soils that are determined to be Type A or Type B Regulated Soil.

2. Identification of all fill sites, disposal/recycling facilities and/or end uses anticipated to be used for soil determined to be Type D Soil in accordance with paragraph 3.02 of this section.

3. Contingency for delivery and placement of Type C Regulated Soil at an on-site soil stockpile area.

4. Contingency for managing soil/debris encountered during excavation that may disqualify soil for disposal or recycle at the anticipated facilities.

5. General description of how equipment operators, safety staff and other applicable on-site personnel will identify and respond to soil containing potentially regulated material.

6. Contractor shall coordinate with the Engineer to facilitate handling of regulated soil in accordance with this specification.
7. Description of all haul routes to be used on the project.

B. A completed soil profile prior to export to an off-site receiving facility.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 EXCAVATION/TESTING

A. The field-testing for soil to be exported offsite will be performed by the Port and will result in the following classification of material:
   1. Type A Regulated Soil as defined in 1.02(E) of this Section
   2. Type B Regulated Soil as defined in 1.02(F) of this Section
   3. Type C Regulated Soil as defined in 1.02(G) of this Section
   4. Type D Soil as defined in 1.02(H) of this Section

B. Contractor shall give Port no less than one week notice for sampling export soil prior to disposal offsite. Contractor shall anticipate at least two weeks for lab results.

C. Laboratory turnaround times may require additional time for analytical results; therefore, Contractor should coordinate with Engineer well in advance of anticipated disposal date. Samples that are required to have “rush” analysis performed due to the Contractor’s failure to disclose the anticipated disposal date shall have the difference in service fees paid by the Contractor, or the Contractor may delay the disposal until the standard analysis turnaround time is complete, at no additional cost to the Port.

3.02 TRANSPORTATION AND OFF-SITE DISPOSAL OF SOILS

A. The Contractor shall be responsible for handling, re-handling, loading, transporting, and legal off-site removal of all waste materials and excavated soils not reused onsite.
   1. Contractor shall ensure that transport truck gross weight meets federal and/or state Department of Transportation (DOT) requirements and the requirements of the receiving facility, whichever is more stringent.
   2. Contractor shall take measures to prevent debris from being spilled from trucks or tracked from the site to local streets. Contractor shall sweep streets adjacent to the site as necessary or as directed by the Engineer.
   3. Contractor shall ensure that any vehicle transporting materials offsite are properly labeled and placarded in accordance with federal and state DOT requirements.

B. Type A Regulated and Type B Regulated Soil shall be hauled to an approved facility by the Contractor for disposal.

C. Type C Regulated Soil is of unknown origin or special circumstances. Type C Regulated Soil shall be hauled to an on-site segregated stockpile area. The Contractor shall protect the material from weather and other disturbances once stockpiled. The Port will inform the Contractor of the soil profile following additional analysis of the suspect material (as needed), and the soil will be categorized as either Type A Regulated, Type B Regulated or Type D Soil and disposed of accordingly.

D. Type D Soil that is not reused onsite shall be hauled by the Contractor to a site determined by the Contractor. If the receiving/disposal facility requires additional testing or certification of this soil, Contractor shall complete these requirements, at no additional cost to the Port. The Port will not certify or declare the material suitable for unrestricted use.

3.03 OTHER REQUIREMENTS

A. Type A, Type B or Type C Regulated Soil may be, upon approval of the Engineer, temporarily stockpiled within the construction area. Contractor shall place an impervious liner beneath the soil and securely cover the stockpile with waterproof covering (e.g., plastic sheeting). Additional measures (e.g., berm, jersey barriers, silt fence, etc.) may be required to minimize soil runoff from the stockpile area. The soil shall be removed prior to completion of Work.

B. Contractor shall provide the Engineer with all hauling receipts (or copies of receipts) from the disposal facility for all Type A, Type B or Type C Regulated Soil at least weekly.

C. The Engineer may shut down excavation activities should unexpected regulated material be encountered during excavation.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. The Work includes the requirements to provide air and noise control measures until Final Completion of the Work.

1.02 SUBMITTALS

A. Prior to Notice to Proceed, the Contractor shall submit a list of equipment to be used on the project and written certification that all equipment on the list and any additional equipment, including Contractor's, subcontractors or supplier's equipment, shall meet the requirements of 3.01 below.

PART 2 - PRODUCTS - NOT USED

PART 3 – EXECUTION

3.01 AIR POLLUTION CONTROL

A. The Contractor shall meet or exceed EPA Tier 2 off-road diesel engine emission standards for off-road equipment >= 25hp and meet or exceed EPA 1994 on-road diesel engine emission standards for on-road equipment except as follows:

1. Equipment being used in an emergency or public safety capacity

B. The Contractor shall not discharge smoke, dust, and other hazardous materials into the atmosphere that violate local, state or federal regulations.

C. No vehicles can idle for more than 5 consecutive minutes, except as follows:

1. Idling is required to bring or maintain the equipment to operating temperature;

2. Engine idling is necessary to accomplish work for which the equipment was designed (i.e. operating a crane); or

3. Idling vehicles being used in an emergency or public safety capacity.

D. The Contractor shall minimize nuisance dust by cleaning, sweeping, vacuum sweeping, sprinkling with water, or other means. Equipment for this operation shall be on the job site or available at all times.

3.02 NOISE CONTROL

A. The Contractor shall comply with all local controls and noise level rules, regulations and ordinances which apply to work performed pursuant to the Contract.

B. All internal combustion engines used on the job shall be equipped with a muffler of a type recommended by the manufacturer.

END OF SECTION

PART 1 – GENERAL

1.01 SUMMARY

A. The Work shall consist of the procedures to be followed in the event that cultural and/or historical resources are inadvertently discovered during the projects activities.

B. The project is located in an area previously inventoried for cultural and historical resources; however it is possible that additional, previously unidentified archaeological resources and/or skeletal remains could be inadvertently discovered during project activities. In the event that prehistoric, historic-era archaeological materials or skeletal remains are discovered, the appropriate protection measures and protocols described in this section must be followed.

1.02 REFERENCES

A. The rules, requirements, and regulations that apply to this Work include, but are not necessarily limited to the following:

1. Port of Tacoma “Inadvertent Discovery Plan" attached in Appendix C.

PART 2 – PRODUCTS – NOT USED.

PART 3 – EXECUTION

3.01 PROTOCOLS FOR DISCOVERY OF ARCHAEOLOGICAL RESOURCES

A. In the event that archaeological resources are encountered within the project, the following actions will be taken:

1. All ground disturbing and construction activity at the specific location will stop and the area will be protected via temporary fencing or other appropriate measures.
2. The Contractor’s work supervisor will be notified immediately.
3. Contact the PORT’s Engineer and Environmental Project Manager immediately.
4. A work stoppage zone, as determined by the Archaeologist and PORT, will be established.
5. The PORT’s Environmental Project Manager will contact the appropriate agencies where the discovery is located as well as the Washington State Department of Archaeology and Historic Preservation (DAHP) the Puyallup Tribe (TRIBE) and the U.S. Army Corps of Engineers (Corp).
6. The Work Stoppage Zone will remain protected until further decisions can be made regarding the area.
7. The Contractor will be allowed to continue ground disturbing and other construction activities outside of the established work stoppage zone.

3.02 PROTOCOLS FOR DISCOVERY OF HUMAN REMAINS

A. In the event of that human remains are encountered within the project, the following actions, consistent with RCWs 68.50.645, 27.44.055 and 68.60.055 will be taken:

1. All ground disturbing and construction activity at the specific location will stop and the area will be protected via temporary fencing or other appropriate measures. The remains will not be touched, moved or further disturbed.
2. The Contractor’s work supervisor will be notified immediately.
3. Contact the Port’s Engineer and Environmental Project Manager immediately.

4. The Environmental Project Manager will notify the county medical examiner / coroner and local law enforcement.
5. A Work Stoppage Zone will be determined and remain protected until further decisions can be made regarding the area.
6. The Contractor will be allowed to continue ground disturbing and other construction activities outside of the established work stoppage zone.

3.03 PROTOCOLS FOR CONFIDENTIALITY

A. In the event of that human remains or cultural resources are discovered within the project area, the Port and the Contractor shall keep and maintain all information regarding any discovery confidential.
   1. At no time shall the Contractor contact the media, any third party or otherwise share information regarding the discovery with any member of the public.
   2. If the Contractor is contacted by the media or the public regarding any discovery, they shall refrain from comment, and contact the Port's Environmental Project Manager immediately.

END OF SECTION

PART 1 - GENERAL

1.01 PERMITS, CODES, AND REGULATIONS

A. The following permits/approvals have been applied for (or are on file) and incorporated into the Contract:

1. Appendix C – Port of Tacoma Inadvertent Discovery Plan (IDP)
2. Appendix E – Site Development Permit # No. SDEV26-0069
3. Appendix F – Work Order Permit No. WO26-0040
4. Appendix G – State Environmental Policy Act (SEPA) Determination of Nonsignificance (DNS)
5. Appendix H – Critical Area Development Permit No. LU25-0176
6. Appendix J - National Pollutant Discharge Elimination System (NPDES) Permit No. WAR315656
7. Appendix K – Ecology Enforcement Order DE 19410
8. Appendix N – Ecology Administrative Order 24560.
9. Appendix O – Special Approved Discharge (SAD) Permit No. SAD # 26-007

B. Conform with the requirements of listed permits and additional or other applicable permits, codes, and regulations as may govern the Work.

C. Obtain and pay fees for licenses, permits, inspections, and approvals required by laws ordinances, and rules of appropriate governing or approving agencies necessary for proper completion of Work (other than those listed under item 1.01.A above and Special Inspections called for by the International Building Code).

D. Conform with current applicable codes, regulations and standards, which is the minimum standard of quality for material and workmanship. Provide labor, materials, and equipment necessary for compliance with code requirements or interpretations, although not specifically detailed in Drawings or specifications. Be familiar with applicable codes and standards prior to bidding.

E. Process through Engineer, request to extend, modify, revise, or renew any of the permits (listed in 1.01.A above). Furnish requests in writing and include a narrative description and adequate Drawings to clearly describe and depict proposed action. Do not contact regulatory agency with requests for permit extensions, modifications, revisions, or renewals without the prior written consent of the Engineer.

1.02 VARIATIONS WITH CODES, REGULATIONS AND STANDARDS

A. Nothing in the Drawings and specifications permits Work not conforming to codes, permits, or regulations. Promptly submit written notice to the Engineer of observed variations or discrepancies between the Contract Documents and governing codes and regulations.

B. Appropriate modifications to the Contract Documents will be made by Change Order to incorporate changes to Work resulting from code and/or regulatory requirements. Contractor assumes responsibility for Work contrary to such requirements if Work proceeds without notice.

C. Contractor is not relieved from complying with requirements of Contract Documents which may exceed, but not conflict with requirements of governing codes.

1.03 COORDINATION WITH REGULATORY AGENCIES

A. Coordinate Work with appropriate governing or regulating authorities and agencies.

B. Provide advance notification to proper officials of Project schedule and schedule revisions throughout Project duration, in order to allow proper scheduling of inspection visits at proper stages of Work completion.

C. Regulation coordination is in addition to inspections conducted by Engineer. Notify Engineer at least 48 hours in advance of scheduled inspections involving outside regulating officials, to allow Engineer to be present for inspections.

PART 2 - PRODUCTS - NOT USED

PART 3 – EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes requirements relating to referenced standards.

1.02 QUALITY ASSURANCE

A. For products or workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference 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 of date of issue specified in this section, except where a specific date is established by applicable code.

C. Should specified reference standards conflict with Contract Documents, request clarification from the Engineer before proceeding.

D. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Engineer shall be altered by the Contract Documents by mention or inference otherwise in any reference document.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 QUALITY CONTROL FOR COMPLIANCE:

A. The Contractor shall perform such detailed examination, inspection, quality control and assurance of the Work as to ensure that the Work is progressing and is being completed in strict accordance with the Contract Documents. The Contractor shall plan and lay out all Work in advance of operations so as to coordinate all Work without delay or revision. The Contractor shall be responsible for inspection of portions of the Work already performed to determine that such portions are in proper condition to receive subsequent Work. Under no conditions shall a portion of Work proceed prior to preparatory work having been satisfactorily completed. The Contractor shall ensure that the responsible Subcontractor has carefully examined all preparatory work and has notified the Contractor (who shall promptly notify the Port in writing) of any defects or imperfections in preparatory work that will, in any way, affect completion of the Work.

1.02 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 Engineer 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.

1.03 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 Engineer before proceeding.

C. Adjust Products to appropriate dimensions; position before securing Products in place.

1.04 TESTING SERVICES

A. Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities.

1. Neither observations by an inspector retained by the Port, the presence or absence of such inspector at the site, nor inspections, tests, or approvals by others, shall relieve the Contractor from any requirement of the Contract Documents, nor is any such inspector authorized to change any term or condition of the Contract Documents.

B. Necessary materials testing shall be performed by an independent testing laboratory during the execution of the Work and paid for by the Port of Tacoma, unless otherwise specified. Access to the area necessary to perform the testing and/or to secure the material for testing, shall be provided by the Contractor.

C. Testing does not relieve Contractor from performing work to contract requirements.

D. Re-testing required because of non-conformance to specified requirements will be charged to the Contractor by deducting testing charges from the Contract Sum via Change Order.

E. 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 six (6) months of the submittal date.

F. 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 Port, except as required by other sections of these Specifications.

1.05 MANUFACTURER'S 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 Engineer 30 days in advance of required observations. Observer subject to approval of Engineer.

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 - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes requirements relating to the following:

1. Temporary utilities,
2. Temporary sanitary facilities,
3. Temporary Controls: Barriers, enclosures, and fencing.

1.02 TEMPORARY UTILITIES

A. Provide and pay for all electrical power, lighting, water, heating and cooling, and ventilation required for construction purposes. Contractor is responsible for getting required permits and meters from the City of Tacoma.

B. Use trigger-operated nozzles for water hoses, to avoid waste of water.

1.03 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.

B. Maintain daily in clean and sanitary condition.

C. At end of construction, return facilities to same or better condition as originally found.

1.04 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for Port's use of site, and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.05 FENCING

A. Construction: Contractor's option.

B. Provide 6 ft. (1.8 m) high fence around construction site; equip with vehicular gates with locks.

1.06 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Clean and repair damage caused by installation or use of temporary work.

B. Restore existing facilities used during construction to original condition.

C. Restore new permanent facilities used during construction to specified condition.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes requirements relating to the following:

1. Access roads
2. Parking
3. Construction parking controls
4. Traffic Control
5. Flares and lights
6. Haul routes
7. Maintenance
8. Removal, repair
9. Mud from site vehicles

PART 2 - PRODUCTS

2.01 SIGNS, SIGNALS, AND DEVICES

A. Post Mounted and Wall Mounted Traffic Control and Informational Signs, as specified.

B. Traffic Cones and Drums, Flares and Lights: As approved by local jurisdictions.

C. Flag Person Equipment: As required by local jurisdictions.

PART 3 - EXECUTION

3.01 PREPARATION

A. Clear areas, provide surface and storm drainage of road, parking, area premises, and adjacent areas.

3.02 ACCESS TO SITE

A. Provide and maintain access to fire hydrants free of obstructions.

B. Maintain access to near by business driveways.

3.03 PARKING

A. All Contractor's employee cars and work vehicles will be parked next to site as designated by the Engineer. (The contractor can use the adjacent PQ site for employee cars parking. 1202 Taylor Way Tacoma, WA 98421.)

B. When site space is not adequate, provide additional off-site parking.

3.04 CONSTRUCTION PARKING CONTROL

A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and Port operations.

B. Prevent parking on or adjacent to access roads or in non-designated areas.

3.05 TRAFFIC CONTROL

A. Provide trained and equipped flag persons to regulate traffic when construction operations or traffic encroach on public traffic lanes.

B. The Contractor shall erect and maintain all construction signs, warning signs, detour signs, flaggers and other traffic control devices necessary for the safe ingress and egress of the Project Site. Traffic control shall include but is not limited to:

1. The Contractor shall be liable for injuries and damages to persons and property suffered by reason of the Contractor's operations or any negligence in connection therewith.

2. Flagging, signs, and all other traffic control devices furnished or provided shall conform to established WSDOT and City of Tacoma standards. No work shall be done on or adjacent to the above locations until all necessary signs and traffic control devices are in place. During the course of the work, the Contractor shall be responsible for providing and maintaining adequate traffic control measures for the protection of the Contractor's work and the public.

3.06 FLARES AND LIGHTS

A. Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

3.07 HAUL ROUTES

A. Confine construction traffic to designated haul routes.

B. Provide traffic control at critical areas of haul routes to regulate traffic, to minimize interference with public traffic.

3.08 MAINTENANCE

A. Maintain traffic and parking areas in a sound condition free of excavated material, construction equipment, Products, mud, snow, and ice.

B. Maintain existing paved areas used for construction. Promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original, or specified, condition.

3.09 REMOVAL, REPAIR

A. Repair existing facilities damaged by use, to original condition.

B. Repair damage caused by installation.

3.10 PUBLIC STREET AND ONSITE ROADWAY CLEANING

A. 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.

B. When trucks and other equipment are operating on paved public streets and site roadways/paved surfaces, the Contractor will be required to clean said streets, roadways, and other paved surfaces at least daily, and at other times if required by the Engineer.

C. In the event that the above requirements are violated and no action is taken by the Contractor after notification of infraction by the Engineer, the Port reserves the right to have the streets, roadways, and other paved surfaces in question cleaned by others and have the expense of the operation charged to the Contractor.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. The Work shall consist of planning, installing, inspecting, maintaining and removing Temporary Erosion and Sediment Control (TESC) Best Management Practices (BMPs) to prevent pollution of air and water, and control, respond to, and dispose of eroded sediment and turbid water during the term of the Contract. Contractor shall implement BMPs to ensure discharge of stormwater or sediment from the Project Limits is done as required by the permits.

B. A Construction Stormwater Pollution Prevention Plan (CSWPPP) has been prepared by the Port as part of the National Pollution Discharge Elimination System (NPDES) stormwater permit requirements for the project site. The CSWPPP is attached as Appendix J to these specifications. The Contractor shall use a project-specific CSWPPP to meet or exceed the control measures required by the Washington Department of Ecology (Ecology). The CSWPPP describes the proposed construction activities and Temporary and Permanent Erosion and Sediment Control (ESC) measures, pollution prevention measures, inspection/monitoring activities, and recordkeeping that will be implemented during the proposed construction project. Contractor shall determine appropriate BMPs for implementation throughout duration of the Work, including but not limited to those identified in the project-specific CSWPPP. The Contractor shall have on-site or on-call at all times an individual who is a certified erosion and sediment control lead (CESCL).

1. The CSWPPP consists of planning, installing, inspecting, maintaining, and removing TESC BMPs per the City of Tacoma’s Stormwater Management Manual (2021) The BMPs are to prevent pollution of air and water, and control, respond to, and dispose of eroded sediment and turbid water during the term of the Contract.

2. The Contractor shall submit a project specific CSWPPP. The Contractor may either submit an alternative CSWPPP or adopt the CSWPPP that is provided by the Port. The Contractor will be responsible for updating the CSWPPP to include Spill Prevention Control and Countermeasures (SPCC) BMP’s, and to reflect required changes to BMPs, as needed, to comply with the Construction Stormwater General Permit at no additional cost to the Port.

3. The Port has secured the NPDES Construction Stormwater permit from Ecology. See Appendix J. The NPDES permit will be transferred to the Contractor.

4. This project is a zero stormwater discharge project. Any stormwater runoff will be collected and discharged to the City's sanitary sewer system.

C. Unless otherwise noted in the CSWPPP, the work shall include, but is not limited to, the following:

1. Catch Basin Protection
2. High Visibility Filter Fabric Fencing
3. High Visibility Construction Fencing
4. Wheel Wash
5. Street Sweeping
6. Dust Control
7. Temporary Dewatering Discharges

8. Materials on Hand
9. Sawcutting

D. These TESC requirements shall apply to all areas associated with the Work including but not limited to the following:
   1. Work areas
   2. Equipment and material storage areas
   3. Staging areas
   4. Stockpiles
   5. Discharge points within or adjacent to the work areas that are impacted by stormwater runoff from the Project Limits.

E. Acceptance of TESC plans does not constitute an approval of permanent Work or drainage design (e.g., size and location of roads, pipes, channels, utilities, etc.).

F. For this Work, the Contractor shall read and conform to all requirements set forth in the Ecology's NPDES General Permit for Discharges Associated with Construction Activities

1.02 REFERENCES

A. The rules, requirements, and regulations that apply to this Work include, but are not necessarily limited to the following:
   1. Department of Ecology, “Stormwater Management Manual for Western Washington,” 2024.
   2. Washington State Department of Transportation 2026 Standard Specification M41-10, Division 8-01 Erosion Control and Water Pollution control.
   3. City of Tacoma “Surface Water Management Manual,” Tacoma Public Works, Environmental Services, July 2021.
   4. Washington State Department of Ecology NPDES Phase 1 Municipal Stormwater General Permit, August 1, 2026.

1.03 SUBMITTALS

A. Material Safety Data Sheet (MSDS) for dust palliative products.

B. Product Data: Submit data on the following:
   1. Catch Basin Protection
   2. High Visibility Filter Fabric Fencing
   3. High Visibility Construction Fencing

C. Excavation and Water Management Plan

D. Copies of all required TESC site stormwater monitoring and testing documentation, field and site log books and all inspection observation/corrective reports stated herein, within the SWPPP, and on the Drawings.

E. Project CESCL personnel certifications.

F. Construction Stormwater Pollution Prevention Plan (CSWPPP). The Contractor shall submit a project-specific CSWPPP. The Contractor may either submit an alternative CSWPPP or adopt the CSWPPP that is provided by the Port. The Contractor will be responsible for updating the CSWPPP to include Spill Prevention Control and Countermeasures (SPCC) BMP's, and to reflect required changes to BMPs, as needed, to comply with the Construction Stormwater General Permit at no additional cost to the Port.

1. CSWPPP Narrative: In the event the Contractor elects to develop a separate Construction CSWPPP, the document shall be prepared in accordance with the requirements of the Construction Stormwater Permit requirements. Submit on an approved Department of Ecology CSWPPP template format listed at website: https://www.ecology.wa.gov/Regulations-Permits/Permits-certifications/Stormwater-general-permits/Construction-stormwater-permit

2. In the event the Contractor adopts the existing Port CSWPPP, he/she must obtain the Word file and complete the Spill Prevention Control and Countermeasures portion of the document.

1.04 AUTHORITY OF ENGINEER

A. In the event that the Contractor's activities are causing off-site discharge of stormwater/ sediment or contamination of adjacent City of Tacoma storm drain systems, streams or other watercourses, lakes, ponds, and other areas of water impoundment, the Engineer has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow and fill operations, and to direct the Contractor to provide immediate permanent or temporary pollution control measures to minimize adverse impacts.

B. In the event that areas adjacent to the work area are suffering degradation due to erosion, sediment deposit, water flows, or other causes, the Engineer may stop construction activities until the situation is rectified.

PART 2 PRODUCTS

2.01 CATCH BASIN PROTECTION

A. Catch Basin Protection Inserts shall be DrainGuard Oil and Sediment Catch Basin Inserts, 11091, as manufactured by Advanced Environmental or Engineer approved equal.

B. Gravel Borrow: Shall comply with Section 31 05 16 Aggregate requirements.

C. Weep Hole Geotextile Fabric: Comply with filter fabric fence geotextile fabric requirements.

2.02 HIGH VISIBILITY FILTER FABRIC FENCE

A. High visibility filter fabric fence shall be a minimum of 5 feet (152.4 cm) in height, high visibility orange, UV stabilized and shall meet the geotextile fabric requirements in paragraph 2.02B below. See WSDOT Standard Plan I-30.16-01.

B. The geotextile shall meet the following standards. All geotextile properties listed below are minimum average roll values (i.e., the test result for all sampled roll in a lot shall meet or exceed the values shown in the table below):

Geotextile Fabric Properties	
Polymeric Mesh AOS (ASTM D4751)	0.02 inch (0.6 mm) maximum for slit film woven (#30 sieve).

	0.01 inch (0.3 mm) maximum for all other geotextile types (#50 sieve). 0.01 inch (0.15 mm) minimum for all fabric types (#100 sieve).
Water Permittivity (ASTM D4491)	0.02 sec-1 minimum
Grab Tensile Strength (ASTM D4632)	180 lbs. Minimum for extra strength fabric. 100 lbs minimum for standard strength fabric.
Grab Tensile Strength (ASTM D4632)	30% maximum
Ultraviolet Resistance (ASTM D4355)	70% minimum

2.03 HIGH VISIBILITY CONSTRUCTION FENCE

A. High-visibility construction fence shall be high visibility orange, UV stabilized, high density polyethylene or polypropylene mesh. See WSDOT Standard Plan I-10.10-01.

2.04 DUST CONTROL

A. Dust palliative for dust control proposed by the Contractor and approved by the Engineer.

2.05 WHEEL WASH

A. Wheel wash systems are BMP's designed to remove onsite sediments from truck tires prior to entering public roadway systems. They are a portable, self-contained, pressure wheel wash facility, similar in function to the following portable pressure wash systems:

1. Rain For Rent online Wheel Wash system.
2. ACF West portable wheel wash systems.

B. The wheel wash system is also an assurance that NO snails or snail eggs leave the site. The Contractor shall obtain Engineer's approval for selected wheel wash system.

PART 3 EXECUTION

3.01 GENERAL

A. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply as determined by the Engineer.

B. No discharge of site stormwater runoff to offsite stormwater discharge locations shall be allowed, except for water that is collected, treated, and discharged to City of Tacoma sanitary sewer in compliance with the project-specific Special Authorization to Discharge obtained from City of Tacoma (see Dewatering requirements per plan).

C. The Contractor shall be solely responsible for all damages and fines incurred because of Contractor, subcontractor, or supplier actions in implementing the requirements of this Section.

D. The Contractor shall be solely responsible for schedule impacts incurred because of Contractor, subcontractor, or supplier actions in implementing the requirements of this Section.

E. Comply with the Construction SWPPP, the contract document requirements, the Construction Stormwater General Permit and the project SAD requirements.

3.02 TEMPORARY EROSION AND SEDIMENT CONTROL DEVELOPMENT

A. The Contractor is responsible for implementing the project CSWPPP requirements. The Contractor shall address the following issues as part of implementing the BMPs.

1. The contract document TESC notes and details, and the CSWPPP document requirements are minimum requirements for the anticipated site conditions during the construction period. During the construction period the Contractor shall, at no additional cost to the Port, upgrade the TESC measures as needed for unexpected storm events and modify these facilities for changing site conditions (such as relocation of ditches and silt fences, etc.) and update the CSWPPP to document the modifications made.

2. The Contractor shall inspect the TESC measures daily and maintain these facilities to ensure continued proper functioning during the construction period. The Contractor shall provide copies to the Port of these written records of these inspections on a weekly basis during the wet season (October 1 through April 30) and on a monthly basis during the dry season (May 1 through September 30) as required by the Construction Stormwater General Permit (CSWGP).

3. Areas of exposed soils, including embankments, which will not be disturbed for two days during the wet season or seven days during the dry season, shall immediately be stabilized by the Contractor with the approved TESC measures (seeding, mulching, plastic covering, etc.)

4. Areas needing TESC measures not requiring immediate attention shall be addressed by the Contractor at the Port's discretion.

5. Catch basins within the Project Limits shall be cleaned when the depth of debris reaches 30% of the sump depth or the debris surface is six (6) inches below the outlet pipe. All catch basins, manholes, and conveyance lines shall be cleaned by the Contractor at the completion of the project. The cleaning process shall not flush sediment-laden water into a downstream system.

3.03 TEMPORARY EROSION AND SEDIMENT CONTROL IMPLEMENTATION

A. The Contractor is responsible for implementing the CSWPPP including contract TESC BMPs in accordance with the requirements set forth under the Construction Stormwater General Permit.

B. The Contractor shall ensure that water or a dust palliative and a dispensing methodology is available as needed for project use. It is the responsibility of the Contractor to develop and adhere to appropriate safety measures pertaining to the palliative use.

C. The Contractor shall maintain the required TESC installations for function and operation throughout the project duration. The Contractor shall record all maintenance observations and corrective measures in the project log book.

D. In the event that temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the Work as scheduled or as directed by the Engineer, such work shall be performed by the Contractor at its own expense.

E. Prior to final payment, the Contractor shall remove all TESC facilities, install permanent site surfacing improvements, permanent BMPs and site surfacing with minimal disturbance and shall clean stormwater facilities prior to work completion. The Construction Stormwater Permit will be terminated upon completion of the work

F. Upon completion of TESC facility removal work, the Contractor shall dispose of all waste material, trash, debris and removed TESC materials at approved landfill, as specified by the Engineer.

3.04 CONSTRUCTION ENTRANCE/EXIT

A. Install in accordance with the Contract Document requirements.

B. Install in accordance with 2024 Department of Ecology Stormwater Management Manual for Western Washington BMP C105.

C. Restrict traffic to the construction entrance/exit.

D. Maintain the construction entrance/exit quarry spalls by removing collected sedimentation in the quarry spall pad and dispose of the spalls and sediment onsite. Install new spalls in the construction entrance exit pad. The Contractor shall modify the entrance during the progress of the work at no additional cost to the Port.

3.05 WHEEL WASH

A. Install in accordance with the Contract Document requirements.

B. Install in accordance with 2024 Department of Ecology Stormwater Management Manual for Western Washington BMP C106.

C. Alternatively, the contractor may install, operate and maintain a portable wheel wash per the manufacturer’s specifications and as indicated in the Contract Documents. The Contractor shall be responsible for disposal of water in accordance with all laws.

D. The Contractor shall modify wheel wash as required during the progress of work to prevent track out of material from the site at no additional cost to the Port.

E. All vehicles that enter the work area, shall be required to pass over the wheel wash prior to leaving the site.

3.06 SILT FENCE

A. Install in accordance with the Contract Document requirements.

B. Install in accordance with 2024 Department of Ecology Stormwater Management Manual for Western Washington BMP C233 and the Construction Stormwater General Permit requirements.

3.07 CATCH BASIN PROTECTION

A. Install in accordance with the Contract Documents requirements.

3.08 STOCKPILE PROTECTION

A. Install in accordance with the Contract Documents requirements.

3.09 OTHER TESC OR BMP'S

A. Street Sweeping: Provide street sweeping when sediments are observed on Taylor Way and Alexander Ave.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes the requirements to provide product data under the applicable specification section.

1.02 SUBMITTALS

A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 - PRODUCTS

2.01 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by the Contract Documents.

2.02 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

PART 3 - EXECUTION

3.01 TRANSPORTATION AND HANDLING

A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

B. Transport and handle products in accordance with manufacturer's instructions.

C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.02 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

E. For exterior storage of fabricated products, place on sloped supports above ground.

F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

G. Prevent contact with material that may cause corrosion, discoloration, or staining.

H. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

PART 1 - GENERAL

1.01 SCOPE

A. The purpose of this section is to provide the framework for transferring Port provided equipment and materials to the Contractor in a safe, timely and effective manner.

1.02 SUBMITTALS

A. Submit an inspection report or log to the Engineer of the inspection performed on the materials before acceptance by the Contractor. Flag any materials identified as being in unsatisfactory condition before accepting the material. Document unsatisfactory condition of material photographically, using digital media.

1.03 COORDINATION

A. The materials will be available by August 3, 2026. .

1.04 LOCATION

A. The materials are located at Port Maintenance Building. Port maintenance will deliver the snail bait to the contractor at the jobsite. .

PART 2 - PRODUCTS

2.01 ITEMS

A. Assume all items are in satisfactory condition unless otherwise indicated. Report in writing to the Engineer equipment found to be in unsatisfactory condition. See Appendix M for Deadline Bullets snail bait Safety Data Sheet.

No.	Description	Quantity	Manufacturer/Supplier
1	Deadline Bullets Snail Bait	400 Pounds	AMVAC Chemical Corporation

PART 3 - EXECUTION

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes requirements relating to the following:

1. Examination, preparation, and general installation procedures
2. Cutting and patching

1.02 SUBMITTALS

A. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:

1. Structural integrity of any element of Project;
2. Integrity of weather exposed or moisture resistant element;
3. Efficiency, maintenance, or safety of any operational element;
4. Visual qualities of sight exposed elements; and
5. Work of the Port or separate Contractor.

B. Project As-Built Documents: Accurately record actual locations of capped and active utilities.

PART 2 - PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of 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. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

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.

3.03 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.04 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. Perform whatever cutting and patching is necessary to:

1. Complete the work;
2. Fit products together to integrate with other work;
3. Provide openings for penetration of mechanical, electrical, and other services;
4. Match work that has been cut to adjacent work;
5. Repair areas adjacent to cuts to required condition;
6. Repair new work damaged by subsequent work;
7. Remove samples of installed work for testing when requested; and
8. Remove and replace defective and non-conforming work.

C. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

D. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

E. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

F. Restore work with new products in accordance with requirements of Contract Documents.

G. Patching:

1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
2. Match color, texture, and appearance.

3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.05 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

3.06 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes field engineering and land surveying services by Contractor.

1.02 DESCRIPTION OF SERVICES

A. Specific services listed in this section are in addition to, and do not supersede, general Execution and Closeout Requirements.

B. Sole responsibility for establishing all locations, dimensions and levels of items of work.

C. Sole responsibility for provision of all materials required to establish and maintain benchmarks and control points, including batter boards, grade stakes, structure elevation stakes, and other items.

D. Keeping a transit, theodolite, or TST (total station theodolite with electronic distance measurement device); leveling instrument; and related implements such as survey rods and other measurement devices, at the project site at all times.

E. Provision of facilities and assistance necessary for Engineer to check lines and grade points placed by Contractor.

1. Performance of excavation or embankment work until after all cross-sectioning necessary for determining payment quantities for Unit Price work have been completed and accepted by Engineer.

F. Preparation and maintenance of daily reports of activity on the work. Submission of reports containing key progress indicators and job conditions to Engineer.

1. Major equipment and materials installed as part of the work.
2. Location of areas in which construction was performed.
3. Work performed, including field quality control measures and testing.
4. Weather conditions.
5. Instructions received from Engineer or Port, if any.

G. Preparation and maintenance of professional-quality, accurate, well organized, legible notes of all measurements and calculations made while surveying and laying out the work.

1.03 REFERENCE STANDARDS

A. FGDC-STD-007.1 - Geospatial Positioning Accuracy Standards - Part 1: Reporting Methodology; 1998.

B. FGDC-STD-007.2 - Geospatial Positioning Accuracy Standards - Part 2: Standards for Geodetic Networks; 1998.

C. FGDC-STD-007.4 - Geospatial Positioning Accuracy Standards - Part 4: Architecture, Engineering, Construction, and Facilities Measurement; 2002.

D. State Plane Coordinate System for the State in which the Project is located.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 FIELD ENGINEERING

A. Maintain field office files, drawings, specifications, and record documents.

B. Coordinate field engineering services with Contractor's subcontractors, installers, and suppliers as appropriate.

C. Prepare layout and coordination drawings for construction operations.

D. Check and coordinate the work for conflicts and interferences, and immediately advise Engineer and Port of all discrepancies of which Contractor is aware.

E. Cooperate as required with Engineer and Port in observing the work and performing field inspections.

F. Review and coordinate work on a regular basis with shop drawings and Contractor's other submittals.

G. Check the location, line and grade of every major element as the work progresses. Notify the Engineer when deviations from required lines or grades exceed allowable tolerances. Include in such notifications a thorough explanation of the problem, and a proposed plan and schedule for remedying the deviation. Do not proceed with remedial work without Port's concurrence of the remediation plan.

3.02 LAND SURVEYING

A. General: Follow standards for geospatial positioning accuracy.

1. FGDC-STD-007.1as amended by Authority Having Jurisdiction.
2. FGDC-STD-007.2as amended by Authority Having Jurisdiction.
3. FGDC-STD-007.4as amended by Authority Having Jurisdiction.

B. Coordinate survey data with the State Plane Coordinate System of the State in which the Project is located.

C. Contractor is responsible for the restoration of all property corners and control monuments damaged or destroyed by construction-related activities. Any disturbed monuments must be replaced at Contractor's expense by a surveyor licensed in the State in which the Project is located, and approved by the Engineer.

1. Temporarily suspend work at such points and for such reasonable times as the Port may require for resetting monuments. The Contractor will not be entitled to any additional compensation or extension of time.

3.03 REPORTS

A. Submit two copies of Contractor's daily reports at Engineer's field office (or electronically) by 9:00 AM the next working day after the day covered in the associated report. Daily report shall be signed by responsible member of Contractor's staff, such as project manager or superintendent, or foreman designated by Contractor as having authority to sign daily reports.

3.04 RECORDS

A. Maintain at the Site a complete and accurate log of control and survey work as it progresses.

1. Organize and record survey data in accordance with recognized professional surveying standards, Laws and Regulations, and prevailing standards of practice in the State in which the Project is located. Record Contractor's surveyor's original field notes, computations, and other surveying data in Contractor-furnished hard-bound field books. Contractor is solely responsible for completeness and accuracy of survey work, and completeness and accuracy of survey records, including field books. Survey records,(including field books) may be rejected by Port due to failure to organize and maintain survey records in a manner that allows reasonable and independent verification of calculations, and/or allows identification of elevations, dimensions, and grades of the work.
2. Illegible notes or data, and erasures on any page of field books, are unacceptable. Do not submit copied notes or data. Corrections by ruling or lining out errors will be unacceptable unless initialed by the surveyor. Violation of these requirements may require re-surveying the data questioned by Engineer.

B. Submit three copies of final property survey to Port. Include on the survey a certification, signed by the surveyor, that principal metes, bounds, lines, and levels of the Project are accurately positioned as shown on the survey. Include the following information:

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes information for progress and final cleaning and restoration of damaged work prior to final inspection.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.01 PROGRESS CLEAN-UP

A. The Contractor shall clean the project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with all requirements for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
3. Containerize unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
    a. Use containers intended for holding waste materials for the type of material to be stored.
4. Coordinate progress cleaning for joint use areas where Contractor and other contractors are working concurrently.

B. Site: Maintain Project site free from waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 01 74 16.

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration until Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.02 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

a. Clean Project site, yard, and grounds in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.

b. Sweep paved areas broom clean. Remove spills, stains, and other foreign deposits.

c. Rake grounds that are neither planted· nor paved to a smooth, even-textured surface.

d. Remove tools, construction equipment, machinery, and surplus material from Project site.

3.03 REPAIR OF WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surface, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes construction waste management requirements.

1.02 DESCRIPTION OF WORK

A. The work includes demolition and removal within the project areas as shown on the drawings. The work also includes waste generated by construction activities, materials, packaging, scraps, and garbage. Soil from parcel 117 will not be removed from site. The only soil that can be exported from site will be material excavated from Alexzander Ave during the storm pipe installation.

1.03 DEFINITIONS

A. Co-mingled or Off-site Separation: Collecting all material types into a single bin or mixed collection system and separating the waste materials into recyclable material types at an off-site facility.

B. Construction, Demolition and Land-Clearing (CDL) Waste: Includes all nonhazardous solid wastes resulting from construction, remodeling, alterations, repair, demolition, and land clearing. Includes material that is recycled, reused, salvaged or disposed as garbage.

C. Hazardous/Dangerous Waste: As defined by Chapter 70.105.010 Revised Code of Washington and 40 Code of Federal Register 261 and by Washington Administrative Code 173-303.

D. Proper Disposal: As defined by the jurisdiction receiving the waste.

E. Recyclable Materials: Products and materials that can be recovered and remanufactured into new products.

F. Recycling: The process of sorting, cleaning, treating and reconstituting materials for the purpose of using the material in the manufacture of a new product. Can be conducted on-site (as in the grinding of concrete).

G. Recycling Facility: An operation that is permitted to accept materials for the purpose of processing the materials into an altered form for the manufacture of a new product.

H. Salvage for Reuse: Existing usable product or material that can be saved and reused in some manner on the project site or other projects off-site.

I. Salvage for Resale: Existing usable product or material that can be saved and removed intact (as is) from the project site to another site for resale to others without remanufacturing.

J. Source-Separated Materials: Materials that are sorted at the site into separate containers for the purpose of reuse or recycling.

K. Sources Separation: Sorting the recovered materials into specific material types with no, or a minimum amount of, contamination on site.

L. Time-Based Separation: Collecting waste during each phase of construction or deconstruction that results in primarily one major type of recovered material. The material is removed before it becomes mixed with the material from the next phase of construction.

M. Garbage: Product or material typically considered to be trash or debris that is unable to be salvaged for resale, salvaged and reused, returned, or recycled.

N. Olfactory Indications (methods): Of or relating to the sense of smell. Soils contaminated with petroleum and other volatile constituents typically exhibit characteristic odors that can be detected (and sometimes identified) by smell.

O. PID: Photo Ionization Detector. A field instrument that is used to detect the presence of and give a relative indication of the concentration of vapors emitted from volatile constituents (contamination) in environmental media (soil and water).

P. Soil (waste) Profile: A characterization of the chemical and physical properties of a waste material including the types of contaminants and their concentrations as measured by approved laboratory analytical methods. A profile is required by the receiving permitted disposal or recycling facility.

Q. Special Handling: Refers to hauling and disposal of soils that, because they are contaminated, cannot be reused in place as backfill or as general fill at another location. Such soils must be hauled to and managed at a permitted disposal or recycling facility.

R. Unanticipated Contamination: Contamination unexpectedly found in an excavation or in other locations where there is no prior knowledge, information, or history to indicate possible spills or releases of contamination.

S. Visual Indications (methods): A preliminary evaluation of the potential presence of contamination based on visual observation. For example, fuel contaminated soils are frequently discolored or stained relative to non-petroleum impacted native soils or clean fill.

1.04 SUBMITTALS

A. Waste Management Plan

B. Waste Management Final Report

1.05 WASTE MANAGEMENT PLAN

A. Submit a Waste Management Plan within 10 days after the notice to proceed and not less than 5 days before any demolition activities in accordance with these specifications. Provide a Waste Management Plan in a format as approved by the Engineer.

B. The Waste Management Plan shall include the following:

1. Name of designated Waste Management Coordinator.

2. A list of waste materials, including estimated types and quantities, of the waste that will be generated. Indicate salvaged for resale, salvaged for reuse, recycled, or disposed for each item.

3. Identify waste handling methods to be used, including one or more of the following:

a. Method 1 - Contractor or subcontractor(s) hauls recyclable materials to an approved recycling facility.

b. Method 2 - Contracting with diversion/recycling hauler to haul recyclable material to an approved recycling or material recovery facility.

c. Method 3 - Recyclable material reuse on-site.

d. Method 4 - Recyclable material salvage for resale.

e. Method 5 - Contractor or subcontractor hauls waste to an approved disposal facility.

4. Identification of each recycling, disposal, or material recovery facility to be utilized, including name, address and types of materials being recycled at each facility.
5. Description of the method to be employed in collecting, and handling, waste materials.
6. Description of methods to communicate Waste Management Plan to personnel and subcontractors.
7. Actions that will be taken to reduce solid waste generation.

C. Revise and resubmit Waste Management plan as required by the Engineer. Approval of the Contractor's Plan does not relieve the Contractor of responsibility for compliance with all applicable laws and regulations. Distribute copies of the Waste Management Plan to each subcontractor.

1.06 WASTE MANAGEMENT FINAL REPORT

A. Provide a Waste Management Final Report, in a format approved by the Engineer. The Waste Management Final Report shall list the following for the project:
1. A record of each waste material type and quantity recycled, reused, salvaged, or disposed from the Project. Include total quantity of waste material removed from the site and hauled to a landfill.
2. Percentage of total waste material generated that was recycled, reused, or salvaged.

B. Submit copies of manifests, weight tickets, recycling/disposal receipts or invoices, which validate the calculations or a signed certification of completeness and accuracy of the final quantities reported.

1.07 QUALITY ASSURANCE

A. Regulatory Requirements: The Contractor shall maintain compliance with all applicable Federal, State, or Local laws that apply to Construction Waste Management and material salvage, reuse, recycling and disposal.

B. Disposal Sites, Recyclers and Waste Materials Processors: All facilities utilized for management of any materials covered under this specification must maintain all necessary permits as required by federal, state and local jurisdictions.

1.08 HEALTH AND SAFETY

A. The Contractor is required to implement all health and safety provisions as required by Specification 01 35 29 - Health, Safety and Emergency Response Procedures.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 WASTE DISPOSAL

A. Landfill: Provide containers for CDL waste that is to be disposed of in a landfill clearly labeled as such.

B. Removal of CDL Waste from Project Site: Transport CDL waste off Port's property and provide legal disposal.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures
2. Final completion procedures
3. Warranties
4. As-Built Drawings

1.02 ACTION SUBMITTALS

A. Contractor’s List of Incomplete Items: Initial submittal at Substantial Completion.

1.03 PROJECT SUBMITTALS

A. Submittal of Project Warranties

B. Record Drawings

1. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous recordkeeping requirements and submittals in connection with various construction activities.

C. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.04 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request:

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Port unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in individual Sections, including specific warranties, operation and maintenance manuals, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
3. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by the Contract Document or Engineer. Label with manufacturer's name and model number where applicable.
4. Submit test/adjust/balance records.
5. Submit changeover information related to Port's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request:

1. Make final changeover of permanent locks and deliver keys to Port
2. Complete startup and testing of systems and equipment
3. Perform preventive maintenance on equipment used prior to Substantial Completion
4. Instruct Port's personnel in operation, adjustment, and maintenance of products, equipment, and systems
5. Advise Port of changeover in heat and other utilities
6. Terminate and remove temporary facilities from Project site
7. Complete final cleaning requirements

D. Submit a written request for inspection to determine Substantial Completion a minimum of 7 days prior to the date the work will be completed and ready for final inspection and tests. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare the Notice of Substantial Completion after inspection or will notify Contractor of items, either on the Contractor’s list or additional items identified by the Engineer, that must be completed or corrected before notice will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

1.05 PUNCH LIST (LIST OF INCOMPLETE ITEMS)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of Construction.

1. Organize list of spaces in sequential order.
2. Organize items applying to each space by major elements.

1.06 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete and submit the following:

1. Submittal of all remaining items, including as-built documents, final completion construction photographic documentation, damage or settlement surveys, surveys, and similar final record information and all other submittals defined in the Contract Documents.
2. List of Incomplete Items: Submit copy of Engineer’s Substantial Completion inspection list of items to be completed or corrected (Punch List). Copy of the list shall state that each item has been completed or otherwise resolved for acceptance.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 7 days prior to date the work will be complete and ready for final inspection and tests. On receipt of request, the Engineer will either proceed with inspection or notify contractor of unfulfilled requirements.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

C. Execution of all Change Orders.

1.07 FINAL ACCEPTANCE PROCEDURES

A. Submittals Prior to Final Acceptance:

1. Receipt and approval of application for final payment; due within seven (7) days of receipt of Final Completion by the Engineer;

2. Contractor's signed waiver and release of claims on the Engineer provided form;

3. Contractor's submittal of list of all suppliers and subcontractors and the total amounts paid to each on the Engineer provided form; and

4. Contractor's submittal of a list of all subcontractors and suppliers requiring Affidavits of Wages paid on the Contract and certify that each of companies will submit an approved Affidavit of Wages paid to the Port within 30 days.

B. The Engineer will issue the Final Acceptance Memo upon receipt of the required submittals.

PART 2 - PRODUCTS

2.01 CONTRACTOR'S WARRANTY

A. The Contractor warrants the labor, materials and equipment delivered under the contract to be free from defects in design, material, or workmanship, and against damage caused prior to final inspection. Unless otherwise specified, this warranty extends for a period of one (1) year from the date of Substantial Completion.

1. Time of Submittal: Submit written warranties on request of Engineer for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit the Port's rights under warranty.

2. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Port or Port tenants during construction.

3. Submit Warranties to the Engineer as a submittal, as described in 01 33 00 – Submittal Procedures.

B. In the event of failure, during such time or in such a location that immediate repairs are mandatory, the Contractor shall respond promptly (within 48 hours), irrespective of day of the week. If the Contractor is not available, the Port will affect repairs. The Contractor shall then reimburse the Port for parts and labor necessary to correct deficiencies as defined within the warranty clause and time.

2.02 AS-BUILT DRAWINGS

A. Project As-Built Drawings: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

B. Project As-Built Drawings shall be compiled by the Contractor and submitted to the Engineer for translation to the Record Drawings on a monthly basis.

1. The Project As-Built Drawings will be submitted on paper full-sized (ANSI D) copy.

2. Drawings shall be kept current and shall be done at the time the material and equipment is installed. Annotations to the record documents shall be made with an erasable colored pencil conforming to the following color code:
    a. Additions – Red
    b. Deletions – Green
    c. Comments – Blue
    d. Dimensions – Graphite
3. Project As-Built Drawings must be complete and accepted by the Engineer before Final Completion is issued.
4. As-Built Drawings shall be in accordance with horizontal and vertical control as shown on the drawings.

PART 3 – EXECUTION

3.01 MAINTENANCE OF AS-BUILT DRAWINGS

A. The Contractor shall maintain at the Project site, in good order for ready reference by the Engineer, one complete copy of the Contract Documents, including Addenda, Change Orders, other documents issued by the Port, a current Progress Schedule, and approved Submittals. The Contractor shall also generate and keep on site all documents and reports required by applicable permits.

B. The Contractor's As-Built Drawings shall be updated to record all changes made during construction. The location of all existing or new underground piping, valves and utilities, and obstructions located during the Work shall be appropriately marked until the Contractor incorporates the actual field dimensions and coordinates into the as-built drawings. The as-built drawings shall be updated at least weekly and before elements of the Work are covered or hidden from view. After the completion of the Work, the as-built drawings shall be provided to the Port.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY OF WORK

A. Extent of Work: The extent and location of the “Site Demolition” Work is indicated on the drawings. The Work includes the requirements for the removal, wholly or in part and satisfactory disposal of pavements, structures, or other features identified within the specifications and drawings. The drawings indicate typical general construction features of the various types of site demolition and is not to be construed as definitive or adequate to supplant the actual on-site inspection by the Contractor.

1.02 DEFINITIONS

A. Debris: All natural or man-made material produced by demolition work.

B. Remove: Removal and disposal of the identified item in its entirety.

C. Disposal: Loading, handling, transportation and deposition of the demolished item to an approved onsite or offsite locations.

D. CSWPPP: Construction Stormwater Pollution Prevention Plan. See Section 01 57 13 Temporary Erosion Sedimentation Control and Construction Stormwater Pollution Prevention Plan requirements

E. BMP: Best Management Practice. See Section 01 57 13 Temporary Erosion Sedimentation Control and Construction Stormwater Pollution Prevention Plan requirements.

1.03 GOVERNING CODES, STANDARDS, AND REFERENCES

A. U.S. Department of Labor Occupational Safety & Health Administration

1. OSHA Standard 1926.850(a), Preparatory Operations

B. Pierce County burning of debris

C. Puget Sound Clean Air Agency

1.04 SUBMITTALS

A. Furnish manufacturers’ technical literature, standard details, product specifications, and installation instructions for all products.

B. Submittals shall include the following:

1. Demolition plan.

2. Proposed landfills and recyclers.

1.05 SUMMARY

A. Permits: See General Conditions. Unless otherwise required in the General Conditions, the Contractor shall pick up all permits necessary for project work and abide by all requirements thereof.

B. Schedule: Coordinate this work with critical time schedule established for construction and take necessary measures to ensure schedule is met. Coordinate with Project Sequencing/Scheduling requirements.

C. Adjustments: If any discrepancies are found by the Contractor between the Drawings and actual conditions at the site, the Engineer reserves the right to make such minor adjustments in the work specified as necessary to accomplish the intent of the Contract Documents, without increased cost to the Port of Tacoma.

D. Pre-work Meeting: The Contractor shall schedule and coordinate a preconstruction meeting with the City of Tacoma Site Development and the Department of Ecology Inspectors prior to commencing any project work. Comply with inspection requirements

PART 2 - MATERIALS – NOT USED

PART 3 - EXECUTION

3.01 GENERAL PROJECT INFORMATION

A. The Contractor represents that it has visited the site to become familiar with the quantity and character of all materials to be demolished. The Contractor agrees that the premises were made available prior to deadline for submission of bids for whatever inspection and tests the Contractor deemed appropriate in preparation of bids.

B. Project Sequencing/Scheduling requirements: The Contractor shall implement and employ means and methods necessary to execute site demolition work in accordance with Plan and Specification requirements and within the project schedule time frame. Schedule work to minimize existing earthen soil disturbances.

C. Traffic: Conduct demolition operations to ensure minimum interference with adjacent roads, facilities and other adjacent property. Do not close or obstruct streets or other occupied or used facilities without permission from authorities having jurisdiction.

3.02 PREPARATION FOR EXECUTION OF WORK

A. The Contractor shall submit to the Port of Tacoma a Demolition Plan.

B. Products that are required to accomplish, or to be incorporated into, the Work of this section shall be as selected by the Contractor, subject to the approval of the engineer.

3.03 PROTECTION

A. Locate, identify, and protect utilities indicated to remain, from damage.

B. Protect features designated to remain.

C. Protect bench marks, survey control points, and existing structures from damage or displacement.

D. Soil Protection: Existing soils exposed as a result of Site Demolition work shall be protected from the weather. Coordinate with Section 01 57 13 Temporary Erosion Sedimentation Control and Construction Stormwater Pollution Prevention Plan requirements.

E. Existing Facilities or Improvements: Provide protection necessary to prevent damage to existing onsite facilities or improvements and on adjoining property. Restore damaged facilities or improvements to their original condition, as acceptable to parties having jurisdiction. Clean the adjacent structures and facilities of dust, dirt and debris caused by Selective Demolition operations as directed by Engineer or governing authorities. Return adjacent areas to existing condition prior to the start of work.

F. Monitoring Wells: All designated monitoring wells shall be protected from damage.

3.04 DEMOLITION

A. Completely remove and dispose of designated signage, bollards, pavements, existing utilities, and other obstructions. All pavements designated for removal shall be broken up, loaded and disposed of by the Contractor. Care shall be taken in removing the pavement, so that damage does not occur to the existing pavement which is to remain in place and that all removals are accomplished by making a neat full depth vertical saw cut at the boundaries of the area to be removed. Adjacent materials designated to remain that are damaged by the Contractor due to their operations shall be replaced at no additional cost to the Port.

B. Backfill: Fill depressions caused by demolition operations with satisfactory soil materials in accordance with Section 31 20 00 Earthwork requirements.

C. Monitoring Wells: Adjust designated monitoring wells to finish grade. The work shall be performed by a licensed driller and in accordance with WAC 173-160 requirements.

3.05 DISPOSAL

A. General: All materials, except those indicated as Port of Tacoma salvage, and except those materials containing substances classified as hazardous or potentially hazardous by local, state or Federal regulating agencies, shall upon their demolition become the property of the Contractor. All such material, including those containing hazardous or potentially hazardous substances shall be removed and promptly disposed of legally away from the site and on property not owned by the Port of Tacoma, except as otherwise provided in these specifications. No material shall be disposed of in adjoining waterways or in the fill.

B. Cleanup: After removal clean and grade the area. There shall be no debris, rubble, or litter left at the site from any of the demolition operations and the site shall be clean.

C. The Port of Tacoma encourages the salvage and recycling of materials from the site demolition. The Contractor shall salvage or recycle, in an acceptable manner to environmental agencies and the Port of Tacoma, at their option any of the materials designated for disposal.

D. Non-salvageable or non-recyclable demolition, contaminated soils and creosote debris shall be transported to a Port approved lined landfill with a Leachate Collection System.

E. Parcel 117 debris shall be collected and stockpiled for visual inspection and decontamination by WSDA prior to leaving the site. Debris shall be arranged in rows to be sprayed with a 25% metaldehyde molluscicide solution before being exported to the landfill.

END OF SECTION

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

A. Section includes:

1. Aggregate materials.

1.02 REFERENCES

A. Washington Administrative Code (WAC) 173.

B. Revised Code of Washington (RCW) 70.

C. MTCA Method A.

D. EPA Methods 1311 and 6010.

E. U.S. Composting Council.

F. WSDOT Test Method T113.

G. 2026 WSDOT Standard Specifications

H. ASTM International:

1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

2. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3).

1.03 DEFINITIONS

A. Reference Specification Section 31 20 00 Earthwork.

B. CSWPPP: Construction Stormwater Pollution Prevention Plan

C. TESC: Temporary Erosion Sedimentation Control

D. WSDOT: Washington State Department of Transportation

1.04 REFERENCE STANDARDS

A. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN m/m3)); 2012.

1.05 SUBMITTALS

A. Section 01 33 00 Submittal Procedures: Comply with requirements for submittals.

B. Aggregate Materials Source: Submit name of imported materials suppliers.

C. Import Aggregate Material Certifications: All imported aggregates shall be provided with certifications certifying that each aggregate does not consist of contaminated soils, petroleum products or dangerous wastes.

1. Recycled Aggregates shall not be allowed.

2. All aggregates shall consist of only virgin soils. The aggregate supplier shall provide certification stating that the aggregate products consist of virgin soils/rock and provide WSDOT Aggregate Source Approval (ASA) Qualified Product Listing (QPL) source certification for all import materials. The supplier shall also provide a written description of the aggregate manufacturing process, from the mine source to project delivery. The description shall include stockpiling at the source, the source of wash water used if applicable, and chain of material custody.
3. Gradation Analysis. Submit gradation analysis certification documents from a qualified laboratory indicating and interpreting test results for compliance of specified aggregate materials. The testing, test results and documentation certificate shall be for this specific project.
4. Provide documentation from a qualified testing agency indicating and interpreting test results for compliance of specified soil materials. The testing, test results and documentation shall be for this specific project.
5. The Contractor shall provide the following information with each chemically tested for sample submitted:
    a. Material source
    b. Sampling locations
    c. Sampling dates
    d. Chain of custody for analytical laboratory (chemical) testing

D. Import Aggregate Material Certificates: One certificate shall be provided for each of the following:
    1. Crushed Surfacing Top Course
    2. Gravel Borrow/ Structural fill
    3. Pipe Zone Bedding
    4. Pipe Zone Backfill.

1.06 QUALITY ASSURANCE

A. Furnish each aggregate material from single source throughout the Work.
    1. Regional Materials: Furnish materials extracted, processed, and manufactured within 500 miles (804.67 kilometers) of Project site.

B. All imported aggregates shall not include dangerous/hazardous waste, solid waste, chemical waste, metals and hydrocarbon products in accordance with WAC 173-303, RCW 70.105 and MTCA Method A, Table 740-1 requirements shown in Appendix I:

C. All imported aggregates shall be approved by the Engineer. No mixing of soils consisting of solid waste, dangerous waste, chemical waste, hydrocarbon products or organics shall be allowed subsequent to submittal approvals.

PART 2 PRODUCTS

2.01 IMPORT MATERIAL CHARACTERIZATION

A. The Contractor shall provide characterization and testing as described below for off-site materials imported for use. Testing results shall meet the Port of Tacoma Import Material Screening Criteria (tabulated below) to be considered acceptable.

B. The Contractor is responsible for all testing costs associated with characterization of off-site materials.

C. Each source of material shall be chemically tested for metals, chemical compounds and hydrocarbons once for every 10,000 cubic yards of material to be imported.

D. Only clean material from a commercial quarry will be accepted as import fill material.

E. The following activities shall be performed by the Contractor as specified below to ensure imported materials are natural, native, virgin materials, meet chemical standards detailed herein, including recycled materials, and meet contract specifications.

F. The Port maintains the right to reject all materials determined to be substandard for reason. In the event of rejection, it shall be the responsibility of the Contractor to remove all rejected material from the site at the Contractor's expense.

G. A characterization of all import material shall be performed by the Contractor prior to delivery or on-site placement. The characterization shall include site inspection, source identification, sieve analysis, and chemical testing, Showing chemicals not exceeding concentrations shown in Table 31 05 16 -1 Import Material Screening Criteria. For chemicals where screening criteria values contradict WAC 173-303, RCW 70.105 and MTCA Method A, Table 740-1, values, the more stringent criteria will used.

H.

Table 31 05 16 -1 Import Material Screening Criteria.

CHEMICAL / METAL NAME	CRITERIA (MG/KG)
TOTAL PETROLEUM HYDROCARBONS (TPH) (NWTPH METHODS)	
GASOLINE-RANGE TPH	**2,000**
DIESEL- AND OIL- RANGE TPH	**2,000**
VOLATILE ORGANIC COMPOUNDS (EPA METHOD 8260)	
BENZENE	**0.004**
ETHYLBENZENE	**6**
TOLUENE	**4.7**
XYLENES	**9**
TETRACHLOROETHYLENE (PCE)	**0.05**
METALS (EPA METHOD 6010/6020/7041)	
ARSENIC	**13.8**
CADMIUM	**2**
CHROMIUM (III) (TOTAL)	**2,000**
CHROMIUM (VI)	**19**
COPPER	**143**
LEAD	**250**
MERCURY	**2**

NICKEL	**418**
ZINC	**5,981**
SEMI-VOLATILE ORGANIC COMPOUNDS (EPA METHOD 8270)	
ACENAPHTHENE	**97.9**
ANTHRACENE	**2,275**
BENZOAANTHRACENE	**0.13**
BENZOAPYRENE	**0.1**
BENZOBFLUORANTHENE	**0.44**
BENZOKFLUORANTHENE	**13.7**
BENZOIC ACID	**257**
BENZYL ALCOHOL	**8,000**
BIS(2-ETHYLHEXYL) PHTHALATE	**13.9**
CHRYSENE	**95.5**
BENZYL BUTYL PHTHALATE	**12.8**
CRESOL; O-	**2.3**
CRESOL; P-	**8,000**
DIBENZOA,HANTHRACENE	**0.1**
DIBENZOFURAN	**80**
DI-BUTYL PHTHALATE	**56.5**
DICHLOROBENZENE; 1,2-	**8.4**
DICHLOROBENZENE; 1,4	**0.2**
DIETHLYL PHTHALATE	**72.2**
DIMETHYLPHENOL; 2,4-	**1.3**
DI-N-OCTYL PHTHALATE	**800**
FLUORANTHENE	**631**
FLUORINE	**101**
HEXACHLOROBENZENE	**0.09**
HEXACHLOROBUTADIENE	**0.6**
INDENOL1,2,3-CDPYRENE	**1.2**
METHYL NAPHTHALENE; 2-	**320**
NAPHTHALENE	**0.006**
NITROSODIPHENYLAMINE; N-	**0.0009**
PENTACHLOROPHENOL	**0.003**
PHENOL	**11**
PYRENE	**655**
TRICHLOROBENZENE; 1,2,4-	**0.06**

I. Source Identification – Prior to import material sampling, the Contractor shall provide documentation of origin of the material and maps identifying specific location of the source.

J. Inspection of Source

1. The material source shall be inspected by the Contractor. During the inspection, the Contractor shall assure that the materials to be delivered to the site will meet the appropriate specifications.
2. The Contractor shall provide the Engineer two weeks' notice of such inspections. At their discretion, the Engineer may accompany the Contractor to witness such inspections. This witnessing shall in no way release the Contractor from complying with the specifications and in no way shall be construed as approval of a particular source of material.
3. The Engineer or their agent may choose to inspect the source at their convenience and may collect and analyze samples of the proposed material.

K. Inspection of Materials at the Site

1. The Contractor shall visually inspect barge loads or truckloads of imported material upon delivery. The Contractor shall inspect the material for presence of foreign, recycled, or reprocessed material.
2. The Engineer may at all times perform independent inspections. Material may be rejected due to identification of material that does not meet these specifications or as a result of substandard test results. Materials may be segregated for testing based on appearance or odor. Segregated material may be tested according to designated procedures at the discretion of the Engineer.

2.02 IMPORT MATERIAL GRADATION

A. Crushed Surfacing Top Course: Aggregate for Crushed Surfacing Base Course shall consist of ledge rock, talus or gravel material, free from wood, bark, or other extraneous material in accordance with WSDOT Standard Specification 9-03.9(3), per the following gradation requirements:

Sieve Size	Percent Passing
5/8”	99-100
1/2"	80-100
No.4	46-66
No.40	8-24
No.200	10 maximum
% Fracture	75 minimum
Sand equivalent	40 minimum
All percentages are by weight	

B. Gravel Borrow/Structural Fill: Aggregate for Gravel Borrow/Structural Fill shall consist of granular material, free from wood, bark, or other extraneous material in accordance with WSDOT Standard Specification 9-03.14(1), modified from 7% to 5% passing the No. 200 sieve, per the following gradation requirements:

Sieve Size	Percent Passing
4”	99-100
2”	75-100
No. 4	50-80
No. 40	30 maximum
No. 200	5.0 maximum
Sand Equivalent	40 minimum

All percentages are by weight

C. Pipe Zone Bedding: Aggregate for Pipe Zone Bedding shall consist of crushed surfacing top course material.

D. Pipe Zone Backfill: Aggregate for Pipe Zone Backfill shall consist of granular material, free from wood, bark, or other extraneous material in accordance with WSDOT Standard Specification 9-03.12 (3) gradation requirements:

Sieve Size	Percent Passing
1-1/2	99-100
1”	75-100
5/8”	50-100
No. 40	3-24
No. 200	10.0 maximum
Sand Equivalent	35 minimum
All percentages are by weight	

2.03 SOURCE QUALITY CONTROL

A. Section 01 45 00 - Quality Control Requirements: Testing and inspection services.

B. Testing and Analysis: Perform in accordance with ASTM D1557.

C. When tests indicate materials do not meet specified requirements, change material and retest.

PART 3 EXECUTION

3.01 EXAMINATION

A. Prepare grades to receive aggregates in accordance with Section 31 20 00 Earthwork requirements.

3.02 EARTHWORK

A. Earthwork: Trench excavation, dewatering, bedding and backfill requirements are detailed on the Plans and specified in Section 31 20 00 Earthwork.

3.03 STOCKPILING

A. Stockpile satisfactory soil materials on site in accordance with Plan and Specification Section 31 20 00 Earthwork requirements. Protect stockpiles from erosion and weather in accordance with Section 01 57 13 Temporary Erosion Sedimentation Controls and Construction Stormwater Pollution Prevention Plan requirements.

B. Cleanup soil stockpiles and grade the earth to the required grades after stockpiled soils have been used.

3.04 APPLYING SNAIL BAIT

A. After the entire site has been graded and covered with crushed surface top course, the entire site will be applied with snail bait.

B. Contractor shall apply bait per the manufacturer's recommendations.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Removing surface debris.
2. Removing designated trees, shrubs, brushes, blackberries and other vegetation.
3. Disposal at landfill and as described in these specifications.

1.02 DEFINITIONS

A. Clearing: Remove and dispose of all unwanted material from the surface, such as trees, brush, down timber or other natural vegetation.

B. Grubbing: Remove and dispose of all unwanted vegetative matter from underground, such as, stumps, roots, buried logs or other debris.

C. Debris: All unusable natural material produced by clearing and grubbing.

D. Remove: Removal and disposal of the identified item in its entirety from the site.

E. Disposal: Loading, handling, transportation and disposal at locations identified in the Site Clearing Plan.

F. VSEA: Vineyard Snail Eradication Area

1.03 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Submit a Site Clearing Plan.

C. VSEA (Vineyard Snail Eradication Area) Plan: Slug, snail bait and salt products that will be used, and an action plan that describes the Contractor’s sequencing and locations for eradicating the snails. The Port of Tacoma will provide the contractor with the snail bait to apply.

1.04 QUALITY ASSURANCE

A. Conform to applicable provisions of Specifications herein and to the Drawing requirements.

1.05 SUMMARY

A. Permits: See General Conditions. Unless otherwise required in the General Conditions, the Contractor shall pick up all permits necessary for project work and abide by all requirements thereof.

B. Schedule: Coordinate this work with critical time schedule established for construction and take necessary measures to ensure schedule is met. Coordinate with Project Sequencing/Scheduling requirements.

C. Layout: Layout of all work under this Section shall be made at Contractor’s cost by a Washington State Licensed Land Surveyor who is acceptable to the Engineer.

D. Adjustments: If any discrepancies are found by the Surveyor between the Drawings and actual conditions at the site, the Engineer reserves the right to make such minor adjustments in the work specified as necessary to accomplish the intent of the Contract Documents, without increased cost to the Port of Tacoma.

E. Pre-work Meeting: The Contractor shall schedule and coordinate a preconstruction meeting with the City of Tacoma Site Development Inspector prior to commencing any project work. Comply with inspection requirements.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Materials: Conform to Section 31 20 00 - Earthwork.

PART 3 - EXECUTION

3.01 GENERAL

A. Project Phasing and Sequencing: General project phasing and sequencing requirements are described in the civil plans and the specifications. The Contractor shall comply with all general and supplemental project phasing and sequencing requirements.

B. Traffic: Conduct site clearing operations to ensure minimum interference with roads and other adjacent property. Do not close or obstruct streets or other occupied or used facilities without permission from authorities having jurisdiction.

C. Explosives: Use of explosives for clearing and grubbing work will not be permitted.

D. Clearing, Grubbing and Excavation and Backfill: Required excavations to perform clearing, grubbing work shall conform to Section 31 20 00 - Earthwork requirements. Excavation and backfill work shall be incidental to Site Clearing work.

3.02 EXAMINATION

A. Verify existing plant life designated to remain is tagged or identified.

B. Identify waste area for placing removed materials.

3.03 PREPARATION

A. Call Utility Line Information service at 1-800-424-5555 and private locates not less than two working days before performing Work.

B. Request underground utilities to be located and marked within and surrounding construction areas.

C. Locate and flag clearing limits. Contractor shall limit their work to areas requiring clearing and grubbing only. Contractor shall refrain from entering areas not being worked in and shall repair all such disturbed areas.

D. Identify waste area prior to placement of removed materials.

E. Verify TESC BMP installations prior to execution. Coordinate with Section 01 57 13 Temporary Erosion Sedimentation Control (TESC) and Construction Stormwater Pollution Prevention Plan (CSWPPP) requirements.

3.04 PROTECTION

A. Locate, identify, and protect utilities indicated to remain, from damage.

B. Protect trees, plant growth, and features designated to remain.

C. Protect bench marks, survey control points, and existing structures from damage or displacement.

D. Soil Protection: Existing soils exposed as a result of Site Clearing work shall be protected from the weather.

3.05 SITE CLEARING

A. General: Remove trees, shrubs, grass, brush, organics and other vegetation, improvements or obstructions located within the Clearing limits. Removal includes digging out stumps and roots in their entirety.

B. Apply / Provide VSEA snail bait and salt in accordance with manufacturers requirements and in accordance with the approved VSEA plan.

C. Safety: Ensure safe passage of persons around site clearing area. Conduct operations to prevent injury to adjacent buildings, structures, other facilities and persons and protect portions of existing facilities designated to remain.

D. Existing Facilities or Improvements: Provide protection necessary to prevent damage to existing facilities or improvements either on adjoining property or on Owner’s property. Restore damaged facilities or improvements to their original condition, as acceptable to parties having jurisdiction. Clean the adjacent structures and facilities of dust, dirt and debris caused by clearing and grubbing operations as directed by Engineer or governing authorities. Return adjacent areas to existing condition prior to the start of work.

E. Backfill: Fill depressions caused by clearing and grubbing operations with satisfactory soil materials in accordance with Section 31 20 00 - Earthwork requirements.

3.06 REMOVAL

A. Remove abandoned utilities. Indicate removal termination point for underground utilities on Record Documents.

B. Apply Herbicide to any stumps to prohibit growth.

3.07 CONSTRUCTION WASTE MANAGEMENT PLAN IMPLEMENTATION

A. Disposal of Site Clearing Waste Material: Dispose of all site clearing waste material in accordance with the approved site clearing disposal plan.

3.08 INVASIVE SPECIES CONTROL

A. The Invasive Species Control Project consists of the following work:

1. This work is being completed to control the vineyard snail which has been listed as an invasive species.

2. A fire hydrant along Alexander Avenue and as noted on the drawings may be used for non-potable water required for both dust control during work and to meet the requirements for accessible water during the incineration process. The contractor is to get the permit for this water usage.

3. The Contractor shall provide an erosion control plan prior to the start of any work on site. All erosion control BMP's must be in place and maintained prior to and during work.

B. The clearing and grubbing of the site shall follow the following sequence of operations. This sequence may be completed in sub-phases throughout the site to allow various phases of work to be completed at the same time.

1. All grass, weeds, brushes, trees and stumps at the east end of the property that need to be removed, shall be cleared and stockpiled on site for incineration. Trees and stumps on the west end of the property where the willow trees are located, will be logged, grubbed and disposed of at the landfill. These do not need to be incinerated.
    a. Once sufficient material has been stockpiled for incineration, a schedule of burning shall be supplied to the Port for approval with the required agencies including City of Tacoma and Puget Sound Clear Air Agency. A mobile incinerator unit may be brought on site.
2. A minimum of 2,500 gallons of water must be kept in reserve in the immediate area of incineration during either of the burning operations noted above. All fires must be completely extinguished at the end of the day, and the area must be thoroughly saturated to prevent re-ignition of the burned material after work hours.

C. On site debris shall be collected and stockpiled for decontamination prior to leaving the site.

D. Primary Vineyard Snail Eradication Area Decontamination:

1. Equipment - All equipment that enters the primary VSEA shall be decontaminated prior to leaving the work area. This process shall include steam / hot water (140 degrees Fahrenheit) pressure washing to remove all soil and debris that may remain on the equipment. Upon completion of the decontamination effort, the equipment shall be thoroughly visually inspected to ensure that no snails remain on any portion of the equipment.
2. Debris - All collected debris shall be thoroughly saturated in a 25% Metaldehyde molluscicide solution saline solution prior to being loaded into a dumpster for removal from the site.

END OF SECTION

PART 1 GENERAL

1.01 REFERENCE STANDARDS

A. ASTM D751 - Standard Test Methods for Coated Fabrics; 2006 (Reapproved 2011).

B. ASTM D792 - Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement; 2020.

C. ASTM D882 - Standard Test Method for Tensile Properties of Thin Plastic Sheeting; 2012.

D. ASTM D1004 - Standard Test Method for Tear Resistance (Graves Tear) of Plastic Film and Sheeting; 2021.

E. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN m/m3)); 2012.

F. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2017 (Reapproved 2025).

G. ASTM D4751 - Standard Test Method for Determining Apparent Opening Size of a Geotextile; 2012.

H. ASTM D5199 - Standard Test Methods for Measuring the Nominal Thickness of Geosynthetics; 2025.

I. ASTM D6241 - Standard Test Method for Measuring Static Puncture Strength of Geotextiles and Geosynthetic-Related Products Using a 50?mm Probe; 2022a.

1.02 DESCRIPTION OF WORK

A. Earthwork shall include, but not be limited to:

1. Excavation, fill and grading of existing soils and/or import soils.
2. Processing, preparation and management of existing excavated soils for onsite reuse.
3. Excavation and backfill for utilities and utility structures.
4. Grading, contouring and preparation of grades and subgrades for sitework and surfacing areas.
5. Fill and backfill of soils to required elevations.
6. Construction Surveying.
7. Provide and install various import soil materials.
8. Provide various import utility bedding and backfill soils specified herein.
9. Providing and managing earthwork material stockpiles.
10. Providing and installing geotextile fabrics, PVC liners and Ecology Blocks
11. Earthwork compaction to required densities.
12. Earthwork Quality Control.
13. Earthwork protection.
14. Final grading.
15. Provide rip rap apron pads.

16. Earthwork maintenance.

1.03 EARTHWORK DEFINITIONS (DEFINITIONS ARE LISTED ALPHABETICALLY)

A. Authorized Backfill: Authorized backfill is the backfill of specified soil materials, at the direction of the Engineer, placed in authorized overexcavation to return area to line and grade shown on the Contract Documents.

B. Authorized Overexcavation: Authorized overexcavation is the excavation of soil materials, at the direction of the Engineer, beyond lines and grades shown on the Contract Documents.

C. Backfill Material: Soil materials used to fill an excavation.

D. Common Soil Material: Onsite native soils or reclaimed soils (contaminated or mixed imported and/or native soils). Native soil materials may be difficult to install or work during wet weather construction due to its moisture sensitivity.

E. Common Fill Material: Common fill material shall consist of approved common soil materials that are used for fill purposes.

F. Excavation: The removal of material located above and to required lines, grades, dimensions and subgrades.

G. Fill Material: Satisfactory soil materials used to raise grades that are higher in elevation (or above) existing grades.

H. Import Soil Materials: Approved soil materials provided from offsite sources. See PART 2 and Section 31 05 16 – Aggregates for specific import soil material requirements.

I. Pipe Zone Bedding and Backfill Material: Soil bedding and backfill material placed below, around and above utility piping.

J. Satisfactory Soil Materials: Satisfactory soil materials are soils that are free of unsuitable soils and are at or below the optimum moisture content as approved by the Engineer.

K. Soft Spot: A pocket or spot in the existing native soil or improved subgrade that is structurally unstable and will not pass a proof roll test.

L. Structures: Above or below ground man-made facilities that may include, but not be limited to underground utility vaults, catch basins/manholes.

M. Subgrade: Surface or elevation remaining after completing an excavation or fill/embankment or backfill that subsequent surfacing section materials are constructed upon.

N. Unsuitable Soil Material: Existing native soils that consist of, but are not limited to peat, muck, swampland or soils containing clay, debris, waste, frozen materials, vegetable organics, tree roots or other deleterious matter. Existing native soils classified as GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D2487 or a combination of these groups are unsuitable. Unsuitable soils also include large rocks or boulders which are too large to effectively allow compaction in lifts as required for common fill.

O. Utilities: Underground or above ground pipes, conduits, and structure located over the site.

P. Utility Structures: Underground vaults, catch basins and manholes used with utilities.

Q. Utility Structure Bedding Material: Satisfactory import soil material placed below the utility structure and above the structure foundation grade to provide utility structure support.

R. Utility Trench or Structure Foundation: Existing firm, unyielding native soils located at the base of utility trench excavations.

1.04 SUBMITTALS

A. The Contractor shall prepare and submit the following to the Engineer:
   1. For Import Aggregate Materials:
      a. Comply with Section 31 05 16 Aggregate requirements.
   2. Manufacturer's Data Certificate: Provide supplier name of materials
   3. Surveying as-built product deliverables (in Autocad Civil 3D-2024 edition and PDF):
   4. Product Data: Certificates shall include, but not necessarily be limited to:
      a. Geotextile.
      b. PVC Liner.
      c. Ecology blocks.

1.05 JOB CONDITIONS

A. The site is a historical industrial site and debris may be encountered during excavation.
   1. Trash, concrete, wire, rope or other industrial waste shall be considered to be debris.
   2. Boulders and large rocks shall be considered to be debris.
   3. Vegetation from clearing and grubbing shall not be considered debris.
B. Geotechnical Information is not available.
C. Existing site soils are moisture sensitive and there is a seasonably high groundwater table.
D. The project earthwork volumes do not balance. All existing onsite soils or native soils shall remain onsite. The native soils earthwork cut and fill volumes to excavation and fill to subgrade elevations does balance. The detailed surfacing section installations require the specified import. The Contractor shall be entirely responsible to provide satisfactory soil volumes to meet plan grade elevations.
E. The Contractor is advised to review the rainfall and weather records over the last year (2025 to present). Actual rainfall records over the last year may vary from average normal (NOAA) rainfall totals. The actual rainfall may have saturated existing soils and/or raised or lowered the groundwater tables over the site.
F. Schedule: Coordinate this work with critical time schedule established for construction and take necessary measures to ensure schedule is met. Coordinate with Project Sequencing/Scheduling requirements.

PART 2 PRODUCTS

2.01 GENERAL

A. All imported materials shall be of good quality and of the quantity, size, shape, and gradation specified herein. Coordinate with Section 31 05 16 Aggregates for Import soil requirements.
B. All import material shall be from Engineer approved source.
C. All approved materials shall be provided from single source throughout the Work.
D. The use of import recycled concrete and asphalt materials are NOT allowed.

2.02 GEOTEXTILE FABRIC

A. Stabilization Geotextile Fabric shall be woven and conform to the following requirements:
   1. Grab Tensile Strength: 315 lbf, minimum; ASTM D4632.
   2. Seam Breaking Strength: 270 lbf, minimum; ASTM D4632.
   3. Tear Strength: 112 lbf, minimum; ASTM D4533.
   4. Puncture Resistance: 620 lbf, minimum; ASTM D6241.
   5. Apparent Opening Size: No. 40 sieve, maximum; ASTM D4751.
   6. Permittivity: 0.10 per second, minimum; ASTM D4491.
   7. UV Stability: 50 percent after 500 hours' exposure; ASTM D4355.
   8. Grab Failure Strain: <50%; ASTM D4632.

B. Separation Geotextile Fabric shall be non-woven fabric conforming to the following requirements:
   1. Demarcation fabric shall be high visibility color.
   2. Grab Tensile Strength: 160 lbf, minimum; ASTM D4632.
   3. Grab Failure Strain: >50%; ASTM D4632.
   4. Seam Breaking Strength: 140 lbf, minimum; ASTM D4632.
   5. Puncture Resistance: 310 lbf, minimum; ASTM D6241.
   6. Apparent Opening Size: No. 80 sieve, maximum; ASTM D4751.
   7. Permittivity: 0.3 minimum per second, minimum; ASTM D4491.
   8. UV Stability: 50 percent after 500 hours' exposure; ASTM D4355.
   9. Grab Failure Strain: >50%; ASTM D4632.

C. Use of fabric other than that specified will require approval by the Engineer prior to use.

2.03 PVC LINER

A. PVC liner
   1. Thickness: 30 MIL ± 1.5 MIL; ASTM D5199.
   2. Tensile Properties; ASTM D882:
      a. Strength at Break: 73lbs/in. width, minimum.
      b. Elongation: 380%, minimum.
      c. Modulus at 100%: 30 lbs/in. width, minimum.
   3. Tear Strength: 8 lbs, minimum; ASTM D1004.
   4. Dimensional Stability: 3%, maximum change; ASTM D1204
   5. Seam Strength; ASTM D7408
      a. Shear Strength: 58 lbs/in. width, minimum.
      b. Peel Strength: 15 lbs/in. width, minimum.

6. Specific Gravity: 1.2, minimum; ASTM D792.
7. Water Extraction: 0.15%, maximum; ASTM D 1239
8. Volatile Loss: 0.70%, maximum; ASTM D1203
9. Resistance to Soil Burial; ASTM G160
    a. Breaking Factor: 5% change, maximum.
    b. Elongation at Break: 20% change, maximum.
    c. Modulus at 100% Elongation: 20% change, maximum.
10. Hydrostatic Resistance: 100 lbs/in2, minimum; ASTM D751.
11. Plasticizer Minimum Average Molecular Weight: 400g/mol; ASTM D2124.

2.04 ECOLOGY BLOCKS

A. Ecology Blocks: Ecology blocks are pe-cast concrete blocks
    1. Stackable with keyways in the top and bottom of the block.
    2. Color: Gray.
    3. Concrete: Commercial concrete conforming to WSDOT 6-02 requirements.

PART 3 EXECUTION

3.01 GENERAL

A. Prior to start of Earthwork, the Contractor shall:
    1. Complete required TESC Erosion controls work.
    2. Complete site clearing and grubbing of work areas.
    3. Complete required Selective Demolition work.
B. Mining onsite materials for offsite export use is prohibited.
C. Open Excavations
    1. The Contractor shall minimize the extent of open excavations after regular working hours.
    2. The Contractor shall backfill all daily excavations so that there are no open excavations at the end of each workday.
D. Dewatering: Comply with Section 31 23 19 Dewatering requirements.
E. Project Sequencing/Scheduling requirements: The Contractor shall implement and employ means and methods necessary to execute earthwork work in accordance with Plan and Specification requirements and within the project schedule time frame. Schedule work to minimize existing earthen soil disturbances.
F. Traffic: Conduct Earthwork operations to ensure minimum interference with roads and other adjacent property. Do not close or obstruct streets or other occupied or used facilities without permission from authorities having jurisdiction.
G. Surveying: All Construction survey work shall be performed by a licensed Surveyor or someone who works under the supervision of the licensed Surveyor of Record. All survey product deliverables shall be stamped and sealed by the Surveyor of Record.

3.02 EXISTING UTILITIES IN RIGHT OF WAY

A. Contact and notify utility agencies as required by state laws prior to commencing Work. Call Local Utility Line Information service at 1-800-424-5555 not less than 3 (three) working days before performing Work. Request existing underground utilities to be located and marked within and adjacent to the project work area.

B. If utilities are to remain in place, provide adequate means of protection during Earthwork operations.

C. Maintain and protect above and below grade existing utilities to remain.

D. Do not interrupt existing utilities serving facilities occupied and used by others except when permitted in writing by Engineer and then only after acceptable temporary utility services have been provided. Temporary utility services may be required. Provide minimum of three business working days' notice to utility agency and Engineer and receive written notice to proceed before interrupting utility.

E. Expose existing utilities when necessary to ensure that no grade conflict exists with utilities.

F. Notify Engineer of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.

G. Damage to existing utilities that are to remain shall be repaired to the Utility Purveyors requirements at no additional cost to the Port.

3.03 ONSITE REUSE

A. The Contractor shall consider all excavated material as suitable for onsite reuse as common fill located in the onsite subgrade installation except for the following:

1. Debris and trash

2. Selective demolition materials (see Section 02 41 13 Site Demolition for specifics).

B. The Contractor shall work excavated common soil material for onsite reuse as required to achieve necessary moisture content.

C. The Contractor shall stockpile excavated common soil material for onsite reuse as follows:

1. Stockpile soil materials for reuse until required for fill.

2. Locate stockpiles away from edge of excavations.

3. Stockpile materials for reuse without intermixing with other soils or import aggregate materials.

4. Place, grade and shape stockpiles for proper drainage, directing surface water away from stockpile site to prevent erosion or deterioration of materials.

3.04 IMPORT MATERIAL STOCKPILE

A. The Contractor shall stockpile delivered import materials in approved areas only, in a manner that will not endanger Work and will not obstruct access routes.

B. The Contractor shall prevent the import material stockpiles from contamination or intermixing with common soils.

C. Provide soil stockpile covers and protection from the weather in accordance with Section 01 57 13 Temporary Erosion Sedimentation Control and Construction Stormwater Pollution Prevention Plan requirements.

3.05 CONDUCT OF EXCAVATION

A. The Contractor shall excavate to required subgrade elevations, lines and grades shown on the Contract Documents within specified tolerances regardless of character of materials and obstructions encountered unless otherwise directed by the Engineer.

1. Common soils located within contract excavation extents shall remain onsite and may be used for satisfactory common fill purposes or stockpiled for future use.

B. Excavations: Excavations shall comply with WAC 296-155, Part N OSHA, WISHA, local codes and ordinances having jurisdiction. The site is underlain by Type C soils per WAC 296-155-66401 and a seasonal high groundwater table. The Contractor is responsible for all excavation and trench safety. Provide and install timbering and sheeting, trench boxes and shoring as necessary to protect workers, work, existing utilities and other properties where sloping is not possible because of space restrictions or instability of material excavated; remove timbering and sheeting, trench boxes and shoring above pipe prior to backfilling excavations.

C. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, the Contractor shall consult utility agency immediately for directions and cooperate with Engineer and utility agencies in keeping respective services and facilities in operation, and repair damaged utilities to satisfaction of utility agency.

D. Excavations for Site Improvements: Excavate soils located under proposed site improvements to comply with cross-sections, elevations, lines and grades within the specified tolerances.

E. Execute Subgrade and Grade to Inspection requirements in paragraph 3.10 subgrade and grade to inspections.

3.06 CONDUCT OF UTILITY AND UTILITY STRUCTURE EXCAVATIONS

A. The Contractor shall excavate utility trenches for underground utility piping and utility structure installations, to the line and grade shown on the Contract Documents.

B. Onsite excavated common soil material shall remain onsite and processed as common soil. Off-Parcel excavated common soil materials shall be considered as common soil and disposed of offsite

C. The Contractor shall excavate trenches sufficiently wide to enable installation of utilities and allow inspection.

D. Slope sides of excavations shall comply with WAC 296-155, OSHA, WISHA, local codes and ordinances having jurisdiction. The Contractor shall provide and install timbering and sheeting, trench boxes and shoring as necessary to protect workers, work, existing utilities and other properties where sloping is not possible because of space restrictions or instability of material excavated. The Contractor shall remove timbering and sheeting, trench boxes and shoring above pipe prior to backfilling excavations.

E. The Contractor’s trenching operations shall not proceed more than 100 feet (3048 cm) in advance of pipe laying except with written approval of the Engineer.

F. The Contractor shall not disturb bottom of excavations intended as bearing surfaces. Provide firm foundation for utilities and utility structures.

G. Execute Subgrade and Grade to Inspection requirements in paragraph 3.10 subgrade and grade to inspections.

3.07 CONDUCT OF AUTHORIZED OVEREXCAVATION AND BACKFILL

A. The Contractor shall not excavate or backfill beyond the lines and grades shown in the Contract Documents unless authorized by the Engineer. Unauthorized overexcavation and backfill shall be at the Contractor's expense.

B. Overexcavation and backfill that is required to repair deteriorated grades, as a result of the Contractor's operations will not be considered authorized overexcavation and backfill work.

C. The Engineer will direct the Contractor to excavate beyond the lines and grades shown on the Contract Documents and to backfill the authorized overexcavation in accordance with contract provisions. Overexcavation and backfill may be required in the following cases:

1. Unsuitable soil materials exposed at required excavations to subgrades.

2. Unsuitable soil materials exposed at the trench foundation grade.

3. Authorized overexcavation and backfill quantities shall be quantified as excavation cubic yards. The Contractor and the Engineer shall agree in writing to the in-place, neat line, field measured authorized overexcavation quantity. The Contractor shall backfill the overexcavation with specified materials. Contractor reimbursement for overexcavation and backfill work is included in the Unit Price and is included in the contract price.

D. The Contractor shall record all authorized overexcavation and backfill locations on the Record Drawings.

E. Overexcavation in the autofuff area will not be allowed.

3.08 CONDUCT OF EARTH EMBANKMENT FILL AND BACKFILL

A. The Contractor shall provide satisfactory fill and backfill installations in accordance with Contract Document requirements. The Contractor shall:

1. Pass the Subgrade and Grade to Inspection test in paragraph 3.10 Subgrade and Grade to Inspections.

2. Place backfills and fills in continuous layers not more than 8 (eight) inches in loose depth for material compacted by heavy compaction equipment and not more than 4 (four) inches in loose depth for material compacted by hand-operated tampers.

3. Not place backfill or fill material on surfaces that are unsatisfactory, muddy and wet.

4. Place backfill and fill soil materials evenly on all sides of structures and utilities to required elevations, and uniformly along the full length of each structure.

5. Before compaction, moisten or aerate each layer to required percentage of maximum dry density or relative dry density.

6. Compact backfill and fill in accordance with requirements herein.

3.09 CONDUCT OF UTILITY AND UTILITY STRUCTURE BACKFILL

A. Pass the Grade to Inspection test in paragraph 3.10 Subgrade and Grade to Inspections.

B. The Contractor shall remove concrete formwork, trash, and debris prior to placing backfill.

C. The Contractor shall backfill utility trench excavations to the lines and grades shown on the Contract Documents.

D. Trench sides shall be supported or shored as required to maintain safe working conditions and code requirements.

E. The excavations shall be kept free from water until pipeline and utility structure bedding, pipeline jointing, pipeline backfill and final backfill is completed.

F. The Contractor shall place and compact pipe zone bedding and backfill below, around and above the piping to the dimensions shown on the Contract Documents. The Contractor shall:

1. Shape pipe zone bedding to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

2. Carefully compact pipe zone backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit.

3. Coordinate backfilling with utilities testing.

4. Backfill voids located within the pipe zone backfill zone while as a result of installing and removing shoring and bracing with pipe zone backfill material.

G. The Contractor shall place pipe zone bedding to the plan cross section requirements evenly and carefully removing rock or other debris capable of damaging pipe. Place pipe zone backfill material in lifts not exceeding eight (8) inches in depth and compact to specified densities to subgrade.

H. The Contractor shall coordinate with other utilities prior to pouring concrete so that the other utilities may cross the concrete filled trench without obstruction.

I. For utility structure bedding and backfill, the Contractor shall:

1. Pass the Grade to Inspection test in paragraph 3.10 Subgrade and Grade to Inspections.

2. Provide firm earthen foundation for all utility structures.

3. Place and compact utility structure bedding material in accordance contract requirements.

4. Place and compact utility structure pipe zone backfill at specified densities to subgrade in accordance with Contract Document requirements.

3.10 SUBGRADE AND GRADE TO INSPECTIONS

A. The Contractor shall coordinate and schedule an inspection with the Engineer at the following times:

1. Upon completion of trench excavation to the lines and grade shown in the Contract Documents, prior to pipeline bedding and backfill installation.

2. Upon completion of all cut to fill grades and prior to any subsequent fill placement.

3. Upon completion of pavement and gravel subgrades, prior to pavement section surfacing work placement and geotextile covering.

4. Upon installation and completion of pavement section aggregates and prior to pavement surfacing work placement

B. The Engineer will conduct testing as appropriate to verify the soil firmness/stability.

1. Test subgrade or grade surface in accordance with paragraph 3.16 field quality control/testing requirements.

2. Should the testing or Engineer determine that the soils located at the required grades and subgrades are firm/stable, then subsequent work shall be conducted.

3. Should the Engineer determine that the soils located at the required grades and subgrades are not firm/stable, then the Engineer will determine the necessary corrective measures. Corrective measures may include authorized overexcavation and backfill.

3.11 CONDUCT OF GRADING

A. The Contractor shall grade the subgrade area surfaces to conform to required finish grade contours, lines, and grades/elevations less the respective surfacing section depths so that the respective surfacing sections can be placed to required depths evenly and uniformly on top of the prepared subgrade. Work shall include, but not be limited to:

1. Preparation of native material to receive backfill and fills
2. Excavating and subsequent filling backfilling of native materials
3. Providing various imported soil materials.
4. Grading and compacting soils to the required subgrade elevations.
5. Providing positive drainage at parking and staging areas being driven on and other areas as necessary during and for construction. Positive drainage shall be accomplished by establishing grades as designed or by interim methods as necessary.

B. The Contractor shall complete finish grading after installation of respective surfacing sections. Conform to required finish grade contours, lines, and grades.

C. During construction, the Contractor shall maintain lines and grades including crown and cross-slope of subgrade, uniformly grade areas to a smooth surface, free of irregular surface changes, comply with compaction requirements, and grade to cross sections, lines, and elevations required by Contract Documents.

3.12 CONDUCT OF GEOTEXTILE FABRIC INSTALLATION

A. Install geotextile fabric at location shown on the drawings.

B. Comply with manufacturers installation instructions regarding overlap and direction of the flows.

3.13 CONDUCT OF PVC LINER INSTALLATION

A. Install PVC liner at locations shown on the drawings.

B. Comply with manufacturers installation instructions regarding overlap welds and direction of the flows. Provide some slack in the liner installation in both directions to allow for some anticipated movement.

3.14 CONDUCT OF ECOLOGY BLOCK WALL INSTALLATION

A. Install ecology block walls at locations shown on the drawings.

B. Install the blocks in accordance with manufactures instructions. Install each successive row of blocks at the required ½ block stagger.

3.15 CONDUCT OF COMPACTION

A. The Contractor shall compact soil materials in maximum 8 (eight) inch lifts under all areas to not less than the following percentages of maximum dry unit weight according to ASTM D1557.

1. Pavement area subgrades shall pass a proof roll test. The Contractor shall compact each layer of fill to 95 percent maximum density under pavement areas.

2. For Utility Trenches and Structures, the Contractor shall compact pipe zone bedding and utility structure bedding aggregates at 90 percent maximum density and pipe zone backfill aggregates to subgrade at 95 percent maximum density.
3. For the crushed surfacing top course area, compaction shall be limited to what is required for a firm and unyielding condition, such that contractor vehicles do not leave ruts when they drive over the surface.
4. All other gravel areas shall be compacted to 92 percent maximum density.

B. The Contractor shall provide all water required for soil compaction.

3.16 TOLERANCES

A. The Contractor shall uniformly grade areas within grading extents. The Contractor shall provide smooth finish surfacing within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated or between such points and existing grades. Finish surfaces free of irregular surface changes and as follows:
1. Pavement and gravel surface finish grades and subgrades shall be shaped to required lines and grades within 0.50 inch (12.7 mm) above or below required elevations.

3.17 FIELD QUALITY CONTROL/TESTING

A. General: The Contractor shall coordinate, schedule, notify and allow the Engineer to inspect and approve grades, subgrades and fill/backfill layers before further construction work is performed. The Engineer and/or their testing agent shall perform field density tests in accordance with ASTM D1557 as applicable or a proof-roll test may be required at all grades at the Engineer's discretion. If fills are below specified density, the Contractor shall provide additional compaction for retesting. If additional testing is required due to failure of areas tested, the Contractor shall pay for such retesting.

B. Utility Trenches and Backfill Testing: The Contractor shall coordinate, schedule, notify and allow the Engineer and/or their testing agent to conduct in-place density tests per ASTM D1557, minimum of one (1) field density test for every 100 lineal feet/ 1 vertical foot of trench.

C. Utility Structure Backfill Testing: The Contractor shall coordinate, schedule, notify and allow the Engineer and/or their testing agent to conduct in place density tests per ASTM D1557, minimum of two per utility structure located within the pipe zone backfill.

D. Pavement cut to fil grades: A proof-roll test shall be required at all pavement cut to fill grades prior to the placement of subsequent fills in the presence of the Engineer

E. Proof Roll Test: The Contractor shall notify the Engineer a minimum of two calendar days prior to proof roll test shall meet the following requirements:
1. Proof-roll subgrade with heavy pneumatic-tired equipment to identify potential soft spots and areas of excess soil yielding. Do not proof-roll wet or saturated grades and subgrades.
2. Completely proof-roll the subgrade in one direction and repeat proof rolling in direction perpendicular to first direction. Maximum vehicle speed shall be 3 mph.
3. Proof-roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
4. Should the surface of the proof roll tested area deflect and fail the test and/or reveal a soft spot, the Contractor shall provide corrective measures as directed by the Engineer and then retest area until the proof roll test is acceptable.

5. Should the subgrade surface area not deflect, the proof roll test will be considered acceptable and subsequent fill/embankment or paving work shall commence.

3.18 PROTECTION

A. The Contractor shall protect graded areas from traffic and from becoming excessively wetted or eroded due to weather conditions.

B. The Contractor shall prevent and protect the existing native soil grades from deterioration. Deterioration of prepared or installed work areas, as a result of, but not limited to, scheduling and sequencing of work, construction and equipment operations, working hours and weather shall not be the basis for additional authorized overexcavation and backfill work.

3.19 MAINTENANCE

A. The Contractor shall repair and reestablish grades to specified tolerances where installed surfaces have become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions at no additional cost to the Port. Remove and replace soil material to depth as directed by Engineer; reshape and recompact.

B. The Contractor shall recondition compacted areas, where completed compacted areas are disturbed by subsequent construction operations, deterioration or adverse weather, repair prior to further construction with no additional cost to the Port.

END OF SECTION

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

A. Section includes:
   1. This Work includes all necessary measures to keep excavations unsaturated (no standing water) during excavation and backfilling. The Work covered by this specification consists of providing all supervision, labor, materials, and equipment required to dewater excavations.

1.02 SUBMITTALS

A. Work Plan: The Contractor shall submit a dewatering work plan for Engineer approval.

B. Refer to the Submittals subsection of Prior to start of construction, the Contractor shall submit for Engineer approval an Excavation and Water Management Plan that addresses the methods proposed for dewatering excavations and handling the dewatering discharge in accordance with the SAD, and in conjunction with Contractor's excavation means and methods.

C. The dewatering-related components of the Excavation and Water Management Plan shall at a minimum describe:

   1. Planned means and methods of excavation dewatering including equipment to be used for water extraction, pumping, conveyance, treatment, and storage equipment to be used for excavation dewatering and management of the water, including record keeping. This includes but is not limited to water tankage, treatment to achieve the SAD's pollutant concentration limits, conveyance, and connection and discharge to the City sanitary sewer, as well as metering of discharge flow rate and quantity—all in accordance with the SAD.

   2. Water discharge location in accordance with the SAD and method for conveying water to it.

   3. Sequence of installation and removal for dewatering measures including decontamination and demobilization of the system.

D. The Contractor shall provide to the Engineer all documentation required under the SAD, as well as an independently certified calibration record for the flow meter being used. The Contractor shall provide to Engineer daily records specifying from which excavation(s) dewatering was conducted, and maximum flow rate (gallons per minute) and daily discharge volume (gallons per day).

1.03 JOB CONDITIONS

A. Coordinate with Sections 31 20 00 Earthwork and 1 57 13 Temporary Erosion Sedimentation Controls and Construction Stormwater Pollution Prevention Plan requirements.

B. Existing site soils are moisture sensitive and there is a seasonably high groundwater table.

C. Site groundwater information is available in the Interim Action Plan. The site groundwater may be contaminated with arsenic

D. The Contractor is advised to review the rainfall and weather records over the last year (2025 to present). Actual rainfall records over the last year may vary from average normal (NOAA) rainfall totals. The actual rainfall may have saturated existing soils and/or raised or lowered the groundwater tables over the site.

1.04 QUALITY CONTROL

A. It shall be the sole responsibility of the Contractor to control the rate and effect of the dewatering operations in such a manner as to avoid all objectionable settlement and subsidence, and to comply with all discharge requirements of SAD.

B. All dewatering operations shall be adequate to ensure the integrity of the finished project and shall be the responsibility of the Contractor.

PART 2 PRODUCTS

2.01 GENERAL

A. The Contractor shall provide all materials required to execute Dewatering.

PART 3 EXECUTION

3.01 GENERAL

A. Preparation:

1. Complete required TESC work.
2. Complete clearing and grubbing of work areas.
3. Complete required Selective Demolition work.

B. Earthwork: Comply with Section 31 20 00 Earthwork requirements.

3.02 DEWATERING

A. The Contractor shall prevent surface water and subsurface or groundwater from flowing into excavations and from flooding project work and surrounding area. Do not allow water to accumulate in excavations. Remove water to prevent softening of soils located at the bottom of excavations.

B. The Contractor shall expect groundwater during installation of the deeper utilities. The Contractor shall design, select and implement the dewatering system such that the underlying ground water table elevation is minimally 2 (two) feet below the required trench and utility structure grades. The trench shall be kept free from water until required utility work located below the groundwater table is complete and the excavations are backfilled.

C. The Contractor shall provide and maintain pumps, well points, sumps, suction and discharge lines and other dewatering system components to convey water away from excavations.

D. The Contractor shall provide facilities for retaining or disposing the dewatered discharge onsite. The dewatering discharge shall comply with NPDES Construction Stormwater discharge requirements and Section 01 57 13 Temporary Erosion Sediment Control and Construction Stormwater Pollution Prevention requirements.

E. Contractor shall employ and have readily available equipment and methods to satisfactorily dewater for acceptable installation.

F. The Contractor’s failure to provide required dewatering shall not be the basis for additional trench overexcavation, backfill or unforeseen condition costs to the Port.

3.03 DEWATERING IN RIGHT OF WAY

A. Contact and notify utility agencies as required by state laws prior to commencing Work. Call Local Utility Line Information service at 1-800-424-5555 not less than 3 (three) working days before performing Work. Contractor should also call for Private locate prior to commencing Work. Request existing underground utilities to be located and marked within and adjacent to the project work area.

B. Do not interrupt existing utilities serving facilities occupied and used by others except when permitted in writing by Engineer and then only after acceptable temporary utility services have been provided. Temporary utility services may be required. Provide minimum of three business working days' notice to utility agency and Engineer and receive written notice to proceed before interrupting utility.

C. Dewater in accordance with City of Tacoma requirements.

3.04 DISPOSAL

A. All dewatering disposal discharge shall comply with Section 01 57 13 Temporary Erosion Sediment Control and Construction Stormwater Pollution Prevention requirements.

B. All water removed from excavations shall be discharged to the City of Tacoma (City) sanitary sewer in accordance with all conditions of the project-specific Special Approved Discharge Permit (SAD) obtained by the Port of Tacoma. A draft of the SAD application is included in Appendix O. The City will issue the actual SAD permit to the contractor once the project starts.

C. The location for discharge of dewatering water to City sanitary sewer is a former side-sewer connection that was abandoned following building decommissioning as shown on the Drawings. The location for discharge is located at the adjacent Parcel at 1202 Taylor Way, Tacoma WA 98401. See Appendix P for photos of existing side sewer.

D. If the conditions of the sewer become critical and the City orders the Contractor to stop discharging dewatered water into the onsite sewer at no fault of the Contractor, the Contractor will haul the dewatered and treated water offsite or as directed by the Engineer on a change order basis.

3.05 MAINTENANCE

A. The Contractor shall repair and maintain dewatering throughout the construction duration.

END OF SECTION

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

A. The Work includes the following:

1. Hot Mix Asphalt Pavement and materials.
2. Crushed Surfacing aggregates.

1.02 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic description designation only.

1. 2026 Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction (WSDOT/APWA), Manual 41-10.

1.03 DEFINITIONS

A. Hot Mix Asphalt Paving Terminology: Refer to ASTM D 8 for definitions of terms

B. HMA: Hot Mix Asphalt

C. WSDOT: Washington State Department of Transportation.

1.04 SUBMITTALS

A. Submit material certificates for each paving and aggregate material. Provide from an independent third party qualified testing agency gradation and proctor test results that certify compliance of specified materials.

B. Submit certification of compliance that all asphalt materials meet or exceed specified requirements.

C. Submit HMA job mix formula for each proposed design mix. The job mix formula submittal shall be approved by WSDOT for the 2026 calendar year.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer shall be a paving mix manufacturer registered with and approved by WSDOT.

1.06 PROJECT CONDITIONS

A. Weather Limitations: HMA shall not be placed on a wet surface, or when the average surface temperatures are less than 40°F.

B. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for construction activities. Utilize flagmen, barricades, warning signs and warning lights as required.

PART 2 PRODUCTS

2.01 MATERIALS

A. Aggregates:

1. General: Use locally available materials and gradations that exhibit satisfactory record of previous installations. Coordinate with Section 31 05 16 Aggregate requirements.

B. Crushed Surfacing Aggregates: Crushed Surfacing aggregate materials shall comply with Section 31 05 16 Aggregate requirements.

C. Hot Mix Asphalt Aggregates (1/2” HMA)

1. General: Aggregates for hot mix asphalt shall be manufactured from ledge rock, talus or gravel. The material shall meet the following test requirements:

a. Los Angeles Wear, 500 Revolutions. 30% maximum.

b. Degradation Factor, Wearing Course 30 minimum.

c. Degradation Factor, Other Courses 20 minimum.

d. Aggregates shall be uniform in quality, substantially free from wood, roots, bark, extraneous materials, and adherent coatings. The presence of a thin, firmly adhering film of weathered rock will not be considered as coating unless it exists on more than 50 percent of the surface area of any size between consecutive laboratory sieves.

e. Aggregate removed from deposits contaminated with various types of wood waste shall be washed, processed, selected, or otherwise treated to remove sufficient wood waste so that the oven dried material retained on a No. 4 sieve shall not contain more than 0.1 percent by weight of material with a specific gravity less than 1.0.

f. The Contractor may provide aggregates for use in the HMA aggregate mix from multiple stockpiles. The gradation of the aggregates shall be such sizes, grading, and quantity that when mixed, the complete aggregate mix shall produce a well graded mixture within the requirements listed below:

Sieve Size	Percent Passing
¾”	99-100
½”	90-100
3/8”	90 maximum
¼”	55-75
No. 8	23-49
No. 40 No. 200	11-24 2.0-7.0
% Fracture	75% minimum

(a) All percentages are by weight

(1) The fracture requirements for the combined coarse aggregate shall apply to the material retained on the No. 4 sieve and above, when tested in accordance with FOP for AASHTO T 335.

Equivalent Single Axle Loads (millions)	# of Fractured Faces	% Fracture
> 10	2 or more	90

g. The uncompacted void content for the combined fine aggregate is tested in accordance with WSDOT Test Method for AASHTO T 304, Method A. The minimum percent voids shall be as required in the following table:

Equivalent Single Axle Loads (millions)	HMA Evaluation
> 3	40

h. The minimum sand equivalent for the aggregate shall be 45.

D. Blending Sand: Blending sand shall be clean, hard, sound material, either naturally occurring sand or crusher fines, and shall be material which will readily accept an asphalt coating. The exact grading requirements for the blending sand shall be such that, when it is mixed with an aggregate, the combined product shall meet the HMA aggregate requirements herein. The Sand Equivalent requirements shall be 30, minimum.

E. Mineral Filler: Mineral filler, when used in HMA mix, shall conform to the requirements of AASHTO M 17.

2.02 ASPHALT MATERIALS

A. Asphalt Binder: Provide Performance Grade PG 64-22 conforming to AASHTO M 320.

B. Tack Coat: CSS-1, diluted cationic emulsified asphalt in accordance with AASHTO M 208 and ASTM D 2397.

C. Joint Sealant: Shall be Tack Coat “CSS-1” and diluted 50/50 with water.

D. Anti-Stripping Additive: Liquid anti-stripping additive shall not exceed 1 percent by weight of the liquid asphalt unless approved by the Engineer.

E. Sterilant: “Casaron” or another commercial residual herbicide registered with Washington State Department of Agriculture for use under pavement.

2.03 JOB MIX FORMULA

A. Asphalt Mixes:

1. The Contractor shall develop a mix design prior to the initial production of HMA. The mix design aggregate structure and asphalt binder content shall be determined in accordance with WSDOT Standard Operating Procedure 732 for the 2023 calendar year and meet the requirements herein.

2. Mix designs that were developed during the calendar year prior to the current year’s production of HMA that have been issued a WSDOT mix design/anti-strip evaluation report will be accepted provided the Contractor submits a certification letter stating that the aggregate and asphalt binder have not changed. Changes to aggregates may require a new mix design. Changes to asphalt binder that may require a new mix design, including the source of the crude petroleum supplied to the refinery, the refining process, and additives or modifiers in the asphalt binder.

3. Provide an approved WSDOT mix design/anti-strip evaluation report.

4. Indicate whether the approved mix design is for a statistical or nonstatistical installations.

B. Job Mix Formula Tolerances: The constituents of the mixture at the time of acceptance shall conform to the following tolerances:

Aggregate, Percent Passing	Statistical Evaluation	Nonstatistical Evaluation
½”, 3/8” and ¼”sieves	± 6%	± 6%
No. 8 sieve	± 4%	± 6%
No. 40 sieve	± 3%	± 4%
No.200 sieve	± 2.0%	± 2.0%
Asphalt Binder	± 0.5%	± 0.5%
Air Voids, Va	2.0% minimum and 4.5% maximum	

a. Job Mix Formula Adjustments: An adjustment to the aggregate gradation or asphalt binder content of the job mix formula requires approval of the Engineer. Adjustments to the JMF will only be considered if the change produces material of equal or better quality and may require the development of a new mix design if the adjustment exceeds the amounts listed below:

1. Aggregates: The maximum adjustment from the approved mix design shall be 2 percent for the aggregate passing the ¾″, ½″, ⅜″, ¼”, and 1 percent for aggregate passing the No. 8 No. 40 and 0.5 percent for the aggregate passing the No. 200 sieve.

2. Asphalt Binder Content: The Engineer may order or approve changes to asphalt binder content. The maximum adjustment from the approved mix design for the asphalt binder content shall be 0.3 percent.

    1) Job Mix Formula Test Results:

3. Asphalt HMA Test Results: The mix design shall produce HMA mixtures when combined within the HMA limits set forth herein and mixed with the designated grade of asphalt binder, using the Superpave gyratory compactor in accordance with WSDOT FOP for AASHTO T 312, and at the required gyrations for N initial, N design, and N maximum with the following properties:

Mix Criteria	½” HMA	
	Minimum	Maximum
Voids in Mineral Aggregate (VMA), %	14	
Voids Filled with Asphalt (VFA), %		
For 0.3 to 3 million Equivalent Single Axle Loads	65	78
Dust/Asphalt Ratio	0.6	1.6
Stripping Evaluation, WSDOT Test Method T718	Pass	

	Equivalent Single Axle Loads (millions)	N Initial	N Design	N Maximum
% Gmm	0.3 to < 3	≤ 90.5	96.0	≤ 98.0
Gyratory Compaction (number of gyrations)	0.3 to < 3	7	75	115

4. The mix criteria VMA and VFA only apply to HMA accepted by statistical evaluation.

2.04 ASPHALT PAVING SOURCE QUALITY CONTROL

1) Submit proposed mix design of each class of mix for review prior to beginning of Work.

2) Test samples in accordance with WSDOT Standard Specification Section 5-04.

3) Asphalt:

2. Asphalt provided under these Specifications shall not have been distilled at a temperature high enough to injure by burning or to produce flecks of carbonaceous matter, and upon arrival at the Work, shall show no signs of separation into lighter and heavier components.

3. The Asphalt Supplier of Performance Graded Asphalt Binder (PGAB) and Cationic 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”.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify utility trench excavations are backfilled and compacted.

B. Verify that the pavement section subgrade is dry, compact, passes a proof roll test and ready to support paving and imposed loads in accordance with Section 31 20 00 – Earthwork requirements.

C. Verify gradients and elevations of pavement section subgrade are correct.

D. Verify existing abutting asphalt edges are neatly sawcut.

E. Clean existing paving to remove foreign materials.

F. Verify utility structure frames, grates and covers are installed at the correct elevations.

3.02 ASPHALT PAVEMENT INSTALLATION

A. Install soil sterilant herbicide at the pavement section subgrade in accordance with manufacturer’s recommend installation rates.

B. Provide asphalt section base course aggregates in accordance with plan cross sectional requirements. Compact base course aggregates to 95% optimum density.

C. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.15 gallons/square yard. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving. Apply tack coat to all abutting concrete or asphalt concrete surfaces. Avoid smearing or staining adjoining surfaces, appurtenances and surroundings. Remove spillages and clean affected surfaces.

D. Coat surfaces of utility structure frames with oil to prevent bond with asphalt paving. Do not tack coat these surfaces.

E. Machine place hot mix asphalt on prepared surface, spread uniformly and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section and thickness when compacted. Place hot mix asphalt base course in lifts and thicknesses. Place hot mix asphalt surface course in number of lifts and thicknesses. Spread mix at minimum temperature of 250 degrees Fahrenheit. Provide smooth, continuous surface free of pulls and tears in asphalt-paving mat.

F. Place in strips not less than ten feet wide unless otherwise acceptable to Engineer. After the first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete asphaltic base course lift before placing asphaltic surface wearing course lift.

G. Promptly correct surface irregularities in paving course behind paving machine. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

H. Rolling:

I. General: Begin rolling when mixture will bear roller weight without excessive displacement. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.

1. Breakdown Rolling: Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling and repair displaced areas with hot material.

2. Second Rolling: Follow breakdown rolling as soon as possible, while mixture is hot. Continue second rolling until mixture has been thoroughly compacted.

3. Finish Rolling: Perform finish rolling while mixture is still warm enough for removal of roller marks. Continue rolling until roller marks are eliminated, and course has attained maximum density. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

J. Double Course Asphalt Paving:

1. Place asphalt base course within 24 hours of applying tack coat.

2. Place compacted base course to depths indicated in Contract Documents. The maximum compacted binder course depth shall be 4 inches (101.6 mm).

3. Place wearing course within 24 hours of placing and compacting base course. The maximum compacted wearing course installation depth shall be 3 inches (76.2 mm). When base course is placed more than 24 hours before placing wearing course, clean surface and apply tack coat before placing wearing course.

4. Place compacted wearing course to depths indicated in Contract Documents.

5. Compact each course by rolling to specified density. Do not displace or extrude paving from position. Hand compact in areas inaccessible to rolling equipment.

6. Perform rolling with consecutive passes to achieve even and smooth finish, without roller marks.

K. Erect Barricades: Protect paving from traffic until mixture has cooled enough not to become marked.

L. Joints: Make joints between existing and Contract pavements or between successive day's work to ensure continuous bond between adjoining work. Construct joints to have same texture, density and smoothness as other sections of asphalt concrete course. Clean contact surfaces. Tack joints where cement concrete and asphalt concrete paving or metal castings abut.

3.03 ASPHALT PAVEMENT TOLERANCES

A. Pavement Surface Smoothness: Test finished surface of each asphalt concrete course for smoothness using ten foot straightedge applied parallel with, and at right angles to, centerline of paved area. Surfaces will not be acceptable if exceeding following tolerances for smoothness:

1. 1/8 inch (3.18 mm) parallel to centerline

2. ¼ inch transverse to centerline
3. 3/16 inch (4.76 mm) when no discernible centerline

B. Variation from Required Finish Grade Elevation: 1/2 inch (12.7 mm).

3.04 ASPHALT PAVEMENT FIELD QUALITY CONTROL

A. General: The Contractor shall notify the Engineer two (2) days prior to asphalt pavement installation. The Engineer's testing agent shall be onsite for temperature testing of the mix prior to placement. Should temperatures be noncompliant, the truck shall be rejected at no additional cost to the Port.

B. The Engineer may test in place asphalt concrete courses for compliance with requirements for compaction, thickness (five core tests) and surface smoothness in selected locations. Patch holes from test coring. Repair or remove and replace unacceptable paving as directed by Engineer. Each failed test may require up to three (3) additional tests at Contractor's expense.

C. Asphalt Paving Thickness: ASTM D3549; test one core sample from every 1000 sq yards (836.1204 sq m) compacted paving.

1. Compaction: Asphalt concrete surfacing shall be compacted to at least 91 percent of maximum density as determined by WSDOT Test Method 705. Level of compaction attained will be determined as average of not less than five (5) nuclear density gauge tests taken by testing service on day mix is placed (after completion of finish rolling) at randomly selected locations within each lot. Cores may be used as alternate to nuclear density gauge tests.

D. Asphalt Paving Mix Temperature: Measure temperature at time of placement.

3.05 PROTECTION

A. Immediately after placement, protect paving from mechanical injury until surface temperature is less than 140 degrees Fahrenheit (60 degrees Celsius).

END OF SECTION

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including Division and 1 Specification Sections, apply to this Section.

1.02 SECTION INCLUDES

A. Modular precast concrete utility structures with tongue-and-groove joints transition to cover frame, covers, anchorage, and accessories for utilities.

B. Metal work for utilities.

C. As-Builts.

1.03 REFERENCE STANDARDS

A. ASTM A48/A48M - Standard Specification for Gray Iron Castings; 2003 (Reapproved 2012).

B. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2015.

C. ASTM C443 - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets; 2012.

D. ASTM C913 - Standard Specification for Precast Concrete Water and Wastewater Structures; 2021.

E. ASTM C1619 - Standard Specification for Elastomeric Seals for Joining Concrete Structures; 2023.

F. ASTM D4101 - Standard Classification System and Basis for Specification for Polypropylene Injection and Extrusion Materials; 2024.

G. AASHTO

1. AASHTO M 306 - Standard Specification for. Drainage, Sewer, Utility, and Related Castings.

H. American Concrete Institute:

1. ACI 318 - Building Code Requirements for Structural Concrete.

I. ASTM International:

1. ASTM A48/A48M - Standard Specification for Gray Iron Castings.
2. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
3. ASTM C443 - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
4. ASTM C478 - Standard Specification for Precast Reinforced Concrete Manhole Sections.
5. ASTM C497 - Standard Test Methods for Concrete Pipe, Concrete Box Sections, Manhole Sections, or Tile
6. ASTM C913 - Standard Specification for Precast Concrete Water and Wastewater Structures.

7. ASTM C923 - Standard Specification for Resilient Connectors between Reinforced Concrete Manhole Structures, Pipes and Laterals.
8. ASTM C1107 Standard Specification for Packaged Dry, Hydraulic Cement Grout (Non-shrink)
9. ASTM C1619 Standard Specification for Elastomeric Seals for Joining Concrete Structures.
10. ASTM D4101 - Standard Classification System and Basis for Specification for Polypropylene Injection and Extrusion Materials.

J. OSHA
1. OSHA 1910.26.
2. OSHA 1910.27.

K. US Army Corps of Engineers (COE)
1. CRD-C 621 Specification for Non-Shrink Grout.

L. Current City of Tacoma Standards.

1.04 SUBMITTALS

A. Product Data: Submit manufacturer’s standard drawings or catalog cuts of following items:
1. Non-Shrink Grout.
2. Storm Drain Utility Structures:
a. Metal Work including Frames, Covers and Hatches.
b. Ladders and Steps.
c. Non-shrink Grout

B. Manufacturer’s Certificate: Submit certificate of compliance documentation that certify products meet or exceed specified requirements.

C. Construction Photographs.

D. AS-BUILT Drawings.

1.05 PROJECT CONDITIONS

A. Permits: Unless otherwise required in the General Conditions, the Contractor shall pick up the permits from the City of Tacoma for utility and site development work. The Port will pay for the plan review and inspection fees. Abide by all requirements thereof.

B. Facilities: Develop all-weather temporary and permanent staging areas, drainage facilities, stormwater pollution prevention elements and whatever methods and facilities are required to accomplish work within time schedule set and at bid cost.

C. Layout: Coordinate and comply with Section 31 20 00 – Earthwork requirements.

D. As-Built Drawings: Comply with the as-built requirements in Sections 31 20 00 Earthwork and Storm Drain Utility requirements.

E. Existing Utilities: Locate, mark and protect existing utilities prior to start of work.

F. Schedule shutdown of existing utilities affected by work of this Section with appropriate utility company and Port prior to start of work.

1.06 QUALITY ASSURANCE

A. Current City of Tacoma Standards.

B. Maintain a copy of each document on site.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Comply with precast concrete manufacturer's instructions for unloading, storing and moving precast utility structures.

B. Store precast concrete utility structures to prevent damage to Port's property or other public or private property. Repair property damaged from materials storage.

C. Mark each precast structure by indentation or waterproof paint showing date of manufacture, manufacturer, and identifying symbols and numbers shown on Drawings to indicate its intended use.

PART 2 PRODUCTS

2.01 MATERIALS

A. Utility Structures:

1. Storm Drain System: Storm drain system utility structures shall conform to Plan and Specification requirements.

2. Gaskets shall comply rubber gaskets for use in joints of concrete culvert or storm sewer pipe and precast manhole sections shall conform to the requirements of ASTM C443. Standard gaskets meeting the dimensions, tolerances, and physical requirements of ASTM C1619, Class C shall be used unless the plans require oil resistant gaskets meeting the dimensions, tolerances, and physical requirements of ASTM C1619, Class D.

3. Miscellaneous Structure Appurtenances: Miscellaneous structure appurtenances, such as but not limited to safety steps, ladders, shall conform to the following:

a. Safety Steps and Ladders: Shall be polypropylene ladder with pull up handrail as manufactured by Lane International or equal. Ladders shall meet all ASTM C497 load requirements and OSHA 1910.26 and 1910.27 specifications. Polypropylene conforms to ASTM D4101. Install ladder to floor and wall with 1/2" x 3-3/4" stainless steel anchors. Anchors to be installed per manufacturer's instructions. Standard adjustable mounting bracket - 8" O.D. Aluminum reinforced copolymer polypropylene rail 1-3/4" x 1-3/4" DIA. Steel reinforced copolymer polypropylene rung 1-5/8" x 1-1/4" DIA. with molded finger grips, 12" C.C. Aluminum and steel reinforced copolymer polypropylene pull-up handrail.

b. Non shrink grout: ASTM C1107 Standard Specification for Packaged Dry, Hydraulic Cement Grout (Non-shrink) and US Army Corps of Engineers (COE) CRD-C 621 Specification for Non-Shrink Grout.

B. Utility Structure Frames, Covers and Hatches:

1. Shall conform to Plan requirements. All project utility structure metal work shall conform to the following requirements:

a. Metal work: For all metal castings the producing foundry shall provide certification stating the country of origin, the material meets the required ASTM or AASHTO Specification noted herein. The producing foundry shall detail all test results from physical testing to determine compliance to the Specifications. The test reports shall include physical properties of the material from each heat and shall include tensile, yield, and elongation as specified in the appropriate ASTM or AASHTO Specification. For AASHTO M 306, Section 8, Certification is deleted and replaced with the above certification and testing requirements. Metal castings for drainage structures shall not be dipped, painted, welded, plugged, or repaired. Porosity in metal castings for drainage structures shall be considered defective and subject to rejection by the Engineer. Metal castings made from gray iron or ductile iron shall conform to the requirements of AASHTO M 306. All metal castings shall meet the proof load testing requirements of AASHTO M 306.

b. Castings for manhole rings shall be gray iron or ductile iron and covers shall be ductile iron. All covers shall be interchangeable within the dimensions shown in the Plans. All mating surfaces shall be machine finished to ensure a non-rocking fit.

c. The inside vertical recessed face of the ring and the vertical outside edge of the cover shall be machined or manufactured to the following tolerances: Ring ± 3/32-inch, Cover ± 3/32 inch (2.38 mm)

d. All manhole rings and covers shall be identified by the name or symbol of the producing foundry and country of casting origin. This identification shall be in a plainly visible location when the ring and cover are installed. Ductile iron shall be identified by the following, “DUC” or “DI”. The producing foundry and material identification shall be adjacent to each other and shall be minimum ½-inch to maximum 1-inch-high letters, recessed to be flush with the adjacent surfaces.

e. Covers and frames shall be H20 rated and comply with covers shall be provided with three 5/8-inch diameter stainless steel with ½ inch Allen head locking bolts.

PART 3 EXECUTION

3.01 GENERAL

A. Project Phasing and Sequencing: General project phasing and sequencing requirements are described in Division 0 and 1 of the Specifications. The Contractor shall comply with all general and supplemental project phasing and sequencing requirements.

B. Conditions: Execute work in orderly and careful manner with due consideration of surrounding areas. Protect adjacent property and improvements and existing utilities from damage. Replace portions damaged through this operation.

C. Photographs: Provide photograph documentation of utility structure installations. Clearly label and identify locations, orientation of the photograph and the item photograph. Comply with FIELD QUALITY CONTROL requirements herein.

3.02 EARTHWORK

A. Excavation, dewatering, bedding and backfill requirements are detailed on the Plans and specified in Sections 31 20 00 Earthwork, 31 23 19 Dewatering and 01 57 13 Temporary Erosion Sedimentation Control and Construction Stormwater Pollution Prevention Plan requirements.

3.03 INSTALLATION

A. General: Install utility structures complete with appurtenances in accordance with Plan and Specification requirements. Set tops of frames and covers flush with finished grade surfaces.

B. Installation Sequence: Coordinate storm drain system utility structure installation with Plan and Section 33 41 00 Storm Utility Drainage Piping requirements.

C. Grouting: The Contractor shall install nonshrink grout at the following locations of all structures:

1. All structure lifting holes.

2. Between the pipe and structure at all utility structure pipe penetrations. Grouting shall occur on both the interior and exterior side of the structure, full circumference around the adapter.

3. All grouting shall be smooth in appearance and texture with a slight broom finish.

4. All grouting shall be watertight.

D. Storm Drain System:

1. Storm Drain System Utility Structures: Install in accordance with Plan and Specification requirements.

3.04 AS-BUILT DOCUMENTATION

A. As-Built Documentation: Coordinate and comply with contract provisions detailed in the drawings and Sections 31 20 00 – Earthwork and Section 31 41 00 - Storm Utility Drainage Piping requirements.

3.05 FIELD QUALITY CONTROL

A. Section 01 45 00 - Quality Control Requirements: Field inspecting, testing, adjusting, and balancing.

B. Document photographically each utility installation from an overall aerial perspective and the detailed installations. Documentation shall be submitted with each payment application review for installation conformance verification and at the project completion in an assembled format.

END OF SECTION

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including Division 0 and 1 Specification Sections, apply to this Section.

1.02 SECTION INCLUDES

A. Storm drain utility piping.

B. Storm Drain Utility Punchlist work.

1.03 REFERENCES

A. AWWA:

1. AWWA 151 Ductile Iron Pipe, Centrifugally Cast.

B. Jurisdiction: All project Storm Drain Utility work shall comply with Plan, Specification, Manufacturer and City of Tacoma requirements.

1.04 SUBMITTALS

A. Surveyor Certificate of Insurance.

B. Product Data: Submit manufacturer's standard drawings or catalog cuts of following items:

1. Pipe and Fittings (all types).

C. Construction Photographs.

D. AS-BUILT Drawings.

1.05 PROJECT CONDITIONS

A. Permits: See General Conditions. Unless otherwise required in the General Conditions, the Contractor shall pickup all permits necessary for work on the project and abide by all requirements thereof.

B. Existing Utilities: Locate, mark and protect existing utilities as specified prior to start of work. Schedule shutdown of existing utilities affected by work of this Section with appropriate utility company and Port of Tacoma prior to start of work.

C. Layout: Have layout of work of this Section by Washington State Licensed Land Surveyor who is acceptable to Engineer. Coordinate and comply with Section 31 20 00 – Earthwork requirements.

D. As-Builts or Record Drawings: Coordinate with Division 01 for general project record drawing requirements and comply with Section 31 20 00 – Earthwork As-Built or Record Drawing requirements.

1.06 PRE-INSTALLATION MEETINGS

A. Pre-work Meeting: The Contractor shall schedule and coordinate a preconstruction meeting with the City of Tacoma Inspector prior to commencing any project work. Comply with inspection requirements.

1.07 QUALITY ASSURANCE

A. Current City of Tacoma Standards.

B. Maintain one copy of document on site.

PART 2 PRODUCTS

2.01 STORM DRAINAGE PIPING

A. Gravity Ductile Iron Pipe and Fittings: Pipe shall be Class 52 conforming to AWWA C151. Bolts and nuts shall be ductile iron or stainless steel.

2.02 ACCESSORIES

A. Provide accessories, including but not limited to, debris barrier shall be compliant with Plan requirements.

B. Bolts, Nuts and Hardware: Shall be stainless steel unless otherwise noted.

2.03 UTILITY STRUCTURES

A. Shall conform to Section 33 05 13 Utility Structures requirements.

PART 3 EXECUTION

3.01 GENERAL

A. Project Phasing and Sequencing: General project phasing and sequencing requirements are described in Division 0 and 1 of the Specifications. The Contractor shall comply with all general project phasing and sequencing requirements.

B. Conditions: Execute work in orderly and careful manner with due consideration of surrounding areas. Protect adjacent property and improvements and existing utilities from damage. Replace portions damaged through this operation.

C. Traffic: Conduct storm drain utility operations to ensure minimum interference with roads and other adjacent property.

1. Do not close or obstruct streets or other occupied or used facilities without permission from authorities having jurisdiction.

2. The Contractor shall submit a traffic control plan for the proposed off-parcel work in Alexander Avenue. Coordinate with the Port and City of Tacoma authorities.

D. Photographs: Provide photograph documentation of storm drain utility installations. Clearly label and identify locations, orientation of the photograph and the item photograph. Comply with FIELD QUALITY CONTROL requirements herein.

3.02 EARTHWORK

A. Earthwork for storm drain utility piping installations shall comply with Plan and Specification Section 31 20 00 Earthwork requirements.

3.03 PIPING INSTALLATION

A. Procedure: Install storm drain system in accordance with Plan and specification requirements. Arrange for appropriate inspections of systems prior to cover up.

B. Piping: Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements. Contractor and/or surveyor shall calculate the pipe slope based on the invert elevations shown on the Plans prior to installation. The Contractor and/or surveyor shall notify Engineer of any discrepancies prior to field staking and field installation.

C. Verify pipeline grades, obtain inspections and photographically document the installation prior to backfill cover.

D. Execute pressure testing in accordance with City standards. In the absence of any City Standards, the air pressure test shall conform to WSDOT 7-17 requirements.

E. Cleaning: Clean interior of storm drain system piping of dirt and superfluous materials. Thoroughly clean all project storm drain lines and provide power vacuum cleaning of all storm structures (new and designated existing) prior to completion of all storm drainage system related "punch list" items. Provide documentation of Professional cleaning service used. Provide 24 hours' notice to Engineer prior to having storm system cleaned.

F. Install the debris barrier.

3.04 UTILITY STRUCTURE INSTALLATION

A. Shall comply with Plan and Section 33 05 13 Utility Structures requirements.

3.05 FIELD QUALITY CONTROL

A. Document photographically each utility installation from an overall aerial perspective and the detailed installations. Documentation shall be submitted with each payment application review for installation conformance verification and at the project completion in an assembled format.

3.06 ACCEPTANCE

A. As-Built Drawings: Provide As-Built Drawings as described herein this Specification Section.

B. The Contractor is required to be in attendance and to assist the Engineer in developing a punchlist of work items that remain to be done by the Contractor. The Contractor shall provide the tools and labor to open and close structure covers and cleanouts during the punchlist preparation. Upon Contractor completion of the punchlist work, storm drain system acceptance will be provided.

C. Final Acceptance: Prior to substantial completion for the project, storm drain installation must be complete. This includes but is not limited to installation of storm drainage structures, piping, thoroughly cleaning all storm drain lines and provide power vacuum cleaning of all storm structures and piping, completion of all storm drainage system related "punchlist" items, providing and obtaining acceptance of the record drawings, and any other items necessary to acquire final acceptance from the Engineer and the City of Tacoma.

END OF SECTION

Appendix A
Hylebos March Interim Action Plan

Hylebos Marsh Interim Action Plan

Taylor Way and Alexander Avenue Fill Area

PUBLIC COMMENT REVIEW DRAFT

Prepared for:

Port of Tacoma

February 27, 2026
Project No. M0615.20.015

Prepared by:

Maul Foster & Alongi, Inc.
2815 2nd Avenue, Suite 540, Seattle, WA 98121

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MAUL FOSTER ALONGI

Hylebos Marsh Interim Action Plan

Taylor Way and Alexander Avenue Fill Area

The material and data in this report were prepared under the supervision and direction of the undersigned.

Maul Foster & Alongi, Inc.

This digital seal certifies the signatory and document content.

02/27/2026

Joshua Elliott, PE
Principal Engineer

Carolyn Wise, LHG
Senior Hydrogeologist

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Preliminary Design Drawings

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Abbreviations and Acronyms

AO	Agreed Order No. DE 14260
AO PLPs	General Metals of Tacoma, Occidental Chemical Corporation, and Burlington Environmental LLC
APHIS	Animal and Plant Health Inspection Service
bgs	below ground surface
BMPs	best management practices
the City	City of Tacoma
CMP	Compliance Monitoring Plan
CUL	cleanup level
Ecology	Washington State Department of Ecology
EO	Enforcement Order No. DE 19410
FEMA	Federal Emergency Management Agency
ft	feet
HASP	health and safety plan
IAP	interim action plan
LWCHP	Lower Wapato Creek Habitat Project
MFA	Maul Foster & Alongi, Inc.
MTCA	Model Toxics Control Act
NRDA	Natural Resources Damages Assessment
NWSA	Northwest Seaport Alliance
PEM	Palustrine, Emergent, Marsh
PCB	polychlorinated biphenyl
the Port	Port of Tacoma
the Property	Hylebos Marsh (Pierce County tax parcels 0321263045 and 0321352064)
RIFS	remedial investigation and feasibility study
SLR	sea level rise
TWAAFA	Taylor Way and Alexander Avenue Fill Area
USDA	U.S. Department of Agriculture
WAC	Washington Administrative Code
WSDA	Washington State Department of Agriculture

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1 Introduction

On behalf of the Port of Tacoma (the Port), Maul Foster & Alongi, Inc. (MFA), has prepared this draft interim action plan (IAP) to address hazardous substances and auto fluff present on the eastern portion of Hylebos Marsh (Pierce County tax parcels 0321263045 and 0321352064; the Property) (see Figure 1-1). The Property is part of the Taylor Way and Alexander Avenue Fill Area (TWAAFA) site.

The Washington State Department of Ecology (Ecology) entered Agreed Order No. DE 14260 (AO) with General Metals of Tacoma, Occidental Chemical Corporation, and Burlington Environmental LLC (AO PLPs). The AO requires the AO PLPs to prepare several deliverables, including a Remedial Investigation and Feasibility Study (RIFS) report, and a draft Cleanup Action Plan for the TWAAFA site. These deliverables are currently in progress for the TWAAFA site.

Simultaneous with the AO issuance, Ecology issued Enforcement Order (EO) No. 19410 to the Port to require the Port to work jointly with the AO PLPs in completing the work under the AO (Ecology 2020). The Port is performing work required on Port-owned properties under the EO, including the Property. The Port's cooperation with the AO PLPs to complete the required work at the TWAAFA site is ongoing. The work proposed in this IAP is administratively considered an interim cleanup action for the TWAAFA site. This interim action is designed to support the preferred final remedy identified in the FS and does not preclude consideration of additional remedial actions on the Property.

1.1 Regulatory Framework and Purpose

This draft IAP is for the Property, two Port-owned parcels within the TWAAFA site (Pierce County tax parcels 0321263045 and 0321352064; the Property). Contamination associated with auto fluff was cited in the EO as one of several reasons Ecology chose to include the Property in the TWAAFA site.[1] Auto fluff is pulverized or fragmented auto debris, including wire, glass shards, upholstery, tire shards, paint chips, metal, string, plastic, and rubber, intermixed with sand, gravel and silt (SAIC 1990). The EO noted that auto fluff originated from General Metals of Tacoma operations, and that elevated concentrations of arsenic, cadmium, chromium, copper, lead, zinc, petroleum hydrocarbons, and polychlorinated biphenyls (PCBs) have been detected in auto fluff samples from the TWAAFA site. Additionally, detections of tetrachloroethene (PCE) and trichloroethene (TCE) in soil colocated with lime waste were identified within a boring on the Property (TWA-SB-12, MFA 2024). The presence of PCE and/or TCE in lime waste is considered indicative of lime solvent sludge, from the nearby Occidental Chemical Corporation facility.

An interim action may be proposed by the Port under the EO. The Port has proposed to conduct an interim action to address hazardous substances and auto fluff fill material on the Property to expedite cleanup of this portion of the TWAAFA site, and to reduce costs of subsequent remedial action(s) if delayed due to the presence of the invasive Mediterranean vineyard snail.

The Mediterranean vineyard snail (*Cernuella virgata*), an invasive species, was detected on the Property in 2005. For nearly 20 years, the Port has been working with Washington State Department

[1] Section V. FINDINGS OF FACT, F.

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of Agriculture (WSDA) and the U.S. Department of Agriculture (USDA) to eradicate the snail. This nonnative snail is extremely destructive to crops, especially grains, and its presence at the Port poses a significant threat to Washington's and the nation's agriculture and natural resources. A summary of the Port's eradication efforts through 2024 is shown in Appendix B.

The invasive snails once infested over 300 acres on the Blair and Hylebos peninsula but are currently limited to the Property. The eastern portion of the Property differs from other previously infested properties because it contains wetland areas that act as a refuge for the snail population. Due to the urgent need to eradicate the vineyard snails from the Property, the Port is permitting the Project to remove the wetlands entirely, as described in Section 2.1.2.

This IAP has been prepared to meet the requirements of the Work to be performed under the EO. The IAP evaluates interim actions and selects the preferred action for addressing auto fluff on the eastern portion of the Property. The IAP is consistent with the requirements of Washington Administrative Code (WAC) Section 173-340-430 of the Model Toxics Control Act (MTCA). The Port would integrate implementation of the IAP with the on-going snail eradication effort.

This IAP was prepared to be consistent with requirements described in Section 173-340-430(7) of the WAC. These requirements include, as appropriate:

- A description of the interim action—Section 5
- Information from the applicable subsections of the draft RIFS (DOF 2025)—Section 2
- Applicable design and construction requirements—Section 5
- Compliance monitoring—Section 5.8
- A health and safety plan—Appendix C
- An inadvertent discovery plan-Appendix D
- A sampling and analysis plan—Appendices E and F; See also Section 5.8

2 Site Background and Conditions

This section summarizes the background, geology, hydrogeology, and environmental conditions at the Property based on previous environmental investigations and field observations at the TWAAFA site.

2.1 Property Background

Located at 1205 Alexander Avenue and 1300 Taylor Way in Tacoma, Washington, the Property encompasses approximately 15.7 acres on the western portion of the TWAAFA site (Pierce County tax parcels 0321263045 and 0321352064, see Figure 2-1). From 1946 until at least 1991, the TWAAFA site received fill material including lime waste, lime solvent sludge, auto fluff, and other waste materials. Auto fluff placed on the neighboring Stericycle property extends onto the eastern portion of the Property corresponding with a topographically distinctive steeply sloped area (Sloped Area). A former road may have been used to transport fill materials across the Property for

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placement in other areas in the TWAAFA site (CRETE 2020). The Property is undeveloped with low-lying vegetated areas present. In May 2024, three Category III wetlands were delineated at the Property (Confluence 2024) (see Figure 2-1).

The City of Tacoma (City), by way of Tacoma Public Utilities, currently owns an easement recorded with the Property for the purposes for settling natural resource damage assessment (NRDA) liability for the Commencement Bay Nearshore Tideflats Superfund site. The easement was recorded in 1998. In 2008, The City and the Port entered into an agreement to substitute a new habitat project in lieu of the planned project on the Property (City and Port of Tacoma 2008) generally located at 1621 Marine View Drive; the NRDA Trustees agreed to the substitution of the habitat site, as it was comparable or better in size, type, location and benefits, and comparable or greater natural resource values as provided by the original Hylebos Marsh site (NOAA 2008). The substituted habitat restoration project—the Place of Circling Waters, Twulshootseed name qal'qaləkʷalqʷu?— is a 30-acre complex of aquatic, riparian, and upland habitat located at the mouth of Hylebos Creek and is connected to several other restored areas along the Creek. The habitat restoration project was constructed in 2011.[2] Therefore, the easement is no longer necessary to remain on the Property. The Port is currently working with the City and the other NRDA trustees (including the Department of Ecology) to remove the easement (See Section 5.9).

A chain-link fence separates the Property from the adjacent Stericycle property to the east. Vegetation including trees, shrubs, and invasive Himalayan blackberries are present in the northwest corner and along the eastern fence line on the Property.

2.1.1 Invasive Snails

The invasive Mediterranean vineyard snail was first detected in the Port of Tacoma industrial area in November 2005. A formal survey delineated at least a 300-acre infestation area. Beginning in 2007, WSDA and USDA sought a voluntary eradication program within the Port. In the subsequent years, the Port, other property owners and the WSDA worked together using various eradication strategies, which included vegetation management, debris removal, molluscicide application and steaming soil to kill all life stages of the snail. Snail populations are now limited to a small section of the Hylebos Marsh property. In 2023, 146 juvenile and adult snails were detected at the Property in areas previously steam treated (see *2023 Vineyard Snail Eradication Activities Report* – Appendix A). Adult snails are small, 2 cm across or less, and their eggs can be as small as 1.5 millimeters. Adults mate and lay eggs in autumn and winter. Eggs buried in shallow topsoil are difficult to identify. During hot, dry summer conditions, snails enter dormancy, later emerging during rainy periods (Washington Invasive Species Council 2026).

According to WSDA and USDA, the invasive snail threatens Washington State's and national grain industries. Previously introduced to Australia, the snail has economically devastated the grain industry. WSDA, USDA, and Washington Grain Commission are gravely concerned with the risk of the snail spreading and are insistent that the Port to keep the snail contained and localized to the Hylebos Marsh Property until final eradication occurs to protect agriculture and the nation's food supplies. The existing wetlands have confounded eradication efforts while also exacerbating the risk of snail transport elsewhere due to increased wildlife activity on or near the wetland (Appendix A).

[2] https://www.portoftacoma.com/environment/habitat-restoration

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The planned eradication effort involves grading the site and filling the wetlands, while placing approximately two feet of consolidated fill material over areas with known vineyard snail populations. The project will impact 5.446 acres of degraded, Category III Palustrine, Emergent, Marsh (PEM) wetland. The wetland impacts are being permitted through a City of Tacoma Critical Area's Development Permit and an Ecology Administrative Order. The Port proposes to mitigate the wetland impacts through a combination of permittee responsible-concurrent mitigation at two Port owned properties (Parcel 12 and Parcel 37D) and use of advance mitigation credits from the Port's Lower Wapato Creek Habitat Project (LWCHP) Advance Mitigation site. The Port has coordinated with Ecology to reach agreement on proposed mitigation actions and quantities including 1.8 acres from LWCHP, re-establishment of 4.128 acres of wetland, and enhancement of .92 acres of wetland.

No vegetation will be removed from the Property during the eradication effort. Vineyard snail eradication best managements practices (BMPs) will be implemented during the grading and filling on the Property until eradication is complete. BMPs include, but are not limited to, controlled equipment areas with hot-water pressure wash and/or salt spray, visual inspections of equipment prior to removal from Property, application of snail bait on gravel pad and salt applications of pad at exits of the Property, and no movement of soil or vegetation off the Property for a minimum of three years without prior written approval from the Port in coordination with WSDA and/or USDA to confirm eradication is complete. This work will be integrated with this IAP.

2.1.2 Property Redevelopment

The Port is in the process of negotiating a 50-year ground lease agreement that includes the Property (Pierce County tax parcels 0321263045 and 0321352064) and adjacent parcels to the Property (Pierce County tax parcels 5000350061, 0321263016, 2275200260, 2275200371, 2275200400, 2275200410 and 2275200420). The prospective tenant is proposing to build approximately 574,000 square feet of Cold Storage Facilities, office space, shipping and receiving, truck loading, and a rail dock. The proposed project is estimated to add up to 400 new or expanded jobs, $43M in annual wages, 15,000 trucking loads per year, and 26 million pounds of food storage capacity. The lease commencement date is premised on the estimated construction completion date of this proposed interim action (estimated October 1, 2026). Substantive engineering, design, and permitting will commence after the lease agreement is executed during early 2026 (Port of Tacoma 2025). A preliminary conceptual development plan is shown in Figure 2-2.

2.2 Geology

In the early 20th century, the area including the Property consisted of tidal marsh and tide flats of the Puyallup River Delta. The Blair and Hylebos Waterways were dredged several times from 1930 through the 1970s. This dredged material was placed as fill in the surrounding area. The following lithological units in order of increasing depth have been identified for the TWAAFA site (DOF 2020, 2025):

- Fill unit: composed of heterogenous, anthropogenic fill materials. Depending on specific location within the TWAAFA site, the upper fill unit consists of a gravel road base, unconsolidated fill sediments, lime waste (consisting of light-colored, unconsolidated, fine-grained particles; some lime waste encountered has been impacted with PCE or TCE [referred to as lime solvent sludge]; other areas of lime waste contain no detections of PCE or TCE), auto fluff, wood waste, and

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demolition waste. At the Property, the upper fill unit is between 5 and 19.4 feet (ft) thick (CRETE 2020, MFA 2024, and DOF 2025).

- Silt unit: brown to gray and soft, with local areas containing clay, sand, and organic matter, and appears to be laterally continuous across the TWAAFA site. Previous deep borings at the Property identified the silt unit as between 7 and 11.5 ft thick.
- Sand unit: Underlying the silt unit is a fine- to medium-grained sand deposit, with trace amounts of silt. The sand unit appears to be continuous across the TWAAFA site with thickness ranging from 11 to 14 ft.
- Deeper interbedded sand and silt unit: ranging from less than one inch thick to multiple ft thick. Material appears to be continuous across TWAAFA site and is organic-rich with peat noted in some historical borings.

On August 12 and 13, 2024, under MFA oversight, Anderson Environmental Contracting, LLC, of Kelso, Washington, advanced eight borings via direct-push methods to a maximum depth of 20 ft below ground surface (bgs) on the Property. Soil types encountered during drilling generally consisted of sandy gravel/gravelly sand with silt overlaying sand with silt, silty sand, or sand to the maximum depth observed of 20 ft bgs. Fill materials encountered during drilling included layers of woody debris and auto fluff intermixed with white powdery or paste-like material (assumed to be lime waste), and clean sand (assumed to be dredge spoils). Auto fluff was observed between ground surface and approximately 17 feet bgs (MFA 2024). Lime waste was observed from 5 to 6.1 ft bgs and 8.5 to 18.3 ft bgs in borings TWA-SB-12 and TWA-SB-13, respectively. Logs from borings and wells advanced on the Property are included in Appendix A. Table 2-1 provides a summary of information related to all the borings and wells advanced on the Property.

2.3 Hydrogeology

The TWAAFA site, including the Property, has three hydrogeological units (listed in order of increasing depth):

- Shallow aquifer: the saturated unconfined shallow groundwater unit thickness varies seasonally and is thickest in late winter or early spring. Groundwater mounds near the center of the TWAAFA site and generally flows southwest beneath the Property.
- Silt confining layer: the former mudflat, which underlies the shallow and deep aquifer units, is continuous and contains clay, sand, and organic matter as described above.
- Deep aquifer: deltaic sands are present throughout the tide flats, with silt layers encountered deeper than 50 ft bgs. The top of the deep aquifer was identified in previous borings at the Property as between 18.5 and 24.5 ft bgs; it extends to at least 60 ft bgs.

During the August 2024 field investigation at the Property, groundwater was encountered between 2 and 19.5 ft bgs, representing the significant topographic changes between boring locations (MFA 2024).

2.4 Hazardous Substances

Previous investigations identified auto fluff and lime solvent sludge in the upper fill unit on the western portion of the Stericycle property, which extends beyond the parcel boundary and onto

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portions of the Property (see Figure 2-1). The average elevation on the Stericycle property is approximately 3 to 5 ft higher than the average downslope elevation of the Property boundary. Anthropogenic fill (including auto fluff) corresponds to a portion of the hummocky area on the Property that slopes upward to the Stericycle property.

Landfill materials included byproducts of auto scrapping (auto fluff), lime solvent sludge, wood waste, and other lime wastes (Ecology 2020). Auto fluff is a potential source of petroleum hydrocarbons; metals, including arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, zinc, and total cyanide; volatile organic compounds (VOCs); semivolatile organic compounds (SVOCs); and PCBs (DOF 2020, 2025). Lime solvent sludge is a source of PCE and TCE (Ecology 2020, DOF 2025). Investigations were conducted on the Property between 1991 and 2024; all existing and available soil and groundwater data are provided in reports investigating the nature and extent of contamination for the TWAAFA site in the *Final Data Gaps Work Plan* (DOF 2020); the *Data Gaps Data Report, Tacoma Way and Alexander Avenue Fill Area Site, Tacoma, Washington* (DOF 2022); the *Hylebos Marsh: Subsurface Investigation* report (MFA 2024) and the *Draft Remedial Investigation and Feasibility Study Report, Tacoma Way and Alexander Avenue Fill Area Site, Tacoma, Washington* (DOF 2025). A summary of the investigation results for the Property is presented for soil and groundwater in the next sections.

2.4.1 Soil

All soil data from investigations conducted from 1991 through 2024 are summarized in Table 2-2. Data collected prior to 2024 shows all locations are below MTCA Method A CULs for industrial properties (MTCA Industrial CULs); however, these soil samples were generally collected outside of the inferred location of the autofluff.

In August 2024, MFA conducted a subsurface investigation to evaluate the extent of autofluff on the Property and to characterize the material for hazardous substances. MFA assessed the extent of auto fluff based on visual observations from three hand auger (HA-1 through HA-3) and eight soil boring locations (TWA-SB-09 through TWA-SB-16, See Figure 2-3). Of these 11 investigation locations, auto fluff was visually identified in three borings: TWA-SB-11, TWA-SB-12, and TWA-SB-13. The results show exceedances of MTCA Industrial CULs at two locations: TWA-SB-11 and TWA-SB-12, for petroleum hydrocarbons and metals as well as PCE and TCE in TWA-SB-12. Although boring TWA-SB-13 was advanced through auto fluff, insufficient volume was available to characterize this interval, and the soil sample beneath the auto fluff interval did not exhibit elevated contaminant concentrations (see Appendix A, MFA 2024). A white chalky material, consistent with lime waste, with a strong rancid odor was observed from 8.5 and 18.3 feet bgs and 5 to 6.1 feet bgs in borings TWA-SB-12 and TWA-SB-13, respectively. Concentrations of PCE and TCE in soil were identified above MTCA Industrial CULs[3] from TWA-SB-12 at 9 and 18.5 feet bgs (see Table 2-3). The detected concentrations of PCE and TCE at this location are also above the MTCA soil cleanup level for PCE and TCE for protection of marine surface water, groundwater to surface water pathway (0.029 and 0.0044 mg/kg for PCE and TCE, respectively), identified as a preliminary cleanup level for the TWAAFA site (DOF 2025). The presence of PCE and TCE in soil at this location is characteristic of lime solvent sludge, from the Occidental Chemical Corporation facility. Therefore, measurement of PCE and TCE concentrations in groundwater within this area of the Property is proposed to assess the

[3] The Method A industrial cleanup level for PCE and TCE is based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4). Groundwater in the Tacoma Tideflats is generally recognized as non-potable and criteria are selected to be protective of surface water.

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unsaturated (vadose zone) soil-to-groundwater-to-surface water pathway empirically. This will inform the ongoing RIFS for the TWAAFA site, as discussed in Section 5.10.1.

Soil locations with hazardous substances exceeding screening criteria are shown on Figure 2-3.

2.4.2 Groundwater

All groundwater data from investigations conducted 1991 through 2023 are summarized in Table 2-3. Groundwater data were collected from monitoring wells and reconnaissance borings (see Table 2-1 and Appendix A). Groundwater data was screened to MTCA Method A cleanup levels. Final cleanup levels have not been established for the TWAAFA site and will be evaluated in the forthcoming RIFS. The results show exceedances above MTCA Method A cleanup levels primarily for diesel and motor oil-range hydrocarbons and metals as summarized in Table 2-3. Groundwater sampling locations are shown on Figure 2-4.

2.4.3 Extent of Autofluff

The approximate lateral extent of auto fluff is shown in Figure 2-1 and is located within the central portion of the Sloped Area along the eastern Property boundary. Based on a topographic and boundary survey (Sitts & Hill 2024) and MFA's field investigation at the Property, auto fluff generally exists at depths of ground surface to approximately 17 feet, corresponding to elevations between 4.8 ft and 19.8 ft mean lower low water. The auto fluff layer thickness is estimated to be between 3.0 and 10.1 ft. During the August 2024 investigation, shallow groundwater at the Property was observed between 2 and 19.5 ft bgs. However, auto fluff present in the fill unit at locations TWA-SB-11, TWA-SB-12, and TWA-SB-13 is above the water table and not in contact with shallow groundwater (MFA 2024).

It also appears lime solvent sludge is present in soil between 8.5 to at least 18.5 feet bgs TWA-SB-12. Lime solvent sludge is intermixed with auto fluff material at TWA-SB-12.

3 Interim Action Alternative Evaluation

The alternatives proposed below are considered interim actions, developed in accordance with WAC 173-340-430. An interim action is being proposed on the Property as it has been determined to be technically necessary to reduce a threat to human health by eliminating or substantially reducing one or more pathways for exposure to hazardous substances during snail eradication efforts. This interim action was designed to protect workers, ensure contamination is contained and/or managed on-site appropriately during development.

The Property is included in the larger TWAAFA site that is undergoing a formal RIFS process with Ecology oversight. The interim actions considered in this IAP are designed to support cleanup action evaluations in the forthcoming RIFS and will not foreclose future reasonable alternatives for the final cleanup action as evaluated in the RIFS.

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3.1 Alternatives Considered

Auto fluff is heterogeneous and a source of several hazardous substances including metals, SVOCs, VOCs, and PCBs. Lime solvent sludge is a source of PCE and TCE. The presence of invasive vineyard snails in soil is a complicating factor for remedial options involving excavation and offsite disposal before snail eradication is completed. Therefore, the remedial technologies that can address hazardous substances in soil at concentrations exceeding MTCA Industrial CULs in concert with the planned eradication effort are excavation and capping.

The proposed actions in this IAP are considered preliminary until the completion of the RIFS for the TWAAFA site. Additional actions may be considered for the Property as part of the final cleanup evaluation for the TWAAFA site. A supplemental investigation is proposed to be conducted concurrently with the implementation of any of the proposed interim actions below to evaluate groundwater concentrations in the vicinity of TWA-SB-12 and to inform potential future remedial actions for lime solvent sludge.

Under each alternative, the presence of snails is a complicating factor for contaminated soil management. Hazardous substances present in the Sloped Area along the eastern Property boundary will be either excavated immediately (Alternative 1) or capped (Alternative 2). Under Alternative 3, capping would occur first, and excavation would be conducted after snail eradication efforts have been certified complete by WSDA.

3.1.1 Alternative 1—Excavation and Off-Site Disposal

Excavation and off-site disposal would remove soil with hazardous substances at concentrations exceeding MTCA Industrial CULs from the Property, dispose of material at a permitted landfill, and backfill with clean material. The excavation of hazardous substances would occur concurrent with snail eradication efforts (grading and filling the rest of the Property). A sheet pile wall along the eastern Property boundary would be installed to support removal and off-site disposal of excavated material due to the grade difference along the boundary. The sheet pile wall is a necessary component of the excavation to ensure the adjacent property grade does not slough onto the Property. This alternative assumes removal of approximately 7,700 bulk cubic yards of soil mixed with auto fluff, based on an average excavation depth of approximately 6.5 feet bgs across the approximate extent of autofluff area shown on Figure 2-1.

This alternative is permanent and is expected to remove all hazardous substances above MTCA Industrial CULs in soil over the short term. Vineyard snails are hermaphroditic, and a single snail could generate a new invasive population elsewhere where suitable habitat is present. Removal or destruction of all individuals or eggs is likely not practicable given the potential risks to agriculture if they are allowed to spread to other areas. Confirmation of full snail removal would be technically challenging and uncertain. Excavated soils and surrounding soils/autofluff would be regulated by Animal and Plant Health Inspection Service (APHIS)[4] under the Federal Plant Protection Act, as moving plant pests, and would require an interstate movement permit under Title 7 CFR 330.203(c)As such, excavated material must be transported by an APHIS-certified driver, shipped in sturdy, leak-proof department of transportation-rated containers, and be disposed of via incineration

[4] APHIS considers an organism to be a plant pest if the organism directly or indirectly injures, causes damage to, or causes disease in a plant or plant product, or if the organism is an unknown risk to plants or plant products. Movement of plant pests within the state or to other states will require and APHIS interstate permit.

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and direct burn to an APHIS-approved facility (Title 7 Subtitle B CFR 330.203(c)(1) and (3) Two hazardous waste incineration facilities located in Utah and Nevada, respectively, were identified that would accept the waste present at the Property. Due to the travel distance (i.e., between approximately 870 and 990 miles) and APHIS requirements to transport the waste from the Property to the nearest incineration facilities, this alternative would be prohibitively expensive compared to the preferred alternative (see Section 3.2). Furthermore, USDA and WSDA support maintaining containment and localization of the vineyard snails, and likely would not support the transport of soil elsewhere if the vineyard snails or eggs may be present (Appendix A). There is also low confidence on the practicability of segregating soil containing snails from the rest of the material; the snails eggs are 1.5 mm or smaller in size and are not readily observable. Therefore, this alternative rates poorly on the management of short-term risks, technical and administrative implementability, and the consideration of public concerns.

An engineer's estimate of probable cost for excavation and off-site disposal is $8,427,000 (see Table 3-1). The estimate of probable cost does not include costs associated with wetland compensatory mitigation because it is an element of the snail eradication effort (as discussed in Section 2.1.1). The estimate also does not include costs for the full grading and filling activities for the entire Property because they are also being implemented as part of the eradication effort. This estimate is considered to be +50 percent/-30 percent at a similar confidence interval to a feasibility study.

3.1.2 Alternative 2—Containment and Capping

Containment and capping would prevent direct contact exposure by creating a physical barrier between the auto fluff and hazardous substances and potential receptors. This alternative would be performed concurrent with wetland filling and grading to eradicate the snails; the Property will be graded north, south, and west of the central portion of the Sloped Area, where auto fluff and soil hazardous substances (above MTCA Industrial CULs) are present. A containment wall (e.g. ecology-block or similar) will be installed to the north, south, and west of soil containing autofluff to support the placement of clean fill material behind the containment wall. Approximately 850 cubic yards of material will need to be excavated to facilitate the construction of the containment wall. It is anticipated that this excavated soil would be placed in the containment wall area. Following installation of the containment wall, demarcation fabric will be placed within the containment area, followed by placement of excavated and fill soil, gravel fill, and an asphalt cap. The auto fluff will be consolidated and graded so that fill can be placed on top, compacted, and then graded to support the placement of the asphalt cap. Earthmoving activities that disturb auto fluff will be conducted within a delimited work area with appropriate erosion and sediment controls. Following consolidation of the auto fluff, a demarcation geotextile will be placed over the consolidated materials to both provide future visible warning of contaminated material within as well as to limit movement of auto fluff during cap material placement. Equipment used to consolidate the autofluff will be cleaned before leaving the work area. The surface of the containment area will be finished with asphalt paving as a cap to reduce infiltration of precipitation to minimize potential soil leaching to groundwater. Because soil contamination will remain in place, institutional controls will be required for the Property and should be considered during the FS process and preferred final remedy selection. Proposed institutional controls for the interim action are discussed in Section 5.9.

This alternative will eradicate the vineyard snails by covering the existing population with fill and accommodate the filling of adjacent wetlands to eliminate viable snail habitat. To verify the snails

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are eradicated at the Property, WSDA will conduct annual monitoring for a duration of three years post capping. Dogs trained to detect the presence of snails will verify the effectiveness of the eradication effort.

This alternative is recommended because it is protective of human health and the environment and is the most practicable and implementable interim action alternative that will support a future final remedy. This alternative will not preclude or limit future cleanup options for the final remedy. This is the best alternative to limit the risk of transporting snails off the Property.

An engineer's estimate of probable cost for capping is $1,435,000 (see Table 3-2). The estimate of probable cost does not include costs associated with wetland compensatory mitigation because it is an element of the eradication effort (see Section 2.1.1). The estimate also does not include costs for the full grading and filling activities for the entire Property because they are also being implemented as part of the eradication effort. This estimate is considered to be +50 percent/-30 percent at a similar confidence interval to a feasibility study.

3.1.3 Alternative 3—Containment, Capping, and Post-Eradication Excavation

As described for Alternative 2, containment and capping would prevent direct contact exposure by creating a physical barrier between the auto fluff and potential receptors. Containment and capping would be performed in areas where auto fluff and soil hazardous substances (above MTCA Industrial CULs) are present concurrent with wetland filling and grading to eradicate the snails. A containment wall (e.g. ecology-block or similar) will be installed and demarcation fabric will be placed within the containment area, followed by placement of soil, gravel fill, and an asphalt cap as described for Alternative 2.

Under Alternative 3 it is also assumed that excavation of capped material would occur after three years when WSDA confirms snail eradication; as noted above WSDA will conduct annual monitoring for a duration of three years post capping using dogs trained to detect snails. A sheet pile wall would be installed along the eastern Property line boundary to support removal and off-site disposal of capped material due to the grade difference along the property line. The sheet pile wall is a necessary component of the excavation to ensure that the adjacent property grade does not slough onto the Property. It is assumed that capped material will be disposed of offsite. This alternative assumes removal of approximately 7,500 cubic yards of soil mixed with auto fluff This assumes an average excavation depth of approximately 6.5 feet bgs across the approximate extent of autofluff area shown on Figure 2-1. To access the underlying auto fluff, approximately 5,900 cubic yards of clean soil and gravel cap material would be excavated. Clean soil and gravel fill would be disposed of at a permitted landfill; costs may be reduced if the cap material can be reused as excavation backfill. Waste disposal of the contaminated soil containing auto fluff and lime solvent sludge would occur once eradication efforts are complete. The contaminated soil exhibits concentrations PCBs above 10 mg/kg and therefore, may be considered dangerous and/or hazardous wastes requiring disposal to a Subtitle C facility. For cost estimating purposes, two scenarios (Alternatives 3a and 3b), hazardous and non-hazardous disposal, were evaluated to provide the anticipated range of waste disposal costs. Additional waste characterization and profiling would be conducted before construction to determine waste designation and final disposition to an appropriate facility. The area would then be backfilled with clean material.

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This alternative is less costly than Alternative 1 since waste transport to incineration facilities would not be required, and associated APHIS requirements would not apply. The alternative is more costly than Alternative 2 because excavation of capped material would occur. Short-term management risks compared to Alternative 2 are considered greater due to conducting excavation. Implementability rates lower than Alternative 2 since snail eradication will need to be certified to obtain associated permits for transport and disposal.

An engineer's estimate of probable cost for capping and post eradication disposal is between $5,027,500 and $7,400,500 (see Tables 3-3 and 3-4). The estimate of probable cost does not include costs associated with wetland compensatory mitigation because it is an element of the eradication effort (see Section 2.1.1). The estimate also does not include costs for the full grading and filling activities for the entire Property because they are also being implemented as part of the eradication effort. This estimate is considered to be +50 percent/-30 percent at a similar confidence interval to a feasibility study.

3.1.4 Consideration of Public Concerns

The interim action is subject to public comment as required under the EO. Alternatives were evaluated based on anticipated public concerns. The Port meets quarterly with representatives from the Puyallup Tribe of Indians regarding the TWAAFA site and they have been informed of the planned eradication, remediation and lease discussions.

3.2 Evaluation of Alternatives

Under WAC 173-340-430 for interim actions, an evaluation of alternative interim actions was conducted to inform the selection of the proposed interim action. To evaluate the alternative actions, the Port considered FS criteria, where applicable, and performed a disproportionate cost analysis.

A final cleanup action for the TWAAFA site has not been selected. The RIFS for the TWAAFA site will evaluate whether the interim action can be considered a final cleanup action.

None of the proposed interim action alternatives in this IAP preclude the ability to conduct additional/final cleanup action(s) on the Property as part of the TWAAFA site.

3.3 Disproportionate Cost Analysis

Alternatives 1, 2, and 3 all meet the general requirements outlined in WAC 173-340-430(2) minimum threshold requirements as defined in MTCA and were retained for further evaluation. A DCA is conducted to evaluate the alternatives as permanent solutions to the maximum extent practicable. The DCA follows the methods laid out in Ecology's *Guidance for Making Cleanups Permanent to the Maximum Extent Practicable* (Ecology 2025). The cost and benefits of each alternative are assessed by evaluation criteria. The specific criteria that must be evaluated are protectiveness, permanence, cost, long-term effectiveness, short-term risk, technical and administrative implementability, and consideration of public concerns as specified in WAC 173-340-360(5). The DCA is provided as Table 3-5. The forthcoming RI/FS for the TWAAFA site is required to explicitly address all DCA elements, while interim action alternative evaluations are required to "provide an explanation why the proposed alternative was selected" (WAC 173-30-430(7)(b)(ii)). The

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DCA provided meets WAC 173-340-430 requirements and generally conforms to FS-level draft DCA guidance (Ecology 2025) for purposes of identifying an interim action.

Implementation of Alternatives 1 and 3 increase the potential burden across multiple vulnerable communities due to the risk of transport of snail-infested contaminated soil across multiple communities which could add potential exposure to contaminated soil and release of invasive snails. Alternative 2 leaves soil impacts in place and significantly reduces the likelihood of potential exposure to contaminated soils and the spread of invasive snails to other areas.

Professional judgment and site-specific knowledge are used to assign the relative weight applied to each DCA criterion and to score each alternative on a scale of 1 (lowest) to 5 (highest) for the five DCA criteria. In accordance with MTCA's disproportionality test, costs are disproportionate to benefits if the incremental costs of an alternative over that of a lower cost alternative exceed the incremental degree of benefits achieved by that alternative over that of the lower cost alternative. MTCA prescribes that this disproportionality test proceeds in the direction of decreasing permanence (from the most permanent alternative to the next most permanent alternative).

3.4 Preferred Alternative

While Alternatives 1 and 3 are determined to be the more permanent remedies, the incremental benefits they would achieve are disproportionately costly to Alternative 2. Alternative 2 is expected to eliminate exposure pathways to hazardous substances on the Property and prevent the spread of vineyard snails offsite while supporting their eradication on the Property. Construction to implement this interim action would be conducted concurrent with filling and grading activities to fill the wetlands and snail eradication.

Implementation of Alternative 2 would not preclude or limit future cleanup options for the final remedy identified in the RIFS for the TWAAFA site. Flexibility to identify and implement additional cleanup in this area, if any, as the TWAAFA site cleanup process proceeds would be retained.

3.5 Proposed Cleanup Levels and Remedial Action Objectives

CULs have not been finalized for the TWAAFA site. Implementation of the selected alternative will be guided by remediation levels that incorporate CULs *and* other indications of hazardous materials. WAC 173-340-355 defines development of cleanup action alternatives that include remediation levels, which are appropriate for the conditions encountered at the Property.

The proposed CULs for this interim action on the Property are MTCA Industrial CULs which account for potentially complete future exposure pathways at the Property, including dermal contact, incidental ingestion, and inhalation during development. As described in Section 2.4.1, chemical concentrations in soil exceeding MTCA Industrial CULs were identified in investigation locations TWA-SB-11 and TWA-SB-12.

Remediation action objectives may also be based on other methods of identifying hazardous waste, such as physical appearance. At the Property, the extent of auto fluff has been visually documented laterally and vertically along the eastern boundary, specifically at investigation locations TWA-SB-11, TWA-SB-12, and TWA-SB-13. Further contaminated fill material (i.e., autofluff comingled with lime

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solvent sludge) is present at TWA-SB-12. Auto fluff was not visually documented in the hand auger (TWA-HA-01 through 03) or the remaining soil boring (TWA-SB-09, TWA-SB-10, TWA-SB-14 through 16) locations.

Therefore, for implementation of the selected alternative, exceedance of remediation action objective criteria includes areas where auto fluff is visually documented during prior investigation at the Property (i.e., around TWA-SB-11, TWA-SB-12, TWA-SB-13, and TWA-SB-14)(see Figure 2-2). Under this framework, lime solvent sludge containing elevated PCE/TCE, which has been observed at SB-12, would also be addressed because it is collocated where autofluff is present. The selected alternative will not be implemented in the other investigation areas because chemical concentrations are below MTCA Industrial CULs and because auto fluff was not visually observed at those locations.

Other CULs may be considered when evaluating a final cleanup action for the Property. Preliminary CULs identified in the draft RIFS also consider criteria related to the protection of soil to groundwater to surface water (DOF 2025). Additional assessment of this potential pathway is proposed with additional groundwater sampling in the vicinity of TWA-SB-12, as described in Section 5.10.1. The data collected from this assessment will be used to inform whether additional cleanup action(s) may be required to address groundwater as part of a final remedy for the TWAAFA site.

Flexibility to identify and implement additional remedies or controls in this area to meet final CULs and remedial action objectives for the TWAAFA site would be retained.

3.6 Ecological Evaluation

The selected Alternative 2 will address any potential ecological risks within the capped area. The alternative calls for placement of soil, gravel fill, and an asphalt cap which will cover contaminated soil to prevent exposure to plants and wildlife. Any additional measures to meet final cleanup goals protective of ecological receptors will be identified as part of the TWAAFA site cleanup process.

4 Regulatory Rationale for Interim Action

This section demonstrates that the proposed interim action satisfies MTCA requirements and expectations in WAC 173-340-430(1) through (5) for conducting an interim action.

4.1 Interim Action Purpose

The proposed interim action meets the MTCA purpose in WAC 173-340-430(1) of only partially addressing the cleanup of the Site. More specifically, the proposed IA "is technically necessary to reduce a threat to human health or the environment by eliminating or substantially reducing one or more pathways for exposure to a hazardous substance at a facility" (WAC 173-340-430(1)(a)). The threat to human health and the environment that is being substantially reduced is potentially

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complete future exposure pathways at the Property, including dermal contact, incidental ingestion, and inhalation.

4.2 General Requirements

The proposed interim action satisfies the interim action general requirements pursuant to WAC 173-340-430(2)(b) because the proposed interim action will "provide a partial cleanup, that is, clean up hazardous substances from all or part of the site, but not achieve cleanup standards."

4.3 Relationship to the Cleanup Action

The interim action satisfies the requirement in WAC 173-340-430(3) via WAC 173-340-430(3)(b) because none of the interim action remedial components will foreclose reasonable alternatives for the unknown final clean action. All of the active remediation components contemplated in draft RIFS (DOF 2025) for the Property are located within the proposed containment wall footprint (e.g., capping or excavation). Further, the containment wall and cap outlined in Section 5 is being designed so that this cap can be penetrated to facilitate any additional active remediation components within the containment wall area (e.g., in-situ solidification/stabilization, in-situ groundwater treatment) and then repaired following penetration, if determined necessary as part of the final cleanup action. Thus, all of the reasonable and practicable remedial components can still be implemented after the containment wall is installed, and the approximately 30,000 square foot asphalt cap is installed.

4.4 Timing

The proposed interim action satisfies the interim action timing requirement in WAC 173-340-430(4) because (1) an interim action "may occur anytime during the cleanup process" per WAC 173-340-430(4)(a), (2) the interim action will not be used to delay or supplant the cleanup process, and (3) the interim action will be followed by completing the RIFS and CAP.

4.5 Administrative Options

An interim action can be conducted under any of the MTCA administrative options, including agreed orders and enforcement orders (WAC 173-340-430(5)).

5 Interim Action Components

The final (100%) interim action design will consist of final plan sets and specifications for the containment wall and the asphalt cap as well as Engineer-prepared plans (i.e., Health and Safety Plan [HASP], Compliance Monitoring Plan [CMP], IDP, and Soil Management Plan [SMP]) that will accompany and supplement these final plan sets and specifications. The interim action design is currently in the preliminary (i.e., 30%) design phase. The preliminary design plan sets for the containment wall and asphalt cap are presented in Appendix F. Some of the key preliminary design

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concepts for the containment wall and asphalt cap are summarized in Sections 5.5 and 5.7, respectively. The HASP and the IDP are completed and included in this section, while the preliminary design for the SMP is summarized in this section. The design will be further developed and finalized as outlined in Section 6.2.

This section describes the elements of the proposed interim action and the associated elements for construction implementation. Construction will be performed in a manner consistent with the requirements of the WAC 173-340-400. Figures 5-1 and 5-2 depict the proposed interim action features in plan-view and cross section, respectively. Interim action construction activities will be overseen by the Port's environmental consultant.

5.1 Pre-Construction Activities

Prior to construction, the Port will obtain permits and approvals to support implementation of the interim action and grade and fill the Property. Permitting is discussed further in section 6.4.

The Port will support cultural Review Consultation with Ecology, Tribes, and the Department of Archaeology and Historic Preservation. This includes development of an inadvertent discovery plan that will guide field procedures if historic or cultural resources are encountered during excavation activities at the Property and identify necessary tribe notifications (see Section 6.1 and Appendix D).

The Port is working with a civil design firm to develop the containment wall and grading plans and specifications to include as part of the bid and permit packages. A geotechnical evaluation will be conducted at the Property by the Port in the locations where the walls are proposed as part of the engineering design to implement this IAP. Preliminary design drawings are included in Appendix F; the final designs that will be submitted as part of the bid package will be provided to Ecology.

5.2 Site Preparation

This section describes the site preparation elements that will be completed prior to implementation of the interim action. It is assumed that all earthwork activities will be conducted during the summer when the vineyard snails are dormant. Site preparation will include developing controlled exits and construction zones for different activities of the Property to align with the vineyard snail eradication area BMPs (see Appendix F). In the preliminary drawings, the following snail BMPs will be implemented in three different areas:

- The "Red Zone" is identified as Primary 1° VSEA (vineyard snail eradication area) Construction Step on the drawings,
- The "Red Zone Staging Area & Decon Facility with Controlled Exit(s)" is identified as 1° VSEA Staging Area, Decon Facility, and Controlled Exit(s) on the drawings,
- The "Orange Zone Staging Area & Wheel Wash with Visual Inspection & Controlled Exit(s)" is identified as 2° VSEA Construction Step on the drawings.

5.2.1 Health and Safety

The Health and Safety Plan (HASP) for MFA personnel to follow when consolidating potentially contaminated soils within the containment area is presented in Appendix C. The Remediation Contractor will prepare and implement its own HASP that is at least as stringent as the HASP

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provided in Appendix C for all interim action activities conducted by Remediation Contractor employees and subcontractors. Interim action specifications will also require the Remediation Contractor to ensure that their HASP meets the requirements of the final, Ecology-approved MFA HASP provided in Appendix C, and utilize 40-hour hazardous waste operations and emergency response-trained personnel with current refresher certifications for all interim action fieldwork. In the event that a construction activity, such as trenching, involves risk of contact with underlying contaminated soil or groundwater, personnel will adhere to the health and safety protocols included in the contractor's construction project documents.

5.2.2 Mobilization

The containment wall will be installed where indicated on the final design drawings; this location is based upon the eastern property line boundary and required offset for construction along a property line per Washington state building code.

Before excavation, the locations of subsurface utilities within 50 ft of the excavation areas will be identified by "One Call" public notification and a private utility locating company.

Exclusion zones using temporary fencing and warning tape and any additional appropriate site controls necessary will be established in accordance with the HASP prior to the start of construction (see Appendix C). The site will be secured and locked when the engineer or contractor is not present.

Equipment will be mobilized to the Property and is expected to include, but not be limited to, the following:

- Trackhoe, excavator, or equivalent
- Front-end loader
- Dump truck
- Vibratory hammer
- Water truck
- Support vehicles and equipment
- Baker tank(s)

5.2.3 Containment Area Designation

Based on boring data available and known history of the Property, the extent of the auto fluff fill correlates with the central portion of the Sloped Area extending from the Stericycle property toward the west and ending adjacent to the eastern extent of the wetlands in the center of the Property. Based on the previous investigations, the lateral area impacted by auto fluff is approximately 28,800 square ft (see Figure 5-1). Visual observations documented in boring logs (MFA 2024) combined with boundary and topographic survey data (Sitts & Hill 2024) indicate the auto fluff layer is approximately 3 to 10 ft thick at elevations between 4.79 ft and 19.84 ft mean lower low water.

Before construction begins, survey markers or construction staking will be used to identify the boundaries of the proposed containment area which includes areas of auto fluff as well as TWA-SB-14 to eliminate potential movement of hazardous substances to areas of the Property outside of the containment area. The plan view layouts of the containment wall and designated construction area are provided in Appendix F and will be further developed during engineering design.

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5.2.4 Well Decommissioning

Prior to site grading and capping activities, all monitoring wells on the Property (see Figure 5-1) will be decommissioned in accordance with WAC 173-160-381. A notice of intent consistent with WAC 173-160-151 will be submitted to Ecology at least 72 hours before starting work. Performance monitoring well locations will be identified in the TWAAFA feasibility study and/or cleanup action plan.

5.2.5 Clearing and Grubbing

The cap area is currently vegetated with grasses, invasive blackberries, and other brush. Several small trees (less than 6 inches in diameter) are located at the top of the slope. This vegetation will be cleared from the surface and consolidated to facilitate grading, filling, and capping activities. Any material generated during clearing and grubbing of vegetation during grading activities will be consolidated in an area of the Property for a minimum of three years and it is determined that the eradication of the vineyard snail is complete by the Port in coordination with USDA and/or WSDA. Appendix F provides BMPs for managing vegetation within invasive snail areas of the Property. The proposed location of the consolidated vegetation will be identified in future design.

5.2.6 Temporary Erosion and Sediment Control

Prior to the start of construction, a site-specific erosion and sediment control plan will be prepared, detailing the appropriate best management practices to be implemented during construction. Erosion and sediment controls will be designed to prevent the offsite migration of sediment and invasive Vineyard snails and snail eggs, and to prevent the sediment from leaving the construction area and flowing to the onsite wetlands (see Figure 2-1).

Anticipated BMPs include silt fencing, a wheel wash, and the covering of soil stockpiles when not in use, during rain or wind events, and overnight. Vineyard snail eradication BMPs include, but are not limited to, controlled equipment areas with hot-water pressure wash and/or salt spray, visual inspections of equipment prior to removal from Property, and no movement of soil or vegetation off the Property for a minimum of three years without prior written approval from the Port in coordination with USDA and/or WSDA to confirm eradication is complete.

A temporary erosion and sediment control plan is provided as Sheet C1.00 that aligns with snail eradication areas described in the BMP document provided in Appendix F and will be further detailed as the design progresses. All erosion-control measures will be installed before excavation activities begin and will be maintained throughout the construction effort.

5.2.7 Temporary Construction Access

The Property is generally flat with a small channel running north to south at the base of the slope along the eastern Property boundary, adjacent to the Stericycle property. Vehicle access is available off Taylor Way and will be provided off of Alexander Avenue. During construction, the Property will be staged with a trucking route, wheel wash, water treatment and/or baker tank area, and a temporary stockpile area. To accommodate these features, rough site grading and the placement of quarry spalls may be necessary. A construction layout and access is shown on Sheet C1.00 in Appendix F and will be further detailed as the design progresses. Vineyard snail eradication BMPs will include application of snail bait on gravel pads and salt applications on pads at exits of the Property, as

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described in the preliminary design drawings and vineyard snail eradication area BMPs by Construction Step & Zone (Appendix F).

Temporary stockpiles will be used as needed for material that is moved during grading, filling, and cap installation activities. Stockpiles will be managed in a manner that minimizes erosion, contact with stormwater runoff, dust generation, and worker and public contact.

5.3 Engineering Controls

Engineering controls and construction quality controls will be important components for both the containment wall and asphalt cap designs. Ecology will be provided with a copy of the project specifications that include the engineering controls required from the contractor in the 90% and 100% (final) design packages. Project specifications include, but are not limited to, the following:

- Health and Safety Plan and Emergency Response Procedure
- Temporary Erosion and Sediment Control
- Spill Prevention and Countermeasure Plan
- Construction Wastewater Management Plan
- Survey Plan
- Equipment List for Onsite Use
- Waste Management Plan
- Product and Aggregate
- Submittals (e.g., manholes, ecology blocks, structural fill, etc.)
- Traffic Control Plan.

Prior to construction, the contractor will provide submittals demonstrating compliance with and fulfillment of all project specification requirements. Ecology will be provided a copy of the contractor's Health and Safety Plan and the Spill Prevention and Countermeasure Plan for review, but not approval, once they are received from the contractor.

Engineering controls regarding on-site management of soil and snail decontamination measures will be provided in the forthcoming SMP. further discussed in Section 5.10.2. Construction quality control will also be required pursuant to the interim action design and will be implemented during interim action construction activities. The preliminary construction quality control elements for design are outlined in Section 6.3.

5.4 Property Grading and Filling Activities

Following authorizations (See Section 5.1), the Port will fill the wetlands and grade the Property outside of the proposed containment area to eradicate the invasive snails. Native soils shall be relocated on-site (i.e., not exported) to fill the wetlands and shape the Property to drain to a discharge point near the northerly extent of the Alexander Avenue frontage. The Property will generally be graded, with on-site materials at minimal slopes (±1%), to sheetflow runoff toward the center of the Property where it will intercept drainage swales leading to the chosen low point. The

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Port plans to install a new culvert for discharge into the City of Tacoma public piped drainage system in Alexander Avenue, including an upsized lateral pipe under Alexander Avenue to support the increased runoff flowrate. Grading on-site will be established in order to accommodate a 4-inch lift of crushed surfacing base course to cap the site and inhibit vegetative growth. A preliminary grading plan for the Property is shown on Sheet 3.01 of Appendix F. The Property will generally be graded at a 1 percent east-to-west slope (see Figure 5-2) and with elevations dipping from the north to the south.

Grading will consist of using soil on the Property and additional fill material sourced from offsite to meet final grade requirements for the Property. Ecology will review and approve off-site soil borrow sources prior to import and use as on-site fill with the exception of fill brought in from established sand and gravel quarries (e.g., commercial sources).

5.5 Containment Wall

A containment wall (e.g., ecology-block or similar) will be installed along the western edge of the proposed containment area to support the placement of cap fill material east of the containment wall, where auto fluff is present. This wall will be placed at a level grade.

To the north and south of the proposed containment area, and perpendicular to the eastern Property boundary, excavation of existing soil is anticipated, as the proposed walls are located within the Sloped Area that will be removed and used to fill the wetlands. At these locations, soil outside of the proposed containment area will be excavated to a level grade to allow placement of the northern and southern containment walls.

Onsite material and imported, clean soil will be used outside of the containment walls to reduce the exposed height of the wall and bring up the finished grade of the Property (see Figure 4-2).

5.6 Containment Area Grading and Filling

Authorization to proceed with fill operations will be provided by the engineer in coordination with Ecology. Existing on-site materials and, if necessary, imported, clean soil will be placed on top of the auto fluff in the containment area. Fill will be compacted in accordance with project specifications.

5.7 Capping

The final grade will match the top of the slope along the eastern property line and slope to the west to promote drainage. West of the containment wall, the Property will be graded to promote drainage away from the capped auto fluff material. Clean gravel fill will be placed on top of the compacted soil layer within the containment area and will be compacted in accordance with project specifications. A 3-inch-thick layer of asphalt will then be placed on top of the fill material to complete the cap to eliminate the direct contact exposure pathway and reduce potential infiltration of precipitation into the subsurface. The final grade will match the top of the slope along the eastern property line and slope to the west to promote drainage. West of the containment wall, the Property will be graded to promote drainage away from the capped auto fluff material.

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5.8 Compliance Monitoring Plan

There are three types of compliance monitoring defined in WAC 173-340-410: protection monitoring, performance monitoring, and confirmation monitoring. The anticipated elements for each type of IA compliance monitoring are summarized in the following sub-sections. A CMP for interim action activities will be prepared during IA design in accordance with the requirements of WAC 173-340-410. The CMP will be included with the 90% design submittal for Ecology review and approval. Previous soil data and boring logs were used to determine the extent soil containing hazardous substances. This previous data serves as both performance and confirmation monitoring to demonstrate that the interim action, once complete, achieves performance standards by eliminating the soil direct contact pathway for industrial workers to the standard point of compliance of 15 feet bgs.

A sampling and analysis plan (SAP) and quality assurance project plan (QAPP) are required under WAC 173-340-820 and 173-340-830, unless otherwise directed by Ecology. A SAP for the supplemental groundwater sampling is included as Appendix E.[5] Because the previous data bounds the hazardous substances in soil and informs the extent of the interim action area and no soil containing hazardous substances is proposed to be moved or removed from this area, no soil sampling is proposed to be conducted during the interim action; therefore a SAP and QAPP are not necessary components of the interim action's CMP. Other non-sampling performance and confirmation monitoring will be performed and is discussed in the following subsections.

5.8.1 Protection Monitoring

Per WAC 173-340-410(1)(a), the purpose of protection monitoring is to confirm that human health and the environment are adequately protected during construction and the operation and maintenance period of an interim action or cleanup action as described in the HASP. Protection monitoring for this interim will consist of (1) MFA's implementation of the MFA HASP (see Section 5.2.1), (2) the Remediation Contractor's development and implementation of a Remediation Contractor HASP (see Section 5.2.1), and (3) employee adherence to the applicable HASP. In addition, it is anticipated that interim action protection monitoring will likely include dust monitoring, and air sampling of worker breathing zones.

5.8.2 Performance Monitoring

Per WAC 173-340-410(1)(b), the purpose of performance monitoring is to confirm that the interim action or cleanup action has attained cleanup standards and, if appropriate, remediation levels or other performance standards such as construction quality control measurements or monitoring necessary to demonstrate compliance with a permit or, where a permit exemption applies, the substantive requirements of other laws. Performance monitoring for this interim action will consist of other performance standards such as construction quality control measurements or monitoring necessary to demonstrate compliance with a permit or, where a permit exemption applies, the substantive requirements of other laws. Specifically, the applicable performance monitoring for this IA will consist of MFA oversight of the Remediation Contractor to ensure:

[5] The supplemental groundwater SAP will rely on the TWAAFA project's existing Ecology-approved QAPP, with exception for portions that required update to incorporate new Ecology guidance. The updated QAPP references are presented in Appendix E.

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- Successful completion of all construction QC components included in the final design (see Section 6.3);
- Adherence to the plan sets and specifications for the containment wall and asphalt cap;
- Appropriate implementation of the CMP, Remediation Contractor HASP, and IDP; and
- Compliance with all requirements for interim action-related permits and the substantive requirements of any exempt permits (see Section 6.4), including any permit-required monitoring.

5.8.3 Confirmation Monitoring

Per WAC 173-340-410(1)(c), the purpose of confirmation monitoring is to confirm the long-term effectiveness of the interim action or cleanup action once cleanup standards and, if appropriate, remediation levels or other performance standards have been attained. Because (1) cleanup standards and remediation levels have not yet been established for the TWAAFA site, (2) the FS is still ongoing, and (3) a final cleanup action has not been developed, it is premature to propose confirmation monitoring as part of the interim action. However, periodic asphalt cap inspections will be performed to confirm the integrity of the cap and determine if there are cracks or holes within the asphalt cap that could compromise the cap's ability to minimize infiltration. The means, methods, and frequency will be included in a compliance monitoring plan included in the 90% design.

5.9 Institutional Controls

Institutional controls are measures that limit or prohibit activities that may interfere with the integrity of the interim action. Following completion of construction activities above, institutional controls will be implemented at the Property. Physical institutional controls will include signs and demarcation fabric in the area of the cap to prevent disturbing the cap. Annual inspections of the containment and cap will be required to confirm the cap, as an engineering control, remain protective. Additionally, should the containment wall and cap be considered a final remedy under the RIFS, an environmental covenant would be required to be filed with the title of the Property, as the capped area contains concentrations of chemicals of concern exceeding MTCA Industrial CULs. The environmental covenant would restrict future activities at the Property and limit use of the Property for industrial purposes only, in accordance with WAC 173-340-440 and RCW 64.70. The Port has procured a title commitment that has removed the habitat easements from the insurance coverage exceptions for the Property, as the title insurer determined that they no longer applied to the Property (Stewart 2021).

5.10 Additional Considerations

5.10.1 Supplemental Groundwater Investigation

A supplemental groundwater investigation will be conducted in the vicinity of TWA-SB-12. As discussed in Section 2.4.1, PCE and TCE detections in soil colocated with lime waste were identified between 8 and 18.5 feet bgs at TWA-SB-12, indicative of lime solvent sludge. Because concentrations of PCE and TCE and other contaminants in soil exceed Ecology preliminary soil cleanup levels for protection of groundwater to marine surface water in TWA-SB-12, which are based on conservative transport assumptions, collection and analysis of groundwater is proposed as an empirical demonstration of whether migration into groundwater from soil is occurring due to lime

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solvent sludge. To evaluate this potential pathway in the vicinity of TWA-SB-12, two borings will be advanced adjacent to and downgradient of TWA-SB-12 for the collection of groundwater and analysis of PCE and TCE and other contaminants. The results of this groundwater sampling will inform potential additional remedial actions in this area of the TWAAFA site, as needed. Appendix E provides a proposed sampling plan for this supplemental investigation.

5.10.2 Soil Management Plan

A soil management plan (SMP) will be prepared during interim action design to provide a management framework for handling any soil and materials during earthwork activities on the Property (e.g., clearing/grubbing, backfilling, building and parking construction). The SMP will enable Port personnel and contractors to make informed decisions about managing potentially-snail infested soil to protect Site workers, surrounding properties, and the environment.

The primary SMP principle will be that any soil or materials on the Property will remain within the Property until earthwork activities are completed and that soil containing hazardous substances within the interim action area are not transported elsewhere on the Property or offsite. The SMP will includes a description of vineyard snail management and decontamination BMPs including, identification of controlled equipment areas with hot-water pressure wash and/or salt spray, procedures for visual inspections of equipment prior to removal from Property, and no movement of soil or vegetation off the Property for a minimum of three years without prior written approval from the Port in coordination with USDA and/or WDA to confirm eradication is complete. Preliminary soil management areas associated with snail eradication BMPs are provided Appendix F.

The initial SMP will be included with the 90% design submittal to Ecology. It is anticipated that the SMP will be updated as necessary following installation of the asphalt cap and/or selection of the final cleanup action in the CAP. The SMP will include (1) Site background information (e.g., summaries of historical operations, regulatory setting, existing infrastructure, and investigation results), (2) Site-specific obligations and considerations for characterizing, handling, storing, and deciding whether to reuse soil and materials on the Property during and after the three-year minimum eradication effort (note that no soil or vegetation will be moved off the Property until eradication is complete), (3) equipment decontamination procedures to prevent transport of snails and/or hazardous substances on the property and (4) protocols for notifying Ecology if unanticipated contamination is encountered during earthwork activities.

5.10.3 Methane Evaluation

Portions of the Property exhibit organic material from the wetlands and wood debris that was used as fill and both sources could be potential sources of methane. While methane is not a hazardous substance regulated under MTCA, the build-up of methane at concentrations above the lower explosive limit (5 percent) can be a risk to human health in occupied buildings. Preliminary redevelopment plans involve importing fill to raise site grades and construction of a warehouse(s) and parking areas, which will alter site conditions and create low-permeability surfaces for potential methane generation. Vegetation and woody debris outside of the interim action area may be moved and sequestered to a separate area pending snail eradication and may be removed before redevelopment occurs. Therefore, an assessment of methane risk consistent with ASTM Standard *E2993-23, Standard Guide for Evaluating Potential Hazard in Buildings* will be included part of development design once the final layout and design of the redevelopment are determined, a lease is in place, and filling activities are complete.

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5.10.4 Inadvertent Discovery Plan

In accordance with WAC 173-340-815(3)(a) and Governor Executive Order 21-02, Ecology will consult with the Department of Archaeology and Historic Preservation and affected tribes prior to interim action implementation about the potential effects of the interim action on potential cultural resources at the Site.

Although the potential for encountering cultural resources (e.g., human remains, tribal artifacts, historical resources, archaeological resources) during the interim action is likely low, an IDP was developed and will be implemented if a cultural resource is inadvertently discovered during IA activities (see Appendix D).

The IDP will be readily available during all interim action implementation activities and interim action field staff will review the IDP prior to working at the Property. If anyone involved with interim action implementation suspects the inadvertent discovery of a cultural resource during interim action activities, all ground disturbing activities, and other activities proximate to the discovery, shall immediately cease and the IDP in Appendix D shall be implemented. All field personnel shall follow the IDP procedures and treat all cultural resources with respect.

Additionally, the Port is in regular communications with the Puyallup Tribe regarding the interim action and proposed redevelopment on the Property (see Appendix D).

5.10.5 Wetlands Permitting

The anticipated containment and cap area, construction access, and staging extents for the interim action work overlap with the previously delineated wetland boundaries. The wetlands are considered critical areas under the Growth Management Act and will undergo additional review. The Port will need to obtain authorization from Ecology and City of Tacoma to fill the wetlands prior to implementing the interim action (see Sections 2.1.1 and 6.4). The Port has applied for a Critical Areas Development permit with the City and is in the process of working with Ecology on an administrative order to fill the wetlands.

5.10.6 Invasive Snails

The Property is known to harbor Mediterranean vineyard snails, an invasive species that threatens the grain industry in the United States. To limit the spread of these snails, all equipment mobilized to the site will need to be washed by a pressure washer or salt solution and then visually inspected prior to leaving the construction area. This will include personnel vehicles and heavy machinery. Preliminary vineyard snail eradication area BMPs by construction step & zone as provided in Appendix F. Prior to construction, the contractor will be required to submit a mitigation plan for engineer and Port review. It will describe how the contractor intends to ensure all equipment is properly decontaminated prior to leaving the work area.

5.10.7 Vulnerable Populations and Overburdened Communities

The interim action is not expected to have impacts on likely vulnerable populations or overburdened communities.[6] The interim action will occur at a vacant, restricted, and fenced Property within a

[6] Even though the consideration of impacts on likely vulnerable populations or overburdened communities is a CAP requirement for final cleanup actions per WAC 173-340-380(5)(c), this potential was also considered for this interim action.

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highly industrial area that will remain zoned Port Maritime Industrial for the foreseeable future. No residential neighborhoods or communities are located adjacent to the Site, and the closest residential neighborhood is approximately 4,000 feet (over ¾-mile) east of the eastern portion of the Property. The interim action will not generate regulated air emissions or haul substantial quantities of waste to other communities. As a result, even if there are some vulnerable populations or overburdened communities within several miles of the Property, the interim action is not expected to have any impact on vulnerable populations or overburdened communities given the nature and location of the interim action.

5.10.8 Climate Change Resiliency

Site-specific vulnerabilities to climate change were assessed to determine if the long-term effectiveness of the containment wall and asphalt cap have a high likelihood of being severely comprised, and whether climate change resilience may be needed for the containment wall and asphalt cap.[7] The potential vulnerabilities that were assessed per Ecology's Sustainable Remediation guidance were: (1) sea level rise (SLR), (2) severe storms, (3) flooding, (4) landslides, (5) wildfires, and (6) droughts (Ecology 2023). The vulnerability assessment was based on data from the Vulnerability Assessment prepared by Northwest Seaport Alliance (NWSA) (NWSA 2023).[8] A key concept for this assessment is the difference between current ground surface elevations and future ground surface elevations. The low-lying areas along the eastern portion of the Property will be elevated by 2 to 5 feet relative to current conditions (see Sheet 3.00 in Appendix F for current and future ground surface elevations). The containment wall and asphalt cap were assessed in the Ecology 2023 long-term risk scenario (e.g., through the year 2100) since these interim action components could be incorporated into a final cleanup action for the TWAAFA site.

The key assessment details and results for each of the seven potential vulnerabilities were:

- SLR: Since the interim action was evaluated in the long-term risk scenario, a conservative four to six feet of SLR was considered per Ecology 2023 guidance.[9] Predicted inundation up to mean higher-high water plus 5 feet of SLR does not overlap with where the containment wall and asphalt cap will be located (NWSA 2023). Therefore, SLR is expected to have little to no impact on the long-term effectiveness of the containment wall or asphalt cap based on the nature and locations of these interim action components.
- Severe Storms: Although infrequent severe storms (e.g., extreme storm surges, extreme precipitation events) will occur more frequently in the future and will increase the potential for inundation when combined with SLR, severe storms are expected to have little to no impact on the long-term effectiveness of the containment wall or asphalt cap based on the nature and location of these interim action components.

[7] The WAC 173-340-360(3)(a)(v) requirement for cleanup actions to "provide resilience to climate change impacts that have a high likelihood of occurring and severely compromising its long-term effectiveness" does not technically apply to this interim action since WAC 173-340-200 excludes interim actions from the cleanup action definition. However, the potential need for climate change resiliency was evaluated for the containment wall and asphalt cap since these interim action components are expected to remain in place for several years. The contaminated soil contained by the wall is expected to be covered with additional fill and an asphalt cap within a relatively a short timeframe while the invasive snails are eradicated.

[8] The NWSA assessment addresses vulnerabilities for coastal flooding (including SLR), flooding, severe weather, wildfires and smoke, landslides, earthquakes, tsunamis, and volcanic activity for the Port of Tacoma, the Port of Seattle, and other strategic "Gateway" locations in the region.

[9] This is a conservative assumption since the Washington Coastal Resilience Project predicts a high-end SLR estimate between 1.9 and 3.3 feet for the Port of Tacoma by the year 2100 (NWSA 2023).

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- Flooding: The containment wall and asphalt cap are not located within the 100-year or 500-year floodplain (NWSA 2023). Although the potential for flooding will increase in the future due to SLR and severe storms, flooding is expected to have little to no impact on the long-term effectiveness of the containment wall or asphalt cap based on the nature and location of these interim action components.
- Landslides and Erosion: Although there is currently a topographic rise along the eastern boundary of the Property that could become susceptible to future landslides, a landslide at the Property is highly unlikely given the current topography. Additionally, the future Property topography will be even less susceptible to landslides with the overall raise in grade of the Property during development and the construction of the containment wall. Thus, landslides are expected to have little to no impact on the long-term effectiveness of the containment wall or asphalt cap.
- Wildfires: The Property is not vulnerable to wildfires because it is not proximate to wildlands (e.g., forested and grassland areas) and is considered "non-burnable" in the context of wildland fire potential (NWSA 2023). Further, the Site currently has limited vegetation, and the future asphalt cap and development will reduce existing vegetation. Thus, wildfires are expected to have little to no impact on the long-term effectiveness of the containment wall or asphalt cap.
- Droughts: The Port of Tacoma area has a very low drought risk for the United States (NWSA 2023), there is no current or future Site vegetation that would be affected by droughts, and droughts would not be expected to affect the functioning of the containment wall or asphalt cap. Therefore, droughts are expected to have little to no impact on the long-term effectiveness of the containment wall or asphalt cap.
- Earthquakes: Most earthquakes occur along faults. The three main factors that determine the shaking experienced in an area are the magnitude of the earthquake, the distance relative to the epicenter where the earthquake originated, and the local ground materials such as the soil and rock that affect the ground motion. FEMA has mapped and quantified the earthquake risk across the United States based on expected annual loss, social vulnerability, and community resilience. The FEMA earthquake risk index map ranks Tacoma, and therefore the Property, as a relatively high-risk area. The greatest risk earthquakes pose to the selected interim action is damage to the cap that serves to prevent direct contact exposure by creating a physical barrier between the auto fluff and potential future receptors (i.e., industrial workers). That said, major earthquakes are infrequent in Washington and, therefore, are considered low likelihood hazards to the Property and selected interim action have little to no impact on the long-term effectiveness of the containment wall or asphalt cap.

It is highly unlikely that climate change impacts would severely compromise the long-term effectiveness of the containment wall or asphalt cap. Therefore, additional interim action measures are not needed to provide climate change resilience for the containment wall and asphalt cap. However, site-specific climate change resilience measures are planned with development, including raising the overall ground surface elevation of the Property and substantially raising the elevation and incorporating industry-standard design practices throughout the design and implementation to minimize the potential impacts of climate change vulnerabilities (NWSA 2023).

5.10.9 Dust Mitigation

The containment wall excavation and handling, grading, and placement of cap fill materials have the potential to generate dust. Appropriate dust-control methods will be employed during excavation and placement of fill as necessary to prevent the generation of airborne hazardous substances. These

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control methods will include soil wetting and misting, as necessary. Should the work be completed during excessively dry weather, excavation areas may be wetted before excavation by spraying the area immediately around the excavation and spraying newly exposed soil during excavation so that visible dust emissions are controlled.

The contractor will locate a nearby water source (e.g., fire hydrant) to fill a water tank/truck and keep water readily available during the construction activities. Permission from the City is required for the use of fire hydrants. Dry excavation, dry shoveling, or dry sweeping of soil will not be allowed.

6 Interim Action Path Forward

6.1 Public Participation and Tribal Engagement for the IAP

Pursuant to WAC 173-340-430(6)(a) and WAC 173-340-600(16), Ecology will engage the public about the proposed interim action described in this IAP before approving the IAP. Ecology will utilize multiple methods to notify the public about the IAP in accordance with WAC 173-340-600(2)(a), which includes the following notification methods: publishing on Ecology's website, emailing an electronic alert to people who request an electronic alert, publishing in the Contaminated Site Register, mailing written notices to people who request a written notice, mailing written notices to people residing within the potentially affected vicinity of the interim action, sending a written notice to appropriate news media, and publishing in an appropriate newspaper. Ecology will invite members of the public to review and comment on the IAP for at least 30 days per WAC 173-340-600(2)(b). Comments received by Ecology during the public participation period will be considered by Ecology before the IAP is finalized and approved. If necessary, this section of the IAP may be updated to summarize Ecology's responses to public comments prior to finalizing the IAP.

In accordance with WAC 173-340-620, Ecology will:

- Develop a tribal engagement plan for this Property;
- Initiate meaningful engagement with affected tribes about this interim action before approving the IAP; and
- Engage with affected tribes in addition to and independent of the public participation process.[10]

6.2 Finalizing the Interim Action Design

Washington-licensed professional engineers are (and will continue to be) responsible for the preparation and completion of the interim action design. Applicable portions of the engineering design report, plans, and specifications in WAC 173-340-400(4)(a) and (b) that are not already completed and included in the IAP will be further developed and documented as the IA design is finalized. The Port team will continue advancing (1) the plan sets for the containment wall and asphalt cap, (2) the specifications for the containment wall and asphalt cap, and (3) the currently

[10] Given the Port's long-standing relationship and ongoing coordination with the Puyallup Tribe of Indians on a wide variety of projects, the Port will also engage with the Puyallup Tribe of Indians on this interim action project

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uncompleted Engineer-prepared plans (i.e., CMP, and SMP) from preliminary design to 90% design. The 90% plan sets, specifications, CMP, and SMP will be submitted to Ecology for review (see Table 6-1). It is anticipated that Ecology will complete reviews of these documents within 15 days of receipt to ensure the ability to conduct on-site work during warm-weather months when the vineyard snails are dormant. Following any Ecology comments on the 90% design, the final (100%) interim action design will be prepared and submitted to Ecology for approval.

6.3 Construction Quality Control

Construction QC is part of design and will be finalized along with the plan sets, specifications, and associated Engineer-prepared plans. The interim action design will include a variety of construction QC requirements to ensure that the interim action construction activities being conducted by the Remediation Contractor are completed correctly, effectively, and safely. The construction QC requirements will include, but are not limited to:

- Verifying actual construction wall installation match as indicated in the final design;
- Obtaining Ecology approval before importing non-commercial borrow (see Section 5.4);
- Completing materials testing for compaction of compacted fill material and hot mix asphalt;
- Implementing snail decontamination measures;
- Implementing the engineering controls;
- Implementing the CMP;
- Implementing the HASPs and associated health and safety requirements;
- Implementing the IDP if necessary;
- Conducting oversight of all Remediation Contractor activities to ensure compliance with the plan sets, specifications, Engineer-prepared plans, and permit requirements.

6.4 Permitting and State Environmental Policy Act Compliance

Per WAC 173-340-710(9), the Port is exempt from the procedural requirements of local permits/approvals and select state permits/approvals for the interim action (although the Port must comply with the associated substantive requirements). The purpose of permit/approval exemptions is to expedite cleanup of contaminated sites. However, because this interim action is being conducted in conjunction with broader development activities, including filling and grading to eradicate the snails, the Port is not seeking exemption and will permit the interim action as part of the grading/filling for snail eradication. The Port has identified the following permit/approvals for this interim action and grading/filling:

- City of Tacoma Site Development Permit - required for any earthwork over one-acre.
- City of Tacoma Right-of-Way Work Order Permit - required to enable trucks and other vehicles to transit into the Property.
- City of Tacoma Critical Areas Development Permit - required to fill wetlands on the Property.

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- Washington State Department of Ecology Administrative Order - required to fill wetlands on the Property.
- Construction Stormwater General NPDES Permit - required to appropriately manage stormwater during construction.
- Updating/obtaining applicable NPDES permit coverage for future stormwater discharges via the new stormwater utility system, required to appropriately manage stormwater after construction.
- Cultural review consultation - required for actions with Ecology oversight. The Port also is in regular communications with the Puyallup Tribe regarding work on the Property.

In addition to the permits above, this interim action requires compliance with applicable State Environmental Policy Act (SEPA) rules because the work is being conducted under an enforcement order (197-11-250). Consistent with WAC-197-11-253, Ecology will act as the SEPA lead agency and will coordinate SEPA review, meaning Ecology is responsible for reviewing the checklist, determining whether the proposal is likely to result in significant adverse environmental impacts, and issuing the appropriate SEPA determination. As part of this process, Ecology will coordinate internal and external review of the checklist and make the resulting SEPA determination available for public comment. Ecology's determination for this interim action will follow the timing and procedures under WAC 197-11-268 and Ecology's Policy 103a: Coordination of SEPA and MTCA (Ecology 2004).

6.5 Public Works Contracting

The Port will competitively bid the interim action implementation work for the to-be-determined Remediation Contractor as a public works solicitation. The solicitation will include this IAP, the final plan sets, the final specifications, and the final Engineer-prepared plans as attachments. The solicitation will be posted and advertised in accordance with standard Port procurement procedures, such as posting on the Port's procurement website (https://www.portoftacoma.com/business/contracting/procurement) and sending email updates to all Port procurement subscribers. The bidding process will include opportunities for bidders to ask questions and attend a Site visit with the Port. The Port will collect bids on the time and date advertised. The Port will review each bid proposal with the evaluation requirements included in the solicitation and select the Remediation Contractor that best satisfies the evaluation requirements. The Port will then enter into a contract with the selected Remediation Contractor.

6.6 Interim Action Completion Report

Following construction, an interim action completion report will be prepared in compliance with WAC 173-340-400(6). The completion report will document the final excavation extents, observed subgrade conditions, and the TWAAFA site condition following excavation and backfill. The completion report will include as-built drawings, trucking and disposal tickets, analytical results, any deviations from this IAP, construction logs, and relevant photographs.

6.7 Project Schedule and Reporting

Following Ecology's review of this IAP, the Port and MFA will address Ecology comments and submit the revised IAP for public review, in accordance with the AO, EO, and WAC 173-340-600. Following

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the 30-day public review and comment period, Ecology will address public comments, and the IAP will be revised as needed, then finalized.

Following Ecology's approval of the IAP, the Port will submit 90% plan set with specifications, the CMP and SMP for Ecology review. Following Ecology review of 90% plans, the Port will submit the final (100%) design set for Ecology approval. Permitting is expected to be completed between 90 and 100% design. Permits are anticipated to be acquired by Q2 2026. Following approval of final design, the Port will bid, contract, and schedule the proposed work. To minimize potential redistribution of the vineyard snails, construction work should be performed during the dry season following permit approvals, which is anticipated for Summer 2026. The table below identifies the proposed schedule for design, construction and closeout.

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Table 6-1: Project Schedule

Task	Leading Responsible Party	Ecology Review (X)	Anticipated Start Date	Anticipated End Date
IAP Public Comment Period	Ecology	--	April 15, 2026	May 15, 2026
Finalize IAP	Ecology	X	May 15, 2026	June 15, 2026
CMP and SMP	Port	X	March 13, 2026	April 10, 2026
90% Design	Port	X	March 13, 2026	March 31, 2026
100% Design (Final)	Port	X	April 24, 2026	May 11, 2026
Project Permitting and Notifications				
ECY SEPA Checklist Review	Port	X	February 3, 2026	April 15, 2026
Cultural Resource Consultation	Ecology	--	At least six weeks prior to ground disturbing activities.	–
Project Permitting	Port	--	Ongoing	Q2 2026
Construction				
Bid Solicitation	Port	--	May 25, 2026	July 1, 2026
Notice of Award	Port	--	July 13, 2026	–
Construction	Port	--	August 11, 2026	November 2, 2026
Contractor Stormwater Pollution Prevention Plan[11]	Contractor	X	July 31, 2026	August 7, 2026
Contractor Health & Safety Plan	Contractor	–[12]	July 31, 2026	August 7, 2026
Contractor Spill Prevention and Countermeasure Plan	Contractor	–[12]	July 31, 2026	August 7, 2026
Construction Close Out				
Draft Interim Action Completion Report	Port	X	After completion of interim action	–
Regulatory review	Ecology	--	After submittal of draft interim action completion report	–
Incorporate regulatory comments and Finalize Interim Action Completion Report	Port	X	After receipt of regulatory comments	–
Environmental Covenant Recorded	Port	X	After finalization of interim action completion report	–

[11] Through Ecology's construction stormwater general NPDES permit process.
[12] To be provided to Ecology for review, but not approval.

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Limitations

The services undertaken in completing this plan were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This plan is solely for the use and information of our client unless otherwise noted. Any reliance on this plan by a third party is at such party's sole risk.

Opinions and recommendations contained in this plan apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this plan.

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Figures

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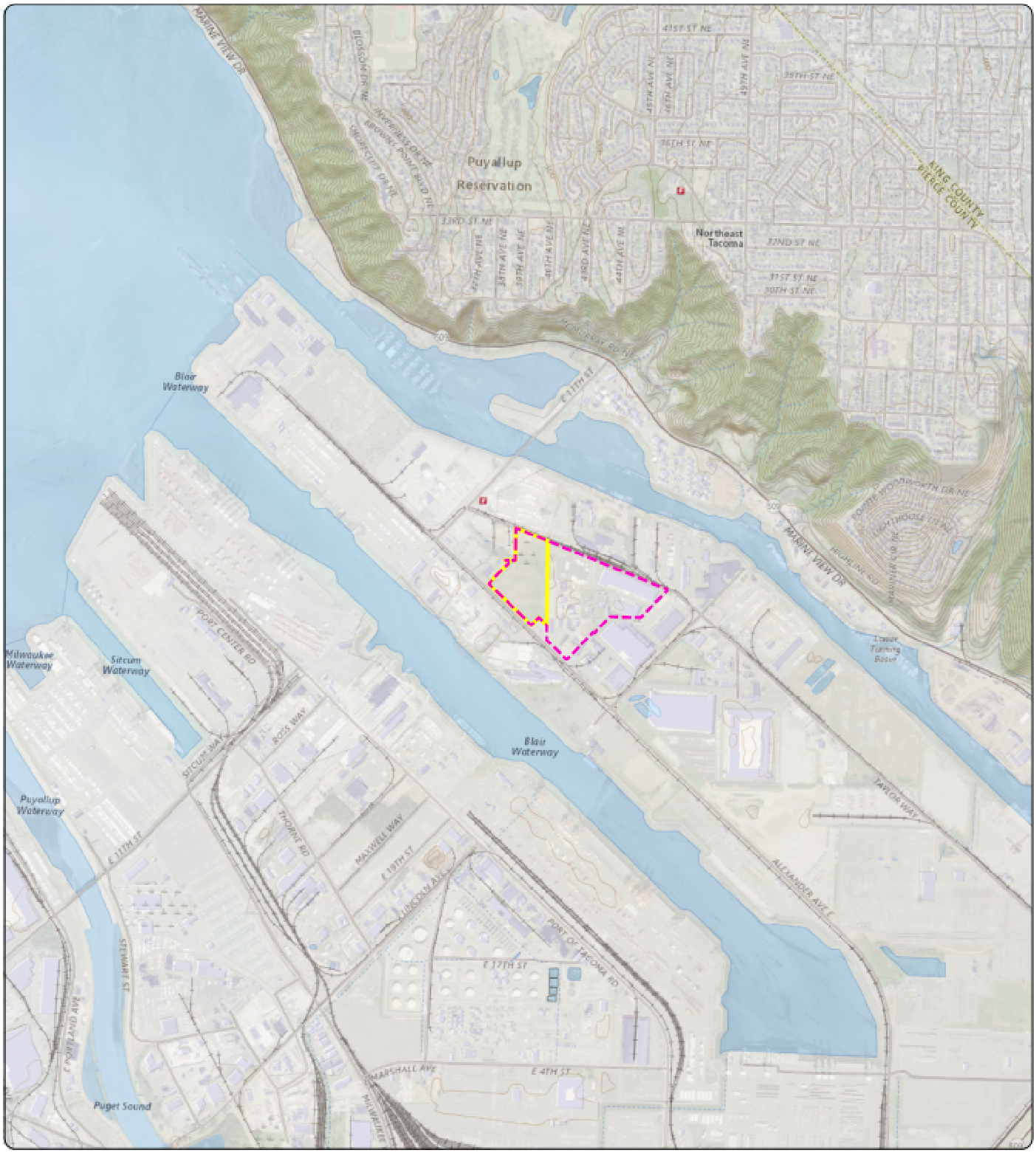

Notes
U.S. Geological Survey (2021) 7.5-minute topographic quadrangle: Tacoma.
Township 21 North, Range 3 East, Section 35.
TWAAFA = Taylor Way and Alexander Avenue Fill Area.

Data Source
Tax parcel obtained from Pierce County; TWAAFA site boundary obtained from Exhibit A of Agreed Order No. DE 14260.

Legend

- TWAAFA Boundary
- Hylebos Marsh Property

Figure 1-1
Property Location

Hylebos Marsh Property
1205 Alexander Avenue and
1300 Taylor Way
Tacoma, WA

0 1,000 2,000
Feet

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Project: MFA0615.20.010 Produced By: stumper Reviewed By: jkershaw Print Date: 6/21/2023 Path: X:\0615.20\10\Proj\MXD\615_20_010_100_scrn\Fig 1-1 Property Location

Figure 2-1
Property Features

Hylebos Marsh Property
1212 Taylor Way
Tacoma, WA

Legend

- Monitoring Well
- Approximate Extent of Autofluff
- Extent of Sloped Topography
- Delineated Wetland Boundary
- City of Tacoma Easement (in process of being removed)
- TWAAFA Site Boundary
- Hylebos Marsh Property
- Parcel

Notes
DOF = Dalton, Olmsted & Fuglevand.
TWAAFA = Taylor Way and Alexander Avenue Fill Area.

0 150
Feet

Data Sources
Parcels obtained from Pierce County; TWAAFA site boundary obtained from Exhibit A of Agreed Order No. DE 14360; existing monitoring well locations obtained from Table 3 of DOF's Revised Groundwater Monitoring Plan (April 2022); delineated wetland boundaries obtained from *Port of Tacoma Parcel 127 Critical Areas Study* (Confluence 2024); topographical survey obtained from from Sitts & Hill Survey (November 2024).

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Figure 2-2
Preliminary Development Concept Plan

Hylebos Marsh Property
1212 Taylor Way
Tacoma, WA

Legend

- Conceptual Building Location
- Conceptual Parking Location
- Ecology Block Wall, or Equivalent
- Extent of Sloped Topography
- Capping Area and Approximate Extent of Autofluff on Property
- TWAAFA Site Boundary
- Hylebos Marsh Property

Note
TWAAFA = Taylor Way and Alexander Avenue Fill Area.

0 150
Feet

Data Source
Aerial photograph (June 2024) obtained from Google.

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Figure 2-3
Soil Sample Locations

Hylebos Marsh Property
1212 Taylor Way
Tacoma, WA

Legend

- Hand Auger
- Monitoring Well
- Boring
- Exceedance of MTCA Method A Industrial CUL
- Composite Sample Area
- Approximate Extent of Autofluff
- Extent of Sloped Topography
- TWAAFA Site Boundary
- Hylebos Marsh Property
- Parcel

Notes
CUL = cleanup level.
DOF = Dalton, Olmsted & Fuglevand.
MTCA = Model Toxics Control Act.
TWAAFA = Taylor Way and Alexander Avenue Fill Area.

0 100
Feet

Data Sources
Parcels obtained from Pierce County; TWAAFA site boundary obtained from Exhibit A of Agreed Order No. DE 14260; previous sample locations georeferenced from DOF Data Gaps Work Plan; topographical survey obtained from from Sitts & Hill Survey (November 2024).

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Figure 2-4
Groundwater Sample Locations

Hylebos Marsh Property
1212 Taylor Way
Tacoma, WA

Legend

- Existing Monitoring Well
- Previous Monitoring Well
- Boring
- Approximate Extent of Autofluff
- Extent of Sloped Topography
- TWAAFA Site Boundary
- Hylebos Marsh Property
- Parcel

Notes
DOF = Dalton, Olmsted & Fuglevand.
TWAAFA = Taylor Way and Alexander Avenue Fill Area.

0 100
Feet

Data Sources
Parcels obtained from Pierce County; TWAAFA site boundary obtained from Exhibit A of Agreed Order No. DE 14269; previous groundwater sample locations georeferenced from DOF Data Gaps Work Plan (October 2022); existing monitoring well locations obtained from Table 3 of DOF's Revised Groundwater Monitoring Plan (April 2022); topographical survey obtained from from Sitts & Hill Survey (November 2024).

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Figure 5-1
Proposed Interim Action Components

Hylebos Marsh Property
1212 Taylor Way
Tacoma, WA

Legend

- Monitoring Well for Decommissioning
- Ecology Block Wall, or Equivalent
- Sheet Pile Wall
- Temporary Access Ramp (approximate)
- Proposed Staging and Work Area
- Capping Area and Approximate Extent of Autofluff on Property
- Extent of Sloped Topography
- TWAAFA Site Boundary
- Property Area To Be Graded and Filled
- Hylebos Marsh Property
- Parcel

Notes

Sloped area outside of the autofluff fill extents to be excavated and regraded across the property to eradicate snails.

Prior to site grading and capping activities, all monitoring wells on the Property will be decommissioned in accordance with WAC 173-160-151.

TWAAFA = Taylor Way and Alexander Avenue Fill Area.
WAC = Washington Administrative Code.

0 150
Feet

Data Sources

Parcels obtained from Pierce County; TWAAFA site boundary obtained from Exhibit A of Agreed Order No. DE 14260; topographical survey obtained from from Sitts & Hill Survey (November 2024).

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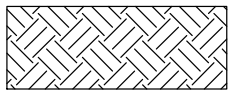
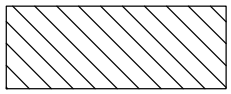
NOTES:

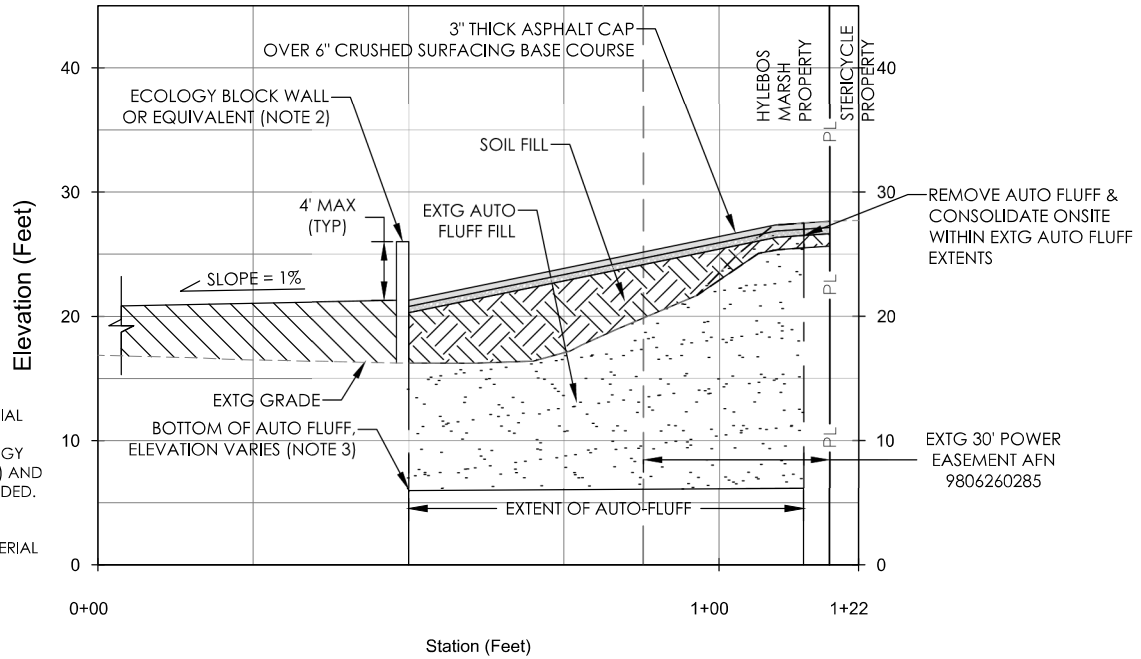
1. VERTICAL DATUM IS MEAN LOWER LOW WATER, 1983-2001 EPOCH.
2. THE ECOLOGY BLOCK WALL (OR EQUIVALENT LOW PERMEABILITY WALL) SPECIFICATIONS ARE CONCEPTUAL AT THIS STAGE AND WILL BE FINALIZED DURING FUTURE DESIGN.
3. THE VERTICAL EXTENT OF AUTO FLUFF IS APPROXIMATE AS SHOWN AND VARIES BETWEEN 4.8 FEET AND 19.8 FEET BASED ON 2024 SUBSURFACE INVESTIGATION DATA.
4. THE CAP WILL BE DESIGNED TO ENSURE THAT PONDING OR ACCUMULATION OF WATER DOES NOT OCCUR ON TOP OR DOWNSLOPE OF THE CAPPED MATERIAL. THE CAP AND WALL WILL BE DESIGNED TO PREVENT PONDING AND QUICKLY CHANNEL WATER OFF OF THE CAP AND INTO AN APPROPRIATE STORMWATER SYSTEM.
5. SOIL FILL WITHIN THE CONTAINMENT AREA IS ANTICIPATED TO INCLUDE EXCAVATED MATERIAL REMOVED TO FACILITATE THE CONTAINMENT WALL (ECOLOGY BLOCK WALL OR EQUIVALENT) AND IMPORTED CLEAN FILL, AS NEEDED.



INCLUDES EXCAVATED MATERIAL REMOVED TO FACILITATE THE CONTAINMENT WALL (ECOLOGY BLOCK WALL OR EQUIVALENT) AND IMPORTED CLEAN FILL, AS NEEDED.



INCLUDES IMPORTED FILL MATERIAL TO RAISE GRADE.



PROFILE VIEW OF AUTO FLUFF INTERIM ACTION
HORIZONTAL SCALE: 1" = 20' VERTICAL SCALE: 1" = 10'
VERTICAL EXAGGERATION: 2

1 CROSS SECTION DETAIL

Scale: As Noted

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This figure prepared as supplemental visual information only and should not be used for construction purposes. Only plan sheets approved, stamped and signed by a registered professional engineer in the state of governing jurisdiction shall be used for construction. Additionally, only plans approved by the applicable governing jurisdiction(s) shall be used for final construction unless otherwise expressly noted in writing by the engineer of record.
IMAGE REFERENCE: ©2024 MICROSOFT CORPORATION EARTHSTAR GEOGRAPHICS SIO

SCALE AS NOTED

NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

Figure 5-2
Hylebos Marsh Interim Action Plan - Taylor Way and Alexander Avenue Fill Area
Washington

Filepath: G:\00_MFA Civil 3D\00_PROJECTS\0618.20 Port of Tacoma - TWAAFA\EXHIBIT\Figure 1_Site Overview.dwg
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Tables

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Table 2-1
Boring and Well Log Summary
Hylebos Marsh Interim Action, Port of Tacoma

Boring / Well ID	Installation Date	Contractor	Drilling Method	Boring Depth (ft bgs)	Nominal Borehole Diameter (inches)	Screen Interval (ft bgs)	Screen Size (inches)	Nominal Well Diameter (inches)	Well Type	Screened Hydrogeologic Unit	Water Level Gauging Date	DTW (ft bgs)	Water Level Elevation (NAVD88)
SB-1	03/28/1991	Soil Sampling Service	HSA	20	4	14 - 19	0.010	2	Permanent[a]	Deep Aquifer	–	–	–
SB-1A	03/28/1991	Soil Sampling Service	HSA	11	4	5 - 10	0.010	2	Permanent	Shallow Aquifer	12/12/2023	2.06	13.40
SB-2	03/29/1991	Soil Sampling Service	HSA	20	4	15 - 20	0.010	2	Permanent	Deep Aquifer	–	–	--
SB-2A	03/29/1991	Soil Sampling Service	HSA	11.5	4	6 - 11	0.010	2	Permanent	Shallow Aquifer	12/12/2023	3.63	11.40
SB-3	03/29/1991	Soil Sampling Service	HSA	26	4	21 - 26	0.010	2	Permanent[a]	Deep Aquifer	–	–	–
SB-3A	03/29/1991	Soil Sampling Service	HSA	11.5	4	6 - 11	0.010	2	Permanent	Shallow Aquifer	12/13/2023	2.87	13.83
SB-4	04/01/1991	Soil Sampling Service	HSA	31	4	23 - 28	0.010	2	Permanent[a]	Deep Aquifer	–	–	–
SRI-16	01/18/2002	Cascade Drilling	Direct Push	12	4.25	8 - 12	0.010	2	Temporary	Shallow Aquifer	–	--	–
SR-16D	01/18/2002	Cascade Drilling	Direct Push	27	4.25	23 - 27	0.010	2	Temporary	Deep Aquifer	–	–	–
SRI-17	01/16/2002	Cascade Drilling	Direct Push	9	4.25	5 - 9	0.010	2	Temporary	Shallow Aquifer	–	–	--
SR-17D	01/16/2002	Cascade Drilling	Direct Push	24	4.25	20 - 24	0.010	2	Temporary	Deep Aquifer	–	--	–
SRI-18	01/17/2002	Cascade Drilling	Direct Push	10	4.25	4 - 8	0.010	2	Temporary	Shallow Aquifer	–	–	--
SRI-18D	01/17/2002	Cascade Drilling	Direct Push	22	4.25	17-21	0.010	2	Temporary	Deep Aquifer	–	–	--
SRI-19	01/17/2002	Cascade Drilling	Direct Push	9	4.25	5 - 9	0.010	2	Temporary	Shallow Aquifer	–	–	--
SRI-19D	01/17/2002	Cascade Drilling	Direct Push	36	4.25	32 - 36	0.010	2	Temporary	Deep Aquifer	–	–	--
SRI-32	02/03/2002	--	Direct Push	9	4.25	5 - 9	0.010	2	Temporary	Shallow Aquifer	–	--	–
SRI-32D	02/03/2002	--	Direct Push	29	4.25	22 - 26	0.010	2	Temporary	Deep Aquifer	–	--	–
SRI-33	02/02/2002	--	Direct Push	12	4.25	5 - 9	0.010	2	Temporary	Shallow Aquifer	–	–	–
SRI-33D	02/02/2002	--	Direct Push	24	4.25	19 - 23	0.010	2	Temporary	Deep Aquifer	–	--	–
SRI-34	02/02/2002	--	Direct Push	11	4.25	5 - 9	0.010	2	Temporary	Shallow Aquifer	–	–	–
SRI-34D	02/02/2002	--	Direct Push	26	4.25	20 - 24	0.010	2	Temporary	Deep Aquifer	–	--	–
TWA-SB1	09/24/2019	Holt Drilling	Direct Push	10	2	3 - 8	0.010	–	Temporary	Shallow Aquifer	–	--	--
TWA-SB2	09/24/2019	Holt Drilling	Direct Push	10	2	3.5 - 8.5	0.010	–	Temporary	Shallow Aquifer	–	--	–
TWA-SB3	09/24/2019	Holt Drilling	Direct Push	12	2	3.5 - 8.5	0.010	–	Temporary	Shallow Aquifer	–	–	–
TWA-SB4	09/24/2019	Holt Drilling	Direct Push	10	2	3.5 - 8.5	0.010	–	Temporary	Shallow Aquifer	–	–	–
TWA-5	09/25/2019	Holt Drilling	Sonic	60	4	25 - 30, 35 - 40, 45 - 50	0.010	2	Temporary	Deep Aquifer	–	–	--
TWA-6	09/25/2019	Holt Drilling	Sonic	60	4	15 - 20, 25 - 30, 35 - 40, 45 - 50	0.010	2	Temporary	Deep Aquifer	–	–	--

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Table 2-1
Boring and Well Log Summary
Hylebos Marsh Interim Action, Port of Tacoma

Boring / Well ID	Installation Date	Contractor	Drilling Method	Boring Depth (ft bgs)	Nominal Borehole Diameter (inches)	Screen Interval (ft bgs)	Screen Size (inches)	Nominal Well Diameter (inches)	Well Type	Screened Hydrogeologic Unit	Water Level Gauging Date	DTW (ft bgs)	Water Level Elevation (NAVD88)
TWA-5D	11/07/2019	Holocene Drilling	Sonic	30	4	25 - 30	0.010	2	Permanent	Deep Aquifer	12/13/2023	11.67	6.47
TWA-6D	11/07/2019	Holocene Drilling	Sonic	30	4	25 - 30	0.010	2	Permanent	Deep Aquifer	12/13/2023	11.32	6.33
TWA-HA-01	08/05/2024	MFA	Hand Auger	2	2	–	–	–	–	–	–	–	–
TWA-HA-02	08/05/2024	MFA	Hand Auger	2	2	–	–	–	–	–	–	–	–
TWA-HA-03	08/05/2024	MFA	Hand Auger	2	2	–	–	–	–	–	–	–	–
TWA-SB-09	08/12/2024	AEC	Direct Push	15	2	–	–	–	–	–	–	–	–
TWA-SB-10	08/12/2024	AEC	Direct Push	20	2	–	–	–	–	–	–	–	–
TWA-SB-11	08/13/2024	AEC	Direct Push	20	2	–	–	–	–	–	–	–	–
TWA-SB-12	08/13/2024	AEC	Direct Push	20	2	–	–	–	–	–	–	–	–
TWA-SB-13	08/13/2024	AEC	Direct Push	20	2	–	–	–	–	–	–	–	–
TWA-SB-14	08/13/2024	AEC	Direct Push	20	2	–	–	–	–	–	–	–	–
TWA-SB-15	08/13/2024	AEC	Direct Push	15	2	–	–	–	–	–	–	–	–
TWA-SB-16	08/13/2024	AEC	Direct Push	15	2	–	–	–	–	–	–	–	–

Notes

– = not available.

AEC = Anderson Environmental Contracting, LLC.

DTW = depth to water.

ft bgs = feet below ground surface.

HSA = hollow-stem auger.

MFA = Maul Foster & Alongi, Inc.

NAVD88 = North American Vertical Datum of 1988.

[a]Monitoring well decommissioned by Holt Drilling in December 2019.

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Table 2-2
Summary of Soil Analytical Data
Hylebos Marsh Interim Action, Port of Tacoma

Location:	MTCA Method A[1]	Washington State Background Metals, Puget Sound[2]	TP010203	TP040507	TP08091011	TP121314	SRI-16	SRI-17	SRI-18	SRI-19	SRI-32	SRI-33	SRI-34	TWA-SB-1	TWA-SB-2
Sample Name:			TP010203	TP040507	TP08091011	TP121314	SRI-16	SRI-17	SRI-18	SRI-19	SRI-32	SRI-33	SRI-34	SB-1	SB-2
Sample Date:	Industrial Properties		04/01/1991	04/01/1991	04/01/1991	04/01/1991	01/18/2002	01/16/2002	01/16/2002	01/17/2002	02/03/2002	02/02/2002	02/02/2002	09/24/2019	09/24/2019
Sample Depth (ft bgs):			Composite	Composite	Composite	Composite	4.0	4.0	3.0	4.0	4.0	2.0	4.0	5-6	6.7-7
Hydrocarbon Identification (detect/non-detect)															
Gasoline	NV	NV	–	--	–	–	–	–	–	–	–	--	--	–	–
Diesel	NV	NV	–	--	–	–	–	–	–	–	–	--	--	–	–
Lube oil	NV	NV	–	--	–	–	–	–	–	–	–	--	--	–	–
TPH (mg/kg)															
Gasoline-range hydrocarbons	30[a]	NV	–	--	–	–	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Diesel-range hydrocarbons	2,000	NV	–	--	--	--	19.6	10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U
Motor-oil-range hydrocarbons	2,000	NV	–	--	--	–	66 J	25 U	25 U	25 U	25 U	25 U	25 U	250 U	250 U
Diesel+Oil[b]	2,000	NV	–	--	--	--	85.6 J	25 U	25 U	25 U	25 U	25 U	25 U	250 U	250 U
Total Metals (mg/kg)															
Arsenic	20	7	1.6	1.3	1.8	1.7	6.27	1.64	1.49	0.974	1.67 J	1.22 J	1.3 J	3.53	1.63
Cadmium	2.0	1	–	--	–	–	–	–	–	–	–	--	--	1 U	1 U
Chromium	NV	48	–	--	–	–	–	–	–	–	–	--	--	19.6	9.92
Copper	NV	36	–	--	–	–	–	–	–	–	–	--	--	17	8.59
Lead	1,000	24	1.3 U	1.3	6.5	3.6	8.6	1.2	1.14	1.41	1.24	0.983	1.03	17.8	3.25
Manganese	NV	1,200	–	--	--	--	–	–	–	–	–	–	–	104	44.7
Mercury	2.0	0.07	–	--	–	–	–	–	–	–	–	--	--	0.2 U	0.2 U
Nickel	NV	48	–	--	–	–	–	–	–	–	–	–	–	8.27	5.36
Selenium	NV	NV	–	--	–	–	–	–	–	–	–	--	--	1 U	1 U
Zinc	NV	85	–	--	–	–	–	–	–	–	–	–	–	36.4	17.9
PCB Aroclors (mg/kg)															
Aroclor 1016	NV	NV	–	--	–	–	–	–	–	–	–	--	--	0.02 U	0.02 U
Aroclor 1221	NV	NV	–	--	–	–	–	–	–	–	–	--	--	0.02 U	0.02 U
Aroclor 1232	NV	NV	–	--	–	–	–	–	–	–	–	--	--	0.02 U	0.02 U
Aroclor 1242	NV	NV	–	--	–	–	–	–	–	–	–	--	--	0.02 U	0.02 U
Aroclor 1248	NV	NV	–	--	–	–	–	–	–	–	–	--	--	0.02 U	0.02 U
Aroclor 1254	NV	NV	–	--	–	–	–	–	–	–	–	--	--	0.02 U	0.02 U
Aroclor 1260	NV	NV	–	--	–	–	–	–	–	–	–	--	--	0.02 U	0.02 U
Aroclor 1262	NV	NV	–	--	–	–	–	–	–	–	–	--	--	0.02 U	0.02 U
Aroclor 1268	NV	NV	–	--	–	–	–	–	–	–	–	--	--	0.02 U	0.02 U
Total PCBs[c]	10.0	NV	ND[d]	ND[d]	ND[d]	ND[d]	–	–	–	–	–	–	–	0.02 U	0.02 U

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Table 2-2
Summary of Soil Analytical Data
Hylebos Marsh Interim Action, Port of Tacoma

Location:	MTCA Method A[1]	Washington State Background Metals, Puget Sound[2]	TP010203	TP040507	TP08091011	TP121314	SRI-16	SRI-17	SRI-18	SRI-19	SRI-32	SRI-33	SRI-34	TWA-SB-1	TWA-SB-2
Sample Name:			TP010203	TP040507	TP08091011	TP121314	SRI-16	SRI-17	SRI-18	SRI-19	SRI-32	SRI-33	SRI-34	SB-1	SB-2
Sample Date:	Industrial Properties		04/01/1991	04/01/1991	04/01/1991	04/01/1991	01/18/2002	01/16/2002	01/16/2002	01/17/2002	02/03/2002	02/02/2002	02/02/2002	09/24/2019	09/24/2019
Sample Depth (ft bgs):			Composite	Composite	Composite	Composite	4.0	4.0	3.0	4.0	4.0	2.0	4.0	5-6	6.7-7
VOCs (mg/kg)															
1,1,1,2-Tetrachloroethane	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
1,1,1-Trichloroethane	2.0	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
1,1,2,2-Tetrachloroethane	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
1,1,2-Trichloroethane	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
1,1-Dichloroethane	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
1,1-Dichloroethene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
1,1-Dichloropropene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
1,2,3-Trichlorobenzene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.25 U	0.25 U
1,2,3-Trichloropropane	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
1,2,4-Trichlorobenzene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.25 U	0.25 U
1,2,4-Trimethylbenzene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
1,2-Dibromo-3-chloropropane	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
1,2-Dibromoethane	0.0050	NV	–	--	–	–	–	–	–	–	–	--	--	0.05 U	0.05 U
1,2-Dichlorobenzene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
1,2-Dichloroethane	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
1,2-Dichloropropane	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
1,3,5-Trimethylbenzene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
1,3-Dichlorobenzene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
1,3-Dichloropropane	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
1,4-Dichlorobenzene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
1,4-Dioxane	NV	NV	–	--	–	–	ND[d]	ND[d]	ND[d]	ND[d]	ND[d]	ND[d]	ND[d]	–	–
2,2-Dichloropropane	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
2-Butanone	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
2-Chlorotoluene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
2-Hexanone	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
4-Chlorotoluene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
4-Isopropyltoluene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
4-Methyl-2-pentanone	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
Acetone	NV	NV	–	--	--	–	–	–	–	–	–	–	–	0.62	0.5 U
Benzene	0.030	NV	–	–	–	–	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.03 U	0.03 U
Bromobenzene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
Bromodichloromethane	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
Bromoform	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
Bromomethane	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
Carbon tetrachloride	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
Chlorobenzene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
Chloroethane	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U

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Table 2-2
Summary of Soil Analytical Data
Hylebos Marsh Interim Action, Port of Tacoma

Location:	MTCA Method A[1]	Washington State Background Metals, Puget Sound[2]	TP010203	TP040507	TP08091011	TP121314	SRI-16	SRI-17	SRI-18	SRI-19	SRI-32	SRI-33	SRI-34	TWA-SB-1	TWA-SB-2
Sample Name:			TP010203	TP040507	TP08091011	TP121314	SRI-16	SRI-17	SRI-18	SRI-19	SRI-32	SRI-33	SRI-34	SB-1	SB-2
Sample Date:	Industrial Properties		04/01/1991	04/01/1991	04/01/1991	04/01/1991	01/18/2002	01/16/2002	01/16/2002	01/17/2002	02/03/2002	02/02/2002	02/02/2002	09/24/2019	09/24/2019
Sample Depth (ft bgs):			Composite	Composite	Composite	Composite	4.0	4.0	3.0	4.0	4.0	2.0	4.0	5-6	6.7-7
VOCs cont. (mg/kg)															
Chloroform	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
Chloromethane	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
cis-1,2-Dichloroethene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
cis-1,3-Dichloropropene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
Dibromochloromethane	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
Dibromomethane	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
Dichlorodifluoromethane (Freon 12)	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
Ethylbenzene	6.0	NV	–	--	–	–	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U
Hexachlorobutadiene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.25 U	0.25 U
Isopropylbenzene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
m,p-Xylene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.1 U	0.1 U
Methyl tert-butyl ether	0.10	NV	–	–	–	--	--	--	–	–	–	–	–	0.05 U	0.05 U
Methylene chloride	0.020	NV	–	--	–	–	–	–	–	–	–	--	--	0.5 U	0.5 U
Naphthalene	5.0	NV	–	--	–	–	–	–	–	–	–	--	--	0.05 U	0.05 U
n-Hexane	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.25 U	0.25 U
n-Propylbenzene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
o-Xylene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
sec-Butylbenzene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
Styrene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
tert-Butylbenzene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
Tetrachloroethene (PCE)	0.050	NV	–	–	–	–	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.025 U	0.025 U
Toluene	7.0	NV	–	--	–	–	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U
trans-1,2-Dichloroethene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
trans-1,3-Dichloropropene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
Trichloroethene (TCE)	0.030	NV	–	–	–	–	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.02 U	0.02 U
Trichlorofluoromethane (Freon 11)	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
Vinyl chloride	NV	NV	–	--	–	–	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.05 U	0.05 U
Xylenes (total)[e]	9.0	NV	–	--	–	–	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U

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Table 2-2
Summary of Soil Analytical Data
Hylebos Marsh Interim Action, Port of Tacoma

Location:	MTCA Method A[1]	Washington State Background Metals, Puget Sound[2]	TP010203	TP040507	TP08091011	TP121314	SRI-16	SRI-17	SRI-18	SRI-19	SRI-32	SRI-33	SRI-34	TWA-SB-1	TWA-SB-2
Sample Name:			TP010203	TP040507	TP08091011	TP121314	SRI-16	SRI-17	SRI-18	SRI-19	SRI-32	SRI-33	SRI-34	SB-1	SB-2
Sample Date:	Industrial Properties		04/01/1991	04/01/1991	04/01/1991	04/01/1991	01/18/2002	01/16/2002	01/16/2002	01/17/2002	02/03/2002	02/02/2002	02/02/2002	09/24/2019	09/24/2019
Sample Depth (ft bgs):			Composite	Composite	Composite	Composite	4.0	4.0	3.0	4.0	4.0	2.0	4.0	5-6	6.7-7
SVOCs (mg/kg)															
1,2,4-Trichlorobenzene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
1,2-Dichlorobenzene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
1,2-Diphenylhydrazine	NV	NV	–	--	–	–	–	–	–	–	–	--	--	–	–
1,3-Dichlorobenzene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
1,4-Dichlorobenzene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
1-Methylnaphthalene	NV	NV	–	--	--	--	–	–	–	–	–	–	–	0.012	0.01 U
2,4,5-Trichlorophenol	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
2,4,6-Trichlorophenol	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
2,4-Dichlorophenol	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
2,4-Dimethylphenol	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
2,4-Dinitrophenol	NV	NV	–	--	–	–	–	–	–	–	–	–	–	1.5 U	1.5 U
2,4-Dinitrotoluene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.25 U	0.25 U
2,6-Dinitrotoluene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.25 U	0.25 U
2-Chloronaphthalene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
2-Chlorophenol	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
2-Methylnaphthalene	NV	NV	–	--	--	--	–	–	–	–	–	–	–	0.014	0.01 U
2-Methylphenol	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
2-Nitroaniline	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.25 U	0.25 U
2-Nitrophenol	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
3- & 4-Methylphenol (m,p-Cresol)	NV	NV	–	--	–	–	–	–	–	–	–	--	--	1 U	1 U
3,3'-Dichlorobenzidine	NV	NV	–	--	–	–	–	–	–	–	–	--	--	–	–
3-Nitroaniline	NV	NV	–	--	–	–	–	–	–	–	–	--	--	5 U	5 U
4,6-Dinitro-2-methylphenol	NV	NV	–	--	–	–	–	–	–	–	–	–	–	1.5 U	1.5 U
4-Bromophenyl phenyl ether	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
4-Chloro-3-methylphenol	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
4-Chloroaniline	NV	NV	–	--	–	–	–	–	–	–	–	--	--	5 U	5 U
4-Chlorophenyl phenyl ether	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
4-Nitroaniline	NV	NV	–	--	–	–	–	–	–	–	–	--	--	5 U	5 U
4-Nitrophenol	NV	NV	–	--	–	–	–	–	–	–	–	–	–	1.5 U	1.5 U
Acenaphthene	NV	NV	–	--	--	–	–	–	–	–	–	–	–	0.01 U	0.046
Acenaphthylene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U
Anthracene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U
Benzo(a)anthracene	NV	NV	–	--	--	--	–	–	–	–	–	–	–	0.016	0.01 U
Benzo(a)pyrene	2.0	NV	–	--	--	--	–	–	–	–	–	–	–	0.015	0.01 U
Benzo(b)fluoranthene	NV	NV	–	--	--	--	–	–	–	–	–	–	–	0.021	0.01 U
Benzo(ghi)perylene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U
Benzo(k)fluoranthene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U

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Table 2-2
Summary of Soil Analytical Data
Hylebos Marsh Interim Action, Port of Tacoma

Location:	MTCA Method A[1]	Washington State Background Metals, Puget Sound[2]	TP010203	TP040507	TP08091011	TP121314	SRI-16	SRI-17	SRI-18	SRI-19	SRI-32	SRI-33	SRI-34	TWA-SB-1	TWA-SB-2
Sample Name:			TP010203	TP040507	TP08091011	TP121314	SRI-16	SRI-17	SRI-18	SRI-19	SRI-32	SRI-33	SRI-34	SB-1	SB-2
Sample Date:	Industrial Properties		04/01/1991	04/01/1991	04/01/1991	04/01/1991	01/18/2002	01/16/2002	01/16/2002	01/17/2002	02/03/2002	02/02/2002	02/02/2002	09/24/2019	09/24/2019
Sample Depth (ft bgs):			Composite	Composite	Composite	Composite	4.0	4.0	3.0	4.0	4.0	2.0	4.0	5-6	6.7-7
SVOCs cont. (mg/kg)															
Benzoic acid	NV	NV	–	--	–	–	–	–	–	–	–	–	–	2.5 U	2.5 U
Benzyl alcohol	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
Bis(2-chloro-1-methylethyl) ether	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
Bis(2-chloroethoxy)methane	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
Bis(2-chloroethyl) ether	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
Bis(2-ethylhexyl) phthalate	NV	NV	0.047	0.12	0.17 U	0.17 U	–	–	–	–	–	--	--	0.8 U	0.8 U
Butylbenzyl phthalate	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
Carbazole	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
Chrysene	NV	NV	–	--	--	--	–	–	–	–	–	–	–	0.021	0.01 U
Dibenzo(a,h)anthracene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U
Dibenzofuran	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
Diethyl phthalate	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
Dimethyl phthalate	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
Di-n-butyl phthalate	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
Di-n-octyl phthalate	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
Fluoranthene	NV	NV	–	--	--	--	–	–	–	–	–	–	–	0.036	0.054
Fluorene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U
Hexachlorobenzene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
Hexachlorobutadiene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
Hexachlorocyclopentadiene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.15 U	0.15 U
Hexachloroethane	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
Indeno(1,2,3-cd)pyrene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.01 U	0.01 U
Isophorone	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
Naphthalene	5.0	NV	–	--	–	–	–	–	–	–	–	--	--	0.01	0.01 U
Nitrobenzene	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
N-Nitrosodimethylamine	NV	NV	–	--	–	–	–	–	–	–	–	--	--	–	–
N-Nitrosodiphenylamine	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
N-Nitrosodipropylamine	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.05 U	0.05 U
Pentachlorophenol	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.25 U	0.25 U
Phenanthrene	NV	NV	–	--	--	--	–	–	–	–	–	–	–	0.023	0.01 U
Phenol	NV	NV	–	--	–	–	–	–	–	–	–	–	–	0.5 U	0.5 U
Pyrene	NV	NV	–	--	--	--	–	–	–	–	–	–	–	0.029	0.045
Naphthalenes, total[f]	5.0	NV	–	--	–	–	–	–	–	–	–	--	--	0.036	0.01 U
cPAH TEQ[g][3]	2.0	NV	–	--	--	--	–	–	–	–	–	–	–	0.020	0.01 U

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Table 2-2
Summary of Soil Analytical Data
Hylebos Marsh Interim Action, Port of Tacoma

Location:	MTCA Method A[1]	Washington State Background Metals, Puget Sound[2]	TWA-SB-3		TWA-SB-4	TWA-5		TWA-SB-09	TWA-SB-10	TWA-SB-11		
Sample Name:			SB-3-1	SB-3-2	SB-4	TWA-5-30-S	TWA-5-38-S	TWA-SB-09-S-6.0	TWA-SB-10-S-6.5	TWA-SB-11-S-1.7	TWA-SB-11-S-6.0	TWA-SB-11-S-16.0
Sample Date:	Industrial Properties		09/24/2019	09/24/2019	09/24/2019	09/24/2019	09/24/2019	08/12/2024	08/12/2024	08/12/2024	08/12/2024	08/12/2024
Sample Depth (ft bgs):			6-7	9-10	6.5-7.5	30	38	6.0	6.5	1.7	6.0	16.0
Hydrocarbon Identification (detect/non-detect)												
Gasoline	NV	NV	--	--	--	--	--	--	--	--	--	--
Diesel	NV	NV	--	--	--	--	--	--	--	--	--	--
Lube oil	NV	NV	--	--	--	--	--	--	--	--	--	--
TPH (mg/kg)												
Gasoline-range hydrocarbons	30[a]	NV	5 U	5 U	5 U	--	--	2 U	2 U	2 U	2 U	2 U
Diesel-range hydrocarbons	2,000	NV	50 U	50 U	50 U	--	--	25 U	25 U	120	73	25 U
Motor-oil-range hydrocarbons	2,000	NV	250 U	250 U	250 U	--	--	120 U	120 U	600	120 U	120 U
Diesel+Oil[b]	2,000	NV	250 U	250 U	250 U			120 U	120 U	720	130	120 U
Total Metals (mg/kg)												
Arsenic	20	7	1.13	7.83	1.65	--	--	1	2.5	7.7	1.4	2.7
Cadmium	2.0	1	1 U	1 U	1 U	--	--	0.2 U	0.42	5.6	0.42	0.26
Chromium	NV	48	8.6	12.7	8.29	--	--	7.9	17	36	2.1	11
Copper	NV	36	10.4	25.3	10.7	--	--	9.3	16	170	60	28
Lead	1,000	24	1.55	4.75	1.3	--	--	1.2	11	330	23	3.7
Manganese	NV	1,200	58.2	70	57.7	--	--	59	670	340	18 J	140
Mercury	2.0	0.07	0.2 U	0.2 U	0.2 U	--	--	1 U	1 U	1 U	1 U	1 U
Nickel	NV	48	5.9	12.8	10.3	--	--	9.3	22	45	23 J	11
Selenium	NV	NV	1 U	1 U	1 U	--	--	1 U	1 U	1 U	1 U	1 U
Zinc	NV	85	17	26.3	16.4	--	--	20	55	1,100	160 J	31
PCB Aroclors (mg/kg)												
Aroclor 1016	NV	NV	0.02 U	0.02 U	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1221	NV	NV	0.02 U	0.02 U	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1232	NV	NV	0.02 U	0.02 U	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1242	NV	NV	0.02 U	0.02 U	0.02 U	--	--	0.02 U	0.02 U	0.23	0.05 U	0.02 U
Aroclor 1248	NV	NV	0.02 U	0.02 U	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1254	NV	NV	0.02 U	0.02 U	0.02 U	--	--	0.02 U	0.13	0.54	0.26	0.02 U
Aroclor 1260	NV	NV	0.02 U	0.02 U	0.02 U	--	--	0.02 U	0.11	0.38	0.09 U	0.02 U
Aroclor 1262	NV	NV	0.02 U	0.02 U	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1268	NV	NV	0.02 U	0.02 U	0.02 U	--	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Total PCBs[c]	10.0	NV	0.02 U	0.02 U	0.02 U	--	--	0.02 U	0.24	1.2	0.26	0.02 U

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Table 2-2
Summary of Soil Analytical Data
Hylebos Marsh Interim Action, Port of Tacoma

Location:	MTCA Method A[1]	Washington State Background Metals, Puget Sound[2]	TWA-SB-3		TWA-SB-4	TWA-5		TWA-SB-09	TWA-SB-10	TWA-SB-11		
Sample Name:			SB-3-1	SB-3-2	SB-4	TWA-5-30-S	TWA-5-38-S	TWA-SB-09-S-6.0	TWA-SB-10-S-6.5	TWA-SB-11-S-1.7	TWA-SB-11-S-6.0	TWA-SB-11-S-16.0
Sample Date:	Industrial Properties		09/24/2019	09/24/2019	09/24/2019	09/24/2019	09/24/2019	08/12/2024	08/12/2024	08/12/2024	08/12/2024	08/12/2024
Sample Depth (ft bgs):			6-7	9-10	6.5-7.5	30	38	6.0	6.5	1.7	6.0	16.0
VOCs (mg/kg)												
1,1,1,2-Tetrachloroethane	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0065 UJ	0.0065 UJ	0.0065 UJ	0.0065 UJ	0.0065 UJ
1,1,1-Trichloroethane	2.0	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
1,1,2,2-Tetrachloroethane	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0065 UJ	0.0065 UJ	0.0065 UJ	0.0065 UJ	0.0065 UJ
1,1,2-Trichloroethane	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
1,1-Dichloroethane	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
1,1-Dichloroethene	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
1,1-Dichloropropene	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
1,2,3-Trichlorobenzene	NV	NV	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
1,2,3-Trichloropropane	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
1,2,4-Trichlorobenzene	NV	NV	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
1,2,4-Trimethylbenzene	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 UJ	0.005 UJ	0.005 UJ	0.088	0.005 UJ
1,2-Dibromo-3-chloropropane	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.049 UJ	0.049 UJ	0.049 UJ	0.049 UJ	0.049 UJ
1,2-Dibromoethane	0.0050	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
1,2-Dichlorobenzene	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
1,2-Dichloroethane	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
1,2-Dichloropropane	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.008 UJ	0.008 UJ	0.008 UJ	0.008 UJ	0.008 UJ
1,3,5-Trimethylbenzene	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 UJ	0.005 UJ	0.005 UJ	0.022 J	0.005 UJ
1,3-Dichlorobenzene	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
1,3-Dichloropropane	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.007 UJ	0.007 UJ	0.007 UJ	0.007 UJ	0.007 UJ
1,4-Dichlorobenzene	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
1,4-Dioxane	NV	NV	--	--	--	--	--	--	--	--	--	--
2,2-Dichloropropane	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.013 UJ	0.013 UJ	0.013 UJ	0.013 UJ	0.013 UJ
2-Butanone	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.47 UJ	0.47 UJ	0.47 UJ	0.47 UJ	0.47 UJ
2-Chlorotoluene	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
2-Hexanone	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.43 UJ	0.43 UJ	0.43 UJ	0.43 UJ	0.43 UJ
4-Chlorotoluene	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
4-Isopropyltoluene	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 UJ	0.005 UJ	0.005 UJ	0.0092 J	0.0064 J
4-Methyl-2-pentanone	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ
Acetone	NV	NV	0.5 U	1.9	0.5 U	0.5 U	0.5 U	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Benzene	0.030	NV	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.002 U	0.002 U	0.002 U	0.012	0.0035
Bromobenzene	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
Bromodichloromethane	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.006 UJ	0.006 UJ	0.006 UJ	0.006 UJ	0.006 UJ
Bromoform	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0065 UJ	0.0065 UJ	0.0065 UJ	0.0065 UJ	0.0065 UJ
Bromomethane	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.095 UJ	0.095 UJ	0.095 UJ	0.095 UJ	0.095 UJ
Carbon tetrachloride	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.008 UJ	0.008 UJ	0.008 UJ	0.008 UJ	0.008 UJ
Chlorobenzene	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
Chloroethane	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.07 UJ	0.07 UJ	0.07 UJ	0.07 UJ	0.07 UJ

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Table 2-2
Summary of Soil Analytical Data
Hylebos Marsh Interim Action, Port of Tacoma

Location:	MTCA Method A[1]	Washington State Background Metals, Puget Sound[2]	TWA-SB-3		TWA-SB-4	TWA-5		TWA-SB-09	TWA-SB-10	TWA-SB-11		
Sample Name:			SB-3-1	SB-3-2	SB-4	TWA-5-30-S	TWA-5-38-S	TWA-SB-09-S-6.0	TWA-SB-10-S-6.5	TWA-SB-11-S-1.7	TWA-SB-11-S-6.0	TWA-SB-11-S-16.0
Sample Date:	Industrial Properties		09/24/2019	09/24/2019	09/24/2019	09/24/2019	09/24/2019	08/12/2024	08/12/2024	08/12/2024	08/12/2024	08/12/2024
Sample Depth (ft bgs):			6-7	9-10	6.5-7.5	30	38	6.0	6.5	1.7	6.0	16.0
VOCs cont. (mg/kg)												
Chloroform	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.006 UJ	0.006 UJ	0.006 UJ	0.006 UJ	0.006 UJ
Chloromethane	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.044 UJ	0.044 UJ	0.044 UJ	0.044 UJ	0.044 UJ
cis-1,2-Dichloroethene	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.002 U	0.002 U	0.002 U	0.0017	0.002 U
cis-1,3-Dichloropropene	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0055 UJ	0.0055 UJ	0.0055 UJ	0.0055 UJ	0.0055 UJ
Dibromochloromethane	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
Dibromomethane	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0065 UJ	0.0065 UJ	0.0065 UJ	0.0065 UJ	0.0065 UJ
Dichlorodifluoromethane (Freon 12)	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
Ethylbenzene	6.0	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.002 U	0.002 U	0.002 U	0.0087	0.002 U
Hexachlorobutadiene	NV	NV	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
Isopropylbenzene	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 UJ	0.005 UJ	0.005 UJ	0.048 J	0.005 UJ
m,p-Xylene	NV	NV	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.004 U	0.004 U	0.004 U	0.057	0.004 U
Methyl tert-butyl ether	0.10	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Methylene chloride	0.020	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ
Naphthalene	5.0	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 UJ	0.005 UJ	0.005 UJ	0.043	0.015
n-Hexane	NV	NV	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ
n-Propylbenzene	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 UJ	0.005 UJ	0.005 UJ	0.016 J	0.005 UJ
o-Xylene	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.002 U	0.002 U	0.002 U	0.035	0.002 U
sec-Butylbenzene	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
Styrene	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 UJ	0.005 UJ	0.005 UJ	0.005 U	0.005 UJ
tert-Butylbenzene	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
Tetrachloroethene (PCE)	0.050	NV	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Toluene	7.0	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.002 U	0.002 U	0.002 U	0.068	0.014
trans-1,2-Dichloroethene	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
trans-1,3-Dichloropropene	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
Trichloroethene (TCE)	0.030	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Trichlorofluoromethane (Freon 11)	NV	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
Vinyl chloride	NV	NV	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Xylenes (total)[e]	9.0	NV	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.004 U	0.004 U	0.004 U	0.092	0.004 U

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Table 2-2
Summary of Soil Analytical Data
Hylebos Marsh Interim Action, Port of Tacoma

Location:	MTCA Method A[1]	Washington State Background Metals, Puget Sound[2]	TWA-SB-3		TWA-SB-4	TWA-5		TWA-SB-09	TWA-SB-10	TWA-SB-11		
Sample Name:			SB-3-1	SB-3-2	SB-4	TWA-5-30-S	TWA-5-38-S	TWA-SB-09-S-6.0	TWA-SB-10-S-6.5	TWA-SB-11-S-1.7	TWA-SB-11-S-6.0	TWA-SB-11-S-16.0
Sample Date:	Industrial Properties		09/24/2019	09/24/2019	09/24/2019	09/24/2019	09/24/2019	08/12/2024	08/12/2024	08/12/2024	08/12/2024	08/12/2024
Sample Depth (ft bgs):			6-7	9-10	6.5-7.5	30	38	6.0	6.5	1.7	6.0	16.0
SVOCs (mg/kg)												
1,2,4-Trichlorobenzene	NV	NV	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U
1,2-Dichlorobenzene	NV	NV	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U
1,2-Diphenylhydrazine	NV	NV	--	--	--	--	--	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U
1,3-Dichlorobenzene	NV	NV	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U
1,4-Dichlorobenzene	NV	NV	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U
1-Methylnaphthalene	NV	NV	0.01 U	0.01 U	0.01 U	--	--	0.0025 U	0.0025 U	0.012 U	0.0027	0.0025 U
2,4,5-Trichlorophenol	NV	NV	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U
2,4,6-Trichlorophenol	NV	NV	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U
2,4-Dichlorophenol	NV	NV	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U
2,4-Dimethylphenol	NV	NV	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U
2,4-Dinitrophenol	NV	NV	1.5 U	1.5 U	1.5 U	--	--	1.5 U	1.5 U	7.5 U	1.5 U	1.5 U
2,4-Dinitrotoluene	NV	NV	0.25 U	0.25 U	0.25 U	--	--	0.25 U	0.25 U	1.2 U	0.25 U	0.25 U
2,6-Dinitrotoluene	NV	NV	0.25 U	0.25 U	0.25 U	--	--	0.25 U	0.25 U	1.2 U	0.25 U	0.25 U
2-Chloronaphthalene	NV	NV	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U
2-Chlorophenol	NV	NV	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U
2-Methylnaphthalene	NV	NV	0.01 U	0.01 U	0.01 U	--	--	0.0025 U	0.0025 U	0.012 U	0.0025 U	0.0025 U
2-Methylphenol	NV	NV	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U
2-Nitroaniline	NV	NV	0.25 U	0.25 U	0.25 U	--	--	0.25 U	0.25 U	1.2 U	0.25 U	0.25 U
2-Nitrophenol	NV	NV	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U
3- & 4-Methylphenol (m,p-Cresol)	NV	NV	1 U	1 U	1 U	--	--	1 U	1 U	5 U	1 U	1 U
3,3'-Dichlorobenzidine	NV	NV	--	--	--	--	--	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U
3-Nitroaniline	NV	NV	5 U	5 U	5 U	--	--	5 U	5 U	25 U	5 U	5 U
4,6-Dinitro-2-methylphenol	NV	NV	1.5 U	1.5 U	1.5 U	--	--	1.5 U	1.5 U	7.5 U	1.5 U	1.5 U
4-Bromophenyl phenyl ether	NV	NV	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U
4-Chloro-3-methylphenol	NV	NV	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U
4-Chloroaniline	NV	NV	5 U	5 U	5 U	--	--	5 U	5 U	25 U	5 U	5 U
4-Chlorophenyl phenyl ether	NV	NV	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U
4-Nitroaniline	NV	NV	5 U	5 U	5 U	--	--	5 U	5 U	25 U	5 U	5 U
4-Nitrophenol	NV	NV	1.5 U	1.5 U	1.5 U	--	--	1.5 U	1.5 U	7.5 U	1.5 U	1.5 U
Acenaphthene	NV	NV	0.01 U	0.01 U	0.01 U	--	--	0.0025 U	0.0025 U	0.012 U	0.0025 U	0.0025 U
Acenaphthylene	NV	NV	0.01 U	0.01 U	0.01 U	--	--	0.0025 U	0.0025 U	0.012 U	0.0025 U	0.0025 U
Anthracene	NV	NV	0.01 U	0.01 U	0.01 U	--	--	0.0025 U	0.0025 U	0.012 U	0.0025 U	0.0025 U
Benzo(a)anthracene	NV	NV	0.01 U	0.01 U	0.01 U	--	--	0.005 U	0.005 U	0.025 U	0.005 U	0.005 U
Benzo(a)pyrene	2.0	NV	0.01 U	0.01 U	0.01 U	--	--	0.0025 U	0.0025 U	0.045	0.0025 U	0.0025 U
Benzo(b)fluoranthene	NV	NV	0.01 U	0.01 U	0.01 U	--	--	0.0025 U	0.003	0.048	0.0025 U	0.0025 U
Benzo(ghi)perylene	NV	NV	0.01 U	0.01 U	0.01 U	--	--	0.005 UJ	0.005 UJ	0.1	0.005 UJ	0.005 UJ
Benzo(k)fluoranthene	NV	NV	0.01 U	0.01 U	0.01 U	--	--	0.0025 U	0.0025 U	0.012 U	0.0025 U	0.0025 U

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Table 2-2
Summary of Soil Analytical Data
Hylebos Marsh Interim Action, Port of Tacoma

Location:	MTCA Method A[1]	Washington State Background Metals, Puget Sound[2]	TWA-SB-3		TWA-SB-4	TWA-5		TWA-SB-09	TWA-SB-10	TWA-SB-11		
Sample Name:			SB-3-1	SB-3-2	SB-4	TWA-5-30-S	TWA-5-38-S	TWA-SB-09-S-6.0	TWA-SB-10-S-6.5	TWA-SB-11-S-1.7	TWA-SB-11-S-6.0	TWA-SB-11-S-16.0
Sample Date:	Industrial Properties		09/24/2019	09/24/2019	09/24/2019	09/24/2019	09/24/2019	08/12/2024	08/12/2024	08/12/2024	08/12/2024	08/12/2024
Sample Depth (ft bgs):			6-7	9-10	6.5-7.5	30	38	6.0	6.5	1.7	6.0	16.0
SVOCs cont. (mg/kg)												
Benzoic acid	NV	NV	2.5 U	2.5 U	2.5 U	--	--	2.5 U	2.5 U	12 UJ	2.5 U	2.5 U
Benzyl alcohol	NV	NV	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U
Bis(2-chloro-1-methylethyl) ether	NV	NV	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U
Bis(2-chloroethoxy)methane	NV	NV	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U
Bis(2-chloroethyl) ether	NV	NV	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U
Bis(2-ethylhexyl) phthalate	NV	NV	0.8 U	0.8 U	0.8 U	--	--	0.8 U	0.8 U	17	0.8 U	0.8 U
Butylbenzyl phthalate	NV	NV	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	6.7	0.5 U	0.5 U
Carbazole	NV	NV	0.05 U	0.05 U	0.05 U	--	--	0.0025 U	0.0025 U	0.012 U	0.0025 U	0.0025 U
Chrysene	NV	NV	0.01 U	0.01 U	0.01 U	--	--	0.0025 U	0.0034	0.056	0.0025 U	0.0025 U
Dibenzo(a,h)anthracene	NV	NV	0.01 U	0.01 U	0.01 U	--	--	0.005 U	0.005 U	0.025 U	0.005 U	0.005 U
Dibenzofuran	NV	NV	0.05 U	0.05 U	0.05 U	--	--	0.0025 U	0.0025 U	0.012 U	0.0027	0.0025 U
Diethyl phthalate	NV	NV	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U
Dimethyl phthalate	NV	NV	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U
Di-n-butyl phthalate	NV	NV	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U
Di-n-octyl phthalate	NV	NV	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U
Fluoranthene	NV	NV	0.01 U	0.01 U	0.01 U	--	--	0.0025 U	0.0054	0.027	0.0028	0.0025 U
Fluorene	NV	NV	0.01 U	0.01 U	0.01 U	--	--	0.0025 U	0.0025 U	0.012 U	0.0025 U	0.0025 U
Hexachlorobenzene	NV	NV	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U
Hexachlorobutadiene	NV	NV	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U
Hexachlorocyclopentadiene	NV	NV	0.15 U	0.15 U	0.15 U	--	--	0.15 UJ	0.15 UJ	0.75 U	0.15 UJ	0.15 UJ
Hexachloroethane	NV	NV	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U
Indeno(1,2,3-cd)pyrene	NV	NV	0.01 U	0.01 U	0.01 U	--	--	0.005 U	0.005 U	0.036	0.005 U	0.005 U
Isophorone	NV	NV	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U
Naphthalene	5.0	NV	0.01 U	0.01 U	0.01 U	--	--	0.005 U	0.005 U	0.025 U	0.0059	0.005 U
Nitrobenzene	NV	NV	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U
N-Nitrosodimethylamine	NV	NV	--	--	--	--	--	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U
N-Nitrosodiphenylamine	NV	NV	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U
N-Nitrosodipropylamine	NV	NV	0.05 U	0.05 U	0.05 U	--	--	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U
Pentachlorophenol	NV	NV	0.25 U	0.25 U	0.25 U	--	--	0.25 U	0.25 U	1.2 U	0.25 U	0.25 U
Phenanthrene	NV	NV	0.01 U	0.01 U	0.01 U	--	--	0.0025 U	0.0058	0.028	0.0054	0.0025 U
Phenol	NV	NV	0.5 U	0.5 U	0.5 U	--	--	0.25 U	0.25 U	1.2 U	0.25 U	0.25 U
Pyrene	NV	NV	0.01 U	0.01 U	0.01 U	--	--	0.0025 U	0.0066	0.065	0.004	0.0025 U
Naphthalenes, total[f]	5.0	NV	0.01 U	0.01 U	0.01 U	--	--	0.005 U	0.005 U	0.025 U	0.0099	0.005 U
cPAH TEQ[g][3]	2.0	NV	0.01 U	0.01 U	0.01 U	--	--	0.005 U	0.005 U	0.057	0.005 U	0.005 U

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Table 2-2
Summary of Soil Analytical Data
Hylebos Marsh Interim Action, Port of Tacoma

Location:	MTCA Method A[1]	Washington State Background Metals, Puget Sound[2]	TWA-SB-12				TWA-SB-13	TWA-SB-14	TWA-SB-15	TWA-SB-16
Sample Name:			TWA-SB-12-S-8.0	TWA-SB-12-S-9.0	TWA-SB-12-S-16.9	TWA-SB-12-S-18.5	TWA-SB-13-S-7.5	TWA-SB-14-S-1.5	TWA-SB-15-S-1.7	TWA-SB-16-S-1.5
Sample Date:	Industrial Properties		08/13/2024	08/13/2024	08/13/2024	08/13/2024	08/13/2024	08/13/2024	08/13/2024	08/12/2024
Sample Depth (ft bgs):			8.0	9.0	16.9	18.5	7.5	1.5	1.7	1.5
Hydrocarbon Identification (detect/non-detect)										
Gasoline	NV	NV	–	–	ND	–	–	–	–	--
Diesel	NV	NV	–	–	ND	–	–	–	–	--
Lube oil	NV	NV	–	–	DETECT	–	–	–	–	--
TPH (mg/kg)										
Gasoline-range hydrocarbons	30[a]	NV	51	14	–	39	4.6	2 U	2 U	3
Diesel-range hydrocarbons	2,000	NV	2,400	1,500	510	520	25 U	44	25 U	25 U
Motor-oil-range hydrocarbons	2,000	NV	8,300	3,300	1,400	1,100	120 U	120 U	120 U	120 U
Diesel+Oil[b]	2,000	NV	11,000	4,800	1,900	1,600	120 U	100	120 U	120 U
Total Metals (mg/kg)										
Arsenic	20	7	14	12	7.9	11	1.6	6	3.1	3.4
Cadmium	2.0	1	13	11	5.3	6.7	0.2 U	1.2	0.23	0.2 U
Chromium	NV	48	61	29	43	21	6.7	19	11	9.1
Copper	NV	36	140	3,700	100	66	9	36	15	7.9
Lead	1,000	24	1,400	690	350	360	4.1	77	16	2.5
Manganese	NV	1,200	600	290	330	210	52	460	160	60
Mercury	2.0	0.07	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Nickel	NV	48	80	55	55	34	5.3	23	9.8	4.4
Selenium	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Zinc	NV	85	4,000	1,400	1,000	600	18	160	36	18
PCB Aroclors (mg/kg)										
Aroclor 1016	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1221	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1232	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1242	NV	NV	1.8	1.3	0.37	0.61	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1248	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1254	NV	NV	5.3	3.3	1.9	1.6	0.02 U	0.095	0.02 U	0.02 U
Aroclor 1260	NV	NV	3.3	1.7	2.6	2.6	0.02 U	0.11	0.02 U	0.02 U
Aroclor 1262	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Aroclor 1268	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Total PCBs[c]	10.0	NV	10	6.3	4.9	4.8	0.02 U	0.21	0.02 U	0.02 U

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Table 2-2
Summary of Soil Analytical Data
Hylebos Marsh Interim Action, Port of Tacoma

Location:	MTCA Method A[1]	Washington State Background Metals, Puget Sound[2]	TWA-SB-12				TWA-SB-13	TWA-SB-14	TWA-SB-15	TWA-SB-16
Sample Name:			TWA-SB-12-S-8.0	TWA-SB-12-S-9.0	TWA-SB-12-S-16.9	TWA-SB-12-S-18.5	TWA-SB-13-S-7.5	TWA-SB-14-S-1.5	TWA-SB-15-S-1.7	TWA-SB-16-S-1.5
Sample Date:	Industrial Properties		08/13/2024	08/13/2024	08/13/2024	08/13/2024	08/13/2024	08/13/2024	08/13/2024	08/12/2024
Sample Depth (ft bgs):			8.0	9.0	16.9	18.5	7.5	1.5	1.7	1.5
VOCs (mg/kg)										
1,1,1,2-Tetrachloroethane	NV	NV	0.0065 UJ	0.0065 UJ	--	0.0065 UJ	0.0065 UJ	0.0065 UJ	0.0065 UJ	0.0065 UJ
1,1,1-Trichloroethane	2.0	NV	0.002 U	0.002 U	--	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
1,1,2,2-Tetrachloroethane	NV	NV	0.0065 UJ	0.0065 UJ	--	0.0065 UJ	0.0065 UJ	0.0065 UJ	0.0065 UJ	0.0065 UJ
1,1,2-Trichloroethane	NV	NV	0.005 UJ	0.005 UJ	--	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
1,1-Dichloroethane	NV	NV	0.002 U	0.002 U	--	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
1,1-Dichloroethene	NV	NV	0.002 U	0.002 U	--	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
1,1-Dichloropropene	NV	NV	0.005 UJ	0.005 UJ	--	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
1,2,3-Trichlorobenzene	NV	NV	0.005 UJ	0.012 J	--	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
1,2,3-Trichloropropane	NV	NV	0.005 UJ	0.005 UJ	--	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
1,2,4-Trichlorobenzene	NV	NV	0.016 J	0.02 J	--	0.017 J	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
1,2,4-Trimethylbenzene	NV	NV	0.92	0.071	--	0.071	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
1,2-Dibromo-3-chloropropane	NV	NV	0.049 UJ	0.049 UJ	--	0.049 UJ	0.049 UJ	0.049 UJ	0.049 UJ	0.049 UJ
1,2-Dibromoethane	0.0050	NV	0.005 U	0.005 U	--	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
1,2-Dichlorobenzene	NV	NV	0.0057 J	0.0053 J	--	0.0059 J	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
1,2-Dichloroethane	NV	NV	0.003 U	0.003 U	--	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
1,2-Dichloropropane	NV	NV	0.008 UJ	0.008 UJ	--	0.008 UJ	0.008 UJ	0.008 UJ	0.008 UJ	0.008 UJ
1,3,5-Trimethylbenzene	NV	NV	0.41	0.0275 J	--	0.023 J	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
1,3-Dichlorobenzene	NV	NV	0.005 UJ	0.005 UJ	--	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
1,3-Dichloropropane	NV	NV	0.007 UJ	0.007 UJ	--	0.007 UJ	0.007 UJ	0.007 UJ	0.007 UJ	0.007 UJ
1,4-Dichlorobenzene	NV	NV	0.005 UJ	0.0092 J	--	0.0095 J	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
1,4-Dioxane	NV	NV	--	--	--	--	--	--	--	--
2,2-Dichloropropane	NV	NV	0.013 UJ	0.013 UJ	--	0.013 UJ	0.013 UJ	0.013 UJ	0.013 UJ	0.013 UJ
2-Butanone	NV	NV	0.47 UJ	0.47 UJ	--	0.47 UJ	0.47 UJ	0.47 UJ	0.47 UJ	0.47 UJ
2-Chlorotoluene	NV	NV	0.005 UJ	0.021 J	--	0.019 J	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
2-Hexanone	NV	NV	0.43 UJ	0.43 UJ	--	0.43 UJ	0.43 UJ	0.43 UJ	0.43 UJ	0.43 UJ
4-Chlorotoluene	NV	NV	0.005 UJ	0.0083 J	--	0.012 J	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
4-Isopropyltoluene	NV	NV	0.089	0.022 J	--	0.019 J	0.005 UJ	0.005 UJ	0.005 UJ	0.0075 J
4-Methyl-2-pentanone	NV	NV	0.24 UJ	0.24 UJ	--	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ
Acetone	NV	NV	1 UJ	1 UJ	--	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
Benzene	0.030	NV	0.014	0.012	--	0.024	0.002 U	0.002 U	0.002 U	0.002 U
Bromobenzene	NV	NV	0.005 UJ	0.005 UJ	--	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
Bromodichloromethane	NV	NV	0.006 UJ	0.006 UJ	--	0.006 UJ	0.006 UJ	0.006 UJ	0.006 UJ	0.006 UJ
Bromoform	NV	NV	0.0065 UJ	0.0065 UJ	--	0.0065 UJ	0.0065 UJ	0.0065 UJ	0.0065 UJ	0.0065 UJ
Bromomethane	NV	NV	0.095 UJ	0.095 UJ	--	0.095 UJ	0.095 UJ	0.095 UJ	0.095 UJ	0.095 UJ
Carbon tetrachloride	NV	NV	0.008 UJ	0.008 UJ	--	0.008 UJ	0.008 UJ	0.008 UJ	0.008 UJ	0.008 UJ
Chlorobenzene	NV	NV	0.005 UJ	0.008 J	--	0.025	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
Chloroethane	NV	NV	0.07 UJ	0.07 UJ	--	0.07 UJ	0.07 UJ	0.07 UJ	0.07 UJ	0.07 UJ

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Table 2-2
Summary of Soil Analytical Data
Hylebos Marsh Interim Action, Port of Tacoma

Location:	MTCA Method A[1]	Washington State Background Metals, Puget Sound[2]	TWA-SB-12				TWA-SB-13	TWA-SB-14	TWA-SB-15	TWA-SB-16
Sample Name:			TWA-SB-12-S-8.0	TWA-SB-12-S-9.0	TWA-SB-12-S-16.9	TWA-SB-12-S-18.5	TWA-SB-13-S-7.5	TWA-SB-14-S-1.5	TWA-SB-15-S-1.7	TWA-SB-16-S-1.5
Sample Date:	Industrial Properties		08/13/2024	08/13/2024	08/13/2024	08/13/2024	08/13/2024	08/13/2024	08/13/2024	08/12/2024
Sample Depth (ft bgs):			8.0	9.0	16.9	18.5	7.5	1.5	1.7	1.5
VOCs cont. (mg/kg)										
Chloroform	NV	NV	0.006 UJ	0.006 UJ	–	0.0098 J	0.006 UJ	0.006 UJ	0.006 UJ	0.006 UJ
Chloromethane	NV	NV	0.044 UJ	0.044 UJ	–	0.0074 J	0.044 UJ	0.044 UJ	0.044 UJ	0.044 UJ
cis-1,2-Dichloroethene	NV	NV	0.0097	0.008	–	0.068	0.002 U	0.002 U	0.002 U	0.002 U
cis-1,3-Dichloropropene	NV	NV	0.0055 UJ	0.0055 UJ	–	0.0055 UJ	0.0055 UJ	0.0055 UJ	0.0055 UJ	0.0055 UJ
Dibromochloromethane	NV	NV	0.005 UJ	0.005 UJ	–	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
Dibromomethane	NV	NV	0.0065 UJ	0.0065 UJ	–	0.0065 UJ	0.0065 UJ	0.0065 UJ	0.0065 UJ	0.0065 UJ
Dichlorodifluoromethane (Freon 12)	NV	NV	0.01 UJ	0.01 UJ	–	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
Ethylbenzene	6.0	NV	0.58	0.077	–	0.044	0.002 U	0.002 U	0.002 U	0.002 U
Hexachlorobutadiene	NV	NV	0.005 UJ	0.011 J	–	0.015 J	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
Isopropylbenzene	NV	NV	0.13	0.018 J	–	0.014 J	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
m,p-Xylene	NV	NV	0.62	0.1	–	0.062	0.004 U	0.004	0.004 U	0.004 U
Methyl tert-butyl ether	0.10	NV	0.002 U	0.002 U	–	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Methylene chloride	0.020	NV	0.11 UJ	0.11 UJ	–	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ
Naphthalene	5.0	NV	0.47	0.19	–	0.23	0.005 UJ	0.0075 J	0.005 UJ	0.005 UJ
n-Hexane	NV	NV	0.25 UJ	0.25 UJ	–	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ
n-Propylbenzene	NV	NV	0.17	0.014 J	–	0.014 J	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
o-Xylene	NV	NV	0.43	0.057	–	0.032	0.002 U	0.0025	0.002 U	0.002 U
sec-Butylbenzene	NV	NV	0.043 J	0.0064 J	–	0.006 J	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
Styrene	NV	NV	0.087	0.064	–	0.053	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
tert-Butylbenzene	NV	NV	0.005 UJ	0.005 UJ	–	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
Tetrachloroethene (PCE)	0.050	NV	0.0035	0.082	–	0.49	0.002 U	0.002 U	0.002 U	0.002 U
Toluene	7.0	NV	0.13	0.045	–	0.069	0.002 U	0.0046	0.002 U	0.002 U
trans-1,2-Dichloroethene	NV	NV	0.0094	0.002 U	–	0.0024	0.002 U	0.002 U	0.002 U	0.002 U
trans-1,3-Dichloropropene	NV	NV	0.005 UJ	0.005 UJ	–	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
Trichloroethene (TCE)	0.030	NV	0.0056	0.028	–	0.64	0.002 U	0.002 U	0.002 U	0.002 U
Trichlorofluoromethane (Freon 11)	NV	NV	0.012 J	0.081 J	–	1.7	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ
Vinyl chloride	NV	NV	0.002 U	0.002 U	–	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Xylenes (total)[e]	9.0	NV	1.1	0.16	–	0.094	0.004 U	0.0065	0.004 U	0.004 U

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Table 2-2
Summary of Soil Analytical Data
Hylebos Marsh Interim Action, Port of Tacoma

Location:	MTCA Method A[1]	Washington State Background Metals, Puget Sound[2]	TWA-SB-12				TWA-SB-13	TWA-SB-14	TWA-SB-15	TWA-SB-16
Sample Name:			TWA-SB-12-S-8.0	TWA-SB-12-S-9.0	TWA-SB-12-S-16.9	TWA-SB-12-S-18.5	TWA-SB-13-S-7.5	TWA-SB-14-S-1.5	TWA-SB-15-S-1.7	TWA-SB-16-S-1.5
Sample Date:	Industrial Properties		08/13/2024	08/13/2024	08/13/2024	08/13/2024	08/13/2024	08/13/2024	08/13/2024	08/12/2024
Sample Depth (ft bgs):			8.0	9.0	16.9	18.5	7.5	1.5	1.7	1.5
SVOCs (mg/kg)										
1,2,4-Trichlorobenzene	NV	NV	1 U	0.25 U	0.25 U	0.25 U	0.05 U	0.25 U	0.05 U	0.05 U
1,2-Dichlorobenzene	NV	NV	1 U	0.25 U	0.25 U	0.25 U	0.05 U	0.25 U	0.05 U	0.05 U
1,2-Diphenylhydrazine	NV	NV	1 U	0.25 U	0.25 U	0.25 U	0.05 U	0.25 U	0.05 U	0.05 U
1,3-Dichlorobenzene	NV	NV	1 U	0.25 U	0.25 U	0.25 U	0.05 U	0.25 U	0.05 U	0.05 U
1,4-Dichlorobenzene	NV	NV	1 U	0.25 U	0.25 U	0.25 U	0.05 U	0.25 U	0.05 U	0.05 U
1-Methylnaphthalene	NV	NV	0.47	0.16	0.24	0.061	0.0025 U	0.012 U	0.0025 U	0.0025 U
2,4,5-Trichlorophenol	NV	NV	10 U	2.5 U	2.5 U	2.5 U	0.5 U	2.5 U	0.5 U	0.5 U
2,4,6-Trichlorophenol	NV	NV	10 U	2.5 U	2.5 U	2.5 U	0.5 U	2.5 U	0.5 U	0.5 U
2,4-Dichlorophenol	NV	NV	10 U	2.5 U	2.5 U	2.5 U	0.5 U	2.5 U	0.5 U	0.5 U
2,4-Dimethylphenol	NV	NV	10 U	2.5 U	2.5 U	2.5 U	0.5 U	2.5 U	0.5 U	0.5 U
2,4-Dinitrophenol	NV	NV	30 U	7.5 U	7.5 U	7.5 U	1.5 U	7.5 U	1.5 U	1.5 U
2,4-Dinitrotoluene	NV	NV	5 U	1.2 U	1.2 U	1.2 U	0.25 U	1.2 U	0.25 U	0.25 U
2,6-Dinitrotoluene	NV	NV	5 U	1.2 U	1.2 U	1.2 U	0.25 U	1.2 U	0.25 U	0.25 U
2-Chloronaphthalene	NV	NV	1 U	0.25 U	0.25 U	0.25 U	0.05 U	0.25 U	0.05 U	0.05 U
2-Chlorophenol	NV	NV	10 U	2.5 U	2.5 U	2.5 U	0.5 U	2.5 U	0.5 U	0.5 U
2-Methylnaphthalene	NV	NV	0.74	0.25	0.38	0.095	0.0025 U	0.012 U	0.0025 U	0.0025 U
2-Methylphenol	NV	NV	10 U	2.5 U	2.5 U	2.5 U	0.5 U	2.5 U	0.5 U	0.5 U
2-Nitroaniline	NV	NV	5 U	1.2 U	1.2 U	1.2 U	0.25 U	1.2 U	0.25 U	0.25 U
2-Nitrophenol	NV	NV	10 U	2.5 U	2.5 U	2.5 U	0.5 U	2.5 U	0.5 U	0.5 U
3- & 4-Methylphenol (m,p-Cresol)	NV	NV	20 U	5 U	5 U	5 U	1 U	5 U	1 U	1 U
3,3'-Dichlorobenzidine	NV	NV	10 U	2.5 U	2.5 U	2.5 U	0.5 U	2.5 U	0.5 U	0.5 U
3-Nitroaniline	NV	NV	100 U	25 U	25 U	25 U	5 U	25 U	5 U	5 U
4,6-Dinitro-2-methylphenol	NV	NV	30 U	7.5 U	7.5 U	7.5 U	1.5 U	7.5 U	1.5 U	1.5 U
4-Bromophenyl phenyl ether	NV	NV	1 U	0.25 U	0.25 U	0.25 U	0.05 U	0.25 U	0.05 U	0.05 U
4-Chloro-3-methylphenol	NV	NV	10 U	2.5 U	2.5 U	2.5 U	0.5 U	2.5 U	0.5 U	0.5 U
4-Chloroaniline	NV	NV	100 U	25 U	25 U	25 U	5 U	25 U	5 U	5 U
4-Chlorophenyl phenyl ether	NV	NV	1 U	0.25 U	0.25 U	0.25 U	0.05 U	0.25 U	0.05 U	0.05 U
4-Nitroaniline	NV	NV	100 U	25 U	25 U	25 U	5 U	25 U	5 U	5 U
4-Nitrophenol	NV	NV	30 U	7.5 U	7.5 U	7.5 U	1.5 U	7.5 U	1.5 U	1.5 U
Acenaphthene	NV	NV	0.13	0.11	0.062	0.058	0.0025 U	0.027	0.0029	0.0025 U
Acenaphthylene	NV	NV	0.05 U	0.012 U	0.012 U	0.012 U	0.0025 U	0.036	0.0087	0.0025 U
Anthracene	NV	NV	0.057	0.076	0.046	0.098	0.0025 U	0.23	0.031	0.0025 U
Benzo(a)anthracene	NV	NV	0.22	0.2	0.27	0.2	0.005 U	1	0.071	0.005 U
Benzo(a)pyrene	2.0	NV	0.23	0.14	0.3	0.17	0.0025 U	1.1	0.11	0.0025 U
Benzo(b)fluoranthene	NV	NV	0.28	0.19	0.36	0.23	0.0025 U	2.3	0.21	0.0025 U
Benzo(ghi)perylene	NV	NV	0.4	0.18	0.3	0.12	0.005 UJ	0.47	0.072 J	0.005 UJ
Benzo(k)fluoranthene	NV	NV	0.07	0.047	0.13	0.086	0.0025 U	0.75	0.071	0.0025 U

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Table 2-2
Summary of Soil Analytical Data
Hylebos Marsh Interim Action, Port of Tacoma

Location:	MTCA Method A[1]	Washington State Background Metals, Puget Sound[2]	TWA-SB-12				TWA-SB-13	TWA-SB-14	TWA-SB-15	TWA-SB-16
Sample Name:			TWA-SB-12-S-8.0	TWA-SB-12-S-9.0	TWA-SB-12-S-16.9	TWA-SB-12-S-18.5	TWA-SB-13-S-7.5	TWA-SB-14-S-1.5	TWA-SB-15-S-1.7	TWA-SB-16-S-1.5
Sample Date:	Industrial Properties		08/13/2024	08/13/2024	08/13/2024	08/13/2024	08/13/2024	08/13/2024	08/13/2024	08/12/2024
Sample Depth (ft bgs):			8.0	9.0	16.9	18.5	7.5	1.5	1.7	1.5
SVOCs cont. (mg/kg)										
Benzoic acid	NV	NV	50 UJ	12 UJ	12 U	12 UJ	2.5 U	12 UJ	2.5 U	2.5 U
Benzyl alcohol	NV	NV	10 U	2.5 U	2.5 U	2.5 U	0.5 U	2.5 U	0.5 U	0.5 U
Bis(2-chloro-1-methylethyl) ether	NV	NV	1 U	0.25 U	0.25 U	0.25 U	0.05 U	0.25 U	0.05 U	0.05 U
Bis(2-chloroethoxy)methane	NV	NV	1 U	0.25 U	0.25 U	0.25 U	0.05 U	0.25 U	0.05 U	0.05 U
Bis(2-chloroethyl) ether	NV	NV	1 U	0.25 U	0.25 U	0.25 U	0.05 U	0.25 U	0.05 U	0.05 U
Bis(2-ethylhexyl) phthalate	NV	NV	320	9.1	100	11	0.8 U	4 U	0.8 U	0.8 U
Butylbenzyl phthalate	NV	NV	29	2.9	5.7	2.5 U	0.5 U	2.5 U	0.5 U	0.5 U
Carbazole	NV	NV	0.05 U	0.042	0.033	0.039	0.0025 U	0.031	0.0072	0.0025 U
Chrysene	NV	NV	0.45	0.39	0.46	0.28	0.0025 U	1.9	0.18	0.0056
Dibenzo(a,h)anthracene	NV	NV	0.1 U	0.031	0.051	0.025 U	0.005 U	0.12	0.015	0.005 U
Dibenzofuran	NV	NV	0.05 U	0.069	0.035	0.052	0.0025 U	0.013	0.0032	0.0025 U
Diethyl phthalate	NV	NV	10 U	2.5 U	2.5 U	2.5 U	0.5 U	2.5 U	0.5 U	0.5 U
Dimethyl phthalate	NV	NV	10 U	2.5 U	2.5 U	2.5 U	0.5 U	2.5 U	0.5 U	0.5 U
Di-n-butyl phthalate	NV	NV	10 U	2.5 U	2.5 U	2.5 U	0.5 U	2.5 U	0.5 U	0.5 U
Di-n-octyl phthalate	NV	NV	19	2.5 U	6.7	2.5 U	0.5 U	2.5 U	0.5 U	0.5 U
Fluoranthene	NV	NV	0.35	0.36	0.34	0.36	0.0025 U	1.6	0.067	0.0025 U
Fluorene	NV	NV	0.12	0.14	0.077	0.092	0.0025 U	0.023	0.0051	0.0025 U
Hexachlorobenzene	NV	NV	1 U	0.28	0.25 U	0.25 U	0.05 U	0.25 U	0.05 U	0.05 U
Hexachlorobutadiene	NV	NV	1 U	0.25 U	0.25 U	0.25 U	0.05 U	0.25 U	0.05 U	0.05 U
Hexachlorocyclopentadiene	NV	NV	3 U	0.75 U	0.75 UJ	0.75 U	0.15 UJ	0.75 U	0.15 UJ	0.15 UJ
Hexachloroethane	NV	NV	1 U	0.25 U	0.25 U	0.25 U	0.05 U	0.25 U	0.05 U	0.05 U
Indeno(1,2,3-cd)pyrene	NV	NV	0.16	0.085	0.17	0.093	0.005 U	0.49	0.073	0.005 U
Isophorone	NV	NV	1 U	0.25 U	0.25 U	0.25 U	0.05 U	0.25 U	0.05 U	0.05 U
Naphthalene	5.0	NV	0.36	0.18	0.18	0.092	0.005 U	0.025 U	0.0072	0.005 U
Nitrobenzene	NV	NV	1 U	0.25 U	0.25 U	0.25 U	0.05 U	0.25 U	0.05 U	0.05 U
N-Nitrosodimethylamine	NV	NV	1 U	0.25 U	0.25 U	0.25 U	0.05 U	0.25 U	0.05 U	0.05 U
N-Nitrosodiphenylamine	NV	NV	1 U	0.25 U	0.28	0.25 U	0.05 U	0.25 U	0.05 U	0.05 U
N-Nitrosodipropylamine	NV	NV	1 U	0.25 U	0.25 U	0.25 U	0.05 U	0.25 U	0.05 U	0.05 U
Pentachlorophenol	NV	NV	5 U	1.2 U	1.2 U	1.2 U	0.25 U	1.2 U	0.25 U	0.25 U
Phenanthrene	NV	NV	0.48	0.56	0.3	0.44	0.0025 U	0.18	0.03	0.0025 U
Phenol	NV	NV	5 U	1.2 U	1.2 U	1.2 U	0.25 U	1.2 U	0.25 U	0.25 U
Pyrene	NV	NV	0.85	0.79	0.53	0.52	0.0025 U	3.8	0.057	0.0025 U
Naphthalenes, total[f]	5.0	NV	1.6	0.59	0.8	0.25	0.005 U	0.025 U	0.0097	0.005 U
cPAH TEQ[g][3]	2.0	NV	0.31	0.20	0.40	0.23	0.005 U	1.6	0.16	0.0023

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Table 2-2
Summary of Soil Analytical Data
Hylebos Marsh Interim Action, Port of Tacoma

Notes

Data summation rules are as follows: non-detect results are multiplied by one-half (except for PCB Aroclors) when used for sums or TEQ calculations. When all results are non-detect, the highest reporting limit is provided as the sum or TEQ.

Shading (color key below) indicates values that exceed screening criteria; non-detects (U, UJ) were not compared with screening criteria. Values that exceeded background metals values were only shaded if a corresponding Method A value was not available.

MTCA Method A, Industrial Properties

Washington State Background Metals, Puget Sound

-- = not analyzed.

cPAH = carcinogenic polycyclic aromatic hydrocarbon.

ft bgs = feet below ground surface.

J = result is estimated.

mg/kg = milligrams per kilogram.

MTCA = Model Toxics Control Act.

ND = not detected.

NV = no value.

PCB = polychlorinated biphenyl.

SVOC = semivolatile organic compound.

TEQ = toxicity equivalency.

TPH = total petroleum hydrocarbons.

U = result is non-detect at the method reporting limit.

UJ = result is non-detect with an estimated method reporting limit.

VOC = volatile organic compound.

[a]Screening levels for gasoline-range hydrocarbons with detectable benzene.

[b]Diesel+Oil is the sum of diesel- and oil-range hydrocarbons.

[c]Total PCBs is the sum of all PCB Aroclors. Non-detect results are not included in the sum.

[d]Reporting limit is unknown.

[e]Total xylenes is the sum of m,p-xylene and o-xylene.

[f]Total naphthalenes is the sum of 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene.

[g]cPAH TEQ calculated as the sum of each cPAH concentration multiplied by the corresponding toxic equivalent factor.

References

[1]Ecology. 2025. *Cleanup Levels and Risk Calculation (CLARC) table.* Washington State Department of Ecology, Toxics Cleanup Program. February.

[2]Ecology. 1994. *Natural Background Soil Metals Concentrations in Washington State.* Publication 94-115. Washington State Department of Ecology. October.

[3]Ecology. 2015. *Implementation Memorandum #10: Evaluating the Human Health Toxicity of Carcinogenic PAHs (cPAHs) Using Toxicity Equivalency Factors (TEFs)* . Publication No. 15-09-049. Washington State Department of Ecology, Toxics Cleanup Program. April 20.

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	SB-1A									SB-2A					
Location Type:			MW									MW					
Sample Name:			–	–	SB-1A-1219	SB-1A-0320	SB-1A-0122	SB-1A-0522	SB-1A-0822	SB-1A-1222	SB-1A-1223	–	–	SB-2A-1219	SB-2A-0320	SB-2A-0122	SB-2A-0522
Collection Date:			04/01/1991	09/21/2000	12/11/2019	03/09/2020	01/24/2022	05/03/2022	08/23/2022	12/06/2022	12/12/2023	04/01/1991	09/21/2000	12/11/2019	03/10/2020	01/25/2022	05/03/2022
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Collection Depth (ft bgs):			5	–	--	–	7.5	--	9	8	–	6	–	–	–	8.5	–
TPH (ug/L)																	
Gasoline-range hydrocarbons	1,000[a]	NV	–	100 U	100 U	100 U	100 U	100 U	100 U	100 U	--	–	100 U	100 U	100 U	100 U	100 U
Diesel-range hydrocarbons	500	NV	–	250 U	50 U	50 U	50 U	110	54	50 U	--	–	340	50 U	70	50 U	76
Motor oil-range hydrocarbons	500	NV	–	–	250 U	250 U	250 U	300 U	250 U	250 U	--	–	–	250 U	250 U	250 U	250 U
Diesel+Oil[b]	500	NV	–	–	250 U	250 U	250 U	260	179	250 U	--	–	–	250 U	195	250 U	201
TPH with Silica-Gel Treatment (ug/L)																	
Diesel-range hydrocarbons	500	NV	–	–	50 U	50 U	50 U	60 U	--	–	--	–	–	50 U	50 U	50 U	50 U
Motor oil-range hydrocarbons	500	NV	–	–	250 U	250 U	250 U	300 U	–	–	--	–	–	250 U	250 U	250 U	250 U
Diesel+Oil[b]	500	NV	–	–	250 U	250 U	250 U	300 U	–	–	--	–	–	250 U	250 U	250 U	250 U
EPH (ug/L)																	
C8-C10 Aliphatic hydrocarbons	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
C10-C12 Aliphatic hydrocarbons	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
C12-C16 Aliphatic hydrocarbons	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
C16-C21 Aliphatic hydrocarbons	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
C21-C34 Aliphatic hydrocarbons	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
C8-C10 Aromatic hydrocarbons	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
C10-C12 Aromatic hydrocarbons	NV	NV	–	–	--	–	–	--	–	--	--	–	–	–	–	–	–
C12-C16 Aromatic hydrocarbons	NV	NV	–	–	--	–	–	--	–	--	--	–	–	–	–	–	–
C16-C21 Aromatic hydrocarbons	NV	NV	–	–	--	–	–	--	–	--	--	–	–	–	–	–	–
C21-C34 Aromatic hydrocarbons	NV	NV	–	–	--	–	–	--	–	--	--	–	–	–	–	–	–
VPH (ug/L)																	
C5-C6 Aliphatic hydrocarbons	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
C6-C8 Aliphatic hydrocarbons	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
C8-C10 Aliphatic hydrocarbons	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
C10-C12 Aliphatic hydrocarbons	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
C8-C10 Aromatic hydrocarbons	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
C10-C12 Aromatic hydrocarbons	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
C12-C13 Aromatic hydrocarbons	NV	NV	–	–	--	–	–	--	–	--	--	–	–	–	–	–	–
Dissolved Metals (ug/L)																	
Aluminum	NV	NV	–	–	--	–	–	--	–	–	10 U	–	–	–	–	–	–
Arsenic	5.0	8.0	–	–	1.82	1 U	–	--	–	–	2.13	–	–	3.54	2.09	–	–
Cadmium	5.0	NV	–	–	1 U	1 U	–	--	–	–	--	–	–	1 U	1 U	–	–
Chromium	50	NV	–	–	1 U	5 U	–	--	–	–	--	–	–	1 U	5 U	–	–
Copper	NV	NV	–	–	2.4 U	2.4 U	–	--	–	–	2.4 U	–	–	2.4 U	2.4 U	–	–
Iron	NV	NV	–	–	--	--	–	--	--	–	2,220	–	–	–	–	–	–
Lead	15	NV	–	–	1 U	1 U	–	--	–	–	--	–	–	1 U	1 U	–	–
Manganese	NV	NV	–	–	284	257	–	--	–	–	141	–	–	367	430	--	–
Mercury	2.0	NV	–	–	0.2 U	0.2 U	–	--	–	–	--	–	–	0.2 U	0.2 U	–	–
Nickel	NV	NV	–	–	4.74	4.56	–	--	–	–	--	–	–	4.03	3.76	–	–
Selenium	NV	NV	–	–	30 U	1 U	–	--	–	–	--	–	–	30 U	1 U	–	–
Zinc	NV	NV	–	–	5 U	5 U	–	--	–	–	--	–	–	5 U	5 U	–	–
Total Metals (ug/L)																	
Aluminum	NV	NV	–	–	--	–	–	--	–	–	10 U	–	–	–	–	–	–
Antimony	NV	NV	–	–	--	–	–	1 U	1 U	–	--	–	–	–	–	–	1 U
Arsenic	5.0	8.0	5	3.87	1.79	1.28	1.37	1.08	2.71	2.27	2.41	48	27.6	3.38	2.27	2.31	2.6
Barium	NV	NV	–	–	--	--	–	3.9	7.12	–	--	–	–	--	–	–	4.44
Beryllium	NV	NV	–	–	--	–	–	1 U	1 U	–	--	–	–	–	–	–	1 U
Cadmium	5.0	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	SB-1A									SB-2A					
Location Type:			MW									MW					
Sample Name:			–	–	SB-1A-1219	SB-1A-0320	SB-1A-0122	SB-1A-0522	SB-1A-0822	SB-1A-1222	SB-1A-1223	–	–	SB-2A-1219	SB-2A-0320	SB-2A-0122	SB-2A-0522
Collection Date:			04/01/1991	09/21/2000	12/11/2019	03/09/2020	01/24/2022	05/03/2022	08/23/2022	12/06/2022	12/12/2023	04/01/1991	09/21/2000	12/11/2019	03/10/2020	01/25/2022	05/03/2022
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Collection Depth (ft bgs):			5	–	--	–	7.5	--	9	8	–	6	–	–	–	8.5	–
Total Metals cont. (ug/L)																	
Chromium	50	NV	–	–	1 U	5 U	1 U	1 U	1 U	1 U	--	–	–	1 U	5 U	1 U	1 U
Cobalt	NV	NV	–	–	–	--	–	1 U	1.11	–	--	–	–	--	–	–	1 U
Copper	NV	NV	–	2.41	23.1	2.42	3.23 U	2.85 J+	2.4 U	3.45 J+	2.57 J+	–	22.1	10.3	2.4 U	0.4 U	1 U
Iron	NV	NV	–	–	–	--	–	1,320	3,170	–	2,720	–	–	–	–	–	1,720
Lead	15	NV	6	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	5	1 U	1 U	1 U	1 U	1 U
Manganese	NV	NV	–	1,460	213	227	154	169	316	153	147	–	8,140	330	417	359	454
Mercury	2.0	NV	5 U	1 U	0.2 U	0.2 U	0.02 U	0.02 U	0.02 U	0.02 U	--	5 U	1 U	0.2 U	0.2 U	0.02 U	0.02 U
Nickel	NV	NV	–	–	3.63	4.55	4.35	4.19	4.44	2.73	--	–	–	3.22	3.65	4.37	4.91
Selenium	NV	NV	–	–	1 U	1 U	–	1 U	1 U	–	--	–	–	1 U	1 U	–	1 U
Silver	NV	NV	–	–	--	–	–	1 U	1 U	–	--	–	–	–	–	–	1 U
Thallium	NV	NV	–	–	--	–	–	1 U	1 U	–	--	–	–	--	–	–	1 U
Vanadium	NV	NV	–	–	--	--	–	4.07	2.69	–	--	–	–	--	–	–	1.29
Zinc	NV	NV	39	12.4	5 U	5 U	5 U	5 U	5 U	5 U	--	62	59.7	5 U	5 U	5 U	5 U
PCB Aroclors (ug/L)			–	–								–	–				
Aroclor 1016	NV	NV	–	–	0.1 U	0.1 U	0.0035 UJ	0.0035 UJ	0.0058 UJ	0.0035 UJ	--	–	–	0.1 U	0.1 U	0.0035 UJ	0.0035 U
Aroclor 1221	NV	NV	–	–	0.1 U	0.1 U	0.0035 U	0.0035 U	0.0058 UJ	0.0035 UJ	--	–	–	0.1 U	0.1 U	0.0035 UJ	0.0035 U
Aroclor 1232	NV	NV	–	–	0.1 U	0.1 U	0.0035 U	0.0035 U	0.0058 UJ	0.0035 UJ	--	–	–	0.1 U	0.1 U	0.0035 UJ	0.0035 U
Aroclor 1242	NV	NV	–	–	0.1 U	0.1 U	0.0035 U	0.0035 U	0.0058 UJ	0.0035 UJ	--	–	–	0.1 U	0.1 U	0.0035 UJ	0.0035 U
Aroclor 1248	NV	NV	–	–	0.1 U	0.1 U	0.0035 U	0.0035 U	0.0083 UJ	0.0035 UJ	--	–	–	0.1 U	0.1 U	0.0035 UJ	0.0035 U
Aroclor 1254	NV	NV	–	–	0.1 U	0.1 U	0.0035 U	0.0035 U	0.0083 UJ	0.0035 UJ	--	–	–	0.1 U	0.1 U	0.0035 UJ	0.0035 U
Aroclor 1260	NV	NV	–	–	0.1 U	0.1 U	0.0035 UJ	0.0035 U	0.0083 UJ	0.0035 UJ	--	–	–	0.1 U	0.1 U	0.0035 UJ	0.0035 U
Aroclor 1262	NV	NV	–	–	0.1 U	0.1 U	0.0035 U	0.0035 U	0.0083 UJ	0.0035 UJ	--	–	–	0.1 U	0.1 U	0.0035 UJ	0.0035 U
Aroclor 1268	NV	NV	–	–	0.1 U	0.1 U	0.0035 U	0.0035 U	0.0083 UJ	0.0035 UJ	--	–	–	0.1 U	0.1 U	0.0035 UJ	0.0035 U
Total PCBs[c]	0.10	NV	–	–	0.1 U	0.1 U	0.0035 UJ	0.0035 U	0.0083 UJ	0.0035 UJ	--	–	–	0.1 U	0.1 U	0.0035 UJ	0.0035 U
Permanent Gases (ug/L)																	
Methane	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFAS (ug/L)																	
3:3 FTCA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
4:2 FTSA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
5:3 FTCA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
6:2 FTSA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
7:3 FTCA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
8:2 FTSA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
9Cl-PF3ONS (F-53B Major)	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
11Cl-PF3OUdS (F-53B Minor)	NV	NV	--	–	--	–	–	--	–	--	--	–	–	–	–	–	–
ADONA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
EtFOSA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
EtFOSAA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
EtFOSE	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
HFPO-DA (GenX)	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
MeFOSA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
MeFOSAA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
MeFOSE	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
NFDHA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFBA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFBS	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFDA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	SB-1A									SB-2A					
Location Type:			MW									MW					
Sample Name:			–	–	SB-1A-1219	SB-1A-0320	SB-1A-0122	SB-1A-0522	SB-1A-0822	SB-1A-1222	SB-1A-1223	–	–	SB-2A-1219	SB-2A-0320	SB-2A-0122	SB-2A-0522
Collection Date:			04/01/1991	09/21/2000	12/11/2019	03/09/2020	01/24/2022	05/03/2022	08/23/2022	12/06/2022	12/12/2023	04/01/1991	09/21/2000	12/11/2019	03/10/2020	01/25/2022	05/03/2022
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Collection Depth (ft bgs):			5	–	--	–	7.5	--	9	8	–	6	–	–	–	8.5	–
PFAS cont. (ug/L)																	
PFDoA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFDoS	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFDS	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFEESA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFHpA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFHpS	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFHxA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFHxS	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFMBA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFMPA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFNA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFNS	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFOA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFOS	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFOSA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFPeA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFPeS	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFTeDA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFTrDA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
PFUnA	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
VOCs by EPA 8021B (ug/L)																	
Benzene	5.0	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
Ethylbenzene	700	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
m,p-Xylene	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
Methyl tert-butyl ether	20	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	--
o-Xylene	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
Toluene	1,000	NV	–	–	--	–	--	--	–	--	--	–	–	–	–	–	–
Xylenes (total)[d]	1,000	NV	--	–	--	–	–	--	–	--	--	–	–	–	–	–	–
VOCs (ug/L)																	
1,1,1,2-Tetrachloroethane	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	200	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	NV	NV	–	–	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	--	–	–	1 U	1 U	0.2 U	0.2 U
1,1,2-Trichloroethane	NV	NV	–	–	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	--	–	–	1 U	1 U	0.5 U	0.5 U
1,1-Dichloroethane	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
1,1-Dichloroethene	NV	NV	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	–	1 U	1 U	1 U	1 U	1 U
1,1-Dichloropropene	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
1,2,3-Trichlorobenzene	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
1,2,3-Trichloropropane	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	–	--	–	–	1 U	1 U	1 U	1 U
1,2,4-Trimethylbenzene	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
1,2-Dibromo-3-chloropropane	NV	NV	–	–	10 U	10 U	10 U	10 U	10 U	10 U	--	–	–	10 U	10 U	10 U	10 U
1,2-Dibromoethane	0.010	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	–	--	–	–	1 U	1 U	1 U	1 U
1,2-Dichloroethane	5.0	NV	–	–	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	--	–	–	1 U	1 U	0.2 U	0.2 U
1,2-Dichloropropane	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
1,3,5-Trimethylbenzene	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	–	--	–	–	1 U	1 U	1 U	1 U

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	SB-1A									SB-2A					
Location Type:			MW									MW					
Sample Name:			–	–	SB-1A-1219	SB-1A-0320	SB-1A-0122	SB-1A-0522	SB-1A-0822	SB-1A-1222	SB-1A-1223	–	–	SB-2A-1219	SB-2A-0320	SB-2A-0122	SB-2A-0522
Collection Date:			04/01/1991	09/21/2000	12/11/2019	03/09/2020	01/24/2022	05/03/2022	08/23/2022	12/06/2022	12/12/2023	04/01/1991	09/21/2000	12/11/2019	03/10/2020	01/25/2022	05/03/2022
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Collection Depth (ft bgs):			5	–	--	–	7.5	--	9	8	–	6	–	–	–	8.5	–
VOCs cont. (ug/L)																	
1,3-Dichloropropane	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	–	--	–	–	1 U	1 U	1 U	1 U
1,4-Dioxane	NV	NV	–	–	0.4 U	0.5 U	–	0.4 U	0.4 U	0.4 U	--	–	–	0.4 U	0.5 U	–	0.4 U
2,2-Dichloropropane	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
2-Butanone	NV	NV	–	–	10 U	10 U	20 U	20 U	20 U	20 U	--	–	–	10 U	10 U	20 U	20 U
2-Chlorotoluene	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
2-Hexanone	NV	NV	–	–	10 U	10 U	10 U	10 U	10 U	10 U	--	–	–	10 U	10 U	10 U	10 U
4-Chlorotoluene	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
4-Isopropyltoluene	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
4-Methyl-2-pentanone	NV	NV	–	–	10 U	10 U	10 U	10 U	10 U	10 U	--	–	–	10 U	10 U	10 U	10 U
Acetone	NV	NV	–	–	50 U	50 U	50 U	50 U	50 U	50 U	--	–	–	50 U	50 U	50 U	50 U
Benzene	5.0	NV	–	1 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	--	–	1 U	0.35 U	0.35 U	0.35 U	0.35 U
Bromobenzene	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
Bromodichloromethane	NV	NV	–	–	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	--	–	–	1 U	1 U	0.5 U	0.5 U
Bromoform	NV	NV	–	–	1 U	1 U	5 U	5 U	5 U	5 U	--	–	–	1 U	1 U	5 U	5 U
Bromomethane	NV	NV	–	–	1 U	1 U	5 U	5 U	5 U	5 U	--	–	–	1 U	1 U	5 U	5 U
Carbon tetrachloride	NV	NV	–	–	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	--	–	–	1 U	1 U	0.5 U	0.5 U
Chlorobenzene	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
Chloroethane	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
Chloroform	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
Chloromethane	NV	NV	–	–	10 U	10 U	10 U	10 U	10 U	10 U	--	–	–	10 U	10 U	10 U	10 U
cis-1,2-Dichloroethene	NV	NV	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	–	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	NV	NV	–	–	1 U	1 U	0.4 U	0.4 U	0.4 U	0.4 U	--	–	–	1 U	1 U	0.4 U	0.4 U
Dibromochloromethane	NV	NV	–	–	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	--	–	–	1 U	1 U	0.5 U	0.5 U
Dibromomethane	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
Dichlorodifluoromethane (Freon 12)	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
Ethylbenzene	700	NV	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	–	1 U	1 U	1 U	1 U	1 U
Hexachlorobutadiene	NV	NV	–	–	1 U	1 U	0.5 U	0.5 U	0.5 U	–	--	–	–	1 U	1 U	0.5 U	0.5 U
Isopropylbenzene	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
m,p-Xylene	NV	NV	–	–	2 U	2 U	2 U	2 U	2 U	2 U	--	–	–	2 U	2 U	2 U	2 U
Methyl tert-butyl ether	20	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
Methylene chloride	5.0	NV	–	–	5 U	5 U	8.6 U	11 UJ	5 U	5 U	--	–	–	5 U	5 U	5.9 U	5 U
Naphthalene	160	NV	–	–	1 U	1 U	1 U	1 U	1 U	–	--	–	–	1 U	1 U	1 U	1 U
n-Hexane	NV	NV	–	–	1 U	1 U	5 U	5 U	5 U	5 U	--	–	–	1 U	1 U	5 U	5 U
n-Propylbenzene	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
o-Xylene	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
sec-Butylbenzene	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
Styrene	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
tert-Butylbenzene	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
Tetrachloroethene (PCE)	5.0	NV	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	–	1 U	1 U	1 U	1 U	1 U
Toluene	1,000	NV	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	–	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	NV	NV	–	–	1 U	1 U	0.4 U	0.4 U	0.4 U	0.4 U	--	–	–	1 U	1 U	0.4 U	0.4 U
Trichloroethene (TCE)	5.0	NV	–	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	--	–	1 U	1 U	1 U	0.5 U	0.5 U
Trichlorofluoromethane (Freon 11)	NV	NV	–	–	1 U	1 U	1 U	1 U	1 U	1 U	--	–	–	1 U	1 U	1 U	1 U
Vinyl chloride	0.20	NV	–	1 U	0.2 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	--	–	1 U	0.2 U	0.1 U	0.02 U	0.02 U
Xylenes (total)[d]	1,000	NV	–	–	2 U	2 U	2 U	2 U	2 U	2 U	--	–	–	2 U	2 U	2 U	2 U

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	SB-1A									SB-2A					
Location Type:			MW									MW					
Sample Name:			–	–	SB-1A-1219	SB-1A-0320	SB-1A-0122	SB-1A-0522	SB-1A-0822	SB-1A-1222	SB-1A-1223	–	–	SB-2A-1219	SB-2A-0320	SB-2A-0122	SB-2A-0522
Collection Date:			04/01/1991	09/21/2000	12/11/2019	03/09/2020	01/24/2022	05/03/2022	08/23/2022	12/06/2022	12/12/2023	04/01/1991	09/21/2000	12/11/2019	03/10/2020	01/25/2022	05/03/2022
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Collection Depth (ft bgs):			5	–	--	–	7.5	--	9	8	–	6	–	–	–	8.5	–
PAHs, Low-Level (ug/L)																	
Acenaphthene	NV	NV	–	–	0.02 U	–	–	--	–	–	--	–	–	0.02 U	–	–	–
Acenaphthylene	NV	NV	–	–	0.02 U	–	–	--	–	–	--	–	–	0.02 U	–	–	–
Anthracene	NV	NV	–	–	0.02 U	–	–	--	–	–	--	–	–	0.02 U	–	–	–
Benzo(a)anthracene	NV	NV	–	–	0.02 U	–	–	--	–	–	--	–	–	0.02 U	–	–	–
Benzo(a)pyrene	0.20[e][3]	NV	–	–	0.02 U	–	–	--	–	–	--	–	–	0.02 U	–	–	–
Benzo(b)fluoranthene	NV	NV	–	–	0.02 U	–	–	--	–	–	--	–	–	0.02 U	–	–	–
Benzo(ghi)perylene	NV	NV	–	–	0.02 U	–	–	--	–	–	--	–	–	0.02 U	–	–	–
Benzo(k)fluoranthene	NV	NV	–	–	0.02 U	–	–	--	–	–	--	–	–	0.02 U	–	–	–
Chrysene	NV	NV	–	–	0.02 U	–	–	--	–	–	--	–	–	0.02 U	–	–	–
Dibenzo(a,h)anthracene	NV	NV	–	–	0.02 U	–	–	--	–	–	--	–	–	0.02 U	–	–	–
Fluoranthene	NV	NV	–	–	0.02 U	–	–	--	–	–	--	–	–	0.02 U	–	–	–
Fluorene	NV	NV	–	–	0.02 U	–	–	--	–	–	--	–	–	0.02 U	–	–	–
Indeno(1,2,3-cd)pyrene	NV	NV	–	–	0.02 U	–	–	--	–	–	--	–	–	0.02 U	–	–	–
Naphthalene	160	NV	–	–	0.2 U	–	–	--	–	–	--	–	–	0.2 U	–	–	–
Phenanthrene	NV	NV	–	–	0.02 U	–	–	--	–	–	--	–	–	0.02 U	–	–	–
Pyrene	NV	NV	–	–	0.02 U	–	–	--	–	–	--	–	–	0.02 U	–	–	–
cPAH TEQ[f][4]	0.20[e][3]	NV	–	–	0.02 U	–	–	--	–	–	--	–	–	0.02 U	–	–	–
SVOCs (ug/L)																	
1,2,4-Trichlorobenzene	NV	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
1,2-Dichlorobenzene	NV	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 UJ	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
1,3-Dichlorobenzene	NV	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 UJ	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
1,4-Dichlorobenzene	NV	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 UJ	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
1,4-Dioxane	NV	NV	–	–	--	–	–	--	–	–	--	–	–	–	–	–	–
1-Methylnaphthalene	NV	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
2,4,5-Trichlorophenol	NV	NV	–	–	2 U	2 U	1 U	1 U	1 U	1 U	--	–	–	2 U	2 U	1 U	1 U
2,4,6-Trichlorophenol	NV	NV	–	–	2 U	2 U	1 UJ	1 U	1 U	1 U	--	–	–	2 U	2 U	1 U	1 U
2,4-Dichlorophenol	NV	NV	–	–	2 U	2 U	1 U	1 U	1 U	1 U	--	–	–	2 U	2 U	1 U	1 U
2,4-Dimethylphenol	NV	NV	–	–	2 U	2 U	1 U	1 U	1 U	1 U	--	–	–	2 U	2 U	1 U	1 U
2,4-Dinitrophenol	NV	NV	–	–	6 U	6 U	3 UJ	3 U	3 U	3 U	--	–	–	6 U	6 U	3 U	3 U
2,4-Dinitrotoluene	NV	NV	–	–	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	--	–	–	1 U	1 U	0.5 U	0.5 U
2,6-Dinitrotoluene	NV	NV	–	–	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	--	–	–	1 U	1 U	0.5 U	0.5 U
2-Chloronaphthalene	NV	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
2-Chlorophenol	NV	NV	–	–	2 U	2 U	1 R	1 U	1 U	1 U	--	–	–	2 U	2 U	1 R	1 U
2-Methylnaphthalene	NV	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
2-Methylphenol	NV	NV	–	–	2 U	2 U	1 R	1 U	1 U	1 U	--	–	–	2 U	2 U	1 R	1 U
2-Nitroaniline	NV	NV	–	–	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	--	–	–	1 U	1 U	0.5 U	0.5 U
2-Nitrophenol	NV	NV	–	–	2 U	2 U	1 U	1 U	1 U	1 U	--	–	–	2 U	2 U	1 U	1 U
3- & 4-Methylphenol (m,p-Cresol)	NV	NV	–	–	4 U	4 U	2 R	2 U	2 U	2 U	--	–	–	4 U	4 U	2 R	2 U
3-Nitroaniline	NV	NV	–	–	20 U	20 U	10 U	10 U	10 U	10 U	--	–	–	20 U	20 U	10 U	10 U
4,6-Dinitro-2-methylphenol	NV	NV	–	–	6 U	6 U	3 UJ	3 U	3 U	3 U	--	–	–	6 U	6 U	3 U	3 U
4-Bromophenyl phenyl ether	NV	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
4-Chloro-3-methylphenol	NV	NV	–	–	2 U	2 U	1 U	1 U	1 U	1 U	--	–	–	2 U	2 U	1 U	1 U
4-Chloroaniline	NV	NV	–	–	20 U	20 U	10 U	10 U	10 U	10 U	--	–	–	20 U	20 U	10 U	10 U
4-Chlorophenyl phenyl ether	NV	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
4-Nitroaniline	NV	NV	–	–	20 U	20 U	10 U	10 U	10 U	10 U	--	–	–	20 U	20 U	10 U	10 U
4-Nitrophenol	NV	NV	–	–	6 U	6 U	3 R	3 UJ	3 U	3 U	--	–	–	6 U	6 U	3 U	3 U
Acenaphthene	NV	NV	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.016	--	–	–	0.02 U	0.02 U	0.01 U	0.01 U

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	SB-1A									SB-2A					
Location Type:			MW									MW					
Sample Name:			–	–	SB-1A-1219	SB-1A-0320	SB-1A-0122	SB-1A-0522	SB-1A-0822	SB-1A-1222	SB-1A-1223	–	–	SB-2A-1219	SB-2A-0320	SB-2A-0122	SB-2A-0522
Collection Date:			04/01/1991	09/21/2000	12/11/2019	03/09/2020	01/24/2022	05/03/2022	08/23/2022	12/06/2022	12/12/2023	04/01/1991	09/21/2000	12/11/2019	03/10/2020	01/25/2022	05/03/2022
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Collection Depth (ft bgs):			5	–	--	–	7.5	--	9	8	–	6	–	–	–	8.5	–
SVOCs cont. (ug/L)																	
Acenaphthylene	NV	NV	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	--	–	–	0.02 U	0.02 U	0.01 U	0.01 U
Anthracene	NV	NV	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	--	–	–	0.02 U	0.02 U	0.01 U	0.01 U
Benzo(a)anthracene	NV	NV	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	--	–	–	0.02 U	0.02 U	0.01 U	0.01 U
Benzo(a)pyrene	0.20[e][3]	NV	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	--	–	–	0.02 U	0.02 U	0.01 U	0.01 U
Benzo(b)fluoranthene	NV	NV	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.018	--	–	–	0.02 U	0.02 U	0.01 U	0.01 U
Benzo(ghi)perylene	NV	NV	–	–	0.04 U	0.04 U	0.02 U	0.02 U	0.02 U	0.02 U	--	–	–	0.04 U	0.04 U	0.02 U	0.02 U
Benzo(k)fluoranthene	NV	NV	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.015	--	–	–	0.02 U	0.02 U	0.01 U	0.01 U
Benzoic acid	NV	NV	–	–	10 U	10 U	5 R	5 UJ	5 U	5 U	--	–	–	10 U	10 U	5 R	5 UJ
Benzyl alcohol	NV	NV	–	–	2 U	2 U	1 R	1 U	1 U	1 U	--	–	–	2 U	2 U	1 R	1 U
Bis(2-chloro-1-methylethyl) ether	NV	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
Bis(2-chloroethoxy)methane	NV	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
Bis(2-chloroethyl) ether	NV	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
Bis(2-ethylhexyl) phthalate	NV	NV	–	–	3.2 U	3.2 U	1.6 U	1.9 J+	1.6 U	1.6 U	--	–	–	3.2 U	3.2 U	1.6 U	1.8 J+
Butylbenzyl phthalate	NV	NV	–	–	2 U	2 U	1 U	1 U	1 U	1 UJ	--	–	–	2 U	2 U	1 U	1 U
Carbazole	NV	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
Chrysene	NV	NV	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.016	--	–	–	0.02 U	0.02 U	0.01 U	0.01 U
Dibenzo(a,h)anthracene	NV	NV	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.014	--	–	–	0.02 U	0.02 U	0.01 U	0.01 U
Dibenzofuran	NV	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
Diethyl phthalate	NV	NV	–	–	2 U	2 U	1 U	1 U	1 U	1 U	--	–	–	2 U	2 U	1 U	1 U
Dimethyl phthalate	NV	NV	–	–	2 U	2 U	1 U	1 U	1 U	1 U	--	–	–	2 U	2 U	1 U	1 U
Di-n-butyl phthalate	NV	NV	–	–	2 U	2 U	1 U	1 U	1 U	1 UJ	--	–	–	2 U	2 U	1 U	1 U
Di-n-octyl phthalate	NV	NV	–	–	2 U	2 U	1 U	1 U	1 U	1 UJ	--	–	–	2 U	2 U	1 U	1 U
Fluoranthene	NV	NV	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.031	--	–	–	0.02 U	0.02 U	0.01 U	0.01 U
Fluorene	NV	NV	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.02	--	–	–	0.02 U	0.02 U	0.01 U	0.01 U
Hexachlorobenzene	NV	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
Hexachlorobutadiene	NV	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
Hexachlorocyclopentadiene	NV	NV	–	–	0.6 U	0.6 U	0.3 U	0.3 U	0.3 U	0.3 U	--	–	–	0.6 U	0.6 U	0.3 U	0.3 U
Hexachloroethane	NV	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 UJ	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
Indeno(1,2,3-cd)pyrene	NV	NV	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.014	--	–	–	0.02 U	0.02 U	0.01 U	0.01 U
Isophorone	NV	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
Naphthalene	160	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
Nitrobenzene	NV	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
N-Nitrosodiphenylamine	NV	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
N-Nitrosodipropylamine	NV	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
Pentachlorophenol	NV	NV	–	–	1 U	1 U	0.5 UJ	0.5 U	0.5 U	0.5 U	--	–	–	1 U	1 U	0.5 U	0.5 U
Phenanthrene	NV	NV	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.012 J+	0.058 J+	--	–	–	0.02 U	0.02 U	0.01 U	0.011
Phenol	NV	NV	–	–	2 U	2 U	1 R	1 UJ	1 U	1 U	--	–	–	2 U	2 U	1 R	1 J+
Pyrene	NV	NV	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.037	--	–	–	0.02 U	0.02 U	0.01 U	0.01 U
Naphthalenes, total[h]	160	NV	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--	–	–	0.2 U	0.2 U	0.1 U	0.1 U
cPAH TEQ[f][4]	0.20[e][3]	NV	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.023	--	–	–	0.02 U	0.02 U	0.01 U	0.01 U

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	SB-2A (continued)			SB-3 (deeper)	SB-3A										SRI-16
Location Type:			MW			Unknown	MW										Boring
Sample Name:			SB-2A-0822	SB-2A-1222	SB-2A-1223				SB-3A-1219	SB-3A-0320	SB-3A-0122	SB-9-3A-0122	SB-3A-0522	SB-3A-0822	SB-3A-1222	SB-3A-1223	--
Collection Date:			08/23/2022	12/05/2022	12/12/2023	04/01/1991	04/01/1991	09/21/2000	12/11/2019	03/09/2020	01/25/2022	01/25/2022	05/03/2022	08/23/2022	12/06/2022	12/13/2023	01/18/2002
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Collection Depth (ft bgs):			8.5	9	--	21	6	–	–	–	7.5	7.5	–	9.5	8	–	12
TPH (ug/L)																	
Gasoline-range hydrocarbons	1,000[a]	NV	100	100 U	–	–	–	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	–	50 U
Diesel-range hydrocarbons	500	NV	110	50 U	–	–	–	640	1,900	950	670	560	990	750	910	–	250 U
Motor oil-range hydrocarbons	500	NV	250 U	250 U	–	–	–	–	1,200	440	380	300	620	520	940	–	500 U
Diesel+Oil[b]	500	NV	235	250 U	–	–	–	–	3,100	1,390	1,050	860	1,610	1,270	1,850	–	500 U
TPH with Silica-Gel Treatment (ug/L)																	
Diesel-range hydrocarbons	500	NV	–	–	–	–	–	–	50 U	50 U	50 U	50 U	50 U	–	–	–	–
Motor oil-range hydrocarbons	500	NV	–	–	–	–	–	–	250 U	250 U	250 U	250 U	250 U	–	–	–	–
Diesel+Oil[b]	500	NV	–	–	–	–	–	–	250 U	250 U	250 U	250 U	250 U	–	–	–	–
EPH (ug/L)																	
C8-C10 Aliphatic hydrocarbons	NV	NV	–	–	–	–	–	–	--	–	–	–	–	–	–	–	–
C10-C12 Aliphatic hydrocarbons	NV	NV	–	–	–	–	–	–	--	–	–	–	–	–	–	–	–
C12-C16 Aliphatic hydrocarbons	NV	NV	–	–	–	–	–	–	--	–	–	–	–	–	–	–	–
C16-C21 Aliphatic hydrocarbons	NV	NV	–	–	–	–	–	–	--	–	–	–	–	–	–	–	–
C21-C34 Aliphatic hydrocarbons	NV	NV	–	–	–	–	–	–	--	–	–	–	–	–	–	–	–
C8-C10 Aromatic hydrocarbons	NV	NV	–	–	–	–	–	–	--	–	–	–	–	–	–	–	–
C10-C12 Aromatic hydrocarbons	NV	NV	–	–	–	–	–	–	--	–	–	–	–	–	–	–	–
C12-C16 Aromatic hydrocarbons	NV	NV	–	–	–	–	–	–	--	–	–	–	–	–	–	–	–
C16-C21 Aromatic hydrocarbons	NV	NV	–	–	–	–	–	–	--	–	–	–	–	–	–	–	–
C21-C34 Aromatic hydrocarbons	NV	NV	–	–	–	–	–	–	--	–	–	–	–	–	–	–	–
VPH (ug/L)																	
C5-C6 Aliphatic hydrocarbons	NV	NV	–	–	–	–	–	–	--	–	–	–	–	–	–	–	–
C6-C8 Aliphatic hydrocarbons	NV	NV	–	–	–	–	–	–	--	–	–	–	–	–	–	–	–
C8-C10 Aliphatic hydrocarbons	NV	NV	–	–	–	–	–	–	--	–	–	–	–	–	–	–	–
C10-C12 Aliphatic hydrocarbons	NV	NV	–	–	–	–	–	–	--	–	–	–	–	–	–	–	–
C8-C10 Aromatic hydrocarbons	NV	NV	–	–	–	–	–	–	--	–	–	–	–	–	–	–	–
C10-C12 Aromatic hydrocarbons	NV	NV	–	–	–	–	–	–	--	–	–	–	–	–	–	–	–
C12-C13 Aromatic hydrocarbons	NV	NV	–	–	–	–	–	–	--	–	–	–	–	–	–	–	–
Dissolved Metals (ug/L)																	
Aluminum	NV	NV	–	–	11.1 J+	–	–	–	--	–	–	–	–	–	–	10 U	–
Arsenic	5.0	8.0	–	–	2.61	–	–	–	2.84	1.88	–	–	–	–	–	1.89	–
Cadmium	5.0	NV	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–
Chromium	50	NV	–	–	–	–	–	–	1 U	5 U	–	–	–	–	–	–	–
Copper	NV	NV	–	–	2.4 U	–	–	–	2.4 U	2.4 U	–	–	–	–	–	2.4 U	–
Iron	NV	NV	–	–	1,770	--	–	–	--	–	–	–	–	–	–	2,600	–
Lead	15	NV	–	–	–	–	–	–	1 U	1 U	–	–	–	–	–	–	–
Manganese	NV	NV	–	–	510	–	–	–	194	268	–	–	–	–	–	118	–
Mercury	2.0	NV	–	–	–	–	–	–	0.2 U	0.2 U	–	–	–	–	–	–	–
Nickel	NV	NV	–	–	–	–	–	–	3.28	2.79	–	–	–	–	–	–	–
Selenium	NV	NV	–	–	–	–	–	–	30 U	5.48	–	–	–	–	–	–	–
Zinc	NV	NV	–	–	–	–	–	–	5 U	5 U	–	–	–	–	–	–	–
Total Metals (ug/L)																	
Aluminum	NV	NV	–	–	49.9 J+	–	–	–	--	–	–	–	–	–	–	10 U	–
Antimony	NV	NV	1 U	–	–	–	–	–	--	–	–	–	1 U	1 U	–	–	–
Arsenic	5.0	8.0	5.62	2.31	2.47	5 U	6	2.14	2.19	1.8	1.54	1.51	1.16	1.23	1.24	1.8	6.72
Barium	NV	NV	5.18	–	--	–	–	–	--	--	–	–	25.9	20.5	–	–	–
Beryllium	NV	NV	1 U	–	–	–	–	–	--	–	–	–	1 U	1 U	–	–	–
Cadmium	5.0	NV	1 U	1 U	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	–

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	SB-2A (continued)			SB-3 (deeper)	SB-3A										SRI-16
Location Type:			MW			Unknown	MW										Boring
Sample Name:			SB-2A-0822	SB-2A-1222	SB-2A-1223				SB-3A-1219	SB-3A-0320	SB-3A-0122	SB-9-3A-0122	SB-3A-0522	SB-3A-0822	SB-3A-1222	SB-3A-1223	--
Collection Date:			08/23/2022	12/05/2022	12/12/2023	04/01/1991	04/01/1991	09/21/2000	12/11/2019	03/09/2020	01/25/2022	01/25/2022	05/03/2022	08/23/2022	12/06/2022	12/13/2023	01/18/2002
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Collection Depth (ft bgs):			8.5	9	--	21	6	–	–	–	7.5	7.5	–	9.5	8	–	12
Total Metals cont. (ug/L)																	
Chromium	50	NV	1 U	1 U	–	–	–	–	1 U	5 U	1 U	1 U	1 U	1 U	1 U	–	–
Cobalt	NV	NV	1 U	–	–	–	–	–	--	–	–	–	1 U	1 U	–	–	–
Copper	NV	NV	2.4 U	1 U	2.4 U	–	–	6.58	3.28	2.4 U	0.4 U	0.4 U	1 U	2.4 U	1 U	2.4 U	48 J
Iron	NV	NV	1,340	–	2,060	--	–	–	--	–	–	–	3,810	3,190	–	2,940	–
Lead	15	NV	1 U	1 U	–	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	7.77
Manganese	NV	NV	425	552	528	–	–	20	173	264	206	205	241	201	167	121	1,790
Mercury	2.0	NV	0.02 U	0.02 U	–	5 U	5 U	1 U	0.2 U	0.2 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	–	1 U
Nickel	NV	NV	4.11	2.53	--	–	–	–	2.65	2.95	2.86	2.88	3.55	2.23	1.98	–	–
Selenium	NV	NV	1 U	–	–	–	–	–	7.17	5.19	–	–	3.97	3.41	--	–	–
Silver	NV	NV	1 U	–	–	–	–	–	--	–	–	–	1 U	1 U	–	–	–
Thallium	NV	NV	1 U	–	–	–	–	–	--	–	–	–	1 U	1 U	–	–	–
Vanadium	NV	NV	1.07	–	--	–	–	–	--	--	–	–	1.97	2.16	–	–	–
Zinc	NV	NV	5 U	5 U	–	38	63	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	–	48.7
PCB Aroclors (ug/L)						–	–	–									–
Aroclor 1016	NV	NV	0.005 UJ	0.0035 UJ	--	–	–	–	0.1 U	0.1 U	0.0035 U	0.0035 U	0.0035 U	0.005 UJ	0.0035 UJ	–	–
Aroclor 1221	NV	NV	0.005 UJ	0.0035 UJ	--	–	–	–	0.1 U	0.1 U	0.0035 U	0.0035 U	0.0035 U	0.005 UJ	0.0035 UJ	–	–
Aroclor 1232	NV	NV	0.005 UJ	0.0035 UJ	--	–	–	–	0.1 U	0.1 U	0.0035 U	0.0035 U	0.0035 U	0.005 UJ	0.0035 UJ	–	–
Aroclor 1242	NV	NV	0.005 UJ	0.0035 UJ	--	–	–	–	0.1 U	0.1 U	0.0035 U	0.0035 U	0.0035 U	0.005 UJ	0.0035 UJ	–	–
Aroclor 1248	NV	NV	0.007 UJ	0.0035 UJ	--	–	–	–	0.1 U	0.1 U	0.0035 U	0.0035 U	0.0035 U	0.007 UJ	0.0035 UJ	–	–
Aroclor 1254	NV	NV	0.007 UJ	0.0035 UJ	--	–	–	–	0.1 U	0.1 U	0.0035 U	0.0035 U	0.0035 U	0.007 UJ	0.0035 UJ	–	–
Aroclor 1260	NV	NV	0.007 UJ	0.0035 UJ	--	–	–	–	0.1 U	0.1 U	0.0035 U	0.0035 U	0.0035 U	0.007 UJ	0.0035 UJ	–	–
Aroclor 1262	NV	NV	0.007 UJ	0.0035 UJ	--	–	–	–	0.1 U	0.1 U	0.0035 U	0.0035 U	0.0035 U	0.007 UJ	0.0035 UJ	–	–
Aroclor 1268	NV	NV	0.007 UJ	0.0035 UJ	--	–	–	–	0.1 U	0.1 U	0.0035 U	0.0035 U	0.0035 U	0.007 UJ	0.0035 UJ	–	–
Total PCBs[c]	0.10	NV	0.007 UJ	0.0035 UJ	--	–	–	–	0.1 U	0.1 U	0.0035 U	0.0035 U	0.0035 U	0.007 UJ	0.0035 UJ	–	–
Permanent Gases (ug/L)																	
Methane	NV	NV	–	–	–	–	–	–	--	–	–	–	–	–	–	–	–
PFAS (ug/L)																	
3:3 FTCA	NV	NV	–	–	0.01 U	–	–	–	--	–	–	–	–	–	–	–	–
4:2 FTSA	NV	NV	–	–	0.0081 U	–	–	–	--	–	–	–	–	–	–	–	–
5:3 FTCA	NV	NV	–	–	0.051 U	–	–	–	--	–	–	–	–	–	–	–	–
6:2 FTSA	NV	NV	–	–	0.0081 U	–	–	–	--	–	–	–	–	–	–	–	–
7:3 FTCA	NV	NV	–	–	0.051 U	–	–	–	--	–	–	–	–	–	–	–	–
8:2 FTSA	NV	NV	–	–	0.0081 U	–	–	–	--	–	–	–	–	–	–	–	–
9Cl-PF3ONS (F-53B Major)	NV	NV	–	–	0.0081 U	–	–	–	--	–	–	–	–	–	–	–	–
11Cl-PF3OUdS (F-53B Minor)	NV	NV	–	–	0.0081 U	–	–	–	--	–	–	–	–	–	–	–	–
ADONA	NV	NV	–	–	0.0081 U	–	–	–	--	–	–	–	–	–	–	–	–
EtFOSA	NV	NV	–	–	0.002 U	–	–	–	--	–	–	–	–	–	–	–	–
EtFOSAA	NV	NV	–	–	0.002 U	–	–	–	--	–	–	–	–	–	–	–	–
EtFOSE	NV	NV	–	–	0.02 U	–	–	–	--	–	–	–	–	–	–	–	–
HFPO-DA (GenX)	NV	NV	–	–	0.0081 U	–	–	–	--	–	–	–	–	–	–	–	–
MeFOSA	NV	NV	–	–	0.002 U	–	–	–	--	–	–	–	–	–	–	–	–
MeFOSAA	NV	NV	–	–	0.002 U	–	–	–	--	–	–	–	–	–	–	–	–
MeFOSE	NV	NV	–	–	0.02 U	–	–	–	--	–	–	–	–	–	–	–	–
NFDHA	NV	NV	–	–	0.0041 U	–	–	–	--	–	–	–	–	–	–	–	–
PFBA	NV	NV	–	–	0.023	--	–	–	--	–	–	–	–	–	–	–	–
PFBS	NV	NV	–	–	0.002 U	–	–	–	--	–	–	–	–	–	–	–	–
PFDA	NV	NV	–	–	0.002 U	–	–	–	--	–	–	–	–	–	–	–	–

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	SB-2A (continued)			SB-3 (deeper)	SB-3A										SRI-16
Location Type:			MW			Unknown	MW										Boring
Sample Name:			SB-2A-0822	SB-2A-1222	SB-2A-1223				SB-3A-1219	SB-3A-0320	SB-3A-0122	SB-9-3A-0122	SB-3A-0522	SB-3A-0822	SB-3A-1222	SB-3A-1223	--
Collection Date:			08/23/2022	12/05/2022	12/12/2023	04/01/1991	04/01/1991	09/21/2000	12/11/2019	03/09/2020	01/25/2022	01/25/2022	05/03/2022	08/23/2022	12/06/2022	12/13/2023	01/18/2002
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Collection Depth (ft bgs):			8.5	9	--	21	6	--	--	--	7.5	7.5	--	9.5	8	--	12
PFAS cont. (ug/L)																	
PFDoA	NV	NV	--	--	0.002 U	--	--	--	--	--	--	--	--	--	--	--	--
PFDoS	NV	NV	--	--	0.002 UJ	--	--	--	--	--	--	--	--	--	--	--	--
PFDS	NV	NV	--	--	0.002 U	--	--	--	--	--	--	--	--	--	--	--	--
PFEESA	NV	NV	--	--	0.0041 U	--	--	--	--	--	--	--	--	--	--	--	--
PFHpA	NV	NV	--	--	0.002 U	--	--	--	--	--	--	--	--	--	--	--	--
PFHpS	NV	NV	--	--	0.002 U	--	--	--	--	--	--	--	--	--	--	--	--
PFHxA	NV	NV	--	--	0.002 U	--	--	--	--	--	--	--	--	--	--	--	--
PFHxS	NV	NV	--	--	0.002 U	--	--	--	--	--	--	--	--	--	--	--	--
PFMBA	NV	NV	--	--	0.0041 U	--	--	--	--	--	--	--	--	--	--	--	--
PFMPA	NV	NV	--	--	0.0041 U	--	--	--	--	--	--	--	--	--	--	--	--
PFNA	NV	NV	--	--	0.002 U	--	--	--	--	--	--	--	--	--	--	--	--
PFNS	NV	NV	--	--	0.002 U	--	--	--	--	--	--	--	--	--	--	--	--
PFOA	NV	NV	--	--	0.0041	--	--	--	--	--	--	--	--	--	--	--	--
PFOS	NV	NV	--	--	0.002 U	--	--	--	--	--	--	--	--	--	--	--	--
PFOSA	NV	NV	--	--	0.002 U	--	--	--	--	--	--	--	--	--	--	--	--
PFPeA	NV	NV	--	--	0.0041 U	--	--	--	--	--	--	--	--	--	--	--	--
PFPeS	NV	NV	--	--	0.002 U	--	--	--	--	--	--	--	--	--	--	--	--
PFTeDA	NV	NV	--	--	0.002 U	--	--	--	--	--	--	--	--	--	--	--	--
PFTrDA	NV	NV	--	--	0.002 U	--	--	--	--	--	--	--	--	--	--	--	--
PFUnA	NV	NV	--	--	0.002 U	--	--	--	--	--	--	--	--	--	--	--	--
VOCs by EPA 8021B (ug/L)																	
Benzene	5.0	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	700	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
m,p-Xylene	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methyl tert-butyl ether	20	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
o-Xylene	NV	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	1,000	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Xylenes (total)[d]	1,000	NV	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VOCs (ug/L)																	
1,1,1,2-Tetrachloroethane	NV	NV	1 U	1 U	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--
1,1,1-Trichloroethane	200	NV	1 U	1 U	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--
1,1,2,2-Tetrachloroethane	NV	NV	0.2 U	0.2 U	--	--	--	--	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
1,1,2-Trichloroethane	NV	NV	0.5 U	0.5 U	--	--	--	--	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	--
1,1-Dichloroethane	NV	NV	1 U	1 U	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--
1,1-Dichloroethene	NV	NV	1 U	1 U	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	1 U
1,1-Dichloropropene	NV	NV	1 U	1 U	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--
1,2,3-Trichlorobenzene	NV	NV	1 U	1 U	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--
1,2,3-Trichloropropane	NV	NV	1 U	1 U	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--
1,2,4-Trichlorobenzene	NV	NV	1 U	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	--	--	--
1,2,4-Trimethylbenzene	NV	NV	1 U	1 U	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--
1,2-Dibromo-3-chloropropane	NV	NV	10 U	10 U	--	--	--	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	--	--
1,2-Dibromoethane	0.010	NV	1 U	1 U	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--
1,2-Dichlorobenzene	NV	NV	1 U	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	--	--	--
1,2-Dichloroethane	5.0	NV	0.2 U	0.2 U	--	--	--	--	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	--
1,2-Dichloropropane	NV	NV	1 U	1 U	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--
1,3,5-Trimethylbenzene	NV	NV	1 U	1 U	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--
1,3-Dichlorobenzene	NV	NV	1 U	--	--	--	--	--	1 U	1 U	1 U	1 U	1 U	1 U	--	--	--

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	SB-2A (continued)			SB-3 (deeper)	SB-3A										SRI-16
Location Type:			MW			Unknown	MW										Boring
Sample Name:			SB-2A-0822	SB-2A-1222	SB-2A-1223				SB-3A-1219	SB-3A-0320	SB-3A-0122	SB-9-3A-0122	SB-3A-0522	SB-3A-0822	SB-3A-1222	SB-3A-1223	--
Collection Date:			08/23/2022	12/05/2022	12/12/2023	04/01/1991	04/01/1991	09/21/2000	12/11/2019	03/09/2020	01/25/2022	01/25/2022	05/03/2022	08/23/2022	12/06/2022	12/13/2023	01/18/2002
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Collection Depth (ft bgs):			8.5	9	--	21	6	–	–	–	7.5	7.5	–	9.5	8	–	12
VOCs cont. (ug/L)																	
1,3-Dichloropropane	NV	NV	1 U	1 U	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	–
1,4-Dichlorobenzene	NV	NV	1 U	–	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	–	–	–
1,4-Dioxane	NV	NV	0.4 U	0.4 U	--	–	–	–	0.4 U	0.5 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	–	–
2,2-Dichloropropane	NV	NV	1 U	1 U	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	–
2-Butanone	NV	NV	20 U	20 U	–	–	–	–	10 U	10 U	20 U	20 U	20 U	20 U	20 U	–	–
2-Chlorotoluene	NV	NV	1 U	1 U	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	–
2-Hexanone	NV	NV	10 U	10 U	–	–	–	–	10 U	10 U	10 U	10 U	10 U	10 U	10 U	–	–
4-Chlorotoluene	NV	NV	1 U	1 U	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	–
4-Isopropyltoluene	NV	NV	1 U	1 U	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	–
4-Methyl-2-pentanone	NV	NV	10 U	10 U	–	–	–	–	10 U	10 U	10 U	10 U	10 U	10 U	10 U	–	–
Acetone	NV	NV	50 U	50 U	–	–	–	–	50 U	50 U	50 U	50 U	50 U	50 U	50 U	–	–
Benzene	5.0	NV	0.35 U	0.35 U	–	–	–	1 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	–	0.5 U
Bromobenzene	NV	NV	1 U	1 U	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	–
Bromodichloromethane	NV	NV	0.5 U	0.5 U	–	–	–	–	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–
Bromoform	NV	NV	5 U	5 U	–	–	–	–	1 U	1 U	5 U	5 U	5 U	5 U	5 U	–	–
Bromomethane	NV	NV	5 U	5 U	–	–	–	–	1 U	1 U	5 U	5 U	5 U	5 U	5 U	–	–
Carbon tetrachloride	NV	NV	0.5 U	0.5 U	–	–	–	–	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–
Chlorobenzene	NV	NV	1 U	1 U	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	–
Chloroethane	NV	NV	1 U	1 U	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	–
Chloroform	NV	NV	1 U	1 U	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	–
Chloromethane	NV	NV	10 U	10 U	–	–	–	–	10 U	10 U	10 U	10 U	10 U	10 U	10 U	–	–
cis-1,2-Dichloroethene	NV	NV	1 U	1 U	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U
cis-1,3-Dichloropropene	NV	NV	0.4 U	0.4 U	–	–	–	–	1 U	1 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	–	–
Dibromochloromethane	NV	NV	0.5 U	0.5 U	–	–	–	–	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–
Dibromomethane	NV	NV	1 U	1 U	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	–
Dichlorodifluoromethane (Freon 12)	NV	NV	1 U	1 U	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	–
Ethylbenzene	700	NV	1 U	1 U	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U
Hexachlorobutadiene	NV	NV	0.5 U	–	–	–	–	–	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–	–
Isopropylbenzene	NV	NV	1 U	1 U	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	–
m,p-Xylene	NV	NV	2 U	2 U	–	–	–	–	2 U	2 U	2 U	2 U	2 U	2 U	2 U	–	–
Methyl tert-butyl ether	20	NV	1 U	1 U	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	–
Methylene chloride	5.0	NV	5 U	5 U	–	–	–	–	5 U	5 U	8.5 U	8.7 U	5 U	5 U	5 U	–	–
Naphthalene	160	NV	1 U	–	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	–	–	–
n-Hexane	NV	NV	5 U	5 U	–	–	–	–	1 U	1 U	5 U	5 U	5 U	5 U	5 U	–	–
n-Propylbenzene	NV	NV	1 U	1 U	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	–
o-Xylene	NV	NV	1 U	1 U	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	–
sec-Butylbenzene	NV	NV	1 U	1 U	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	–
Styrene	NV	NV	1 U	1 U	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	–
tert-Butylbenzene	NV	NV	1 U	1 U	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	–
Tetrachloroethene (PCE)	5.0	NV	1 U	1 U	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U
Toluene	1,000	NV	1 U	1 U	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U
trans-1,2-Dichloroethene	NV	NV	1 U	1 U	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	–
trans-1,3-Dichloropropene	NV	NV	0.4 U	0.4 U	–	–	–	–	1 U	1 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	–	–
Trichloroethene (TCE)	5.0	NV	0.5 U	0.5 U	–	–	–	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	1 U
Trichlorofluoromethane (Freon 11)	NV	NV	1 U	1 U	–	–	–	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	–
Vinyl chloride	0.20	NV	0.02 U	0.02 U	–	–	–	1 U	0.2 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	–	1 U
Xylenes (total)[3]	1,000	NV	2 U	2 U	–	–	–	–	2 U	2 U	2 U	2 U	2 U	2 U	2 U	–	–

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	SB-2A (continued)			SB-3 (deeper)	SB-3A										SRI-16
Location Type:			MW			Unknown	MW										Boring
Sample Name:			SB-2A-0822	SB-2A-1222	SB-2A-1223				SB-3A-1219	SB-3A-0320	SB-3A-0122	SB-9-3A-0122	SB-3A-0522	SB-3A-0822	SB-3A-1222	SB-3A-1223	--
Collection Date:			08/23/2022	12/05/2022	12/12/2023	04/01/1991	04/01/1991	09/21/2000	12/11/2019	03/09/2020	01/25/2022	01/25/2022	05/03/2022	08/23/2022	12/06/2022	12/13/2023	01/18/2002
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Collection Depth (ft bgs):			8.5	9	--	21	6	–	–	–	7.5	7.5	–	9.5	8	–	12
PAHs, Low-Level (ug/L)																	
Acenaphthene	NV	NV	–	–	–	–	–	–	0.059	–	–	–	–	–	–	–	–
Acenaphthylene	NV	NV	–	–	–	–	–	–	0.02 U	–	–	–	–	–	–	–	–
Anthracene	NV	NV	–	–	–	–	–	–	0.02 U	–	–	–	–	–	–	–	–
Benzo(a)anthracene	NV	NV	–	–	–	–	–	–	0.02 U	–	–	–	–	–	–	–	–
Benzo(a)pyrene	0.20[e][3]	NV	–	–	–	–	–	–	0.02 U	–	–	–	–	–	–	–	–
Benzo(b)fluoranthene	NV	NV	–	–	–	–	–	–	0.02 U	–	–	–	–	–	–	–	–
Benzo(ghi)perylene	NV	NV	–	–	–	–	–	–	0.02 U	–	–	–	–	–	–	–	–
Benzo(k)fluoranthene	NV	NV	–	–	–	–	–	–	0.02 U	–	–	–	–	–	–	–	–
Chrysene	NV	NV	–	–	–	–	–	–	0.02 U	–	–	–	–	–	–	–	–
Dibenzo(a,h)anthracene	NV	NV	–	–	–	–	–	–	0.02 U	–	–	–	–	–	–	–	–
Fluoranthene	NV	NV	–	–	–	–	–	–	0.02 U	–	–	–	–	–	–	–	–
Fluorene	NV	NV	–	–	–	–	–	–	0.02 U	–	–	–	–	–	–	–	–
Indeno(1,2,3-cd)pyrene	NV	NV	–	–	–	–	–	–	0.02 U	–	–	–	–	–	–	–	–
Naphthalene	160	NV	–	–	–	–	–	–	0.2 U	–	–	–	–	–	–	–	–
Phenanthrene	NV	NV	–	–	–	–	–	–	0.02 U	–	–	–	–	–	–	–	–
Pyrene	NV	NV	–	–	–	–	–	–	0.02 U	–	–	–	–	–	–	–	–
cPAH TEQ[f][4]	0.20[e][3]	NV	–	–	–	–	–	–	0.02 U	–	–	–	–	–	–	–	–
SVOCs (ug/L)																	
1,2,4-Trichlorobenzene	NV	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–	–
1,2-Dichlorobenzene	NV	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–	–
1,3-Dichlorobenzene	NV	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–	–
1,4-Dichlorobenzene	NV	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–	–
1,4-Dioxane	NV	NV	–	–	–	–	–	–	--	–	–	–	–	–	–	–	ND[g]
1-Methylnaphthalene	NV	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–	–
2,4,5-Trichlorophenol	NV	NV	1 U	1 U	–	–	–	–	2 U	2 U	1 U	1 U	1 U	1 U	1 U	–	–
2,4,6-Trichlorophenol	NV	NV	1 U	1 U	–	–	–	–	2 U	2 U	1 U	1 U	1 U	1 U	1 U	–	–
2,4-Dichlorophenol	NV	NV	1 U	1 U	–	–	–	–	2 U	2 U	1 U	1 U	1 U	1 U	1 U	–	–
2,4-Dimethylphenol	NV	NV	1 U	1 U	–	–	–	–	2 U	2 U	1 U	1 U	1 U	1 U	1 U	–	–
2,4-Dinitrophenol	NV	NV	3 U	3 U	–	–	–	–	6 U	6 U	3 U	3 U	3 U	3 U	3 U	–	–
2,4-Dinitrotoluene	NV	NV	0.5 U	0.5 U	–	–	–	–	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–
2,6-Dinitrotoluene	NV	NV	0.5 U	0.5 U	–	–	–	–	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–
2-Chloronaphthalene	NV	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–	–
2-Chlorophenol	NV	NV	1 U	1 U	–	–	–	–	2 U	2 U	1 R	1 R	1 U	1 U	1 U	–	–
2-Methylnaphthalene	NV	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–	–
2-Methylphenol	NV	NV	1 U	1 U	–	–	–	–	2 U	2 U	1 R	1 R	1 U	1 U	1 U	–	–
2-Nitroaniline	NV	NV	0.5 U	0.5 U	–	–	–	–	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–	–
2-Nitrophenol	NV	NV	1 U	1 U	–	–	–	–	2 U	2 U	1 U	1 U	1 U	1 U	1 U	–	–
3- & 4-Methylphenol (m,p-Cresol)	NV	NV	2 U	2 U	–	–	–	–	4 U	4 U	2 R	2 R	2 U	2 U	2 U	–	–
3-Nitroaniline	NV	NV	10 U	10 U	–	–	–	–	20 U	20 U	10 U	10 U	10 U	10 U	10 U	–	–
4,6-Dinitro-2-methylphenol	NV	NV	3 U	3 U	–	–	–	–	6 U	6 U	3 U	3 U	3 U	3 U	3 U	–	–
4-Bromophenyl phenyl ether	NV	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–	–
4-Chloro-3-methylphenol	NV	NV	1 U	1 U	–	–	–	–	2 U	2 U	1 U	1 U	1 U	1 U	1 U	–	–
4-Chloroaniline	NV	NV	10 U	10 U	–	–	–	–	20 U	20 U	10 U	10 U	10 U	10 U	10 U	–	–
4-Chlorophenyl phenyl ether	NV	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–	–
4-Nitroaniline	NV	NV	10 U	10 U	–	–	–	–	20 U	20 U	10 U	10 U	10 U	10 U	10 U	–	–
4-Nitrophenol	NV	NV	3 U	3 U	–	–	–	–	6 U	6 U	3 U	3 U	3 U	3 U	3 U	–	–
Acenaphthene	NV	NV	0.01 U	0.01 U	–	–	–	–	0.072	0.074	0.068	0.064	0.058	0.047	0.014	–	–

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	SB-2A (continued)			SB-3 (deeper)	SB-3A											SRI-16
Location Type:			MW			Unknown	MW											Boring
Sample Name:			SB-2A-0822	SB-2A-1222	SB-2A-1223				SB-3A-1219	SB-3A-0320	SB-3A-0122	SB-9-3A-0122	SB-3A-0522	SB-3A-0822	SB-3A-1222	SB-3A-1223		--
Collection Date:			08/23/2022	12/05/2022	12/12/2023	04/01/1991	04/01/1991	09/21/2000	12/11/2019	03/09/2020	01/25/2022	01/25/2022	05/03/2022	08/23/2022	12/06/2022	12/13/2023		01/18/2002
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	N	FD	N	N	N	N		N
Collection Depth (ft bgs):			8.5	9	--	21	6	–	–	–	7.5	7.5	–	9.5	8	–		12
SVOCs cont. (ug/L)																		
Acenaphthylene	NV	NV	0.01 U	0.014	--	–	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	–		–
Anthracene	NV	NV	0.01 U	0.01 U	–	–	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.031	0.032	0.01 U	–		–
Benzo(a)anthracene	NV	NV	0.01 U	0.01 U	--	–	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	–		–
Benzo(a)pyrene	0.20[e][3]	NV	0.01 U	0.01 U	--	–	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	–		–
Benzo(b)fluoranthene	NV	NV	0.01 U	0.011	--	–	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.017	–		–
Benzo(ghi)perylene	NV	NV	0.02 U	0.02 U	--	–	–	–	0.04 U	0.04 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	–		–
Benzo(k)fluoranthene	NV	NV	0.01 U	0.011	--	–	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.018	–		–
Benzoic acid	NV	NV	5 U	5 U	–	–	–	–	10 U	10 U	5 R	5 R	5 UJ	5 U	5 U	–		–
Benzyl alcohol	NV	NV	1 U	1 U	–	–	–	–	2 U	2 U	1 R	1 R	1 U	1 U	1 U	–		–
Bis(2-chloro-1-methylethyl) ether	NV	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–		–
Bis(2-chloroethoxy)methane	NV	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–		–
Bis(2-chloroethyl) ether	NV	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–		–
Bis(2-ethylhexyl) phthalate	NV	NV	1.6 J+	1.6 U	–	–	–	–	3.2 U	3.2 U	1.6 U	1.6 U	3.1 J+	1.6 U	1.6 U	–		–
Butylbenzyl phthalate	NV	NV	1 U	1 U	–	–	–	–	2 U	2 U	1 U	1 U	1 U	1 U	1 U	–		–
Carbazole	NV	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–		–
Chrysene	NV	NV	0.01 U	0.01 U	--	–	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.011	–		–
Dibenzo(a,h)anthracene	NV	NV	0.01 U	0.011	--	–	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.015	–		–
Dibenzofuran	NV	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–		–
Diethyl phthalate	NV	NV	1 U	1 U	–	–	–	–	2 U	2 U	1 U	1 U	1 U	1 U	1 U	–		–
Dimethyl phthalate	NV	NV	1 U	1 U	–	–	–	–	2 U	2 U	1 U	1 U	1 U	1 U	1 U	–		–
Di-n-butyl phthalate	NV	NV	1 U	1 U	–	–	–	–	2 U	2 U	1 U	1 U	1.6 J	1 U	1 U	–		–
Di-n-octyl phthalate	NV	NV	1 U	1 U	–	–	–	–	2 U	2 U	1 U	1 U	1 U	1 U	1 U	–		–
Fluoranthene	NV	NV	0.01 U	0.01 U	--	–	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01	0.01 U	0.01 U	–		–
Fluorene	NV	NV	0.01 U	0.01 U	--	–	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	–		–
Hexachlorobenzene	NV	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–		–
Hexachlorobutadiene	NV	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–		–
Hexachlorocyclopentadiene	NV	NV	0.3 U	0.3 U	--	–	–	–	0.6 U	0.6 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	–		–
Hexachloroethane	NV	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–		–
Indeno(1,2,3-cd)pyrene	NV	NV	0.01 U	0.011	--	–	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.016	–		–
Isophorone	NV	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–		–
Naphthalene	160	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–		–
Nitrobenzene	NV	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–		–
N-Nitrosodiphenylamine	NV	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–		–
N-Nitrosodipropylamine	NV	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–		–
Pentachlorophenol	NV	NV	0.5 U	0.5 U	–	–	–	–	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	–		–
Phenanthrene	NV	NV	0.01 U	0.012 J+	--	–	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.028	0.012 J+	0.012 J+	–		–
Phenol	NV	NV	1 U	1 U	–	–	–	–	2 U	2 U	1 R	1 R	1 U	1 U	1 U	–		–
Pyrene	NV	NV	0.01 U	0.01	–	–	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01	0.01 U	0.01 U	–		–
Naphthalenes, total[h]	160	NV	0.1 U	0.1 U	--	–	–	–	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	–		–
cPAH TEQ[f][4]	0.20[e][3]	NV	0.01 U	0.019	--	–	–	–	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.024	–		–

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	SRI-16D	SRI-17	SRI-17D	SRI-18	SRI-18D	SRI-19	SRI-19D	SRI-32	SRI-32D	SRI-33	SRI-33D	SRI-34	SRI-34D	TWA-SB-1	TWA-SB-2
Location Type:			Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring
Sample Name:			–	–	--	–	–	–	–	–	–	–	–	--	–	SB-1-0919	SB-2-0919
Collection Date:			01/18/2002	01/16/2002	01/16/2002	01/16/2002	01/17/2002	01/17/2002	01/17/2002	02/03/2002	02/03/2002	02/02/2002	02/02/2002	02/02/2002	02/02/2002	09/24/2019	09/24/2019
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Collection Depth (ft bgs):			27	9	24	8	21	36	34.5	9	26	9	23	9	24	–	
TPH (ug/L)																	
Gasoline-range hydrocarbons	1,000[a]	NV	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	100 U	100 U
Diesel-range hydrocarbons	500	NV	479	250 U	608	479	2,340	2,030	250 U	419	436	473	2,090	281 U	678	230	180
Motor oil-range hydrocarbons	500	NV	500 U	500 U	500 U	500 U	795	610	500 U	500 U	500 U	500 U	1,200	50,062 U	500 U	500 U	330 U
Diesel+Oil[b]	500	NV	729	500 U	858	729	3,135	2,640	500 U	669	686	723	3,290	50,062 U	928	480	345
TPH with Silica-Gel Treatment (ug/L)																	
Diesel-range hydrocarbons	500	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Motor oil-range hydrocarbons	500	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Diesel+Oil[b]	500	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
EPH (ug/L)																	
C8-C10 Aliphatic hydrocarbons	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
C10-C12 Aliphatic hydrocarbons	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
C12-C16 Aliphatic hydrocarbons	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
C16-C21 Aliphatic hydrocarbons	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
C21-C34 Aliphatic hydrocarbons	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
C8-C10 Aromatic hydrocarbons	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
C10-C12 Aromatic hydrocarbons	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
C12-C16 Aromatic hydrocarbons	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
C16-C21 Aromatic hydrocarbons	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
C21-C34 Aromatic hydrocarbons	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
VPH (ug/L)																	
C5-C6 Aliphatic hydrocarbons	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
C6-C8 Aliphatic hydrocarbons	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
C8-C10 Aliphatic hydrocarbons	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
C10-C12 Aliphatic hydrocarbons	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
C8-C10 Aromatic hydrocarbons	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
C10-C12 Aromatic hydrocarbons	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
C12-C13 Aromatic hydrocarbons	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Dissolved Metals (ug/L)																	
Aluminum	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Arsenic	5.0	8.0	–	--	--	–	–	–	–	–	–	–	--	--	–	--	1.49
Cadmium	5.0	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	1 U
Chromium	50	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	--	2.63
Copper	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	2.4 U
Iron	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Lead	15	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	1 U
Manganese	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	635
Mercury	2.0	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	0.2 U
Nickel	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	--	5.47
Selenium	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	--	1.76
Zinc	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	25 U
Total Metals (ug/L)																	
Aluminum	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Antimony	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Arsenic	5.0	8.0	2.68	5.66	11	2.9	9.6	7.01	7.06	9.47	12	4.44	6.61	6.31	10.1	4.95	2.18
Barium	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Beryllium	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Cadmium	5.0	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	SRI-16D	SRI-17	SRI-17D	SRI-18	SRI-18D	SRI-19	SRI-19D	SRI-32	SRI-32D	SRI-33	SRI-33D	SRI-34	SRI-34D	TWA-SB-1	TWA-SB-2
Location Type:			Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring
Sample Name:			–	–	--	–	–	–	–	–	–	–	–	--	–	SB-1-0919	SB-2-0919
Collection Date:			01/18/2002	01/16/2002	01/16/2002	01/16/2002	01/17/2002	01/17/2002	01/17/2002	02/03/2002	02/03/2002	02/02/2002	02/02/2002	02/02/2002	02/02/2002	09/24/2019	09/24/2019
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Collection Depth (ft bgs):			27	9	24	8	21	36	34.5	9	26	9	23	9	24	–	
Total Metals cont. (ug/L)																	
Chromium	50	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	4.33	4.94
Cobalt	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Copper	NV	NV	5.44 J	29	49.3	12	61.5 J	33.6 J	13.6 J	38.6	41.8	18	47.7	20.4	56	6.8	3.81
Iron	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Lead	15	NV	1.37	10.4	10.3	2.16	12.5	7.83	2.03	17.4	8.08	3.68	8.06	10.9	13	3.59	1 U
Manganese	NV	NV	155	1,920	1,350	953	1,180	1,970	94.4	2,480	430	2,280	198	776	683	2,990	665
Mercury	2.0	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.01 U	1.02 U	1.03 U	0.2 U	0.2 U
Nickel	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	7.15	5.48
Selenium	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1.3	1.41
Silver	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Thallium	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Vanadium	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Zinc	NV	NV	11.2	53.8	86.1	19.2	97.2	51.2	22.4	56.4	44.6	44	38.9	26.4	53.4	11.1	6.01
PCB Aroclors (ug/L)			–	--	--	–	–	–	–	–	–	–	--	--	–		
Aroclor 1016	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.1 U	0.1 U
Aroclor 1221	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.1 U	0.1 U
Aroclor 1232	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.1 U	0.1 U
Aroclor 1242	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.1 U	0.1 U
Aroclor 1248	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.1 U	0.1 U
Aroclor 1254	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.1 U	0.1 U
Aroclor 1260	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.1 U	0.1 U
Aroclor 1262	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.1 U	0.1 U
Aroclor 1268	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.1 U	0.1 U
Total PCBs[c]	0.10	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.1 U	0.1 U
Permanent Gases (ug/L)																	
Methane	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	8.63 U	1,210
PFAS (ug/L)																	
3:3 FTCA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
4:2 FTSA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
5:3 FTCA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
6:2 FTSA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
7:3 FTCA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
8:2 FTSA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
9Cl-PF3ONS (F-53B Major)	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
11Cl-PF3OUdS (F-53B Minor)	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
ADONA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
EtFOSA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
EtFOSAA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
EtFOSE	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
HFPO-DA (GenX)	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
MeFOSA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
MeFOSAA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
MeFOSE	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
NFDHA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
PFBA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
PFBS	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
PFDA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	SRI-16D	SRI-17	SRI-17D	SRI-18	SRI-18D	SRI-19	SRI-19D	SRI-32	SRI-32D	SRI-33	SRI-33D	SRI-34	SRI-34D	TWA-SB-1	TWA-SB-2
Location Type:			Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring
Sample Name:			–	–	--	–	–	–	–	–	–	–	–	--	–	SB-1-0919	SB-2-0919
Collection Date:			01/18/2002	01/16/2002	01/16/2002	01/16/2002	01/17/2002	01/17/2002	01/17/2002	02/03/2002	02/03/2002	02/02/2002	02/02/2002	02/02/2002	02/02/2002	09/24/2019	09/24/2019
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Collection Depth (ft bgs):			27	9	24	8	21	36	34.5	9	26	9	23	9	24	–	
PFAS cont. (ug/L)																	
PFDoA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
PFDoS	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
PFDS	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
PFEESA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
PFHpA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
PFHpS	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
PFHxA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
PFHxS	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
PFMBA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
PFMPA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
PFNA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
PFNS	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
PFOA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
PFOS	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
PFOSA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
PFPeA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
PFPeS	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
PFTeDA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
PFTrDA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
PFUnA	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
VOCs by EPA 8021B (ug/L)																	
Benzene	5.0	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Ethylbenzene	700	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
m,p-Xylene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Methyl tert-butyl ether	20	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
o-Xylene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Toluene	1,000	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Xylenes (total)[d]	1,000	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
VOCs (ug/L)																	
1,1,1,2-Tetrachloroethane	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
1,1,1-Trichloroethane	200	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
1,1,2,2-Tetrachloroethane	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
1,1,2-Trichloroethane	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
1,1-Dichloroethane	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
1,1-Dichloroethene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloropropene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
1,2,3-Trichlorobenzene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
1,2,3-Trichloropropane	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
1,2,4-Trichlorobenzene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
1,2,4-Trimethylbenzene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
1,2-Dibromo-3-chloropropane	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	10 U	10 U
1,2-Dibromoethane	0.010	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
1,2-Dichlorobenzene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
1,2-Dichloroethane	5.0	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
1,2-Dichloropropane	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
1,3,5-Trimethylbenzene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
1,3-Dichlorobenzene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	SRI-16D	SRI-17	SRI-17D	SRI-18	SRI-18D	SRI-19	SRI-19D	SRI-32	SRI-32D	SRI-33	SRI-33D	SRI-34	SRI-34D	TWA-SB-1	TWA-SB-2
Location Type:			Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring
Sample Name:			–	–	--	–	–	–	–	–	–	–	–	--	–	SB-1-0919	SB-2-0919
Collection Date:			01/18/2002	01/16/2002	01/16/2002	01/16/2002	01/17/2002	01/17/2002	01/17/2002	02/03/2002	02/03/2002	02/02/2002	02/02/2002	02/02/2002	02/02/2002	09/24/2019	09/24/2019
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Collection Depth (ft bgs):			27	9	24	8	21	36	34.5	9	26	9	23	9	24	–	
VOCs cont. (ug/L)																	
1,3-Dichloropropane	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
1,4-Dichlorobenzene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
1,4-Dioxane	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
2,2-Dichloropropane	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
2-Butanone	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	10 U	10 U
2-Chlorotoluene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
2-Hexanone	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	10 U	10 U
4-Chlorotoluene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
4-Isopropyltoluene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
4-Methyl-2-pentanone	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	10 U	10 U
Acetone	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	320	50 U
Benzene	5.0	NV	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.35 U	0.35 U
Bromobenzene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
Bromodichloromethane	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
Bromoform	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
Bromomethane	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
Carbon tetrachloride	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
Chlorobenzene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
Chloroethane	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
Chloroform	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
Chloromethane	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	10 U	10 U
cis-1,2-Dichloroethene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
Dibromochloromethane	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
Dibromomethane	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
Dichlorodifluoromethane (Freon 12)	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
Ethylbenzene	700	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Hexachlorobutadiene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
Isopropylbenzene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
m,p-Xylene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	2 U	2 U
Methyl tert-butyl ether	20	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
Methylene chloride	5.0	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	6.2	5 U
Naphthalene	160	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
n-Hexane	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
n-Propylbenzene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
o-Xylene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
sec-Butylbenzene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
Styrene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
tert-Butylbenzene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
Tetrachloroethene (PCE)	5.0	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	1,000	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
trans-1,3-Dichloropropene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
Trichloroethene (TCE)	5.0	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichlorofluoromethane (Freon 11)	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1 U	1 U
Vinyl chloride	0.20	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.2 U	0.2 U
Xylenes (total)[d]	1,000	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	2 U	2 U

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	SRI-16D	SRI-17	SRI-17D	SRI-18	SRI-18D	SRI-19	SRI-19D	SRI-32	SRI-32D	SRI-33	SRI-33D	SRI-34	SRI-34D	TWA-SB-1	TWA-SB-2
Location Type:			Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring
Sample Name:			–	–	--	–	–	–	–	–	–	–	–	--	–	SB-1-0919	SB-2-0919
Collection Date:			01/18/2002	01/16/2002	01/16/2002	01/16/2002	01/17/2002	01/17/2002	01/17/2002	02/03/2002	02/03/2002	02/02/2002	02/02/2002	02/02/2002	02/02/2002	09/24/2019	09/24/2019
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Collection Depth (ft bgs):			27	9	24	8	21	36	34.5	9	26	9	23	9	24	–	
PAHs, Low-Level (ug/L)																	
Acenaphthene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Acenaphthylene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Anthracene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Benzo(a)anthracene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Benzo(a)pyrene	0.20[e][3]	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Benzo(b)fluoranthene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Benzo(ghi)perylene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Benzo(k)fluoranthene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Chrysene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Dibenzo(a,h)anthracene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Fluoranthene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Fluorene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Indeno(1,2,3-cd)pyrene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Naphthalene	160	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Phenanthrene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
Pyrene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
cPAH TEQ[f][4]	0.20[e][3]	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	–	–
SVOCs (ug/L)																	
1,2,4-Trichlorobenzene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.2 U
1,2-Dichlorobenzene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.2 U
1,3-Dichlorobenzene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.2 U
1,4-Dichlorobenzene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.2 U
1,4-Dioxane	NV	NV	ND[g]	ND[g]	ND[g]	ND[g]	ND[g]	ND[g]	ND[g]	ND[g]	ND[g]	ND[g]	ND[g]	ND[g]	ND[g]	–	–
1-Methylnaphthalene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.22
2,4,5-Trichlorophenol	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	3 U	2 U
2,4,6-Trichlorophenol	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	3 U	2 U
2,4-Dichlorophenol	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	3 U	2 U
2,4-Dimethylphenol	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	3 U	2 U
2,4-Dinitrophenol	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	9 UJ	6 UJ
2,4-Dinitrotoluene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1.5 U	1 U
2,6-Dinitrotoluene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1.5 U	1 U
2-Chloronaphthalene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.2 U
2-Chlorophenol	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	3 U	2 U
2-Methylnaphthalene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.2 U
2-Methylphenol	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	3 U	2 U
2-Nitroaniline	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1.5 U	1 U
2-Nitrophenol	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	3 U	2 U
3- & 4-Methylphenol (m,p-Cresol)	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	6 U	4 U
3-Nitroaniline	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	30 U	20 U
4,6-Dinitro-2-methylphenol	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	9 U	6 U
4-Bromophenyl phenyl ether	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.2 U
4-Chloro-3-methylphenol	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	3 U	2 U
4-Chloroaniline	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	30 U	20 U
4-Chlorophenyl phenyl ether	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.2 U
4-Nitroaniline	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	30 U	20 U
4-Nitrophenol	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	9 U	6 U
Acenaphthene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.03 U	9.1

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	SRI-16D	SRI-17	SRI-17D	SRI-18	SRI-18D	SRI-19	SRI-19D	SRI-32	SRI-32D	SRI-33	SRI-33D	SRI-34	SRI-34D	TWA-SB-1	TWA-SB-2
Location Type:			Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring	Boring
Sample Name:			–	–	--	–	–	–	–	–	–	–	–	--	–	SB-1-0919	SB-2-0919
Collection Date:			01/18/2002	01/16/2002	01/16/2002	01/16/2002	01/17/2002	01/17/2002	01/17/2002	02/03/2002	02/03/2002	02/02/2002	02/02/2002	02/02/2002	02/02/2002	09/24/2019	09/24/2019
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Collection Depth (ft bgs):			27	9	24	8	21	36	34.5	9	26	9	23	9	24	–	
SVOCs cont. (ug/L)																	
Acenaphthylene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.03 U	0.029
Anthracene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.03 U	0.02 U
Benzo(a)anthracene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.03 U	0.02 U
Benzo(a)pyrene	0.20[e][3]	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.03 U	0.02 U
Benzo(b)fluoranthene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.03 U	0.02 U
Benzo(ghi)perylene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.06 U	0.04 U
Benzo(k)fluoranthene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.03 U	0.02 U
Benzoic acid	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	15 UJ	10 UJ
Benzyl alcohol	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	3 U	2 U
Bis(2-chloro-1-methylethyl) ether	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.2 U
Bis(2-chloroethoxy)methane	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.2 U
Bis(2-chloroethyl) ether	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.2 U
Bis(2-ethylhexyl) phthalate	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	4.8 U	3.2 U
Butylbenzyl phthalate	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	3 U	2 U
Carbazole	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.2 U
Chrysene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.03 U	0.02 U
Dibenzo(a,h)anthracene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.03 U	0.02 U
Dibenzofuran	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.2 U
Diethyl phthalate	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	3 U	2 U
Dimethyl phthalate	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	3 U	2 U
Di-n-butyl phthalate	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	3 U	2 U
Di-n-octyl phthalate	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	3 U	2 U
Fluoranthene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.03 U	0.068
Fluorene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.03 U	0.052
Hexachlorobenzene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.2 U
Hexachlorobutadiene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.2 U
Hexachlorocyclopentadiene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.9 U	0.6 U
Hexachloroethane	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.2 U
Indeno(1,2,3-cd)pyrene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.03 U	0.02 U
Isophorone	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.2 U
Naphthalene	160	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.2 U
Nitrobenzene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.2 U
N-Nitrosodiphenylamine	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.2 U
N-Nitrosodipropylamine	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.2 U
Pentachlorophenol	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	1.5 U	1 U
Phenanthrene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.03 U	0.02 U
Phenol	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	3 U	2 U
Pyrene	NV	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.03 U	0.16
Naphthalenes, total[h]	160	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.3 U	0.42
cPAH TEQ[f][4]	0.20[e][3]	NV	–	--	--	–	–	–	–	–	–	–	--	--	–	0.03 U	0.02 U

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	TWA-SB-3	TWA-SB-4	TWA-5				TWA-5D								TWA-6	
Location Type:			Boring	Boring	Boring				MW								Boring	
Sample Name:			SB-3-0919	SB-4-0919	TWA-5-1	TWA-5-2	TWA-5-3	TWA-5-3	TWA-5	TWA-5-0320	SB-105-0320	TWA-5-0122	TWA-5D-0522	TWA-5D-0822	TWA-5D-1222	TWA-5D-1223	TWA-6-1	TWA-6-2
Collection Date:			09/24/2019	09/24/2019	09/24/2019	09/25/2019	09/25/2019	09/26/2019	12/10/2019	03/09/2020	03/09/2020	01/25/2022	05/03/2022	08/23/2022	12/06/2022	12/13/2023	09/26/2019	09/26/2019
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N
Collection Depth (ft bgs):			–	–	25	35	45	45	–	–	–	27.5	–	27.5	28	–	15	25
TPH (ug/L)																		
Gasoline-range hydrocarbons	1,000[a]	NV	100 U	100 U	100 U	100 U	100 U	–	100 U	100 U	100 U	100 U	100 U	100 U	100 U	–	100 U	100 U
Diesel-range hydrocarbons	500	NV	6,800	300	410	400	560	--	500	610	680	4,900	700	570	1,000	–	97	380
Motor oil-range hydrocarbons	500	NV	1,800	330 U	330 U	300 U	300 U	--	430	360	350	3,500	480	300	1,100	–	250 U	250 U
Diesel+Oil[b]	500	NV	8,600	465	575	550	710	--	930	970	1,030	8,400	1,180	870	2,100	–	222	505
TPH with Silica-Gel Treatment (ug/L)																		
Diesel-range hydrocarbons	500	NV	70 U	–	–	--	–	–	50 U	50 U	50 U	50 U	50 U	–	–	–	–	–
Motor oil-range hydrocarbons	500	NV	330 U	–	–	--	–	–	250 U	250 U	250 U	250 U	250 U	–	–	–	–	–
Diesel+Oil[b]	500	NV	330 U	–	–	--	–	–	250 U	250 U	250 U	250 U	250 U	–	–	–	–	–
EPH (ug/L)																		
C8-C10 Aliphatic hydrocarbons	NV	NV	–	–	–	--	–	–	--	–	–	--	–	–	78.5 UJ	–	–	–
C10-C12 Aliphatic hydrocarbons	NV	NV	–	–	–	--	–	–	--	–	–	--	–	–	39.3 UJ	–	–	–
C12-C16 Aliphatic hydrocarbons	NV	NV	–	–	–	--	–	–	--	–	–	--	–	–	39.3 UJ	–	–	–
C16-C21 Aliphatic hydrocarbons	NV	NV	–	–	–	--	–	–	--	–	–	--	–	–	39.3 UJ	–	–	–
C21-C34 Aliphatic hydrocarbons	NV	NV	–	–	–	--	–	–	--	–	–	--	–	–	39.3 UJ	–	–	–
C8-C10 Aromatic hydrocarbons	NV	NV	–	–	–	--	–	–	--	–	–	--	–	–	78.5 UJ	–	–	–
C10-C12 Aromatic hydrocarbons	NV	NV	–	–	–	--	–	–	--	–	–	--	–	–	39.3 UJ	–	–	–
C12-C16 Aromatic hydrocarbons	NV	NV	–	–	–	--	–	–	--	–	–	--	–	–	39.3 UJ	–	–	–
C16-C21 Aromatic hydrocarbons	NV	NV	–	–	–	--	–	–	--	–	–	--	–	–	39.3 UJ	–	–	–
C21-C34 Aromatic hydrocarbons	NV	NV	–	–	–	--	–	–	--	–	–	--	–	–	39.3 UJ	–	–	–
VPH (ug/L)																		
C5-C6 Aliphatic hydrocarbons	NV	NV	–	–	–	--	–	–	--	–	–	--	–	–	50 U	–	–	–
C6-C8 Aliphatic hydrocarbons	NV	NV	–	–	–	--	–	–	--	–	–	--	–	–	50 U	–	–	–
C8-C10 Aliphatic hydrocarbons	NV	NV	–	–	–	--	–	–	--	–	–	--	–	–	50 U	–	–	–
C10-C12 Aliphatic hydrocarbons	NV	NV	–	–	–	--	–	–	--	–	–	--	–	–	50 U	–	–	–
C8-C10 Aromatic hydrocarbons	NV	NV	–	–	–	--	–	–	--	–	–	--	–	–	50 U	–	–	–
C10-C12 Aromatic hydrocarbons	NV	NV	–	–	–	--	–	–	--	–	–	--	–	–	50 U	–	–	–
C12-C13 Aromatic hydrocarbons	NV	NV	–	–	–	--	–	–	--	–	–	--	–	–	50 U	–	–	–
Dissolved Metals (ug/L)																		
Aluminum	NV	NV	–	–	–	--	–	–	--	–	–	--	–	–	--	11.4 J+	–	–
Arsenic	5.0	8.0	1.94	1.07	--	--	–	–	9.08	7.1	7.04	–	–	–	–	5.26	–	–
Cadmium	5.0	NV	1 U	1 U	–	--	–	–	1 U	1 U	1 U	--	–	–	–	–	–	–
Chromium	50	NV	1.43	1 U	–	--	–	–	8.39	7.57	6.99 J	–	–	–	–	–	–	–
Copper	NV	NV	2.4 U	2.4 U	--	--	–	–	7.6	2.4 U	2.4 U	–	–	–	–	2.4 U	–	–
Iron	NV	NV	–	–	–	--	–	–	--	–	–	--	–	–	–	1,780	–	–
Lead	15	NV	1 U	1 U	–	--	–	–	1 U	1 U	1 U	--	–	–	–	–	–	–
Manganese	NV	NV	832	631	--	--	–	--	262	180	173	–	--	–	–	181	--	–
Mercury	2.0	NV	0.2 U	0.2 U	--	--	–	--	0.2 U	0.2 U	0.2 U	–	–	–	–	–	–	–
Nickel	NV	NV	9.44	5.12	--	--	–	–	4.24	1.71	1.81 J	–	–	–	–	–	–	–
Selenium	NV	NV	3.36	1.95	--	--	–	–	30 U	17.9	16.9	–	–	–	–	–	–	–
Zinc	NV	NV	25 U	25 U	–	--	–	--	5 U	5 U	5 U	–	–	–	–	–	–	–
Total Metals (ug/L)																		
Aluminum	NV	NV	–	–	–	--	–	–	--	–	–	--	–	–	--	19.7 J+	–	–
Antimony	NV	NV	–	–	–	--	–	–	--	–	–	--	10 U	1 U	–	–	–	–
Arsenic	5.0	8.0	1.77	5.66	53.9	25.4	14.9	--	6.97	7.22	6.84	6.77	10 U	5.66	6.27	5.16	6.39	20.7
Barium	NV	NV	–	–	–	--	–	–	--	–	–	--	20.9	20.3	–	–	–	–
Beryllium	NV	NV	–	–	–	--	–	–	--	–	–	--	10 U	1 U	–	–	–	–
Cadmium	5.0	NV	1 U	1 U	10 U	1 U	10 U	–	2 U	1 U	1 U	10 U	10 U	1 U	1 U	–	1 U	1 U

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	TWA-SB-3	TWA-SB-4	TWA-5				TWA-5D								TWA-6	
Location Type:			Boring	Boring	Boring				MW								Boring	
Sample Name:			SB-3-0919	SB-4-0919	TWA-5-1	TWA-5-2	TWA-5-3	TWA-5-3	TWA-5	TWA-5-0320	SB-105-0320	TWA-5-0122	TWA-5D-0522	TWA-5D-0822	TWA-5D-1222	TWA-5D-1223	TWA-6-1	TWA-6-2
Collection Date:			09/24/2019	09/24/2019	09/24/2019	09/25/2019	09/25/2019	09/26/2019	12/10/2019	03/09/2020	03/09/2020	01/25/2022	05/03/2022	08/23/2022	12/06/2022	12/13/2023	09/26/2019	09/26/2019
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N
Collection Depth (ft bgs):			–	–	25	35	45	45	–	–	–	27.5	–	27.5	28	–	15	25
Total Metals cont. (ug/L)																		
Chromium	50	NV	3	15.6	137	54.4	14.6	--	8.23	7.17	7.06	6.46	10 U	5.98 J+	6.02 J+	–	37.6	89.1
Cobalt	NV	NV	–	–	–	--	–	–	--	–	–	--	10 U	1.35	–	–	–	–
Copper	NV	NV	3.78 J	22	368	61.6	50 U	--	35.4	2.4 U	2.4 U	1.08 U	10 U	2.4 U	2.82 J+	2.4 U	50 U	118
Iron	NV	NV	–	–	–	--	–	–	--	–	–	--	1,560	1,650	–	2,010	--	–
Lead	15	NV	1 U	4.31	114	8.09	1.32	--	2 U	1 U	1 U	1 U	1 U	1 U	1 U	–	4.68	15
Manganese	NV	NV	892	614	1,640	252	76.2	--	259	175	175	170	152	179	176	182	716	1,480
Mercury	2.0	NV	0.2 U	0.2 U	2 U	1 U	1 U	–	0.2 U	0.2 U	0.2 U	0.02 U	0.02 U	0.02 U	0.02 U	–	1 U	1 U
Nickel	NV	NV	8.85	17.7	123	50 U	50 U	--	2 U	5 U	5 U	1.59	10 U	2.04	1.83	–	50 U	50
Selenium	NV	NV	2.33	1.44	14.9	21.3	–	35.3	15.8	18.1	16.9	–	17.4	9.8	–	–	10 U	21.6
Silver	NV	NV	–	–	–	--	–	–	--	–	–	--	10 U	1 U	–	–	–	–
Thallium	NV	NV	–	–	–	--	–	–	--	–	--	–	1 U	1 U	–	–	–	–
Vanadium	NV	NV	–	–	–	--	–	–	--	–	–	--	18.2	17.6	–	–	–	–
Zinc	NV	NV	7.53	26.2	488	76.6	50 U	--	10 U	5 U	5 U	5 U	50 U	5 U	5 U	–	50 U	105
PCB Aroclors (ug/L)																		
Aroclor 1016	NV	NV	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U	0.0035 UJ	0.0035 U	0.005 UJ	0.0035 UJ	–	0.1 U	0.1 U
Aroclor 1221	NV	NV	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U	0.0035 UJ	0.0035 U	0.005 UJ	0.0035 UJ	–	0.1 U	0.1 U
Aroclor 1232	NV	NV	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U	0.0035 UJ	0.0035 U	0.005 UJ	0.0035 UJ	–	0.1 U	0.1 U
Aroclor 1242	NV	NV	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U	0.0035 UJ	0.0035 U	0.005 UJ	0.0035 UJ	–	0.1 U	0.1 U
Aroclor 1248	NV	NV	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U	0.0035 UJ	0.0035 U	0.0071 UJ	0.0035 UJ	–	0.1 U	0.1 U
Aroclor 1254	NV	NV	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U	0.0035 UJ	0.0035 U	0.0071 UJ	0.0035 UJ	–	0.1 U	0.1 U
Aroclor 1260	NV	NV	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U	0.0035 UJ	0.0035 U	0.0071 UJ	0.0035 UJ	–	0.1 U	0.1 U
Aroclor 1262	NV	NV	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U	0.0035 UJ	0.0035 U	0.0071 UJ	0.0035 UJ	–	0.1 U	0.1 U
Aroclor 1268	NV	NV	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U	0.0035 UJ	0.0035 U	0.0071 UJ	0.0035 UJ	–	0.1 U	0.1 U
Total PCBs[c]	0.10	NV	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U	0.0035 UJ	0.0035 U	0.005 UJ	0.0035 UJ	–	0.1 U	0.1 U
Permanent Gases (ug/L)																		
Methane	NV	NV	1,480	3,530	--	–	–	--	–	–	--	–	–	–	–	–	–	–
PFAS (ug/L)																		
3:3 FTCA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
4:2 FTSA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
5:3 FTCA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
6:2 FTSA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
7:3 FTCA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
8:2 FTSA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
9Cl-PF3ONS (F-53B Major)	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
11Cl-PF3OUdS (F-53B Minor)	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
ADONA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
EtFOSA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
EtFOSAA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
EtFOSE	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
HFPO-DA (GenX)	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
MeFOSA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
MeFOSAA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
MeFOSE	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
NFDHA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
PFBA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
PFBS	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
PFDA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	TWA-SB-3	TWA-SB-4	TWA-5				TWA-5D								TWA-6	
Location Type:			Boring	Boring	Boring				MW								Boring	
Sample Name:			SB-3-0919	SB-4-0919	TWA-5-1	TWA-5-2	TWA-5-3	TWA-5-3	TWA-5	TWA-5-0320	SB-105-0320	TWA-5-0122	TWA-5D-0522	TWA-5D-0822	TWA-5D-1222	TWA-5D-1223	TWA-6-1	TWA-6-2
Collection Date:			09/24/2019	09/24/2019	09/24/2019	09/25/2019	09/25/2019	09/26/2019	12/10/2019	03/09/2020	03/09/2020	01/25/2022	05/03/2022	08/23/2022	12/06/2022	12/13/2023	09/26/2019	09/26/2019
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N
Collection Depth (ft bgs):			–	–	25	35	45	45	–	–	–	27.5	–	27.5	28	–	15	25
PFAS cont. (ug/L)																		
PFDoA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
PFDoS	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
PFDS	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
PFEESA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
PFHpA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
PFHpS	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
PFHxA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
PFHxS	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
PFMBA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
PFMPA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
PFNA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
PFNS	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
PFOA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
PFOS	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
PFOSA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
PFPeA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
PFPeS	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
PFTeDA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
PFTrDA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
PFUnA	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
VOCs by EPA 8021B (ug/L)																		
Benzene	5.0	NV	–	–	–	--	–	–	--	–	--	–	–	–	1 U	–	–	–
Ethylbenzene	700	NV	–	–	–	--	–	–	--	–	--	–	–	–	1 U	–	–	–
m,p-Xylene	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	1 U	–	–	–
Methyl tert-butyl ether	20	NV	–	–	–	--	–	–	--	–	–	--	–	–	10 U	–	–	–
o-Xylene	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	1 U	–	–	–
Toluene	1,000	NV	–	–	–	--	–	–	--	–	--	–	–	–	1 U	–	–	–
Xylenes (total)[d]	1,000	NV	–	–	–	--	–	–	--	–	--	–	–	–	1 U	–	–	–
VOCs (ug/L)																		
1,1,1,2-Tetrachloroethane	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
1,1,1-Trichloroethane	200	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
1,1,2,2-Tetrachloroethane	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	–	1 U	1 U
1,1,2-Trichloroethane	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	–	1 U	1 U
1,1-Dichloroethane	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
1,1-Dichloroethene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
1,1-Dichloropropene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
1,2,3-Trichlorobenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
1,2,3-Trichloropropane	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
1,2,4-Trichlorobenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	–	–	1 U	1 U
1,2,4-Trimethylbenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
1,2-Dibromo-3-chloropropane	NV	NV	10 U	10 U	10 U	10 U	10 U	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	–	10 U	10 U
1,2-Dibromoethane	0.010	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
1,2-Dichlorobenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	–	–	1 U	1 U
1,2-Dichloroethane	5.0	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	–	1 U	1 U
1,2-Dichloropropane	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
1,3,5-Trimethylbenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
1,3-Dichlorobenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	–	–	1 U	1 U

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	TWA-SB-3	TWA-SB-4	TWA-5				TWA-5D								TWA-6	
Location Type:			Boring	Boring	Boring				MW								Boring	
Sample Name:			SB-3-0919	SB-4-0919	TWA-5-1	TWA-5-2	TWA-5-3	TWA-5-3	TWA-5	TWA-5-0320	SB-105-0320	TWA-5-0122	TWA-5D-0522	TWA-5D-0822	TWA-5D-1222	TWA-5D-1223	TWA-6-1	TWA-6-2
Collection Date:			09/24/2019	09/24/2019	09/24/2019	09/25/2019	09/25/2019	09/26/2019	12/10/2019	03/09/2020	03/09/2020	01/25/2022	05/03/2022	08/23/2022	12/06/2022	12/13/2023	09/26/2019	09/26/2019
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N
Collection Depth (ft bgs):			–	–	25	35	45	45	–	–	–	27.5	–	27.5	28	–	15	25
VOCs cont. (ug/L)																		
1,3-Dichloropropane	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
1,4-Dichlorobenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	–	–	1 U	1 U
1,4-Dioxane	NV	NV	–	–	–	--	–	–	0.52	0.6	0.65	0.72	0.64	0.65	0.5	–	–	–
2,2-Dichloropropane	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
2-Butanone	NV	NV	10 U	10 U	10 U	10 U	10 U	--	10 U	10 U	10 U	20 U	20 U	20 U	20 U	–	10 U	10 U
2-Chlorotoluene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
2-Hexanone	NV	NV	10 U	10 U	10 U	10 U	10 U	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	–	10 U	10 U
4-Chlorotoluene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
4-Isopropyltoluene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
4-Methyl-2-pentanone	NV	NV	10 U	10 U	10 U	10 U	10 U	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	–	10 U	10 U
Acetone	NV	NV	50 U	50 U	50 U	50 U	50 U	--	50 U	50 U	50 U	50 U	50 U	50 U	50 U	–	50 U	50 U
Benzene	5.0	NV	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	--	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	–	0.35 U	0.35 U
Bromobenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
Bromodichloromethane	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	–	1 U	1 U
Bromoform	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	5 U	5 U	5 U	5 U	–	1 U	1 U
Bromomethane	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	5 U	5 U	5 U	5 U	–	1 U	1 U
Carbon tetrachloride	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	–	1 U	1 U
Chlorobenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
Chloroethane	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
Chloroform	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
Chloromethane	NV	NV	10 U	10 U	10 U	10 U	10 U	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	–	10 U	10 U
cis-1,2-Dichloroethene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
cis-1,3-Dichloropropene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	0.4 U	0.4 U	0.4 U	0.4 U	–	1 U	1 U
Dibromochloromethane	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	–	1 U	1 U
Dibromomethane	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
Dichlorodifluoromethane (Freon 12)	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
Ethylbenzene	700	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
Hexachlorobutadiene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	–	–	1 U	1 U
Isopropylbenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
m,p-Xylene	NV	NV	2 U	2 U	2 U	2 U	2 U	–	2 U	2 U	2 U	2 U	2 U	2 U	2 U	–	2 U	2 U
Methyl tert-butyl ether	20	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
Methylene chloride	5.0	NV	5 U	5 U	5 U	5 U	5 U	–	5 U	5 U	5 U	10 U	7.3 U	5 U	5 U	–	5 U	5 U
Naphthalene	160	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	–	–	1 U	1 U
n-Hexane	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	5 U	5 U	5 U	5 U	–	1 U	1 U
n-Propylbenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
o-Xylene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
sec-Butylbenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
Styrene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
tert-Butylbenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
Tetrachloroethene (PCE)	5.0	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
Toluene	1,000	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
trans-1,2-Dichloroethene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
trans-1,3-Dichloropropene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	0.4 U	0.4 U	0.4 U	0.4 U	–	1 U	1 U
Trichloroethene (TCE)	5.0	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	–	1 U	1 U
Trichlorofluoromethane (Freon 11)	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U
Vinyl chloride	0.20	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.1 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	–	0.2 U	0.2 U
Xylenes (total)[4]	1,000	NV	2 U	2 U	2 U	2 U	2 U	–	2 U	2 U	2 U	2 U	2 U	2 U	2 U	–	2 U	2 U

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	TWA-SB-3	TWA-SB-4	TWA-5				TWA-5D								TWA-6	
Location Type:			Boring	Boring	Boring				MW								Boring	
Sample Name:			SB-3-0919	SB-4-0919	TWA-5-1	TWA-5-2	TWA-5-3	TWA-5-3	TWA-5	TWA-5-0320	SB-105-0320	TWA-5-0122	TWA-5D-0522	TWA-5D-0822	TWA-5D-1222	TWA-5D-1223	TWA-6-1	TWA-6-2
Collection Date:			09/24/2019	09/24/2019	09/24/2019	09/25/2019	09/25/2019	09/26/2019	12/10/2019	03/09/2020	03/09/2020	01/25/2022	05/03/2022	08/23/2022	12/06/2022	12/13/2023	09/26/2019	09/26/2019
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N
Collection Depth (ft bgs):			–	–	25	35	45	45	–	–	–	27.5	–	27.5	28	–	15	25
PAHs, Low-Level (ug/L)																		
Acenaphthene	NV	NV	–	–	–	--	–	–	0.02 U	–	--	–	–	–	–	–	–	–
Acenaphthylene	NV	NV	–	–	–	--	–	–	0.02 U	–	--	–	–	–	–	–	–	–
Anthracene	NV	NV	–	–	–	--	–	–	0.02 U	–	--	–	–	–	–	–	–	–
Benzo(a)anthracene	NV	NV	–	–	–	--	–	–	0.02 U	–	--	–	–	–	–	–	–	–
Benzo(a)pyrene	0.20[3]	NV	–	–	–	--	–	–	0.02 U	–	--	–	–	–	–	–	–	–
Benzo(b)fluoranthene	NV	NV	–	–	–	--	–	–	0.02 U	–	--	–	–	–	–	–	–	–
Benzo(ghi)perylene	NV	NV	–	–	–	--	–	–	0.02 U	–	--	–	–	–	–	–	–	–
Benzo(k)fluoranthene	NV	NV	–	–	–	--	–	–	0.02 U	–	--	–	–	–	–	–	–	–
Chrysene	NV	NV	–	–	–	--	–	–	0.02 U	–	--	–	–	–	–	–	–	–
Dibenzo(a,h)anthracene	NV	NV	–	–	–	--	–	–	0.02 U	–	--	–	–	–	–	–	–	–
Fluoranthene	NV	NV	–	–	–	--	–	–	0.02 U	–	--	–	–	–	–	–	–	–
Fluorene	NV	NV	–	–	–	--	–	–	0.02 U	–	--	–	–	–	–	–	–	–
Indeno(1,2,3-cd)pyrene	NV	NV	–	–	–	--	–	–	0.02 U	–	--	–	–	–	–	–	–	–
Naphthalene	160	NV	–	–	–	--	–	–	0.2 U	–	--	–	–	–	–	–	–	–
Phenanthrene	NV	NV	–	–	–	--	–	–	0.02 U	–	--	–	–	–	–	–	–	–
Pyrene	NV	NV	–	–	–	--	–	–	0.02 U	–	--	–	–	–	–	–	–	–
cPAH TEQ[f][4]	0.20[3]	NV	–	–	–	--	–	–	0.02 U	–	--	–	–	–	–	–	–	–
SVOCs (ug/L)																		
1,2,4-Trichlorobenzene	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
1,2-Dichlorobenzene	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
1,3-Dichlorobenzene	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
1,4-Dichlorobenzene	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
1,4-Dioxane	NV	NV	–	–	–	--	–	–	--	–	--	–	–	–	–	–	–	–
1-Methylnaphthalene	NV	NV	0.7	0.2 U	0.2 U	0.2 U	0.2 U	–	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
2,4,5-Trichlorophenol	NV	NV	2 U	2 U	2 U	2 U	2 U	–	2 U	2 U	2 U	1 U	1 U	1 U	1 U	–	2 U	2 U
2,4,6-Trichlorophenol	NV	NV	2 U	2 U	2 U	2 U	2 U	–	2 U	2 U	2 U	1 U	1 U	1 U	1 U	–	2 U	2 U
2,4-Dichlorophenol	NV	NV	2 U	2 U	2 U	2 UJ	2 UJ	–	2 U	2 U	2 U	1 U	1 U	1 U	1 U	–	2 UJ	2 UJ
2,4-Dimethylphenol	NV	NV	2 U	2 U	2 U	2 U	2 U	–	2 U	2 U	2 U	1 U	1 U	1 U	1 U	–	2 U	2 U
2,4-Dinitrophenol	NV	NV	6 UJ	6 UJ	6 UJ	6 U	6 U	–	6 U	6 U	6 U	3 U	3 U	3 U	3 UJ	–	6 U	6 U
2,4-Dinitrotoluene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	–	1 U	1 U
2,6-Dinitrotoluene	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	–	1 U	1 U
2-Chloronaphthalene	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
2-Chlorophenol	NV	NV	2 U	2 U	2 U	2 UJ	2 UJ	–	2 U	2 U	2 U	1 R	1 U	1 U	1 U	–	2 UJ	2 UJ
2-Methylnaphthalene	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
2-Methylphenol	NV	NV	2 U	2 U	2 U	2 UJ	2 UJ	–	2 U	2 U	2 U	1 R	1 U	1 U	1 U	–	2 UJ	2 UJ
2-Nitroaniline	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	–	1 U	1 U
2-Nitrophenol	NV	NV	2 U	2 U	2 U	2 U	2 U	–	2 U	2 U	2 U	1 U	1 U	1 U	1 U	–	2 U	2 U
3- & 4-Methylphenol (m,p-Cresol)	NV	NV	4 U	4 U	4 U	4 UJ	4 UJ	–	4 U	4 U	4 U	2 R	2 U	2 U	2 U	–	4 UJ	4 UJ
3-Nitroaniline	NV	NV	20 U	20 U	20 U	20 U	20 U	--	20 U	20 U	20 U	10 U	10 U	10 U	10 U	–	20 U	20 U
4,6-Dinitro-2-methylphenol	NV	NV	6 U	6 U	6 U	6 U	6 U	–	6 U	6 U	6 U	3 U	3 U	3 U	3 U	–	6 U	6 U
4-Bromophenyl phenyl ether	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
4-Chloro-3-methylphenol	NV	NV	2 U	2 U	2 U	2 U	2 U	–	2 U	2 U	2 U	1 U	1 U	1 U	1 U	–	2 U	2 U
4-Chloroaniline	NV	NV	20 U	20 U	20 U	20 U	20 U	--	20 U	20 U	20 U	10 U	10 U	10 U	10 U	–	20 U	20 U
4-Chlorophenyl phenyl ether	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
4-Nitroaniline	NV	NV	20 U	20 U	20 U	20 U	20 U	--	20 U	20 U	20 U	10 U	10 U	10 U	10 U	–	20 U	20 U
4-Nitrophenol	NV	NV	6 U	6 U	6 U	6 U	6 U	–	6 U	6 U	6 U	3 U	3 U	3 U	3 U	–	6 U	6 U
Acenaphthene	NV	NV	1.9	0.26	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.022	–	0.02 U	0.02 U

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	TWA-SB-3	TWA-SB-4	TWA-5				TWA-5D								TWA-6	
Location Type:			Boring	Boring	Boring				MW								Boring	
Sample Name:			SB-3-0919	SB-4-0919	TWA-5-1	TWA-5-2	TWA-5-3	TWA-5-3	TWA-5	TWA-5-0320	SB-105-0320	TWA-5-0122	TWA-5D-0522	TWA-5D-0822	TWA-5D-1222	TWA-5D-1223	TWA-6-1	TWA-6-2
Collection Date:			09/24/2019	09/24/2019	09/24/2019	09/25/2019	09/25/2019	09/26/2019	12/10/2019	03/09/2020	03/09/2020	01/25/2022	05/03/2022	08/23/2022	12/06/2022	12/13/2023	09/26/2019	09/26/2019
Sample Type:		Puget Sound Basin	N	N	N	N	N	N	N	N	FD	N	N	N	N	N	N	N
Collection Depth (ft bgs):			–	–	25	35	45	45	–	–	–	27.5	–	27.5	28	–	15	25
SVOCs cont. (ug/L)																		
Acenaphthylene	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	–	0.02 U	0.02 U
Anthracene	NV	NV	0.036	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.032	–	0.02 U	0.02 U
Benzo(a)anthracene	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	–	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.05	–	0.02 U	0.02 U
Benzo(a)pyrene	0.20[e][3]	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.047	–	0.02 U	0.02 U
Benzo(b)fluoranthene	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.062	–	0.02 U	0.02 U
Benzo(ghi)perylene	NV	NV	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	–	0.04 U	0.04 U	0.04 U	0.02 U	0.02 U	0.02 U	0.05	–	0.04 U	0.04 U
Benzo(k)fluoranthene	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.057	–	0.02 U	0.02 U
Benzoic acid	NV	NV	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	--	10 U	10 U	10 U	5 R	5 UJ	5 U	5 U	–	10 UJ	10 UJ
Benzyl alcohol	NV	NV	2 U	2 U	2 U	2 U	2 U	–	2 U	2 U	2 U	1 R	1 U	1 U	1 U	–	2 U	2 U
Bis(2-chloro-1-methylethyl) ether	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
Bis(2-chloroethoxy)methane	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
Bis(2-chloroethyl) ether	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
Bis(2-ethylhexyl) phthalate	NV	NV	3.2 U	3.2 U	4.3	3.2 U	3.2 U	–	3.2 U	3.2 U	3.2 U	1.6 U	1.7 J+	1.6 U	1.6 U	–	3.2 U	3.2 U
Butylbenzyl phthalate	NV	NV	2 U	2 U	2 U	2 U	2 U	–	2 U	2 U	2 U	1 U	1 U	1 U	1 U	–	2 U	2 U
Carbazole	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
Chrysene	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.058	–	0.02 U	0.02 U
Dibenzo(a,h)anthracene	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.052	–	0.02 U	0.02 U
Dibenzofuran	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
Diethyl phthalate	NV	NV	2 U	2 U	2 U	2 U	2 U	–	2 U	2 U	2 U	1 U	1 U	1 U	1 U	–	2 U	2 U
Dimethyl phthalate	NV	NV	2 U	2 U	2 U	2 U	2 U	–	2 U	2 U	2 U	1 U	1 U	1 U	1 U	–	2 U	2 U
Di-n-butyl phthalate	NV	NV	2 U	2 U	3.5	2.5	2 U	–	2 U	2 U	2 U	1 U	1 U	1 U	1 U	–	2 U	2 U
Di-n-octyl phthalate	NV	NV	2 U	2 U	2 U	2 U	2 U	–	2 U	2 U	2 U	1 U	1 U	1 U	1 U	–	2 U	2 U
Fluoranthene	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.055	–	0.02 U	0.02 U
Fluorene	NV	NV	0.02 U	0.048	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.036	–	0.02 U	0.02 U
Hexachlorobenzene	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
Hexachlorobutadiene	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
Hexachlorocyclopentadiene	NV	NV	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	--	0.6 U	0.6 U	0.6 U	0.3 U	0.3 U	0.3 U	0.3 UJ	–	0.6 U	0.6 U
Hexachloroethane	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
Indeno(1,2,3-cd)pyrene	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.052	–	0.02 U	0.02 U
Isophorone	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
Naphthalene	160	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
Nitrobenzene	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
N-Nitrosodiphenylamine	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
N-Nitrosodipropylamine	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	--	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
Pentachlorophenol	NV	NV	1 U	1 U	1 U	1 U	1 U	–	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	–	1 U	1 U
Phenanthrene	NV	NV	0.042	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.014 J+	0.054 J+	–	0.02 U	0.02 U
Phenol	NV	NV	2 U	2 U	2 U	2 U	2 U	–	2 U	2 U	2 U	1 R	1.2 J+	1 U	1 U	–	2 U	2 U
Pyrene	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	–	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.06	–	0.02 U	0.02 U
Naphthalenes, total[h]	160	NV	0.9	0.2 U	0.2 U	0.2 U	0.2 U	–	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	–	0.2 U	0.2 U
cPAH TEQ[f][4]	0.20[e][3]	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	–	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.12	–	0.02 U	0.02 U

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	TWA-6 (continued)			TWA-6D							
Location Type:			Boring			MW							
Sample Name:			TWA-6-2-R	TWA-6-3	TWA-6-4	TWA-6	TWA-1120	TWA-6-0320	TWA-6-0122	TWA-6D-0522	TWA-6D-0822	TWA-6D-1222	TWA-6D-1223
Collection Date:			09/26/2019	09/27/2019	09/27/2019	12/10/2019	12/10/2019	03/09/2020	01/25/2022	05/03/2022	08/23/2022	12/06/2022	12/13/2023
Sample Type:		Puget Sound Basin	FD	N	N	N	FD	N	N	N	N	N	N
Collection Depth (ft bgs):			25	35	45	--	--	--	27.5	--	27.5	25	--
TPH (ug/L)													
Gasoline-range hydrocarbons	1,000[a]	NV	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	--
Diesel-range hydrocarbons	500	NV	560	320	190	710	710	50 U	390	450	440	600 J-	--
Motor oil-range hydrocarbons	500	NV	250 U	320 U	320 U	470	400	250 U	250 U	250 U	250 U	660 J-	--
Diesel+Oil[b]	500	NV	685	480	350	1,180	1,110	250 U	515	575	565	1,260 J-	--
TPH with Silica-Gel Treatment (ug/L)													
Diesel-range hydrocarbons	500	NV	--	--	--	50 U	50 U	50 U	50 UJ	50 U	--	--	--
Motor oil-range hydrocarbons	500	NV	--	--	--	250 U	250 U	250 U	250 UJ	250 U	--	--	--
Diesel+Oil[b]	500	NV	--	--	--	250 U	250 U	250 U	250 UJ	250 U	--	--	--
EPH (ug/L)													
C8-C10 Aliphatic hydrocarbons	NV	NV	--	--	--	--	--	--	--	--	78.2 UJ	90.4 UJ	--
C10-C12 Aliphatic hydrocarbons	NV	NV	--	--	--	--	--	--	--	--	39.1 UJ	45.2 UJ	--
C12-C16 Aliphatic hydrocarbons	NV	NV	--	--	--	--	--	--	--	--	39.1 UJ	45.2 UJ	--
C16-C21 Aliphatic hydrocarbons	NV	NV	--	--	--	--	--	--	--	--	39.1 UJ	45.2 UJ	--
C21-C34 Aliphatic hydrocarbons	NV	NV	--	--	--	--	--	--	--	--	39.1 UJ	45.2 UJ	--
C8-C10 Aromatic hydrocarbons	NV	NV	--	--	--	--	--	--	--	--	78.2 UJ	90.4 UJ	--
C10-C12 Aromatic hydrocarbons	NV	NV	--	--	--	--	--	--	--	--	39.1 UJ	45.2 UJ	--
C12-C16 Aromatic hydrocarbons	NV	NV	--	--	--	--	--	--	--	--	39.1 UJ	45.2 UJ	--
C16-C21 Aromatic hydrocarbons	NV	NV	--	--	--	--	--	--	--	--	39.1 UJ	45.2 UJ	--
C21-C34 Aromatic hydrocarbons	NV	NV	--	--	--	--	--	--	--	--	39.1 UJ	45.2 UJ	--
VPH (ug/L)													
C5-C6 Aliphatic hydrocarbons	NV	NV	--	--	--	--	--	--	--	--	--	50 U	--
C6-C8 Aliphatic hydrocarbons	NV	NV	--	--	--	--	--	--	--	--	--	50 U	--
C8-C10 Aliphatic hydrocarbons	NV	NV	--	--	--	--	--	--	--	--	--	50 U	--
C10-C12 Aliphatic hydrocarbons	NV	NV	--	--	--	--	--	--	--	--	--	50 U	--
C8-C10 Aromatic hydrocarbons	NV	NV	--	--	--	--	--	--	--	--	--	50 U	--
C10-C12 Aromatic hydrocarbons	NV	NV	--	--	--	--	--	--	--	--	--	50 U	--
C12-C13 Aromatic hydrocarbons	NV	NV	--	--	--	--	--	--	--	--	--	50 U	--
Dissolved Metals (ug/L)													
Aluminum	NV	NV	--	--	--	--	--	--	--	--	--	--	49.9 J+
Arsenic	5.0	8.0	--	--	--	9.19	8.82	9.05	--	--	--	--	6.68
Cadmium	5.0	NV	--	--	--	1 U	1 U	1 U	--	--	--	--	--
Chromium	50	NV	--	--	--	24.8	19.3	45.3	--	--	--	--	21
Copper	NV	NV	--	--	--	2.4 U	2.4 U	3.73	--	--	--	--	2.4 U
Iron	NV	NV	--	--	--	--	--	--	--	--	--	--	2,950
Lead	15	NV	--	--	--	1 U	1 U	1 U	--	--	--	--	--
Manganese	NV	NV	--	--	--	944	938	1,070	--	--	--	--	753
Mercury	2.0	NV	--	--	--	0.2 U	0.2 U	0.2 U	--	--	--	--	--
Nickel	NV	NV	--	--	--	2.56	2.3	5 U	--	--	--	--	--
Selenium	NV	NV	--	--	--	30 U	30 U	16.4	--	--	--	--	--
Zinc	NV	NV	--	--	--	5 U	5 U	5 U	--	--	--	--	--
Total Metals (ug/L)													
Aluminum	NV	NV	--	--	--	--	--	--	--	--	--	--	75.6 J+
Antimony	NV	NV	--	--	--	--	--	--	--	10 U	1 U	--	--
Arsenic	5.0	8.0	20.4	7.56	10.1	7.84	7.34	8.74	10.1	10 U	7.77	9.49	7.26
Barium	NV	NV	--	--	--	--	--	--	--	16.3	16.3	--	--
Beryllium	NV	NV	--	--	--	--	--	--	--	10 U	1 U	--	--
Cadmium	5.0	NV	1 U	1 U	1 U	2 U	1 U	1 U	1 U	10 U	1 U	1 U	--

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	TWA-6 (continued)			TWA-6D							
Location Type:			Boring			MW							
Sample Name:			TWA-6-2-R	TWA-6-3	TWA-6-4	TWA-6	TWA-1120	TWA-6-0320	TWA-6-0122	TWA-6D-0522	TWA-6D-0822	TWA-6D-1222	TWA-6D-1223
Collection Date:			09/26/2019	09/27/2019	09/27/2019	12/10/2019	12/10/2019	03/09/2020	01/25/2022	05/03/2022	08/23/2022	12/06/2022	12/13/2023
Sample Type:		Puget Sound Basin	FD	N	N	N	FD	N	N	N	N	N	N
Collection Depth (ft bgs):			25	35	45	--	--	--	27.5	--	27.5	25	--
Total Metals cont. (ug/L)													
Chromium	50	NV	84.8	12.1	9.87	24.8	23.1	45.1	29.1	27.8	29.8	29.2	24.4
Cobalt	NV	NV	--	--	--	--	--	--	--	10 U	1.16	--	--
Copper	NV	NV	113	11	9.55	42.8	69	4.32	2.4 U	10 U	2.4 U	3.95 J+	2.97 J+
Iron	NV	NV	--	--	--	--	--	--	--	2,680	2,730	--	3,030
Lead	15	NV	14.8	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	--
Manganese	NV	NV	1,420	132	67.5	970	868	1,050	811	763	793	806	749
Mercury	2.0	NV	1 U	1 U	1 U	0.2 U	0.2 U	0.2 U	0.02 U	0.02 U	0.02 U	0.02 U	--
Nickel	NV	NV	50 U	5 U	5 U	2 U	2.37	5 U	2.75	10 U	3.08	3.01	--
Selenium	NV	NV	22.1	10.4	1 U	20.6	18.1	16	--	18.5	2.57	--	--
Silver	NV	NV	--	--	--	--	--	--	--	10 U	1 U	--	--
Thallium	NV	NV	--	--	--	--	--	--	--	1 U	1 U	--	--
Vanadium	NV	NV	--	--	--	--	--	--	--	107	116	--	--
Zinc	NV	NV	101	7.64	5.95	10 U	5 U	25 U	5 U	50 U	5 U	5 U	--
PCB Aroclors (ug/L)													
Aroclor 1016	NV	NV	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.0035 UJ	0.0035 UJ	0.005 UJ	0.0035 UJ	--
Aroclor 1221	NV	NV	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.0035 UJ	0.0035 UJ	0.005 UJ	0.0035 UJ	--
Aroclor 1232	NV	NV	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.0035 UJ	0.0035 UJ	0.005 UJ	0.0035 UJ	--
Aroclor 1242	NV	NV	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.0035 UJ	0.0035 UJ	0.005 UJ	0.0035 UJ	--
Aroclor 1248	NV	NV	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.0035 UJ	0.0035 UJ	0.007 UJ	0.0035 UJ	--
Aroclor 1254	NV	NV	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.0035 UJ	0.0035 UJ	0.007 UJ	0.0035 UJ	--
Aroclor 1260	NV	NV	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.0035 UJ	0.0035 UJ	0.007 UJ	0.0035 UJ	--
Aroclor 1262	NV	NV	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.0035 UJ	0.0035 UJ	0.007 UJ	0.0035 UJ	--
Aroclor 1268	NV	NV	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.0035 UJ	0.0035 UJ	0.007 UJ	0.0035 UJ	--
Total PCBs[c]	0.10	NV	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.0035 UJ	0.0035 UJ	0.007 UJ	0.0035 UJ	--
Permanent Gases (ug/L)													
Methane	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFAS (ug/L)													
3:3 FTCA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
4:2 FTSA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
5:3 FTCA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
6:2 FTSA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
7:3 FTCA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
8:2 FTSA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
9Cl-PF3ONS (F-53B Major)	NV	NV	--	--	--	--	--	--	--	--	--	--	--
11Cl-PF3OUdS (F-53B Minor)	NV	NV	--	--	--	--	--	--	--	--	--	--	--
ADONA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
EtFOSA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
EtFOSAA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
EtFOSE	NV	NV	--	--	--	--	--	--	--	--	--	--	--
HFPO-DA (GenX)	NV	NV	--	--	--	--	--	--	--	--	--	--	--
MeFOSA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
MeFOSAA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
MeFOSE	NV	NV	--	--	--	--	--	--	--	--	--	--	--
NFDHA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFBA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFBS	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFDA	NV	NV	--	--	--	--	--	--	--	--	--	--	--

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	TWA-6 (continued)			TWA-6D							
Location Type:			Boring			MW							
Sample Name:			TWA-6-2-R	TWA-6-3	TWA-6-4	TWA-6	TWA-1120	TWA-6-0320	TWA-6-0122	TWA-6D-0522	TWA-6D-0822	TWA-6D-1222	TWA-6D-1223
Collection Date:			09/26/2019	09/27/2019	09/27/2019	12/10/2019	12/10/2019	03/09/2020	01/25/2022	05/03/2022	08/23/2022	12/06/2022	12/13/2023
Sample Type:		Puget Sound Basin	FD	N	N	N	FD	N	N	N	N	N	N
Collection Depth (ft bgs):			25	35	45	--	--	--	27.5	--	27.5	25	--
PFAS cont. (ug/L)													
PFDoA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFDoS	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFDS	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFEESA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFHpA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFHpS	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFHxA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFHxS	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFMBA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFMPA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFNA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFNS	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFOA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFOS	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFOSA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFPeA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFPeS	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFTeDA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFTrDA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
PFUnA	NV	NV	--	--	--	--	--	--	--	--	--	--	--
VOCs by EPA 8021B (ug/L)													
Benzene	5.0	NV	--	--	--	--	--	--	--	--	--	1 U	--
Ethylbenzene	700	NV	--	--	--	--	--	--	--	--	--	1 U	--
m,p-Xylene	NV	NV	--	--	--	--	--	--	--	--	--	1 U	--
Methyl tert-butyl ether	20	NV	--	--	--	--	--	--	--	--	--	10 U	--
o-Xylene	NV	NV	--	--	--	--	--	--	--	--	--	1 U	--
Toluene	1,000	NV	--	--	--	--	--	--	--	--	--	1 U	--
Xylenes (total)[d]	1,000	NV	--	--	--	--	--	--	--	--	--	1 U	--
VOCs (ug/L)													
1,1,1,2-Tetrachloroethane	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
1,1,1-Trichloroethane	200	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
1,1,2,2-Tetrachloroethane	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	--
1,1,2-Trichloroethane	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	--
1,1-Dichloroethane	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
1,1-Dichloroethene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
1,1-Dichloropropene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
1,2,3-Trichlorobenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
1,2,3-Trichloropropane	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
1,2,4-Trichlorobenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--
1,2,4-Trimethylbenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
1,2-Dibromo-3-chloropropane	NV	NV	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	--
1,2-Dibromoethane	0.010	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
1,2-Dichlorobenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--
1,2-Dichloroethane	5.0	NV	1 U	1 U	1 U	1 U	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	--
1,2-Dichloropropane	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
1,3,5-Trimethylbenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
1,3-Dichlorobenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	TWA-6 (continued)			TWA-6D							
Location Type:			Boring			MW							
Sample Name:			TWA-6-2-R	TWA-6-3	TWA-6-4	TWA-6	TWA-1120	TWA-6-0320	TWA-6-0122	TWA-6D-0522	TWA-6D-0822	TWA-6D-1222	TWA-6D-1223
Collection Date:			09/26/2019	09/27/2019	09/27/2019	12/10/2019	12/10/2019	03/09/2020	01/25/2022	05/03/2022	08/23/2022	12/06/2022	12/13/2023
Sample Type:		Puget Sound Basin	FD	N	N	N	FD	N	N	N	N	N	N
Collection Depth (ft bgs):			25	35	45	--	--	--	27.5	--	27.5	25	--
VOCs cont. (ug/L)													
1,3-Dichloropropane	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
1,4-Dichlorobenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--
1,4-Dioxane	NV	NV	--	--	--	6.6	6.4	2.2	6	4.1	4.6	5.3	--
2,2-Dichloropropane	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
2-Butanone	NV	NV	10 U	10 U	10 U	10 U	10 U	10 U	20 U	20 U	20 U	20 U	--
2-Chlorotoluene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
2-Hexanone	NV	NV	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	--
4-Chlorotoluene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
4-Isopropyltoluene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
4-Methyl-2-pentanone	NV	NV	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	--
Acetone	NV	NV	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	--
Benzene	5.0	NV	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	--
Bromobenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
Bromodichloromethane	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	--
Bromoform	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U	5 U	--
Bromomethane	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U	5 U	--
Carbon tetrachloride	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	--
Chlorobenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
Chloroethane	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
Chloroform	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
Chloromethane	NV	NV	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	--
cis-1,2-Dichloroethene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
cis-1,3-Dichloropropene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	0.4 U	0.4 U	0.4 U	0.4 U	--
Dibromochloromethane	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	--
Dibromomethane	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
Dichlorodifluoromethane (Freon 12)	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
Ethylbenzene	700	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
Hexachlorobutadiene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	--	--
Isopropylbenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
m,p-Xylene	NV	NV	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	--
Methyl tert-butyl ether	20	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
Methylene chloride	5.0	NV	5 U	5 U	5 U	5 U	5 U	5 U	10 U	8.3 U	5 U	5 U	--
Naphthalene	160	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--
n-Hexane	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U	5 U	--
n-Propylbenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
o-Xylene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
sec-Butylbenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
Styrene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
tert-Butylbenzene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
Tetrachloroethene (PCE)	5.0	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
Toluene	1,000	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
trans-1,2-Dichloroethene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
trans-1,3-Dichloropropene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	0.4 U	0.4 U	0.4 U	0.4 U	--
Trichloroethene (TCE)	5.0	NV	1 U	1 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	--
Trichlorofluoromethane (Freon 11)	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--
Vinyl chloride	0.20	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	--
Xylenes (total)[d]	1,000	NV	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	--

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	TWA-6 (continued)			TWA-6D							
Location Type:			Boring			MW							
Sample Name:			TWA-6-2-R	TWA-6-3	TWA-6-4	TWA-6	TWA-1120	TWA-6-0320	TWA-6-0122	TWA-6D-0522	TWA-6D-0822	TWA-6D-1222	TWA-6D-1223
Collection Date:			09/26/2019	09/27/2019	09/27/2019	12/10/2019	12/10/2019	03/09/2020	01/25/2022	05/03/2022	08/23/2022	12/06/2022	12/13/2023
Sample Type:		Puget Sound Basin	FD	N	N	N	FD	N	N	N	N	N	N
Collection Depth (ft bgs):			25	35	45	--	--	--	27.5	--	27.5	25	--
PAHs, Low-Level (ug/L)													
Acenaphthene	NV	NV	--	--	--	0.02 U	0.02 U	--	--	--	--	--	--
Acenaphthylene	NV	NV	--	--	--	0.02 U	0.02 U	--	--	--	--	--	--
Anthracene	NV	NV	--	--	--	0.02 U	0.02 U	--	--	--	--	--	--
Benzo(a)anthracene	NV	NV	--	--	--	0.02 U	0.02 U	--	--	--	--	--	--
Benzo(a)pyrene	0.20[e][3]	NV	--	--	--	0.02 U	0.02 U	--	--	--	--	--	--
Benzo(b)fluoranthene	NV	NV	--	--	--	0.02 U	0.02 U	--	--	--	--	--	--
Benzo(ghi)perylene	NV	NV	--	--	--	0.02 U	0.02 U	--	--	--	--	--	--
Benzo(k)fluoranthene	NV	NV	--	--	--	0.02 U	0.02 U	--	--	--	--	--	--
Chrysene	NV	NV	--	--	--	0.02 U	0.02 U	--	--	--	--	--	--
Dibenzo(a,h)anthracene	NV	NV	--	--	--	0.02 U	0.02 U	--	--	--	--	--	--
Fluoranthene	NV	NV	--	--	--	0.02 U	0.02 U	--	--	--	--	--	--
Fluorene	NV	NV	--	--	--	0.02 U	0.02 U	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	NV	NV	--	--	--	0.02 U	0.02 U	--	--	--	--	--	--
Naphthalene	160	NV	--	--	--	0.2 U	0.2 U	--	--	--	--	--	--
Phenanthrene	NV	NV	--	--	--	0.02 U	0.02 U	--	--	--	--	--	--
Pyrene	NV	NV	--	--	--	0.02 U	0.02 U	--	--	--	--	--	--
cPAH TEQ[f][4]	0.20[e][3]	NV	--	--	--	0.02 U	0.02 U	--	--	--	--	--	--
SVOCs (ug/L)													
1,2,4-Trichlorobenzene	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
1,2-Dichlorobenzene	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
1,3-Dichlorobenzene	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
1,4-Dichlorobenzene	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
1,4-Dioxane	NV	NV	--	--	--	--	--	--	--	--	--	--	--
1-Methylnaphthalene	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
2,4,5-Trichlorophenol	NV	NV	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U	1 U	--
2,4,6-Trichlorophenol	NV	NV	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U	1 U	--
2,4-Dichlorophenol	NV	NV	2 UJ	2 UJ	2 UJ	2 U	2 U	2 U	1 U	1 U	1 U	1 U	--
2,4-Dimethylphenol	NV	NV	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U	1 U	--
2,4-Dinitrophenol	NV	NV	6 U	6 U	6 U	6 U	6 U	6 U	3 U	3 U	3 U	3 UJ	--
2,4-Dinitrotoluene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	--
2,6-Dinitrotoluene	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	--
2-Chloronaphthalene	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
2-Chlorophenol	NV	NV	2 UJ	2 UJ	2 UJ	2 U	2 U	2 U	1 R	1 U	1 U	1 U	--
2-Methylnaphthalene	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
2-Methylphenol	NV	NV	2 UJ	2 UJ	2 UJ	2 U	2 U	2 U	1 R	1 U	1 U	1 U	--
2-Nitroaniline	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	--
2-Nitrophenol	NV	NV	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U	1 U	--
3- & 4-Methylphenol (m,p-Cresol)	NV	NV	4 UJ	4 UJ	4 UJ	4 U	4 U	4 U	2 R	2 U	2 U	2 U	--
3-Nitroaniline	NV	NV	20 U	20 U	20 U	20 U	20 U	20 U	10 U	10 U	10 U	10 U	--
4,6-Dinitro-2-methylphenol	NV	NV	6 U	6 U	6 U	6 U	6 U	6 U	3 U	3 U	3 U	3 U	--
4-Bromophenyl phenyl ether	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
4-Chloro-3-methylphenol	NV	NV	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U	1 U	--
4-Chloroaniline	NV	NV	20 U	20 U	20 U	20 U	20 U	20 U	10 U	10 U	10 U	10 U	--
4-Chlorophenyl phenyl ether	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
4-Nitroaniline	NV	NV	20 U	20 U	20 U	20 U	20 U	20 U	10 U	10 U	10 U	10 U	--
4-Nitrophenol	NV	NV	6 U	6 U	6 U	6 U	6 U	6 U	3 U	3 U	3 U	3 U	--
Acenaphthene	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	--

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Location:	MTCA Method A[1]	WA Natural Background Arsenic[2]	TWA-6 (continued)			TWA-6D							
Location Type:			Boring			MW							
Sample Name:			TWA-6-2-R	TWA-6-3	TWA-6-4	TWA-6	TWA-1120	TWA-6-0320	TWA-6-0122	TWA-6D-0522	TWA-6D-0822	TWA-6D-1222	TWA-6D-1223
Collection Date:			09/26/2019	09/27/2019	09/27/2019	12/10/2019	12/10/2019	03/09/2020	01/25/2022	05/03/2022	08/23/2022	12/06/2022	12/13/2023
Sample Type:		Puget Sound Basin	FD	N	N	N	FD	N	N	N	N	N	N
Collection Depth (ft bgs):			25	35	45	--	--	--	27.5	--	27.5	25	--
SVOCs cont. (ug/L)													
Acenaphthylene	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	--
Anthracene	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	--
Benzo(a)anthracene	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.03	--
Benzo(a)pyrene	0.20[e][3]	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.028	--
Benzo(b)fluoranthene	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.059	--
Benzo(ghi)perylene	NV	NV	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.02 U	0.02 U	0.02 U	0.044	--
Benzo(k)fluoranthene	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.061	--
Benzoic acid	NV	NV	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	5 R	5 UJ	5 U	5 U	--
Benzyl alcohol	NV	NV	2 U	2 U	2 U	2 U	2 U	2 U	1 R	1 U	1 U	1 U	--
Bis(2-chloro-1-methylethyl) ether	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
Bis(2-chloroethoxy)methane	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
Bis(2-chloroethyl) ether	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
Bis(2-ethylhexyl) phthalate	NV	NV	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U	1.6 U	1.6 U	1.6 U	5.8	--
Butylbenzyl phthalate	NV	NV	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U	1 U	--
Carbazole	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
Chrysene	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.04	--
Dibenzo(a,h)anthracene	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.049	--
Dibenzofuran	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
Diethyl phthalate	NV	NV	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U	1 U	--
Dimethyl phthalate	NV	NV	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U	1 U	--
Di-n-butyl phthalate	NV	NV	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1.2 J	1 U	1 U	--
Di-n-octyl phthalate	NV	NV	2 U	2 U	2 U	2 U	2 U	2 U	1 U	1 U	1 U	1 U	--
Fluoranthene	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.025	--
Fluorene	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.02	--
Hexachlorobenzene	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
Hexachlorobutadiene	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
Hexachlorocyclopentadiene	NV	NV	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.3 U	0.3 U	0.3 U	0.3 UJ	--
Hexachloroethane	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
Indeno(1,2,3-cd)pyrene	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.045	--
Isophorone	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
Naphthalene	160	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
Nitrobenzene	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
N-Nitrosodiphenylamine	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
N-Nitrosodipropylamine	NV	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
Pentachlorophenol	NV	NV	1 U	1 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	--
Phenanthrene	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.012 J+	0.06	--
Phenol	NV	NV	2 U	2 U	2 U	2 U	2 U	2 U	1 R	1 U	1 U	1 U	--
Pyrene	NV	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.02	--
Naphthalenes, total[h]	160	NV	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	--
cPAH TEQ[f][4]	0.20[e][3]	NV	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.01 U	0.091	--

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Table 2-3
Summary of Groundwater Analytical Data
Hylebos Marsh Interim Action, Tacoma, Washington

Notes

Data summation rules are as follows: non-detect results are multiplied by one-half (except for PCB Aroclors) when used for sums or TEQs. When all results are non-detect, the highest reporting limit is provided as the sum or TEQ.

Sample results were compared to screening criteria based on the significant figures of the screening criteria.

Shading (color key below) indicates values that exceed screening criteria; non-detects (U, UJ) and rejected results (R) were not compared with screening criteria. When multiple criteria are exceeded, results are shaded based on the highest criteria. Arsenic results were not shaded for MTCA Method A exceedances when results were below natural background.

MTCA Method A

WA Natural Background Arsenic Concentration, Puget Sound Basin

-- = not analyzed or not available.

cPAH = carcinogenic polycyclic aromatic hydrocarbon.

EPA =U.S. Environmental Protection Agency.

EPH = extractable petroleum hydrocarbons.

FD = field duplicate sample.

ft bgs = feet below ground surface.

J = result is estimated.

J+ = result is estimated, but the result may be biased high.

J- = result is estimated, but the result may be biased low.

MW = monitoring well.

MTCA = Model Toxics Control Act.

N = normal environmental sample.

NV = no value.

PAH = polycyclic aromatic hydrocarbon.

PCB = polychlorinated biphenyl.

PFAS = per- and polyfluoroalkyl substances.

R = result is rejected. The analyte may or may not be present in the sample.

SVOC = semivolatile organic compound.

TEQ = toxicity equivalency.

TPH = total petroleum hydrocarbons.

U = result is non-detect at the method reporting limit.

ug/L = micrograms per liter.

UJ = result is non-detect with an estimated method reporting limit.

VOC = volatile organic compound.

VPH = volatile petroleum hydrocarbons.

[a]Screening levels for gasoline-range hydrocarbons without detectable benzene.

[b]Diesel+Oil is the sum of diesel- and oil-range hydrocarbons.

[c]Total PCBs is the sum of all PCB Aroclors. Non-detect results are not included in the sum.

[d]Total xylenes is the sum of m,p-xylene and o-xylene.

[e]MTCA Method A value for benzo(a)pyrene and cPAH TEQ is outdated. The maximum contaminant level is provided, which is considered sufficiently protective.

[f]cPAH TEQ calculated as the sum of each cPAH concentration multiplied by the corresponding toxic equivalent factor.

[g]Reporting limit is unknown.

[h]Total naphthalenes is the sum of 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene.

References

[1]Ecology. 2025. *Cleanup Levels and Risk Calculation (CLARC) table* . Washington State Department of Ecology, Toxics Cleanup Program. January.

[2]Ecology. 2022. *Natural Background Groundwater Arsenic Concentrations in Washington State* . Publication No. 14-09-044. Washington State Department of Ecology, Toxics Cleanup Program. January.

[3]Ecology. 2021. *Polycyclic Aromatic Hydrocarbons and Benzo[a]pyrene: Changes to MTCA Default Cleanup Levels for 2017.* Supporting material for Cleanup Levels and Risk Calculation (CLARC). Washington State Department of Ecology, Toxics Cleanup Program. July.

[4]Ecology. 2015. *Implementation Memorandum #10: Evaluating the Human Health Toxicity of Carcinogenic PAHs (cPAHs) Using Toxicity Equivalency Factors (TEFs)* . Publication No. 15-09-049. Washington State Department of Ecology, Toxics Cleanup Program. April 20.

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Table 3-1
ENGINEER'S PRELIMINARY OPINION OF PROBABLE COST - ALTERNATIVE 1

Project:	Hylebos Marsh Interim Action	
Client:	Port of Tacoma	
Project No./Task:	M0615.20.015	Initial
Prepared By:	A. Hand	ACH
Checked By:	J. Elliott	JCE
Date:	1/22/2026	
Revision No.:	3	

MAUL FOSTER ALONGI
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Cost Estimate Summary—Feasibility Level

Schedule A—	Pre-Design Test Pitting	$ 26,000
Schedule B—	Mobilization and Preconstruction Survey	$ 369,000
Schedule C—	Temporary Erosion and Sediment Control	$ 36,000
Schedule D—	Sheet Pile Wall, Excavation, and Offsite Disposal	$ 5,982,000
Schedule E—	Backfill and Restoration	$ 44,000
Schedule F—	Construction Management, Administrative Costs, Permitting, and Contingency	$ 1,970,000
	Total:	**$ 8,427,000**

Assumptions:

1 This estimate is based on a conceptual-level design. Approaches to retaining wall construction, site layout, and staging made during final design may significantly alter project cost.

2 The cost assumes that the extent of auto fluff fill is limited to the extents defined during 2024 investigation activities (MFA 2024).

3 The cost for transport and disposal assumes all auto fluff-containing fill will be excavated and disposed of at a hazardous waste incineration facility due to the presence of putrescible waste (i.e., invasive snail species present at the site).

4 Portions of the site will require placement of roadway fabric and quarry spalls (site improvements) to facilitate the loading of trucks and staging equipment.

5 Wetland compensatory mitigation costs are not included in this estimate.

6 A 20% contingency is included.

Table 3-1
ENGINEER'S PRELIMINARY OPINION OF PROBABLE COST - ALTERNATIVE 1

Schedule A					
Pre-Design Test Pitting		*Quantity*	*Unit*	*Unit Cost*	*Total Cost*
A.1	Excavation Contractor	1	LS	$ 17,000	$ 17,000
A.2	Laboratory Analysis	1	LS	$ 5,000	$ 5,000
A.3	Field Staff	1	LS	$ 3,500	$ 3,500
				Subtotal Schedule A:	**$ 25,500**

Schedule B					
Mobilization and Preconstruction Survey		*Quantity*	*Unit*	*Unit Cost*	*Total Cost*
B.1	Mobilization (5% of Capital Cost)	1	LS	$ 306,000	$ 306,000
B.2	Pre-design Survey	1	LS	$ 10,000	$ 10,000
B.3	Install Temporary Fencing	2,700	LF	$ 5	$ 13,500
B.4	Site Improvements	1	LS	$ 30,000	$ 30,000
B.5	Clearing and Grubbing	1	LS	$ 8,800	$ 9,000
				Subtotal Schedule B:	**$ 368,500**

Schedule C					
Temporary Erosion and Sediment Control		*Quantity*	*Unit*	*Unit Cost*	*Total Cost*
C.1	Wheel Wash	1	LS	$ 18,000	$ 18,000
C.2	Silt Fencing	1,000	LF	$ 4	$ 4,000
C.3	Plastic Sheeting	2,700	LF	$ 5	$ 13,500
				Subtotal Schedule C:	**$ 35,500**

Schedule D					
Sheet Pile Wall, Excavation, and Offsite Disposal		*Quantity*	*Unit*	*Unit Cost*	*Total Cost*
D.1	Permanent Sheet Pile Wall	11,445	SF	$ 40	$ 458,000
D.2	Excavation and Handling	7,700	BCY	$ 20	$ 154,000
D.3	Transportation and Disposal	10,700	Tons	$ 500	$ 5,360,000
D.4	APHIS-Certified Driver	1	LS	$ 10,000	$ 10,000
				Subtotal Schedule D:	**$ 5,982,000**

Schedule E					
Backfill and Restoration		*Quantity*	*Unit*	*Unit Cost*	*Total Cost*
E.1	Topsoil import and placement	690	LCY	$ 37	$ 26,000
E.2	Hydroseed	118,865	SF	$ 0.15	$ 18,000
				Subtotal Schedule E:	**$ 44,000**

Schedule F					
Construction Management, Administrative Costs, Permitt		*Quantity*	*Unit*	*Unit Cost*	*Total Cost*
F.1	Permitting	1	LS	$ 30,000	$ 30,000
F.2	Project Management (6% of Capital Cost)	1	LS	$ 386,000	$ 386,000
F.3	Remedial Design	1	LS	$ 50,000	$ 50,000
F.4	Construction Management	1	LS	$ 100,000	$ 100,000
F.5	Contingency (20%)	1	LS	$ 1,404,000	$ 1,404,000
				Subtotal Schedule F:	**$ 1,970,000**

Notes:
bcy = bank cubic yards
LCY = loose cubic yards
LF = linear feet
LS = lump sum
SF = square feet

Table 3-2
ENGINEER'S PRELIMINARY OPINION OF PROBABLE COST - ALTERNATIVE 2

Project:	Hylebos Marsh Interim Action	
Client:	Port of Tacoma	
Project No./Task:	M0615.20.015	Initial
Prepared By:	A. Hand	ACH
Checked By:	J. Elliott	JCE
Date:	1/22/2026	
Revision No.:	3	

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Cost Estimate Summary—Feasibility Level		
Schedule A—	Mobilization and Site Preparation	$ 107,000
Schedule B—	Temporary Erosion and Sediment Control	$ 36,000
Schedule C—	Containment Wall Installation and Grading	$ 288,000
Schedule D—	Cap Installation	$ 501,000
Schedule E—	Construction Management, Administrative Costs, Permitting, and Contingency	$ 503,000
	Total:	**$ 1,435,000**

Assumptions:

1 This estimate is based on a conceptual-level design. Approaches to retaining wall construction, dewatering, site layout, cap installation, and staging made during final design may significantly alter project cost.

2 The cost assumes that the extent of auto fluff fill is limited to the extents defined during 2024 investigation activities (MFA 2024).

3 Portions of the site will require placement of roadway fabric and quarry spalls (site improvements) to facilitate the loading of trucks and staging equipment.

4 Wetland compensatory mitigation and sheet pile wall construction costs are not included in this estimate.

5 A 20% contingency is included.

Table 3-2
ENGINEER'S PRELIMINARY OPINION OF PROBABLE COST - ALTERNATIVE 2

Schedule A							
Mobilization and Site Preparation		*Quantity*	*Unit*		*Unit Cost*		*Total Cost*
A.1	Mobilization (5% of Capital Cost)	1	LS	$	44,000	$	44,000
A.2	Pre-design Survey	1	LS	$	10,000	$	10,000
A.3	Install Temporary Fencing	2,700	FL	$	5	$	13,500
A.4	Site Improvements	1	LS	$	30,000	$	30,000
A.5	Clearing and Grubbing	1	LS	$	8,800	$	9,000
					Subtotal Schedule A:	**$**	**106,500**
Schedule B							
Temporary Erosion and Sediment Control		*Quantity*	*Unit*		*Unit Cost*		*Total Cost*
B.1	Wheel Wash	1	LS	$	18,000	$	18,000
B.2	Silt Fencing	1,000	LF	$	4	$	4,000
B.3	Plastic Sheeting	2,700	LF	$	5	$	13,500
					Subtotal Schedule B:	**$**	**35,500**
Schedule C							
Containment Wall Installation and Grading		*Quantity*	*Unit*		*Unit Cost*		*Total Cost*
C.1	Pre-construction Staking	1	LS	$	2,000	$	2,000
C.2	Excavation and Handling	373	BCY	$	20	$	8,000
C.3	Backfill	124	CY	$	128	$	16,000
C.4	Ecology Blocks (Material)	1	LS	$	96,000	$	96,000
C.5	Ecology Blocks (Placement/Installation)	1	LS	$	35,000	$	35,000
C.6	Fill, Compaction, & Grading	1	LS	$	106,000	$	106,000
C.7	Dewatering	1	LS	$	25,000	$	25,000
					Subtotal Schedule C:	**$**	**288,000**
Schedule D							
Cap Installation		*Quantity*	*Unit*		*Unit Cost*		*Total Cost*
D.1	Excavation and Handling	850	BCY	$	20	$	17,000
D.2	Soil import and placement	5,900	LCY	$	37	$	219,000
D.3	Gravel import and placement	1,008	TON	$	49	$	50,000
D.4	Compaction & Grading	1	LS	$	7,000	$	7,000
D.5	Asphalt placement	640	TON	$	325	$	208,000
					Subtotal Schedule D:	**$**	**501,000**
Schedule E							
Construction Management, Administrative Costs, Permitting, and Contingency		*Quantity*	*Unit*		*Unit Cost*		*Total Cost*
E.1	Permitting	1	LS	$	30,000	$	30,000
E.2	Project Management (6% of Capital Cost)	1	LS	$	56,000	$	56,000
E.3	Remedial Design	1	LS	$	50,000	$	50,000
E.4	Construction Management	1	LS	$	120,000	$	120,000
E.5	Environmental Covenant and Recording	1	LS	$	10,000	$	10,000
E.6	Contingency (20%)	1	LS	$	237,000	$	237,000
					Subtotal Schedule E:	**$**	**503,000**

Notes:
bcy = bank cubic yards
LCY = loose cubic yards
LF = linear feet
LS = lump sum
SF = square feet

Table 3-3
ENGINEER'S PRELIMINARY OPINION OF PROBABLE COST - ALTERNATIVE 3A

Project:	Hylebos Marsh Interim Action	
Client:	Port of Tacoma	
Project No./Task:	M0615.20.015	Initial
Prepared By:	A. Hand	ACH
Checked By:	J. Elliott	JCE
Date:	1/22/2026	
Revision No.:	2	

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Cost Estimate Summary—Feasibility Level			
Schedule A—	Mobilization and Site Preparation	$	329,000
Schedule B—	Temporary Erosion and Sediment Control	$	36,000
Schedule C—	Containment Wall Installation and Grading	$	288,000
Schedule D—	Cap Installation	$	501,000
Schedule E—	Pre-Design Test Pitting, Sheet Pile Wall Installation, Excavation and Offsite Disposal	$	4,379,500
Schedule F—	Backfill and Restoration	$	44,000
Schedule G—	Construction Management, Administrative Costs, Permitting, and Contingency	$	1,823,000
	Total:	**$**	**7,400,500**

Assumptions:

1 This estimate is based on a conceptual-level design. Approaches to retaining wall construction, dewatering, site layout, cap installation, and staging made during final design may significantly alter project cost.

2 The cost assumes that the extent of auto fluff fill is limited to the extents defined during 2024 investigation activities (MFA 2024).

3 All auto fluff-containing fill will be excavated.

4 The cost for waste disposal assumes that the cap material can be disposed of at a non-hazardous waste landfill.

5 The cost for waste disposal assumes that the auto fluff and contaminated soil will be disposed of at a hazardous waste landfill.

6 The cost for transport and disposal assumes all contaminated and cap material will be disposed of offsite. This cost may be reduced if the cap material can be reused as excavation backfill and will be confirmed during final design.

7 Portions of the site will require placement of roadway fabric and quarry spalls (site improvements) to facilitate the loading of trucks and staging equipment.

8 Wetland compensatory mitigation is not included in this estimate.

9 A 20% contingency is included.

Table 3-3
ENGINEER'S PRELIMINARY OPINION OF PROBABLE COST - ALTERNATIVE 3A

Schedule A							
Mobilization and Site Preparation		*Quantity*	*Unit*		*Unit Cost*		*Total Cost*
A.1	Mobilization (5% of Capital Cost)	1	LS	$	266,000	$	266,000
A.2	Pre-Design Survey	1	LS	$	10,000	$	10,000
A.3	Install Temporary Fencing	2,700	LF	$	5	$	13,500
A.4	Site Improvements	1	LS	$	30,000	$	30,000
A.5	Clearing and Grubbing	1	LS	$	8,800	$	9,000
					Subtotal Schedule A:	**$**	**328,500**
Schedule B							
Temporary Erosion and Sediment Control		*Quantity*	*Unit*		*Unit Cost*		*Total Cost*
B.1	Wheel Wash	1	LS	$	18,000	$	18,000
B.2	Silt Fencing	1,000	LF	$	4	$	4,000
B.3	Plastic Sheeting	2,700	LF	$	5	$	13,500
					Subtotal Schedule B:	**$**	**35,500**
Schedule C							
Containment Wall Installation and Grading		*Quantity*	*Unit*		*Unit Cost*		*Total Cost*
C.1	Pre-construction Staking	1	LS	$	2,000	$	2,000
C.2	Excavation and Handling	373	BCY	$	20	$	8,000
C.3	Backfill	124	CY	$	128	$	16,000
C.4	Ecology Blocks (Material)	1	LS	$	96,000	$	96,000
C.5	Ecology Blocks (Placement/Installation)	1	LS	$	35,000	$	35,000
C.6	Fill, Compaction, & Grading	1	LS	$	106,000	$	106,000
C.7	Dewatering	1	LS	$	25,000	$	25,000
					Subtotal Schedule C:	**$**	**288,000**
Schedule D							
Cap Installation		*Quantity*	*Unit*		*Unit Cost*		*Total Cost*
D.1	Excavation and Handling	850	BCY	$	20	$	17,000
D.2	Soil import and placement	5,900	LCY	$	37	$	219,000
D.3	Gravel import and placement	1,008	TON	$	49	$	50,000
D.4	Compaction & Grading	1	LS	$	7,000	$	7,000
D.5	Asphalt placement	640	TON	$	325	$	208,000
					Subtotal Schedule D:	**$**	**501,000**
Schedule E							
Pre-Design Test Pitting, Sheet Pile Wall Installation, Excavation and Offsite Disposal		*Quantity*	*Unit*		*Unit Cost*		*Total Cost*
E.1	Excavation Contractor (for Test Pits)	1	LS	$	17,000	$	17,000
E.2	Laboratory Analysis (for Test Pits)	1	LS	$	5,000	$	5,000
E.3	Field Staff (for Test Pits)	1	LS	$	3,500	$	3,500
E.4	Permanent Sheet Pile Wall	11,445	SF	$	40	$	458,000
E.5	Excavation and Handling	12,600	BCY	$	20	$	252,000
E.6	Transportation and Disposal - Hazardous Waste	10,700	Tons	$	316	$	3,382,000
E.7	Transportation and Disposal - Clean Fill	7,900	Tons	$	30	$	237,000
E.8	Ecology Block Wall Removal	1	LS	$	25,000	$	25,000
					Subtotal Schedule E:	**$**	**4,379,500**
Schedule F							
Backfill and Restoration		*Quantity*	*Unit*		*Unit Cost*		*Total Cost*
F.1	Topsoil import and placement	690	LCY	$	37	$	26,000
F.2	Hydroseed	118,865	SF	$	0.15	$	18,000
					Subtotal Schedule E:	**$**	**44,000**

Table 3-3
ENGINEER'S PRELIMINARY OPINION OF PROBABLE COST - ALTERNATIVE 3A

Schedule G							
Construction Management, Administrative Costs, Perr		*Quantity*	*Unit*		*Unit Cost*		*Total Cost*
G.1	Permitting	1	LS	$	30,000	$	30,000
G.2	Project Management (6% of Capital Cost)	1	LS	$	335,000	$	335,000
G.3	Remedial Design	1	LS	$	75,000	$	75,000
G.4	Construction Management	1	LS	$	150,000	$	150,000
G.5	Contingency (20%)	1	LS	$	1,233,000	$	1,233,000
					Subtotal Schedule F:	**$**	**1,823,000**

Notes:
bcy = bank cubic yards
LCY = loose cubic yards
LF = linear feet
LS = lump sum
SF = square feet

Table 3-4
ENGINEER'S PRELIMINARY OPINION OF PROBABLE COST - ALTERNATIVE 3B

Project:	Hylebos Marsh Interim Action	
Client:	Port of Tacoma	
Project No./Task:	M0615.20.015	Initial
Prepared By:	A. Hand	ACH
Checked By:	J. Elliott	JCE
Date:	2/19/2026	
Revision No.:	1	

MAUL FOSTER ALONGI
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Seattle, WA 98121
206-858-7620
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Cost Estimate Summary—Feasibility Level			
Schedule A—	Mobilization and Site Preparation	$	240,000
Schedule B—	Temporary Erosion and Sediment Control	$	36,000
Schedule C—	Containment Wall Installation and Grading	$	288,000
Schedule D—	Cap Installation	$	501,000
Schedule E—	Pre-Design Test Pitting, Sheet Pile Wall Installation, Excavation and Offsite Disposal	$	2,602,500
Schedule F—	Backfill and Restoration	$	44,000
Schedule G—	Construction Management, Administrative Costs, Permitting, and Contingency	$	1,316,000
	Total:	**$**	**5,027,500**

Assumptions:

1 This estimate is based on a conceptual-level design. Approaches to retaining wall construction, dewatering, site layout, cap installation, and staging made during final design may significantly alter project cost.

2 The cost assumes that the extent of auto fluff fill is limited to the extents defined during 2024 investigation activities (MFA 2024).

3 All auto fluff-containing fill will be excavated.

4 The cost for waste disposal assumes that the cap material can be disposed of at a non-hazardous waste landfill.

5 The cost for waste disposal assumes that the auto fluff and contaminated soil will be disposed of at a non-hazardous waste landfill.

6 The cost for transport and disposal assumes all contaminated and cap material will be disposed of offsite. This cost may be reduced if the cap material can be reused as excavation backfill and will be confirmed during final design.

7 Portions of the site will require placement of roadway fabric and quarry spalls (site improvements) to facilitate the loading of trucks and staging equipment.

8 Wetland compensatory mitigation is not included in this estimate.

9 A 20% contingency is included.

Table 3-4
ENGINEER'S PRELIMINARY OPINION OF PROBABLE COST - ALTERNATIVE 3B

Schedule A					
Mobilization and Site Preparation		*Quantity*	*Unit*	*Unit Cost*	*Total Cost*
A.1	Mobilization (5% of Capital Cost)	1	LS	$ 177,000	$ 177,000
A.2	Pre-Design Survey	1	LS	$ 10,000	$ 10,000
A.3	Install Temporary Fencing	2,700	LF	$ 5	$ 13,500
A.4	Site Improvements	1	LS	$ 30,000	$ 30,000
A.5	Clearing and Grubbing	1	LS	$ 8,800	$ 9,000
				Subtotal Schedule A:	**$ 239,500**
Schedule B					
Temporary Erosion and Sediment Control		*Quantity*	*Unit*	*Unit Cost*	*Total Cost*
B.1	Wheel Wash	1	LS	$ 18,000	$ 18,000
B.2	Silt Fencing	1,000	LF	$ 4	$ 4,000
B.3	Plastic Sheeting	2,700	LF	$ 5	$ 13,500
				Subtotal Schedule B:	**$ 35,500**
Schedule C					
Containment Wall Installation and Grading		*Quantity*	*Unit*	*Unit Cost*	*Total Cost*
C.1	Pre-construction Staking	1	LS	$ 2,000	$ 2,000
C.2	Excavation and Handling	373	BCY	$ 20	$ 8,000
C.3	Backfill	124	CY	$ 128	$ 16,000
C.4	Ecology Blocks (Material)	1	LS	$ 96,000	$ 96,000
C.5	Ecology Blocks (Placement/Installation)	1	LS	$ 35,000	$ 35,000
C.6	Fill, Compaction, & Grading	1	LS	$ 106,000	$ 106,000
C.7	Dewatering	1	LS	$ 25,000	$ 25,000
				Subtotal Schedule C:	**$ 288,000**
Schedule D					
Cap Installation		*Quantity*	*Unit*	*Unit Cost*	*Total Cost*
D.1	Excavation and Handling	850	BCY	$ 20	$ 17,000
D.2	Soil import and placement	5,900	LCY	$ 37	$ 219,000
D.3	Gravel import and placement	1,008	TON	$ 49	$ 50,000
D.4	Compaction & Grading	1	LS	$ 7,000	$ 7,000
D.5	Asphalt placement	640	TON	$ 325	$ 208,000
				Subtotal Schedule D:	**$ 501,000**
Schedule E					
Pre-Design Test Pitting, Sheet Pile Wall Installation, Excavation and Offsite Disposal		*Quantity*	*Unit*	*Unit Cost*	*Total Cost*
E.1	Excavation Contractor (for Test Pits)	1	LS	$ 17,000	$ 17,000
E.2	Laboratory Analysis (for Test Pits)	1	LS	$ 5,000	$ 5,000
E.3	Field Staff (for Test Pits)	1	LS	$ 3,500	$ 3,500
E.4	Permanent Sheet Pile Wall	11,445	SF	$ 40	$ 458,000
E.5	Excavation and Handling	12,600	BCY	$ 20	$ 252,000
E.6	Transportation and Disposal - Hazardous Waste	10,700	Tons	$ 150	$ 1,605,000
E.7	Transportation and Disposal - Clean Fill	7,900	Tons	$ 30	$ 237,000
E.8	Ecology Block Wall Removal	1	LS	$ 25,000	$ 25,000
				Subtotal Schedule E:	**$ 2,602,500**
Schedule F					
Backfill and Restoration		*Quantity*	*Unit*	*Unit Cost*	*Total Cost*
F.1	Topsoil import and placement	690	LCY	$ 37	$ 26,000
F.2	Hydroseed	118,865	SF	$ 0.15	$ 18,000
				Subtotal Schedule E:	**$ 44,000**

Table 3-4
ENGINEER'S PRELIMINARY OPINION OF PROBABLE COST - ALTERNATIVE 3B

Schedule G							
Construction Management, Administrative Costs, Perr		*Quantity*	*Unit*		*Unit Cost*		*Total Cost*
G.1	Permitting	1	LS	$	30,000	$	30,000
G.2	Project Management (6% of Capital Cost)	1	LS	$	223,000	$	223,000
G.3	Remedial Design	1	LS	$	75,000	$	75,000
G.4	Construction Management	1	LS	$	150,000	$	150,000
G.5	Contingency (20%)	1	LS	$	838,000	$	838,000
					Subtotal Schedule F:	**$**	**1,316,000**

Notes:
bcy = bank cubic yards
LCY = loose cubic yards
LF = linear feet
LS = lump sum
SF = square feet

Table 3-5
Interim Action Alternatives Disproportionate Cost Analysis
Hylebos Marsh Interim Action
Tacoma, Washington

Alternative	Protectiveness	Permanence	Long-term effectiveness	Implementation Risk Management	Implementability	Total Weighted Benefits	Cost			Comments
							Total Estimated Cost	Cost Effectiveness[a]	Total Benefit per $1 Million Cost	
Weighting	20%	20%	20%	20%	20%	100%				
Alternative 1: Excavation and Off-Site Disposal	5	5	5	3	1	3.80	$8,427,000	$2,217,632	0.45	Alternative achieves permanent remedy, but waste disposal facilities that can accept the material are minimal; requires transport of material great distances, which increases risk for public and may not be technically implementable due to risk of spreading snails beyond the Property.
Alternative 2: Containment and Capping	3	2	3	4	5	3.40	$1,435,000	$422,059	2.37	Alternative is non-permanent, as material will remain in-place and will require long-term monitoring if final remedy. Eliminates potential risk of transporting snails beyond the Property, which considers public concerns and vulnerable populations.
Alternative 3a: Containment, Capping, and Post-Eradication Excavation	5	4.9	5	3	3	4.18	$7,400,500	$1,770,455	0.56	Alternative is permanent, but short-term and implementability risks are associated with excavation and assumption that snail eradication efforts will be certified within three years and excavated soil will be disposed of as hazardous waste. Reduces potential risk of transporting snails beyond Property, which considers public concerns and vulnerable populations.
Alternative 3b: Containment, Capping, and Post-Eradication Excavation	5	4.9	5	3	3	4.18	$5,027,500	$1,202,751	0.83	Alternative is permanent, but short-term and implementability risks are associated with excavation and assumption that snail eradication efforts will be certified within three years and excavated soil will be disposed of as non-hazardous waste. Reduces potential risk of transporting snails beyond Property, which considers public concerns and vulnerable populations.

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Table 3-5
Interim Action Alternatives Disproportionate Cost Analysis
Hylebos Marsh Interim Action
Tacoma, Washington

NOTES:

Preferred Alternative.

The benefits for each alternative were ranked on a linear numerical scale from 1 to 5 with the higher score indicating a higher degree of benefit.

The following factors relative to each criteria were considered to determine ranking:

Protectiveness = The degree to which the alternative reduces existing risks, the time required for alternative to reduce risks at the site and attain cleanup standards, the on-site and offsite risks remaining after implementing the alternative, and improvement of the overall environmental quality.

Permanence = The adequacy of the alternative in destroying the hazardous substances, the reduction or elimination of hazardous substance releases and sources of releases, the degree of irreversibility of waste treatment process, and the characteristics and quantity of treatment residuals generated.

Long-term effectiveness = The degree of certainty that the alternative will be successful, the reliability of the alternative during the period of time hazardous substances are expected to remain on-site at concentrations that exceed cleanup levels, the resilience of the alternative to climate change impacts, the magnitude of residual risk with the alternative in place, the effectiveness of controls required to manage treatment residues or remaining wastes.

Implementation Risk Management = The risks to human health and the environment, including likely vulnerable populations and overburdened communities, associated with the alternative during construction and implementation, the effectiveness of the alternative to manage such risks.

Implementability = The technical difficulty of designing, constructing, and otherwise implementing the alternative in a reliable and effective manner, regardless of cost, the availability of necessary off-site facilities, services, and materials, administrative and regulatory requirements, scheduling, size, and complexity, monitoring requirements, access for construction operations and monitoring (this may require cooperation of property owners other than the person conducting the cleanup), and integration with existing facility operations and other current or potential remedial actions.

N = no.

NA = not applicable.

Y = yes.

[a]Million dollars per total weighted degrees of benefit.

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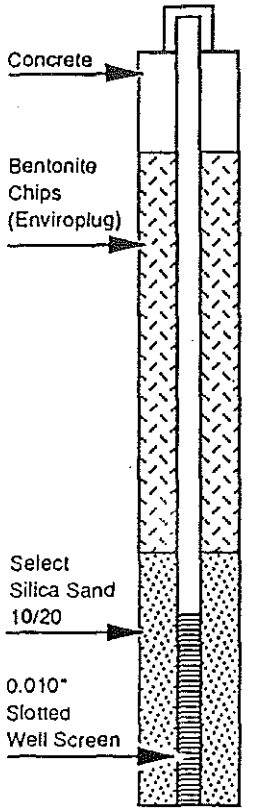
Appendix A

Boring Logs

MAUL FOSTER ALONGI

BORING NO.	SB-1	ELEVATION:	11.32 ft
LOCATION:		DATE STARTED:	3/28/91
DRILLING AGENCY:	Soil Sampling Service	DATE COMPLTED:	3/28/91
DRILLING EQUIPMENT:	All-terrain CME-50	DRILLER: W. Lindholm	LOGGED BY: K. Teague
DRILLING METHOD:	4" ID HSA	SAMPLER:	SPT

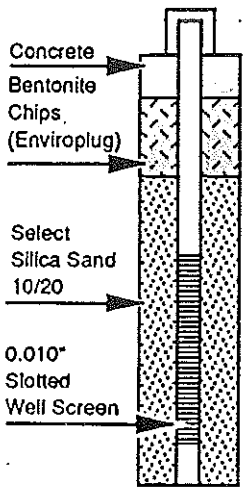


DEPTH (FEET)	BLOWS / 6 IN.	SAMPLE	GRAPHIC LOG	DESCRIPTION
5	1, 4, 2			(2.5 - 4.0) Loose, saturated, brown, medium grained sand (SP), trace of calcareous shell material (FILL)
10	1, 0, 0	AIR		(8.5 - 10.0) No recovery. Likely fine to medium grained saturated sand
15	0, 0, 4			(13.5 - 15.0) Very soft, plastic, saturated, clay (CL) with loose, saturated, gray, fine sand (SP)
20	7, 11, 16			(18.5 -20.0) Medium dense, saturated, gray, fine to medium sand (SP)

Screened in silt?
15 – 8.5 unknown

Project No. 91C0191A	Sithe Energies, U.S.A., Inc. Tacoma Cogeneration Project	LOG OF BORING SB-1	SHEET 1 of 7
Woodward-Clyde Consultants			

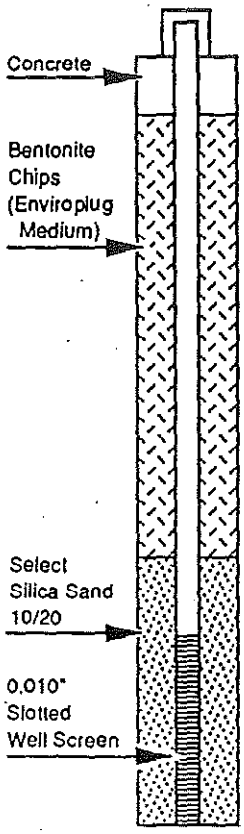
BORING NO. SB-1A	ELEVATION: 11.91 ft
LOCATION:	DATE STARTED: 3/28/91
DRILLING AGENCY: Soil Sampling Service	DATE COMPLTED: 3/28/91
DRILLING EQUIPMENT: All-terrain CME-50	DRILLER: W. Lindholm / LOGGED BY: K. Teague / D. Walker
DRILLING METHOD: 4" ID HSA	SAMPLER:



DEPTH (FEET)	BLOWS / 6 IN.	SAMPLE	GRAPHIC LOG	DESCRIPTION
				Note: Not Sampled. Stratigraphic information from Well SB-1 except as noted (*)
				(2.3 - 4.0) Loose, saturated, brown, medium grained sand (SP) (FILL)
5				
10				* (10.5) Clay encountered

Project No. 91C0191A	Sithe Energies, U.S.A., Inc. Tacoma Cogeneration Project	LOG OF BORING SB-1A	SHEET 5 of 7
Woodward-Clyde Consultants			

BORING NO.	SB-2	ELEVATION:	10.91 ft
LOCATION:		DATE STARTED:	3/29/91
DRILLING AGENCY:	Soil Sampling Service	DATE COMPLETED:	3/29/91
DRILLING EQUIPMENT:	All-terrain CME-50	DRILLER: W. Lindholm / LOGGED BY:	K. Teague
DRILLING METHOD:	4" ID HSA	SAMPLER:	SPT

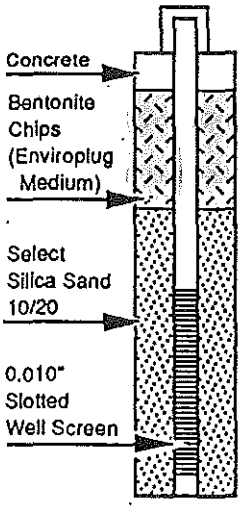


DEPTH (FEET)	BLOWS / 6 IN.	SAMPLE	GRAPHIC LOG	DESCRIPTION
5	2 2 2			(3.5 - 5.5) Loose, wet to saturated, dark gray to brown fine to medium sand (SP), trace of silt, trace of clayey blebs to 4mm diameter (FILL)
10	2 2 1			(8.5 - 10.5) Soft, saturated, gray-brown clay (CL) with abundant roots and rootlets
15	0			(13.5 - 15.5) Very soft, saturated, gray clay (CL)
20	1 8 14 12			(18.5 -20.5) Medium dense, saturated, dark gray, fine to medium sand (SP)

screened in silt/clay?
15.5 - 18.5 unknown

Project No. 91C0191A	Sithe Energies, U.S.A., Inc. Tacoma Cogeneration Project	LOG OF BORING SB-2	SHEET 2 of 7
Woodward-Clyde Consultants			

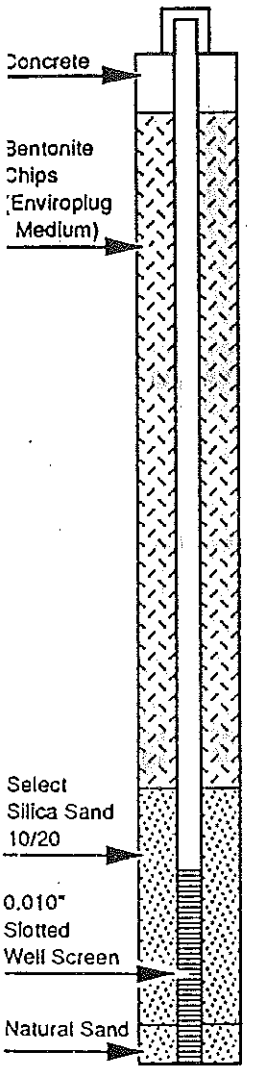
BORING NO. SB-2A		ELEVATION: 11.78 ft	
LOCATION:		DATE STARTED: 3/29/91	
DRILLING AGENCY: Soil Sampling Service		DATE COMPLTED: 3/29/91	
DRILLING EQUIPMENT: All-terrain CME-50		DRILLER: W. Lindholm	LOGGED BY: K. Teague / D. Walker
DRILLING METHOD: 4" ID HSA		SAMPLER:	



DEPTH (FEET)	BLOWS / 6 IN.	SAMPLE	GRAPHIC LOG	DESCRIPTION
				Note: Not Sampled. Stratigraphic information from Well SB-2, except as noted (*)
				(3.5 - 5.5) Loose, wet to saturated, dark gray to brown fine to medium sand (SP), trace of silt, trace of clayey blebs to 4mm diameter (FILL)
5				*(7.0 - 8.5) Refuse encountered
10				(8.5 - 10.5) Soft, saturated, gray-brown clay (CL) with abundant roots and rootlets

Screened in clay 8.5 - 10.5'

BORING NO.	SB-3	ELEVATION:	14.07 ft
LOCATION:		DATE STARTED:	3/29/91
DRILLING AGENCY:	Soil Sampling Service	DATE COMPLTED:	3/29/91
DRILLING EQUIPMENT:	All-terrain CME-50	DRILLER: W. Lindholm / LOGGED BY:	K. Teague
DRILLING METHOD:	4" ID HSA	SAMPLER:	SPT

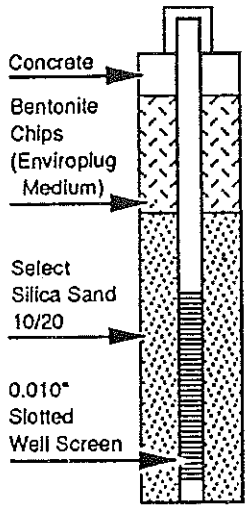


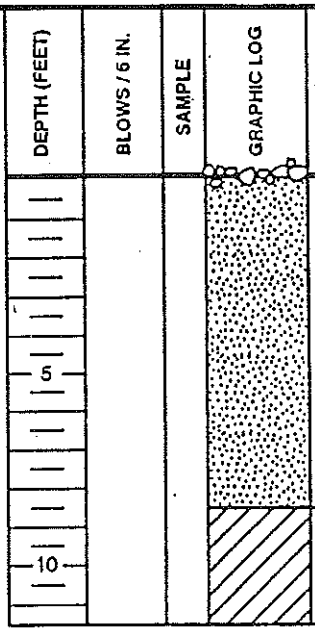
DEPTH (FEET)	BLOWS / 6 IN.	SAMPLE	GRAPHIC LOG	DESCRIPTION
				Surface: Coarse sandy gravel with cobbles mixed with white powdery lime
5	4 6 8			(3.5 - 5.5) Loose to medium, dense, saturated, medium sand (SP) trace of fine sand (FILL)
10	1 2 1-1/2			(8.5 - 10.5) Very soft, saturated, gray-tan clay (CL) with some darker gray vertically oriented streaks
15	0			(13.5 - 15.5) Very soft, saturated, gray clay (CL), trace to some silt in lower 3"
20	5 4 1 2			(18.5 -20.5) Very soft, saturated gray clay (2 layers, 4" and 7" thick) interbedded with loose, saturated, gray, medium sand
25	5 8 19			(23.5 - 25.5) Loose, saturated, poorly sorted gray silty fine sand (SW) with trace of clay, grading to dense, saturated, gray, medium sand (SP) with serveral white-tan clam shell fragments

screening clay ?
20.5 - 23.5' unknown

Project No. 91C0191A	Sithe Energies, U.S.A., Inc. Tacoma Cogeneration Project	LOG OF BORING SB-3	SHEET 3 of 7
Woodward-Clyde Consultants			

BORING NO. SB-3A	ELEVATION: 13.26 ft
LOCATION:	DATE STARTED: 3/29/91
DRILLING AGENCY: Soil Sampling Service	DATE COMPLTED: 3/29/91
DRILLING EQUIPMENT: All-terrain CME-50	DRILLER: W. Lindholm / LOGGED BY: K. Teague / D. Walker
DRILLING METHOD: 4" ID HSA	SAMPLER:





DESCRIPTION

Note: Not Sampled. Stratigraphic information from Well SB-3

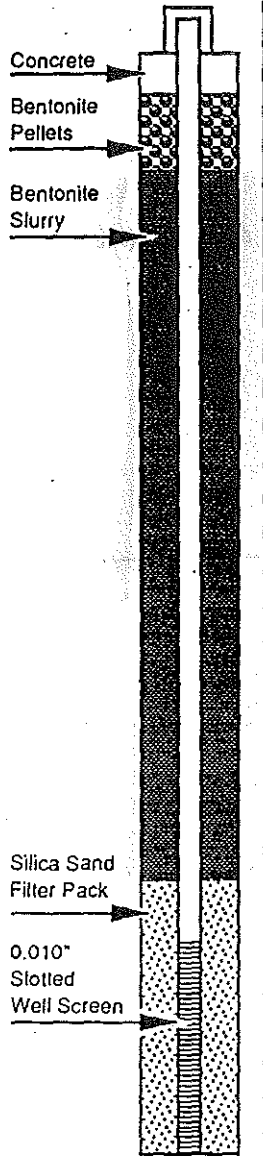
(3.5 - 5.5) Loose to medium, dense, saturated, medium sand (SP) trace of fine sand (FILL)

(8.5 - 10.5) Very soft, saturated, gray-tan clay (CL) with some darker gray vertically oriented streaks

screen in clay 8.5-10.5' (at least)

Project No. 91C0191A	Sithe Energies, U.S.A., Inc. Tacoma Cogeneration Project	LOG OF BORING SB-3A	SHEET 7 of 7
Woodward-Clyde Consultants			

BORING NO. SB-4	ELEVATION: 13.82 ft
LOCATION:	DATE STARTED: 4/1/91
DRILLING AGENCY: Soil Sampling Service	DATE COMPLTED: 4/1/91
DRILLING EQUIPMENT: All-terrain CME-50	DRILLER: W. Lindholm / LOGGED BY: K. Teague
DRILLING METHOD: 4" ID HSA	SAMPLER: SPT



DEPTH (FEET)	BLOWS / 6 IN.	SAMPLE	GRAPHIC LOG	DESCRIPTION
				Surface - sandy gravel
				(1.0) Wood pulp & chunks of rubber
	3			(3.5 - 5.5) Tan wood, fibrous (FILL)
5	3			
	2			
	3			(8.5 - 10.5) Dark brown saturated, wood waste, with bits of black rubber material
	4			
10	3			
	0			(13.5 - 15.5) Very soft, saturated, gray clay (CL) uniform
15				
	3			(18.5 -20.5) Soft, saturated, interbedded gray clay (CL) and gray sandy silt (ML)
	2			
20	1			
	1			(23.5 - 25.5) Soft, saturated, gray silty clay (CL) grading at 25.0 to loose, saturated, gray fine to medium sand
	3			
25	3			
	9			(28.5 30.5) Dense, saturated, gray medium sand (SP) with thin 1/2" - 3/4" interbedded fine sand stringers and one 4" silt lense
	18			
30	14			

screened in clay at least 23.5 - 25',

Project No. 91C0191A	Sithe Energies, U.S.A., Inc. Tacoma Cogeneration Project	LOG OF BORING SB-4	SHEET 4 of 7
Woodward-Clyde Consultants			

PSC PHILIP SERVICES CORP

Soil Stratigraphy Field Log

Location ID: SRI-16
Facility: Tacoma
Project: Tacoma SRI-II

Date: 1/18/02
Field Geologist: Corey Johnsen
Location Type: Temporary
X Soil Boring Only X Well _ Test Pit

Drilling Method: Geoprobe thru 4.25 in HSA
Sampling Method: 4'x2" Acetate liner
Total Depth: 26'

Depth of Sample (ft bgs)	Sample ID	Blow Counts (per 6")	Total Organics (ppm)	Sample Recovery (inches)	Geological Description: Sample interval, Unified Soil Class ID, Munsell Color, grain size, sorting, moisture, compaction, indication of contaminants (odor or sheen), and general stratigraphic description.
0.0'			Breathing Zone: In-Spoon: Headspace: 0.0 bas 0.0	36"	0-5" SP olive Black, fine sand with few medium sand, Moderately Sorted, moist, loose, root debris 5-9" SW, Moderate Olive Brown, fine sand with some medium and some fine gravel, poorly sorted, moist, loose, fine and coarse gravel size pieces of black Charcoal 9-15" SM light olive gray with light olive brown patches, 50/50 silt/sand mix, moderately sorted, moist to dry, medium stiff 15-17" Brown Black wood/bark 17-20" SW, Moderate Olive Brown, medium and fine grain sand with fine gravel, poorly sorted, loose, some brown black wood debris 20-24" ML light olive Gray, Sandy Silt with fine sands, well sorted, dry, very stiff, 24-36 SM, Moderate Olive Brown/with light olive brown mixed throughout, silty Sand, fine sand, with some medium, one 2" x 1" Cobble, wood debris poorly sorted, moist, loose

0'

4'

Geologist's Signature _____ Date 1/18/02 Reviewer _____ Date ____ Pg 1 of 3

PHILIP SERVICES CORP

Soil Stratigraphy Field Log

Location ID: SRI-16
Facility: Tacoma
Project: Tacoma SRI-II

Date: 1/18/02
Field Geologist: Corey Johnson
Location Type: Temporary — X Soil Boring Only — X Well — Test Pit
Total Depth: 26'

Drilling Method: Geoprobe thru 4.25in HSA
Sampling Method: 4'X2" Acetate liner

Depth of Sample (ft bgs)	Sample ID	Blow Counts (per 6")	Total Organics (ppm)	Sample Recovery (inches)	Geological Description: Sample interval, Unified Soil Class ID, Munsell Color, grain size, sorting, moisture, compaction, indication of contaminants (odor or sheen), and general stratigraphic description.
4' 0.0'			Breathing Zone: In-Spoon: Headspace: 0.0	34"	0-12" SR Olive Black, moderately sorted, fine sand with few fines, moderately sorted, wet, loose 12-19" SM, Olive Black/moderate yellowish brown mixtures, moderately sorted, wet, medium dense, silty sand. (fine sand) 19-34" SM, Olive Black, fine sand with silt increasing with depth, moderately sorted, moist to wet, loose-medium dense
8'			0.0	34"	0-19" SM/ML Olive Gray, silt/fine grain mix with silt increasing with depth 25/75 → 75/25, wet to moist with depth, soft to medium stiff with depth 19-34" SM Olive Black, moderately sorted, wet, medium dense, fine red grain sands
12'			0.0	24"	0-4" SM Olive Black, moderately sorted, wet, medium dense, fine red grain sands 4-24" ML Olive Gray with dark Gray streaks from 0-10", silt with very few fine sands, very well sorted, moist, medium stiff to soft with depth, root debris throughout
14'					

Geologist's Signature _____ Date 1/18/02 Reviewer _____ Date ____ Pg 2 of 3

4' & 8' Sample

PHILIP SERVICES CORP.

Soil Stratigraphy Field Log

Location ID: SBI-16D
Facility: Tacoma
Project: Tacoma SBI-II
Location Type: Temporary
X Soil Boring Only X Well _ Test Pit

Date: 1/18/02
Field Geologist: Corey Johnson
Total Depth: 26'
Drilling Method: Geoprobe thru 4.25 in HSA
Sampling Method: 4'x2" Acetate liners

Depth of Sample (ft bgs)	Sample ID	Blow Counts (per 6")	Total Organics (ppm)	Sample Recovery (inches)	Geological Description: Sample Interval, Unified Soil Class ID, Munsell Color, grain size, sorting, moisture, compaction, indication of contaminants (odor or sheen), and general stratigraphic description.
14' 0.0'			Breathing Zone: In-Spoon: Headspace: 0.0	46"	0-40" ML Olive Gray Silt with few fine Sand, Very well Sorted, Wet, Soft 40-43" ML olive Gray Silt with some fine Sand, Well Sorted, wet Soft 43-46" SM olive Black SP fine sand with few silt, moderatly sorted, Wet, loose,
18'			0.0	48"	0-48" SP/SW olive Black, fine Sand with few silt, moderatly sorted, wet, loose, fine red sand grains throughout
22'			0.0	44"	0-13" SP/SW olive Black, fine sand with few silt, moderatly Sorted, Wet, loose, fine red sand grains throughout 13-28" SM, olive Gray/olive black, fine sand with silt mix (Mostly on outside of sample core) Moderatly Sorted, Wet, Soft/loose 28-44" SP/SW olive black, fine sand with few silt, moderatly Sorted, wet, loose, fine red sand grains throughout
26			0.0		

Geologist's Signature _____ Date 1/18/02 Reviewer _____ Date ____ Pg 3 of 3

PHILIP SERVICES CORP

Soil Stratigraphy Field Log

Location ID: TT SRI-17/17D
Facility: Tacoma
Project: Tacoma SRI-II

Date: 1/16/02
Field Geologist: Corey Johnson
Location Type: Temporary — X Soil Boring Only — X Well — _ Test Pit

Drilling Method: Geoprobe
Sampling Method: 4'x2" Acetate liner
Total Depth: 24'

Depth of Sample (ft bgs)	Sample ID	Blow Counts (per 6")	Total Organics (ppm)	Sample Recovery (inches)	Geological Description: Sample Interval, Unified Soil Class ID, Munsell Color, grain size, sorting, moisture, compaction, indication of contaminants (odor or sheen), and general stratigraphic description.
0' 0.0'	SRI-17-S-2-4-0102		Breathing Zone: In-Spoon: Headspace: 0.0 bag 0.0	42"	0-5" GW Dark Yellowish brown, medium and coarse grain sand with fine and coarse gravel, loose, moist, Several Moderate brown gravels, poorly sorted 5-16" GW Light Gray/very light gray mix, medium and coarse grain sand with fine and coarse gravels Some fines, dry, loose, poorly sorted, look like cement. 16-42" SM, Olive black, medium and fine sands with silt, ml silt in small pockets from 16-28", medium dense, moist, fine sands increasing with depth.
4'			0.0 bag 0.0	36"	0-7" SM Moderate yellowish brown, fine sand with Some medium Sand and several pockets of ml silt, Moderately sorted, Medium dense, 2 Moderate brown layers at 5", Pale Yellowish orange medium sands at 6"-6.5" Moist - wet 7-36" SM Olive Black, fine sand with increasing medium sands with depth, Some fines, Moderately Sorted, loose - medium dense, white Shells at 15"-22". red grains throughout, Wet
8'					

Geologist's Signature: [signature] Date 1/16/02 Reviewer _____ Date ____ Pg 1 of 3

4-8' sample - 4-8' to wet/soft to stay in sampler

PHILIP SERVICES CORP.

Soil Stratigraphy Field Log

Location ID: SRI-17 / 17D
Facility: Tacoma
Project: Tacoma SRI-II

Date: 1/16/02
Field Geologist: Corey Johnson
Location Type: Temporary — X Soil Boring Only — X Well — _ Test Pit

Drilling Method: Geoprobe
Sampling Method: 4' x 2" acetate liner
Total Depth: 24'

Depth of Sample (ft bgs)	Sample ID	Blow Counts (per 6")	Total Organics (ppm)	Sample Recovery (inches)	Geological Description: Sample Interval, Unified Soil Class ID, Munsell Color, grain size, sorting, moisture, compaction, indication of contaminants (odor or sheen), and general stratigraphic description.
0.0'			Breathing Zone: In-Spoon: Headspace: 0.0	24"	0-3" Sm Olive black medium and fine sand with increasing fines, medium dense, wet, Moderatly Sorted, 3-8" Sm Same as 8-10 0-3 50% silt 50% medium & and fine sand. 8-12" Sm, Olive black, fine and medium sand, moderatly sorted, loose-medium dense, wet, 12-18" ml Olive gray, silt with some fine sand, Well Sorted, Soft, moist-wet, 18-24" OL, Olive black Silt with Some fine sand, full of root debris, moderatly sorted, dry-moist, Soft but bound together by roots
8'					
10'			0.0	24"	0-24" Ml. Olive gray with grayish black streaks, Silt with few fine sand, Several chunks (1"-2") of wood from 11-11.5' Soft, moist, Well Sorted
12'				44"	0-44 ml Olive gray with grayish black streaks, Silt with few fines, sands, Soft, moist, Very Well Sorted
16'					

Geologist's Signature _____ Date 1/16/02 Reviewer _____ Date ___ Pg 2 of 3

PHILIP SERVICES CORP.

Soil Stratigraphy Field Log

Location ID SB1-17/17D
Facility Tacoma
Project Tacoma

Date: 1/16/02
Field Geologist: Corey Johnson
Location Type: Temporary — X Soil Boring Only — X Well — _ Test Pit
Drilling Method: geoprobe thru 4.25 in HSA
Sampling Method: 4' x 2" Acetate liner
Total Depth: 24'

Depth of Sample (ft bgs)	Sample ID	Blow Counts (per 6")	Total Organics (ppm)	Sample Recovery (inches)	Geological Description: Sample interval, Unified Soil Class ID, Munsell Color, grain size, sorting, moisture, compaction, indication of contaminants (odor or sheen), and general stratigraphic description.
16					
0.0'			Breathing Zone: In-Spoon: Headspace: 0.0	36"	0-12" ML olive black, silt with some fines, well sorted, 0-4 wet and soupy 4-12 wet, very soft, 12-36" SM, olive black, fine and medium sands with some silt, moderatly sorted, loose, wet, red grains
20'				44"	0-44" SM, olive black, medium and fine sands, very few fines, moderatly sorted, medium dense sand, wet, red grains
24'					

Geologist's Signature _____ Date 1/16/02 Reviewer _____ Date ____ Pg 3 of 3

16-20 recovery from 17-20, 16-17 felt really soft and soupy
end of silt @ 18'

PHILIP SERVICES CORP

Soil Stratigraphy Field Log

Location ID: SAI-18
Facility: Tacoma
Project: Tacoma SAI-II
Location Type: Temporary — X Soil-Boring Only — X Well — _ Test Pit

Date: 11/6/02
Field Geologist: Corey Johnson
Drilling Method: Geoprobe
Sampling Method: 4' X 2" acetate liners
Total Depth: 10'

Depth of Sample (ft bgs)	Sample ID	Blow Counts (per 6")	Total Organics (ppm)	Sample Recovery (Inches)	Geological Description: Sample Interval, Unified Soil Class ID, Munsell Color, grain size, sorting, moisture, compaction, indication of contaminants (odor or sheen), and general stratigraphic description.
0.0'			Breathing Zone: In-Spoon: Headspace: 0.0 bag 0.0	36"	0-6" SM olive black to black, fine grain sand with organic debris (roots, leaves, grass), moist, loose, moderatly sorted, some fines 6-29" SM, Olive black, fine sand with some fines, moist, medium dense, moderate-well sorted, 29-36" SM olive Black, medium sand with some fine sand and few fines, medium dense, moist-wet, moderatly sorted.
4'			0.0	24"	0-24" SM grayish black, medium and fine sands with some fines, moderatly sorted, wet, medium dense, mixed pockets of ML silt from 10-13", white rocks and shells 6-15".
8'			0.0	24"	0-2" ML olive gray, Silt with few fine sand, very well sorted soft, wet, 2-7" OL Olive black, Silt with few fine sand, & organic debris (small roots) well sorted, moist 7-24" ML Olive gray, Silt with few fine sands, very well sorted Dark gray/grayish black streaks from 7-20", medium stiff, moist
10					

Geologist's Signature _____ Date 11/6/02 Reviewer _____ Date _____ Pg 1 of 1

0-4' Sample is 0-3' Top material was dense making 3-4' soil displaced
4-8' Sample is 4-8' foot of soil consolidated to 6-8', 4-6' was water from soils

PSC PHILIP SERVICES CORP.

Soil Stratigraphy Field Log

Location ID: SAI-18D
Facility: Tacoma
Project: SAI- II

Date: 1/17/02
Field Geologist: Corey Johnson
Location Type: Temporary
☒ Soil Boring Only ☐ Well ☐ Test Pit

Drilling Method: Geoprobe thru 4.25 in HSA
Sampling Method: 4' x 2" Acetate liner
Total Depth: 22'

Depth of Sample (ft bgs)	Sample ID	Blow Counts (per 6")	Total Organics (ppm)	Sample Recovery (inches)	Geological Description: Sample Interval, Unified Soil Class ID, Munsell Color, grain size, sorting, moisture, compaction, indication of contaminants (odor or sheen), and general stratigraphic description.
10' 0.0'			Breathing Zone: In-Spoon: Headspace: 0.0	44"	0-23" ml olive gray, Silt with few fines, very well Sorted, moist, soft, 23-25" SM, olive black, fine sand with some Silt, moderately to well Sorted, moist, loose-medium dense, 25-44" ml olive gray, Silt with few fines, very well sorted, moist, medium stiff
14'			0.0	44"	0-30" SM, Olive Black, medium and fine grain sands, Some fines, Wet, Moderately Sorted, red grains throughout 30-33" SM Olive Gray Silt with fine sand medium sand 50/50 Silt sand, wet, Stiff, Dense 33-44" SM, olive Black, medium and fine Sand, ~~Some fine~~ few fines, wet, moderately sorted, red Grains,
18'				46"	0-46" SM; Olive Black, medium and fine sand, few fines, moderately sorted, Wet, red grains throughout
22'					

Geologist's Signature _____ Date 1/17/02 Reviewer _____ Date ____ Pg 1 of 1

PHILIP SERVICES CORP.

Soil Stratigraphy Field Log

Location ID: SRI-19/19D
Facility: Tacoma
Project: Tacoma SRI-II

Date: 1/17/02
Field Geologist: Corey Johnson
Location Type: Tacoma — X Soil Boring Only — Well — Test Pit

Drilling Method: Geoprobe/ Geoprobe thin 4.25in HSA
Sampling Method:
Total Depth: 36'

Depth of Sample (ft bgs)	Sample ID	Blow Counts (per 6")	Total Organics (ppm)	Sample Recovery (Inches)	Geological Description: Sample Interval, Unified Soil Class ID, Munsell Color, grain size, sorting, moisture, compaction, indication of contaminants (odor or sheen), and general stratigraphic description.
0' 0.0'			Breathing Zone: In-Spoon: Headspace:	36"	0-3" SM, olive Black, fine grain sands with few fines, organic debris (roots, leaves), moist to wet, loose 3-15 SW, olive Black, medium and fine grain sand with few fines, moderatly sorted, wet, loose 15-18" SM, moderate Yellowish brown fine sand with medium sand and pocket of ml. Si, lt same color, wet, poorly - moderatly sorted, loose - medium dense 18-36" SW, Olive Black, medium and fine grain sand, few fines, Several small pockets of moderate Yellowish brown ml Silt, wet, poorly to moderatly Sorted, loose to medium dense
4'			0.0	40"	0-7" SW Olive Black medium and fine grain sand, few fines, Wet, medium dense, red grains 7-20" SW, Grayish Black, medium and fine sand, few fines, Wet, Small white shells, red fine and med. grains, 20-32" SW, Grayish Black, fine sand with some medium and

Geologist's Signature: _____ Date 1/17/02 Reviewer: _____ Date ___ Pg 1 of 4

4-8' sample mostly 5-8'

PHILIP SERVICES CORP.

Soil Stratigraphy Field Log

Location ID SBI-19/19D
Facility Tacoma
Project Tacoma SBI-II

Date 1/17/02
Field Geologist Corey Johnson
Location Type: Temporary
X Soil Boring Only X Well _ Test Pit

Drilling Method Geoprobe / Geoprobe thru 4.25 in HSA
Sampling Method 4' x 2" Acetate liner
Total Depth 36'

Depth of Sample (ft bgs)	Sample ID	Blow Counts (per 6")	Total Organics (ppm)	Sample Recovery (inches)	Geological Description: Sample Interval, Unified Soil Class ID, Munsell Color, grain size, sorting, moisture, compaction, indication of contaminants (odor or sheen), and general stratigraphic description.
1-8' cont.					26-32" cont. Some fines, red fine grain sand through out, Wet, Medium dense, moderatly Sorted,
0.0'			Breathing Zone: In-Spoon: Headspace: 0.0		32-40" SM, Olive Gray, fine grain Sand with Silt, Wet, Dense, Wood piece 2" x 1" at 37-39", Moderatly Sorted
8'			0.0	18"	0-7" SM, olive Gray, fine grain Sand with silt, Wet, dense, moderatly-well Sorted,
					7-11" ML, Olive Gray, Silt with root debris, moist to wet, well Sorted,
					7-18" OL, Olive Gray, Silt with few fines, moderate olive brown root debris through out moist, Dark gray Streaks, Soft,
10'			0.0	47"	0-47 ML, ~~Olive~~ light Gray, Silt, very well Sorted, moist, Medium stiff, Darth gray Streaks from 0-22"
14'			0.0	45"	0-24" ML, olive Gray, Silt, very well Sorted, moist, Soft,
					24-30 ML, olive Gray/Dark Gray, Silt with few/fine grain Sand, Soft, moist, well Sorted

Geologist's Signature _____ Date 1/17/02 Reviewer _____ Date ____ Pg 2 of 4

PHILIP SERVICES CORP

Soil Stratigraphy Field Log

Location ID SRI-19D
Facility Tacoma
Project Tacoma SRI-II

Date 1/17/02
Field Geologist Corey Johnson
Location Type: ~~Tacoma~~ Temporary
X Soil Boring Only X Well _ Test Pit

Drilling Method 6 coprobe thru 4.25 HSA
Sampling Method 4' x 2" Acetate liner
Total Depth 36'

Depth of Sample (ft bgs)	Sample ID	Blow Counts (per 6")	Total Organics (ppm)	Sample Recovery (inches)	Geological Description: Sample Interval, Unified Soil Class ID, Munsell Color, grain size, sorting, moisture, compaction, indication of contaminants (odor or sheen), and general stratigraphic description.
14-18' cont 0.0'			Breathing Zone: In-Spoon: Headspace:		30-45" ml, Olive Gray, Silt with few fine Gray Sand, well Sorted, moist, stiff
18'			0.0	42"	0-42" ml, Olive Gray, Silt with few fine Sands increasing with depth, well Sorted, medium Stiff,
22'			0.0	48"	0-30" SM, Olive Gray, ~~Silt Sand~~ 50/50 Silt fine Sand mix, moderatly Sorted, moist, Stiff 30-48" ml, Olive Gray, Silt with few fine Sand, moist, well Sorted, medium Stiff, White Shells throughout.
26'			0.0	48"	0-48 ml, olive Gray/light Gray, Silt with few ~~fines~~ fine Sand, Sand increasing with depth to 50/50 Silt/fine Sand mix, well Sorted, Soft going to medium stiff with depth, White Shells 0-20"
30'			0.0	48"	0-48" SM, Olive Gray/Dark Gray, Silty Sand with fine grain Sand, moderatly Sorted, Wet, dense
34					

Geologist's Signature _____ Date 1/17/02 Reviewer _____ Date ___ Pg 3 of 4

PHILIP SERVICES CORP.

Soil Stratigraphy Field Log

Location ID: SHI-191
Facility: Tacoma
Project: Tacoma SHI-II

Date: 1/17/02
Field Geologist: Corey Johnson
Location Type: Temporary — X Soil Boring Only, X Well, _ Test Pit
Drilling Method: Geoprobe thru 4.25in HSA
Sampling Method: 4' x 2" Acetate liner
Total Depth: 36'

Depth of Sample (ft bgs)	Sample ID	Blow Counts (per 6")	Total Organics (ppm)	Sample Recovery (inches)	Geological Description: Sample Interval, Unified Soil Class ID, Munsell Color, grain size, sorting, moisture, compaction, indication of contaminants (odor or sheen), and general stratigraphic description.
34' 0.0'			Breathing Zone: In-Spoon: Headspace: 0.0	24"	0-24" SW Dark Gray, fine grain sand with few silt, Moderate-well sorted, wet, dense, small white rocks/shells throughout
86'					

Geologist's Signature _____ Date 1/17/02 Reviewer _____ Date ____ Pg 4 of 4

PHILIP SERVICES CORP.

Soil Stratigraphy Field Log

Location ID: SRI-32/32D
Facility: Tacoma
Project: SRI-II

Date: 03 Feb 2002
Field Geologist: Joe Depner
Location Type: X Soil Boring Only X temp. Well _ Test Pit

Drilling Method: Direct-Push (Geoprobe)
Sampling Method: acetate liner
Total Depth: 29'

Depth of Sample (ft bgs)	Sample ID	Blow Counts (per 6")	Total Organics (ppm)	Sample Recovery (inches)	Geological Description: Sample Interval, Unified Soil Class ID, Munsell Color, grain size, sorting, moisture, compaction, indication of contaminants (odor or sheen), and general stratigraphic description.
0.0'			Breathing Zone: In-Spoon: Headspace:	48"	0-8": SM. Silty sand. (Fine to med. sand, with silt) Well mixed - poorly sorted. Moist. Moderately to highly compacted. Stems and rootlets throughout. Dark grayish brown. 8"-40": SW. Medium-grained sand. well sorted. Grayish brown. Moderately compacted. No roots visible. Moist. 40-48": Rust and gray-brown colored silt with medium ~~coarse~~ brown, poorly sorted sand mixed in. Moderately to highly compacted. ML? SC?
4'				36"	0-16": Gray-brown, medium ~~coarse~~, well-sorted sand, SP. Wet. Moderately compacted. Red fragments scattered throughout. 16-36": SW. Dark gray, medium-grained well-sorted sand. Numerous white shell fragments (< 0.25 in.) and red particles. moderately compacted. Wet.
8'				36"	0-12": No recovery. Driller says sand was too soupy to collect in sampler. 12-20": Medium-Sand (SW), well-sorted, dark gray, Wet, mod. compacted, red particles and white shell frags throughout. Grading to SM - silty med. sand, dark gray, poorly sorted, wet, mod. compact, red particles and white frags. throughout. Fragments of plant stalks/stems, up to 1.5 inches long.

Geologist's Signature: Joe Depner Date: 2/3/02 Reviewer: [illegible] Date: 2/5/02 Pg 1 of 3

PHILIP SERVICES CORP.

Soil Stratigraphy Field Log

Location ID: SRT-32/32D
Facility: Tacoma
Project: SRT-II

Date: 03 Feb 2002
Field Geologist: Joe Depner
Location Type: X Soil Boring Only X temp Well _ Test Pit

Drilling Method: Direct-Push (Geoprobe)
Sampling Method: acetate liner
Total Depth: 29'

Depth of Sample (ft bgs)	Sample ID	Blow Counts (per 6")	Total Organics (ppm)	Sample Recovery (inches)	Geological Description: Sample Interval, Unified Soil Class ID, Munsell Color, grain size, sorting, moisture, compaction, indication of contaminants (odor or sheen), and general stratigraphic description.
0.0'			Breathing Zone: In-Spoon: Headspace:		20-48": CL. Olive-gray clay. Wet. Well sorted, fine, med. compacted, med. plasticity. Occasional hair-thin rootlets visible. Thin black stringers present throughout. At 42": Plant stems (grass?) mixed in. 42-48": Color is light gray and plant stems throughout. Otherwise same as 20-48".
12'				40"	0-8": Not recovered 8-48": CL. Light gray clay. Wet fine, well-sorted, stiff, med. compact, med. plasticity. Occasional plant detritus (grass stalks?).
16'				48"	0-12": Med. sand, dk olive gray, SP, wet, well sorted, loose, w/red particles present throughout, grading to SM silty sand, dk gray, med. to fine, poorly sorted, dense, w/red particles scattered throughout. ["Heave?"] 12-48": CL. Same as 8-48" in the 12-16 ft interval, except no plant detritus visible.
20'				48"	0-48": SP. Med. sand, dk gray, wet well sorted, loose, w/red particles throughout. 0-16" – with light (white?) shell fragments visible. 16-20" – with wood chips (~0.75 in.) visible, and shell frags. 20-48" – no wood chips or shell frags. visible.
24'					

Geologist's Signature: Joe Depner Date: 2/3/02 Reviewer: [illegible] Date: 2/3/02 Pg 2 of 3

17-18.5' – Geotech sample of silt. In acetate liner.

PHILIP SERVICES CORP.

Soil Stratigraphy Field Log

Location ID: SRI-32/32D
Facility: Tacoma
Project: SRI-II

Date	Field Geologist	Location Type	Total Depth
03 Feb 2002	Joe Depner	X Soil Boring Only X temp. Well _ Test Pit	29'

Drilling Method: Direct-Push (Geoprobe)
Sampling Method: acetate liner

Depth of Sample (ft bgs)	Sample ID	Blow Counts (per 6")	Total Organics (ppm)	Sample Recovery (inches)	Geological Description: Sample Interval, Unified Soil Class ID, Munsell Color, grain size, sorting, moisture, compaction, indication of contaminants (odor or sheen), and general stratigraphic description.
24'			Breathing Zone: 0.0 In-Spoon: Headspace:	40"	0-8" - no recovery 8-42": SP. Dark gray, medium, well sorted sand, Wet, loose to moderately compact. Numerous red particles and light (white?) shell fragments scattered throughout. 42-48": ML. Gray silt. Fine. Well Sorted. Wet. Moderately compact. One large shell present (~0.75 in.) with irridescent sheen.
28'				12"	0-12": ML. Gray silt. Fine. Well sorted. Wet. Moderately compact. Low plasticity. Large (~0.5-in) shell fragments scattered throughout. Some plant stalks present (grass?).
29'					

Geologist's Signature: Joe Depner Date 2/3/02 Reviewer: [signature] Date 2/5/02 Pg 3 of 3

26-27' - Geotech. sample of sand. In acetate liner.

PHILIP SERVICES CORP.

Soil Stratigraphy Field Log

Location ID: SRI-33
Facility: Tacoma
Project: Tacoma SRI-II

Date: 2/2/02
Field Geologist: Corey Johnson
Location Type: Temporary
X Soil Boring Only X Well _ Test Pit

Drilling Method: Geoprobe
Sampling Method: 2" x 4' acetate liner
Total Depth: 12'

Depth of Sample (ft bgs)	Sample ID	Blow Counts (per 6")	Total Organics (ppm)	Sample Recovery (inches)	Geological Description: Sample Interval, Unified Soil Class ID, Munsell Color, grain size, sorting, moisture, compaction, indication of contaminants (odor or sheen), and general stratigraphic description.
0' 0.0'			Breathing Zone: In-Spoon: Headspace: 0.0	30"	0-3" SM Olive brown, silty sand, fine fine sand with fines, moderately sorted, moist - wet, medium dense, grass and roots throughout, 3-30" SM, olive black, fine and medium grain sand with few fines, moderately sorted, wet, medium dense,
4'			0.0	40"	0-7" SM, olive black, fine and medium grain sand with some fines, moderately sorted, wet, loose. 7-40" SM, ~~Olive~~ grayish black, fine and medium grain sand, few fines, moderately sorted, wet, medium dense to dense red and white SM fine and medium grain sands CJ
8'			0.0	26"	0-2" SM, Grayish black, sandy silt, 50% ml silt with 50% fine sand, moderately sorted, moist to wet, medium dense 2-8" ml, grayish black, silt with some fine grain sand, moderately well sorted, moist, soft 8-26" ml, olive gray, silt with few fine sand, well sorted, moist, soft, ~~grey~~ black streaking throughout, root debris throughout,
12'					

Geologist's Signature _____ Date 2/2/02 Reviewer _____ Date ____ Pg 1 of 1

0-4' sample is 0-2.5' because silty sand on top is acting like a plug in the liner when it gets about half way in the liner.

8-12' sample is ~10-12' because 8-10 was to soupy to push piston in sampler.

PHILIP SERVICES CORP.

Soil Stratigraphy Field Log

Location ID: SRI-33D
Facility: Tacoma
Project: Tacoma SRI-II

Date: 2/2/02
Field Geologist: Corey Johnson
Location Type: Temporary
☒ Soil Boring Only ☒ Well ☐ Test Pit

Drilling Method: Geoprobe thru 4.25 HSA
Sampling Method: 2" x 4' Acetate liner
Total Depth: 24'

Depth of Sample (ft bgs)	Sample ID	Blow Counts (per 6")	Total Organics (ppm)	Sample Recovery (inches)	Geological Description: Sample Interval, Unified Soil Class ID, Munsell Color, grain size, sorting, moisture, compaction, indication of contaminants (odor or sheen), and general stratigraphic description.
12'					
0.0'			Breathing Zone: In-Spoon: Headspace: 0.0	46"	0-43" ML Olive gray, silt with few fine sand, very well sorted, moist to wet, soft, low plasticity 43-46" SM, olive gray/dark gray, sandy silt, ML silt with 30% fine sand, moderately well sorted, moist to wet, soft to medium dense
16'			0.0	40"	0-13" SM, olive gray/dark gray, silty sand, fine grain sand with 20% ML silt, moderately sorted, medium dense, wet 13-40" SM, ~~olive~~ grayish black, fine and medium sands with few fines, moderately sorted, wet, medium dense, fines increasing to 20% at 33"-40"
20'			0.0	37"	0-37" SM, grayish black, fine sand with some medium sand, medium grains increasing with depth, moderately sorted, wet, medium dense to dense, red and white fine and medium grains throughout.
24'					

Geologist's Signature _____ Date 2/4/02 Reviewer _____ Date _____ Pg 1 of 1

16-20' sample is 16-19'

PHILIP SERVICES CORP.

Soil Stratigraphy Field Log

Location ID: SBJ-34
Facility: Tacoma
Project: SBJ - II

Date: 2/2/02
Field Geologist: Corey Johnson
Location Type: Temporary — X Soil Boring Only — Well — Test Pit

Drilling Method: Geoprobe
Sampling Method: 2" x 4' Acetate liner
Total Depth: 11'

Depth of Sample (ft bgs)	Sample ID	Blow Counts (per 6")	Total Organics (ppm)	Sample Recovery (inches)	Geological Description: Sample Interval, Unified Soil Class ID, Munsell Color, grain size, sorting, moisture, compaction, indication of contaminants (odor or sheen), and general stratigraphic description.
0.0'			Breathing Zone: In-Spoon: Headspace: 0.0 bag 0.0	46"	0-2" SM olive black medium fine sand with fines, grass, roots, organic matter, cobbles, poorly sorted, moist, loose, 2-5" SM with SW, olive brown, fine sand with fines, cobbles, few fine gravel and coarse gravel, poorly sorted, moist, loose 5-28" SM, light gray, fine sand with some fines and few fine gravel, few cobbles, poorly sorted, dense to very dense, dry, pockets of white fines 28-46" SM, Olive black, fine sand with few fines, moderately sorted, moist loose, red and white fine grains throughout,
4'			0.0	38"	0-30" SM olive black, fine sand with few fines, moderately sorted, moist to wet, medium dense, red grains of fine sand throughout 30-38" SM olive gray, fine sand with some fines, moderately sorted wet,
8'			0.0	22"	@-22" ML to ML with depth, olive gray, silty sand with silt increasing with depth, moderately sorted to well sorted with depth, loose to soft with depth, wet to moist with depth,
10'			0.0	12"	0-12" ML, olive gray, silt with few fine sand, very well sorted, moist, organic debris (roots) throughout, soft
11'					

Geologist's Signature: _____ Date 2/2/02 Reviewer _____ Date ____ Pg 1 of 1

4-8' soil sample is 4-7' 7-8 really soft and soupy

PHILIP SERVICES CORP.

Soil Stratigraphy Field Log

Location ID: SRI-34D
Facility: Tacoma
Project: Tacoma SRI-II

Date: 2/2/02
Field Geologist: Corey Johnson
Location Type: Temporary — X Soil Boring Only — X Well — _ Test Pit

Drilling Method: Geoprobe thru 4.25in HSA
Sampling Method: 2" x 4' Acetate liner
Total Depth: 26'

Depth of Sample (ft bgs)	Sample ID	Blow Counts (per 6")	Total Organics (ppm)	Sample Recovery (inches)	Geological Description: Sample Interval, Unified Soil Class ID, Munsell Color, grain size, sorting, moisture, compaction, indication of contaminants (odor or sheen), and general stratigraphic description.
10' 0.0'			Breathing Zone: In-Spoon: Headspace: 0.0	38"	0-32" ml olive gray, silt with few fine sand, ~~Grey~~ well sorted, moist, medium stiff, Dark gray Streaks 0-6", organic debris from 8-19" 32-38" SM olive black, fine sand with ml silt mix, moderately sorted, moist, Medium dense, red fine grain sands
14'			0.0	46"	0-31" ml olive gray, silt with very few fine sand, soft, very well sorted, 31-46" SM olive gray, sandy silt, ml silt with fine sands increasing with depth, wet, soft, moderately sorted
18'			0.0	40"	0-40" SM olive Black, fine sand with few fines, medium sand increasing with depth, moderately sorted, wet, medium dense, red fine grains throughout, white fine grains throughout,
22'			0.0	43"	0-43" SM olive Black, fine sand with some medium sand, few fines, moderately sorted, wet, medium dense, ml silt smeared on Sample at 37-41", Coarse grain Sand from 39-43"
26'					

Geologist's Signature _____ Date 2/2/02 Reviewer _____ Date ___ Pg 1 of 1

Project: Hylebos Marsh	Project Number:	Client: Port of Tacoma	Boring No. SB-1
Address, City, State 1212 Taylor Way		Drilling Contractor: Holt	Drill Rig Type: Geoprobe
Logged By: Jamie Stevens	Date — Started: 9/24/2019 9:40	Bit Type: Geoprobe	Diameter: 2 inch
Drill Crew: Lowie	Completed: 9/24/2019 10:35	Hammer Type: NA	
USA Ticket Number: 19408678	Backfilled: 9/24/2019	Hammer Weight: NA	Hammer Drop: NA
N: 47.27.41.23 W: 122.39.45.58	Groundwater Depth: 7 feet bgs	Elevation:	Total Depth of Boring: 10 feet

Depth (feet)	Sample Type	Sample Number	Blow Counts (blows/foot)	Graphic Log	Lithology **Soil Group Name:** modifier, color, moisture, density/consistency, grain size, other descriptors **Rock Description:** modifier color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.	Recovery %	Odor/Sheen	PID (PPM)
					Surface - grass	100	No	0
					Loose, dry dark brown to brown medium sand (SP)			
					trace of silt			0
5	S - 5-6				Dark gray/black/brown sand, little to no fines. (SP)		No	0
			▽		Damp at 5.5	100		
					Soft saturated, gray brown clay (CL) with roots and some			
	W- 3-8				sand (SP)			0
					Clay (CL) gray, wet, dense, saturated.			
							No	0
10					Boring terminated at 10 feet bgs			
					Backfilled with bentonite chips.			
15								
20								

Civil Engineering

Boring Log: Sheet _1_ of _1_

CRETE CONSULTING, INC.

Project: Hylebos Marsh	Project Number:	Client: Port of Tacoma	Boring No. SB-2
Address, City, State 1212 Taylor Way		Drilling Contractor: Holt	Drill Rig Type: Geoprobe
Logged By: Jamie Stevens	Date Started: 9/24/2019 12:50	Bit Type: Geoprobe	Diameter: 2 inch
Drill Crew: Lowie	Completed: 9/24/2019 13:30	Hammer Type: NA	
USA Ticket Number: 19408678	Backfilled: 9/24/2019	Hammer Weight: NA	Hammer Drop: NA
N: 47.16.22.3 W: 122.23.37.9	Groundwater Depth: 7.5 feet bgs	Elevation:	Total Depth of Boring: 10 feet

Depth (feet)	Sample Type	Sample Number	Blow Counts (blows/foot)	Graphic Log	Lithology **Soil Group Name:** modifier, color, moisture, density/consistency, grain size, other descriptors **Rock Description:** modifier color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.	Recovery %	Odor/Sheen	PID (PPM)
					Surface - grass	100	No	0
					Sand (SP) red, brown, white medium sand (SP)			
								0
					Very soft clay, gray, fine sand at 4.75, 1" thick			
5	S - 6.5-7				Dark gray/black/brown sand, little to no fines. (SP)		No	0
					Damp at 5.5, shell fragments	100		
	W- 3.5-8.5		▽					
					Soft saturated, gray brown clay (CL) with roots and some			0
					fine sand (SP)			
					Clay (CL) gray, wet, dense, saturated.		No	0
10					Boring terminated at 10 feet bgs			
					Backfilled with bentonite chips.			
15								
20								

Civil Engineering

Boring Log: Sheet _1_ of _1_

CRETE CONSULTING, INC.

Project: Hylebos Marsh	Project Number:	Client: Port of Tacoma	Boring No. SB-3
Address, City, State 1212 Taylor Way		Drilling Contractor: Holt	Drill Rig Type: Geoprobe
Logged By: Jamie Stevens	Date Started: 9/24/2019 11:55	Bit Type: Geoprobe	Diameter: 2 inch
Drill Crew: Lowie	Completed: 9/24/2019 12:50	Hammer Type: NA	
USA Ticket Number: 19408678	Backfilled: 9/24/2019	Hammer Weight: NA	Hammer Drop: NA
N: 47.16.18.4 W: 122.23.38.3	Groundwater Depth: 7.5 feet bgs	Elevation:	Total Depth of Boring: 12 feet

Depth (feet)	Sample Type	Sample Number	Blow Counts (blows/foot)	Graphic Log	Lithology **Soil Group Name:** modifier, color, moisture, density/consistency, grain size, other descriptors **Rock Description:** modifier color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.	Recovery %	Odor/Sheen	PID (PPM)
					Surface - grass	100	No	0
					Loose, dry brown, black medium sand (SP)			
					trace of silt			0
					Damp at 4.5			
5	S - 6-7				Dark gray/black/brown sand, little to no fines, shells (SP)		No	0
						100		
	W- 3.5-8.5		▽					
					Soft saturated, gray brown clay (CL) w/roots and			0
					some sand (SP), layer of wood at 9-10			
							No	0
10	S - 9-10				Clay (CL) gray, wet, dense, saturated.			
					Through end of boring.			0
					Boring terminated at 12 feet bgs			
					Backfilled with bentonite chips.			
15								
20								

Civil Engineering

Boring Log: Sheet 1 of 1

CRETE CONSULTING, INC.

Project: Hylebos Marsh		Project Number:	Client: Port of Tacoma	Boring No. SB-4
Address, City, State 1212 Taylor Way			Drilling Contractor: Holt	Drill Rig Type: Geoprobe
Logged By: Jamie Stevens	Date	Started: 9/24/2019 10:40	Bit Type: Geoprobe	Diameter: 2 inch
Drill Crew: Lowie		Completed: 9/24/2019 11:55	Hammer Type: NA	
USA Ticket Number: 19408678		Backfilled: 9/24/2019	Hammer Weight: NA	Hammer Drop: NA
N: 47.16.19.7 W: 122.23.35.6		Groundwater Depth: 7 feet bgs	Elevation:	Total Depth of Boring: 10 feet

Depth (feet)	Sample Type	Sample Number	Blow Counts (blows/foot)	Graphic Log	Lithology **Soil Group Name:** modifier, color, moisture, density/consistency, grain size, other descriptors **Rock Description:** modifier color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.	Recovery %	Odor/Sheen	PID (PPM)
					Surface - grass	100	No	0
					Loose, dry dark brown to brown fine to medium sand (SP)			
					trace of silt			0
5	S - 6.5-7.5				Sand increases with depth, damp at 5		No	0
					Dark gray/black/brown sand, little to no fines. (SP)	100		
			▽		Shell fragments			
	W- 3-8				Soft saturated, gray brown clay (CL)			0
10					Clay (CL) gray, wet, dense, saturated.		No	0
					Some black modeling at the bottom of the 4" of the boring			
					Boring terminated at 10 feet bgs			
					Backfilled with bentonite chips.			
15								
20								

Civil Engineering

Boring Log: Sheet _1_ of _1_

CRETE CONSULTING, INC.

Project: Hylebos Marsh	Project Number:	Client: Port of Tacoma	Boring No. TWA-5D
Address, City, State 1212 Taylor Way		Drilling Contractor: Holt	Drill Rig Type: Sonic
Logged By: Nick Waldo	Date Started: 9/24/2019 9:00	Bit Type: Sonic	Diameter: 4
Drill Crew: Holt	Completed: 9/25/2019 14:30	Hammer Type: NA	
USA Ticket Number: 19408678	Backfilled: 9/25/2019	Hammer Weight: NA	Hammer Drop: NA
N: To be measured W: To be measured	Groundwater Depth: 9 feet bgs	Elevation:	Total Depth of Boring: 60 feet

Depth (feet)	Sample Type	Sample Number	Blow Counts (blows/foot)	Graphic Log	Lithology **Soil Group Name:** modifier, color, moisture, density/consistency, grain size, other descriptors **Rock Description:** modifier color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.	Recovery %	Odor/Sheen	PID (PPM)
					Surface - grass		No	
					Moist weathered wood fill			
5							No	
10					9' - moist gray clay to 10 feet		No	
					Moist weathered wood fill with occasional gravel and chunks of wood			
15					16' discrete gay clay interbedded with weathered wood fill			
					0.5 to 2 inches thick			
					18.5 - wet gray clay			
20					8" conductor casing set - chipped with 1 bag of bentonite, hydrated, and pulled back about 3"			
					wet gray clayey silt			
					wet gray clayey silt with sea shells (at 23-24.5')			
25					24.5' wet gray med to coarse sand			
	W	TWA-5-1			water sample collected 25-30'			
30	S	TWA-5-30-S			wet gray clayey silt			0

Civil Engineering

Boring Log: Sheet _1_ of _2_

CRETE CONSULTING, INC.

Project: Hylebos Marsh	Project Number:	Client: Port of Tacoma	Boring No. TWA-5D
Address, City, State 1212 Taylor Way		Drilling Contractor: Holt	Drill Rig Type: Sonic
Logged By: Nick Waldo	Date Started: 9/24/2019 9:00	Bit Type: Sonic	Diameter: 4
Drill Crew: Holt	Completed: 9/25/2019 14:30	Hammer Type: NA	
USA Ticket Number: 19408678	Backfilled: 9/25/2019	Hammer Weight: NA	Hammer Drop: NA
N: To be measured W: To be measured	Groundwater Depth: 9 feet bgs	Elevation:	Total Depth of Boring: 60 feet

Depth (feet)	Sample Type	Sample Number	Blow Counts (blows/foot)	Graphic Log	Lithology **Soil Group Name:** modifier, color, moisture, density/consistency, grain size, other descriptors **Rock Description:** modifier color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.	Recovery %	Odor/Sheen	PID (PPM)
30					No recovery, heaving sands.	100	No	0
								0
35							No	0
					Very wet silts and sands, poor recovery	100		
	s	TWA-5-38-s			wet grey clay			0
					wet grey silt			
					39.5 wet grey coarse sand		No	0
40	w	TWA-5-2			water sample collected 35-40'			
					Wet dark grey med to coarse med to coarse sand			0
					1" gray clay lens			
45	w	TWA-5-3			wet dark grey med to coarse Sand			
					water sample collected 45-50'			
50					wet dark grey med to coarse Sand			
55					wet dark grey med to coarse Sand with sea shells			
					57.5 - grey sand with white coarse sand/shell lens			0
					wet grey silt with shells			
	s	TWA-5-59-s						

Civil Engineering

Boring Log: Sheet _2_ of _2_

CRETE CONSULTING, INC.

Project: Hylebos Marsh	Project Number:	Client: Port of Tacoma	Boring No. TWA-6D
Address, City, State 1212 Taylor Way		Drilling Contractor: Holt	Drill Rig Type: Sonic
Logged By: Nick Waldo	Date Started: 9/24/2019 9:00	Bit Type: Sonic	Diameter: 4
Drill Crew: Holt	Completed: 9/25/2019 14:30	Hammer Type: NA	
USA Ticket Number: 19408678	Backfilled: 9/25/2019	Hammer Weight: NA	Hammer Drop: NA
N: To be measured W: To be measured	Groundwater Depth: 6 feet bgs	Elevation:	Total Depth of Boring: 60 feet

Depth (feet)	Sample Type	Sample Number	Blow Counts (blows/foot)	Graphic Log	Lithology **Soil Group Name:** modifier, color, moisture, density/consistency, grain size, other descriptors **Rock Description:** modifier color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.	Recovery %	Odor/Sheen	PID (PPM)
					Surface - grass		No	
					Moist brown medium grain sand (SP)			
							No	
5					Moist dark gray sand with some shells (SP)			
					Wet layers of gray silts and sand			
					0.5 ' layer of wet gray clay (CL)			
					Moist brown and gray silts and clay with organics			
					Wet gray silt Clay with lots of embedded organics		No	
10					8" conductor casing set at 12- chipped with 1 bag of bentonite, hydrated, and pulled back about 3"			
					Gray Clay (CL)			
15	W	TWA-6-1			Water sample collected 15-20'			
					at 17' some sand mixed with clay			
					Gray clay			
					Gray clay with sandy silt			
					Wet dark gray medium sand.			
20	S	TWA-6-21-S			Wet gray sandy silt, 0.5 thick.			
					Wet dark gray medium sand.			
	W	TWA-6-2			Water collected at 25-30			
25					Wet dark gray medium sand.			
					Wet dark gray silty fine to medium sand.			
30								0

Civil Engineering

CRETE CONSULTING, INC.

Project: Hylebos Marsh	Project Number:	Client: Port of Tacoma	Boring No. TWA-6D
Address, City, State 1212 Taylor Way		Drilling Contractor: Holt	Drill Rig Type: Sonic
Logged By: Nick Waldo	Date Started: 9/24/2019 9:00	Bit Type: Sonic	Diameter: 4
Drill Crew: Holt	Completed: 9/25/2019 14:30	Hammer Type: NA	
USA Ticket Number: 19408678	Backfilled: 9/25/2019	Hammer Weight: NA	Hammer Drop: NA
N: To be measured W: To be measured	Groundwater Depth: 6 feet bgs	Elevation:	Total Depth of Boring: 60 feet

Depth (feet)	Sample Type	Sample Number	Blow Counts (blows/foot)	Graphic Log	Lithology **Soil Group Name:** modifier, color, moisture, density/consistency, grain size, other descriptors **Rock Description:** modifier color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.	Recovery %	Odor/Sheen	PID (PPM)
30					Wet gray fine to medium sand.	100	No	0
								0
								0
35	W	TWA-6-3			water sample collected 35-40'		No	0
						100		
					Wet gray layer of sand, silt and clay (0.5' thick)			
					Wet gray fine to coarse sand.			0
							No	0
40					Wet gray medium sand.			
								0
	W	TWA-6-4			water sample collected 45-50'			
45								0
	S	TWA-6-48-S			Wet dark gray silty fine sand			0
					Wet gray medium to coarse sand.			
50								
55								
					Wet sand with coarse sand- white intact shells - 2" clay layer at 57.5			0
					Wet medium sand with shells			

Civil Engineering

Boring Log: Sheet 2 of 2

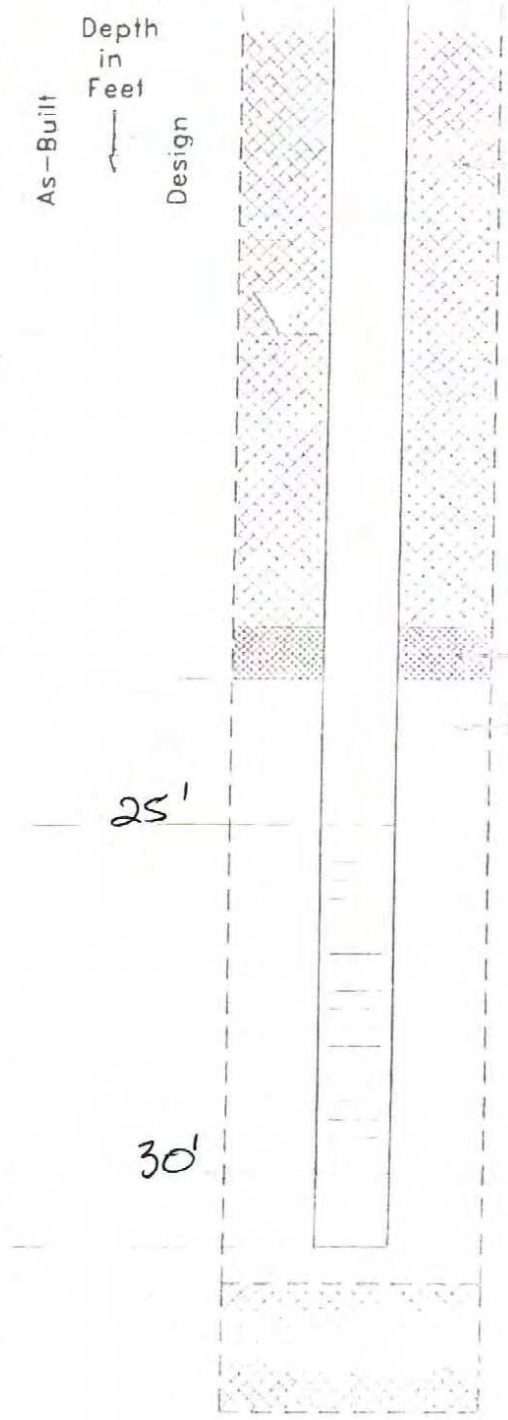
CRETE CONSULTING, INC.

WELL INSTALLATION REPORT

Well No. TWA-5D Date 11.7.2019

Job Well tag ID# BLU-457 Job No.

Observer Waldo Drilling Method Sonic



Approx. Elevation

Type of Monument groundwater well

Stickup Monument X Well

0' feet Seal Material

Drillers: Holocene Drilling

Borehole Diameter

Water Level Date ~6.0 11/7/2019

Riser Pipe Diameter 2 inch

Riser Pipe Material schedule 40 PVC

Type of Joints

"O"-Ring Seals? (Yes) No

Seal Material Bentonite to surface

23' Filter Pack Material 2/12 silica sand

Filter Pack Size

25'

Screen Diameter 2 inch

Screen Material

Screen Slot Size 0.010 inch slotted

Screen Construction: Milled / Wire Wound

30'

Tail Pipe Diameter 2"

Tail Pipe Length 4"

Tail Pipe Material

Bottom Seal Type

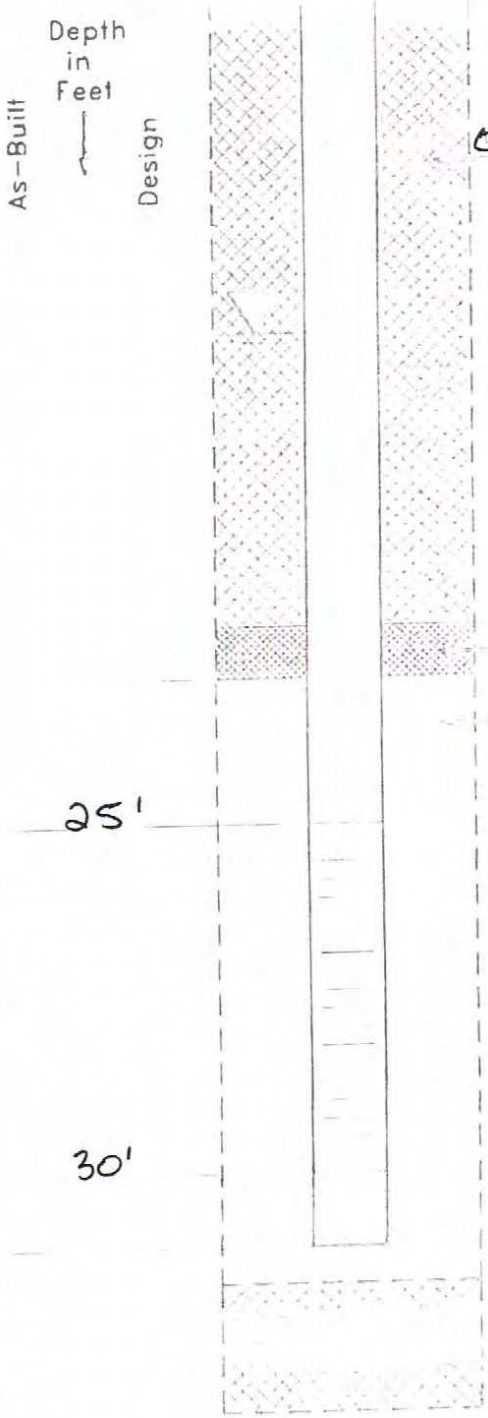
CONSULTING, INC

conductor casing set to 20' to seperate shallow and deep groundwater

WELL INSTALLATION REPORT

Well No. TWA-6D
Job Well tag ID # BLU-456
Observer Waldo
Date 11.7.2019
Job No.
Drilling Method Sonic

Draw Appropriate Monument (Flush or Above Ground)



Approx. Elevation
Type of Monument groundwater well
Stickup Monument X Well
Seal Material Drillers: Holocene Drilling
Borehole Diameter
Water Level Date ~6.5 11.7.2019
Riser Pipe Diameter 2 inch
Riser Pipe Material schedule 40 PVC
Type of Joints
"O"-Ring Seals? (Yes) No
Seal Material Bentonite to surface
Filter Pack Material 2/12 silica sand
Filter Pack Size
Screen Diameter 2 inch
Screen Material
Screen Slot Size 0.010-inch slotted
Screen Construction: Milled / Wire Wound
Tail Pipe Diameter 2"
Tail Pipe Length 4"
Tail Pipe Material
Bottom Seal Type

CONSULTING, INC

conductor set at 9.5 to 12.5' to seperate shallow and deep groundwater

MAUL FOSTER ALONGI

330 E Mill Plain Blvd, Suite 405, Vancouver, Washington 98660 (360) 694-2691 www.maulfoster.com

Soil Field Sampling Data Sheet

Client Name	Port of Tacoma	**Sample Location**	TWA-HA-01				
Project Number	M0615.20.014	**Sampler**	J. Hansen				
Project Name	Hylebos Marsh Subsurface Investigation	**Sampling Date**	08/05/2024				
Sampling Event	August 2024	**Sample Name**					
Sub Area		**Sample Depth (ft)**					
FSDS QA:	F. Bellows 09/30/2024	**Easting**		**Northing**		**TOC**	

Sample Information

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	Container Code	#
(2) Hand Auger	Soil			10:35:00 AM	2 oz. soil	
					4 oz. soil	
					8 oz. soil	
					Other	
					Total Containers	0

Sample Description:

0 to 12 inches bgs: SILT (ML); brown; 100% fines; trace vegetation. Becomes reddish-brown with trace woodwaste @ 6 inches.
12 to 18 inches bgs: SILT (ML); brown to reddish-brown; 80% fines; 20% woodwaste.
18 to 24 inches bgs: WOODWASTE; brown; 25% fines; 75% woodwaste.

General Sampling Comments

0 to 24 inches: Hand auger encountered hard plastic at 6 inches. Significant woodwaste observed at depth.

No auto fluff encountered. No samples collected.
bgs = below ground surface.

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

Signature _____

MAUL FOSTER ALONGI

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Soil Field Sampling Data Sheet

Client Name	Port of Tacoma	**Sample Location**	TWA-HA-02
Project Number	M0615.20.014	**Sampler**	J. Hansen
Project Name	Hylebos Marsh Subsurface Investigation	**Sampling Date**	08/05/2024
Sampling Event	August 2024	**Sample Name**	
Sub Area		**Sample Depth (ft)**	
FSDS QA:	F. Bellows 09/30/2024	**Easting**	**Northing**	**TOC**

Sample Information

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	Container Code	#
(2) Hand Auger	Soil			10:15:00 AM	2 oz. soil	
					4 oz. soil	
					8 oz. soil	
					Other	
					Total Containers	0

Sample Description:

0 to 18 inches bgs: SAND (SP); gray; 90% sand; 10% gravel, rounded; trace roots; loose.
18 to 24 inches bgs: SILTY SAND (SM); gray; 30% fines; 60% sand; 10% gravel, rounded.

General Sampling Comments

0 to 18 inches bgs: Collected with hand trowel.
18 to 24 inches bgs: Collected with hand auger.

No auto fluff encountered. No samples collected.
bgs = below ground surface.

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

Signature _____

MAUL FOSTER ALONGI

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Soil Field Sampling Data Sheet

Client Name	Port of Tacoma	**Sample Location**	TWA-HA-03				
Project Number	M0615.20.014	**Sampler**	J. Hansen				
Project Name	Hylebos Marsh Subsurface Investigation	**Sampling Date**	08/05/2024				
Sampling Event	August 2024	**Sample Name**					
Sub Area		**Sample Depth (ft)**					
FSDS QA:	F. Bellows 09/30/2024	**Easting**		**Northing**		**TOC**	

Sample Information

Sampling Method	Sample Type	Sample Category	PID/FID	Sampling Time	Container Code	#
(2) Hand Auger	Soil			9:45:00 AM	2 oz. soil	
					4 oz. soil	
					8 oz. soil	
					Other	
					Total Containers	0

Sample Description:

0 to 12 inches bgs: SAND (SP); gray; 100% sand; trace roots; loose.
12 to 18 inches bgs: SAND with SILT (SP-SM); gray; 10% fines; 90% sand.
18 to 24 inches bgs: SILTY SAND (SM); gray; 30% fines; 70% sand.

General Sampling Comments

0 to 24 inches bgs: Collected with hand auger.

No auto fluff encountered. No samples collected.
bgs = below ground surface.

Sampling Method Code:

(1) Backhoe, (2) Hand Auger, (3) Drill Bit Cutting Head, (4) Geoprobe, (5) Split Spoon, (6) Shelbey Tube, (7) Grab, (8) Other (Specify)

Signature _____

Geologic Borehole Log

MAUL FOSTER ALONG

Project Number	Boring Number	Sheet
M0615.20.014	TWA-SB-09	1 of 1

Project Name	Hylebos Marsh Subsurface Investigation		
Project Location	Tacoma, Washington	Surface Elevation (feet)	
Start/End Date	8/12/2024 to 8/12/2024	Northing	
Driller/Equipment	Anderson Environmental Contracting, LLC/Geoprobe 7822DT	Easting	
Geologist/Engineer	C. Sifford	Total Depth of Borehole	15.0 feet
Sample Method	Macro-Core	Outer Hole Diam	2.25 inch

Depth (feet, bgs)	Water Levels	Percent Recovery	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
1				0		0.0 to 0.7 feet: GRAVELLY SAND (SP); tan; 60% sand, fine to medium; 40% gravel, medium, rounded; loose; no odor; dry.
						0.7 to 1.3 feet: GRAVELLY SAND WITH SILT (SP-SM); gray; 10% fines, nonplastic; 70% sand, medium; 20% gravel; loose; no odor; moist.
2				0		1.3 to 3.0 feet: WOODY DEBRIS; brown; 100% organic material (wood chips and fibers); medium; slight organic-like odor; moist.
3		60				
						3.0 to 5.0 feet: NO RECOVERY.
4						
5						
						5.0 to 6.7 feet: SAND (SP); dark gray; 100% sand, medium; loose; no odor; moist.
6				0		
	▽		TWA-SB-09-S-6.0			@ 6.4 to 6.7 feet: roots up to 0.5" in diameter.
7						@ 6.5 feet: becomes wet.
						6.7 to 7.3 feet: SILT WITH SAND (ML); gray; 80% fines, medium plasticity; 20% sand, fine; soft; no odor; wet.
		66		0		7.3 to 8.3 feet: ORGANICS WITH SILT; brownish-gray; 20% fines, nonplastic; 80% organic material (peat and rootlets); medium dense; slight sulfur-like odor; moist.
8						
						8.3 to 10.0 feet: NO RECOVERY.
9						
10						
						10.0 to 11.9 feet: SILT WITH SAND (ML); gray; 80% fines, medium plasticity; 20% sand, fine; soft; no odor; trace roots; wet.
11				3		
12						
		78				11.9 to 13.9 feet: ORGANICS WITH SILT; brownish-gray; 40% fines, medium plasticity; 60% organic material (peat and rootlets); organic-like odor; wet.
13				0		
14						
						13.9 to 15.0 feet: NO RECOVERY.
15						

Total Depth = 15.0 feet bgs

NOTES:

1) Depths are relative to feet bgs. 2) bgs = below ground surface. 3) ID = identification. 4) PID = photoionization detector. 5) ppm = parts per million.

Borehole Completion Details
0.0 to 15.0 feet: 2-inch-diameter borehole.
0.0 to 15.0 feet: Bentonite chips hydrated with potable water.

▽ **Soil becomes wet at approximately 6.5 feet as observed in the core liner at time of drilling.**

MFA BOREHOLE W/RECON SCREEN W:\GINT\GINTW\PROJECTS\0615.20.014\HYLEBOS SUBSURFACE INVESTIGATION\TWA-SB-09 TO TWA-SB-16.GPJ 10/14/24

Geologic Borehole Log

MAUL FOSTER ALONG

Project Number	Boring Number	Sheet
M0615.20.014	TWA-SB-10	1 of 2

Project Name	Hylebos Marsh Subsurface Investigation		
Project Location	Tacoma, Washington	Surface Elevation (feet)	
Start/End Date	8/12/2024 to 8/12/2024	Northing	
Driller/Equipment	Anderson Environmental Contracting, LLC/Geoprobe 7822DT	Easting	
Geologist/Engineer	C. Sifford	Total Depth of Borehole	20.0 feet
Sample Method	Macro-Core	Outer Hole Diam	2.25 inch

Depth (feet, bgs)	Water Levels	Sample Data: Percent Recovery	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
1				0		0.0 to 0.9 feet: SANDY GRAVEL (GW); tannish-gray; 35% sand, fine to coarse; 65% gravel, fine to coarse, subangular to rounded; loose; no odor; dry.
2				0		0.9 to 2.6 feet: GRAVELLY SAND (SW); tan; 70% sand, fine to coarse; 30% gravel, fine to coarse, subangular to rounded; very loose; no odor; dry.
3		54				@ 2.1 feet: becomes moist. @ 2.4 to 2.6 feet: cobbles, rounded. 2.6 to 2.7 feet: SILTY GRAVELLY SAND (SM); greenish-gray; 20% fines, nonplastic; 60% sand, medium to coarse; 20% gravel, fine to medium, subangular to subrounded; dense; no odor; moist. 2.7 to 5.0 feet: NO RECOVERY.
4						
5						
6				0		5.0 to 5.9 feet: SILTY GRAVELLY SAND (SM); greenish-gray; 20% fines, nonplastic; 60% sand, medium to coarse; 20% gravel, fine to medium, subangular to subrounded; dense; no odor; moist.
7			TWA-SB-10-2-6.5	0		5.9 to 6.1 feet: WOODY DEBRIS; dark brown; 100% organic material (wood dust and fibers); medium dense; no odor; moist. 6.1 to 6.8 feet: SILTY GRAVELLY SAND (SM); greenish-gray; 20% fines, nonplastic; 60% sand, medium to coarse; 20% gravel, fine to medium, subangular to subrounded; dense; no odor; moist.
8	▽	68		0		6.8 to 7.4 feet: SANDY ORGANICS; dark gray brown; 60% sand, fine to medium; 40% organic material (wood chips and fibers); medium dense; no odor; moist. 7.4 to 8.3 feet: WOODY DEBRIS; dark brown; 100% organic material (wood chips, dust, and fibers); medium dense; organic-like odor; moist. 8.3 to 8.4 feet: SAND (SP); dark gray; 100% sand, medium; medium dense; no odor; wet. 8.4 to 10.0 feet: NO RECOVERY.
9						
10						10.0 to 12.8 feet: SAND (SP); dark gray; 100% sand, medium; medium dense; no odor; wet.
11				0		
12				0		
13		76				12.8 to 15.0 feet: NO RECOVERY.
14						
15						

MFA BOREHOLE W/RECON SCREEN W:\GINT\GINTW\PROJECTS\0615.20.014\HYLEBOS SUBSURFACE INVESTIGATION\TWA-SB-09 TO TWA-SB-16.GPJ 10/14/24

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Geologic Borehole Log

Project Number	Boring Number	Sheet
M0615.20.014	**TWA-SB-10**	**2 of 2**

Depth (feet, bgs)	Water Levels	Sample Data: Percent Recovery	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
16				0		15.0 to 17.5 feet: SAND (SP); dark gray; 100% sand, medium; medium dense; no odor; wet.
17		90				
18				0		17.5 to 18.6 feet: SILT WITH SAND (ML); gray; 80% fines, nonplastic; 20% sand, fine; soft; no odor; wet.
19						18.6 to 19.5 feet: SILT (ML); gray; 100% fines, nonplastic; soft; no odor; wet.
20						19.5 to 20.0 feet: NO RECOVERY.

Total Depth = 20.0 feet bgs

NOTES:

1) Depths are relative to feet bgs. 2) bgs = below ground surface. 3) ID = identification. 4) PID = photoionization detector. 5) ppm = parts per million.

Borehole Completion Details
0.0 to 20.0 feet: 2-inch-diameter borehole.
0.0 to 20.0 feet: Bentonite chips hydrated with potable water.

▽ ***Soil becomes wet at approximately 8.4 feet as observed in the core liner at time of drilling.***

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Geologic Borehole Log

MAUL FOSTER ALONG

Project Number	Boring Number	Sheet
M0615.20.014	TWA-SB-11	1 of 2

Project Name	Hylebos Marsh Subsurface Investigation		
Project Location	Tacoma, Washington	Surface Elevation (feet)	
Start/End Date	8/13/2024 to 8/13/2024	Northing	
Driller/Equipment	Anderson Environmental Contracting, LLC/Geoprobe 7822DT	Easting	
Geologist/Engineer	C. Sifford	Total Depth of Borehole	20.0 feet
Sample Method	Macro-Core	Outer Hole Diam	2.25 inch

Depth (feet, bgs)	Water Levels	Percent Recovery	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
0				1		0.0 to 1.4 feet: GRAVELLY SAND (SP); tannish-gray; 70% sand, fine to medium; 30% gravel, fine to medium, rounded to subrounded; very loose; no odor; dry.
1						@ 0.7 feet: segment of wire and wire insulation. @ 0.8 to 1.4 feet: sand becomes medium to coarse; tan. @ 1.3 feet: pieces of copper wire, no insulation.
				0		@ 1.4 feet: 1.5" by 1.5" piece of rose-gold pleather.
2			TWA-SB-11-S-1.7			1.4 to 2.1 feet: SILTY SAND WITH GRAVEL (SM); bluish-gray; 20% fines, low plasticity; 70% sand, medium; 10% gravel, fine to medium, rounded to subrounded; dense; no odor; moist. @ 1.7 feet: piece of silver colored metal. @ 2.0 feet: piece of yellow foam.
3		56				2.1 to 2.8 feet: WASTE WITH SAND AND SILT; brown; 20% fines, nonplastic; 20% sand, fine; loose; 60% debris (fabric, foam, copper wire, pieces of plastic, chunks of silver metal), no odor; moist.
4						2.8 to 5.0 feet: NO RECOVERY.
5						5.0 to 5.6 feet: WASTE WITH SAND AND SILT; brown; 20% fines, nonplastic; 20% sand, fine; loose; 60% debris (fabric, foam, copper wire, pieces of plastic, chunks of silver metal), no odor; moist.
6			TWA-SB-11-S-6	0		5.6 to 8.4 feet: WOODY DEBRIS; brown; 100% organic material (wood chips, fibers, and dust); loose; no odor; moist.
7	▽	68		0		@ 7.2 feet: becomes wet.
8						8.4 to 10.0 feet: NO RECOVERY.
9						
10						10.0 to 13.6 feet: WOODY DEBRIS; brown; 100% organic material (wood chips, fibers, and dust); loose; no odor; moist.
11				0		@ 10.3 to 10.4 feet: black; no odor.
12						@ 11.3 to 11.6 feet: 100% wood chips.
13		72		0		
14						13.6 to 15.0 feet: NO RECOVERY.
15						

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Geologic Borehole Log

Project Number	Boring Number	Sheet
M0615.20.014	**TWA-SB-11**	**2 of 2**

Depth (feet, bgs)	Water Levels	Sample Data: Percent Recovery	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
16			**TWA-SB-11-S-16**	**0**		*15.0 to 20.0 feet: SILT (ML); gray; 100% fines, medium to high plasticity; soft; trace roots; no odor; wet.*
17		**100**				*@ 15.9 feet: roots disappear.*
18				**0**		
19						
20						

Total Depth = 20.0 feet bgs

NOTES:

1) Depths are relative to feet bgs. 2) bgs = below ground surface. 3) ID = identification. 4) PID = photoionization detector. 5) ppm = parts per million.

Borehole Completion Details
0.0 to 20.0 feet: 2-inch-diameter borehole.
0.0 to 20.0 feet: Bentonite chips hydrated with potable water.

▽ ***Soil becomes wet at approximately 7.2 feet as observed in the core liner at time of drilling.***

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Geologic Borehole Log

MAUL FOSTER ALONG

Project Number	Boring Number	Sheet
M0615.20.014	TWA-SB-12	1 of 2

Project Name	Hylebos Marsh Subsurface Investigation		
Project Location	Tacoma, Washington	Surface Elevation (feet)	
Start/End Date	8/13/2024 to 8/13/2024	Northing	
Driller/Equipment	Anderson Environmental Contracting, LLC/Geoprobe 7822DT	Easting	
Geologist/Engineer	C. Sifford	Total Depth of Borehole	20.0 feet
Sample Method	Macro-Core	Outer Hole Diam	2.25 inch

Depth (feet, bgs)	Water Levels	Sample Data: Percent Recovery	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
1				0		0.0 to 3.3 feet: SAND WITH GRAVEL (SP); tan ; 90% sand, fine to medium; 10% gravel, fine to medium, subangular to rounded; very loose; no odor; dry.
						@ 0.4 to 0.5 feet: chunk of white powdery material.
2				0		
		66				@ 2.3 feet: chunk of white powdery material.
3						@ 3.0 feet: chunk of white powdery material.
						3.3 to 5.0 feet: NO RECOVERY.
4						
5						
						5.0 to 6.8 feet: SAND WITH GRAVEL (SP); tan ; 90% sand, fine to medium; 10% gravel, fine to medium, subangular to rounded; very loose; no odor; dry.
6						@ 6.1 feet: becomes gray.
				1		
7						6.8 to 7.1 feet: SAND WITH WASTE; gray; 80% sand, fine; loose; 20% debris (plastic, fabric, yellow foam chunks, copper wire), slight chemical-like odor; dry.
		94				7.1 to 8.2 feet: WASTE WITH SILTY SAND; dark gray; 10% fines; 20% sand, fine to medium; loose; 70% debris (fabric, yellow foam, abundant copper wires without insulation), moderate chemical-like odor; moist.
8				2		@ 7.4 to 7.5 feet: large chunks of rubber window gasket.
			TWA-SB-12-S-8			@ 7.7 feet: large piece of 1/8" thick rubbery plastic material.
						@ 7.9 feet: piece of glass.
9				3		8.2 to 8.5 feet: WASTE WITH SILTY SAND; black; 5% fines; 15% sand, fine; loose; 80% debris (sheets of rubber, large copper bar (2" wide), abundant fine metal wires, pieces of fabric and plastic), strong chemical-like odor; moist.
			TWA-SB-12-S-9			8.5 to 9.7 feet: SAND (SP); light gray; 100% sand, fine to medium; very dense; cemented together with white chalky material, strong rancid odor; dry.
10						@ 8.8 feet: brown fibers and white plastic.
						@ 9.4 feet: 4" long piece of 1/8" metal wire.
						9.7 to 10.0 feet: NO RECOVERY.
11				8		10.0 to 14.3 feet: SAND (SP); light gray; 100% sand, fine to medium; very dense; cemented together with white chalky material, strong rancid odor; dry.
						@ 10.3 to 10.6 feet: large chunks of black rubber material.
						@ 11.3 to 11.5 feet: white; 100% fine grained paste; nonplastic; soft; strong rancid odor; moist.
12						@ 11.4 feet: 1.5" rounds 1/2" thick black rubber O-ring.
		86				@ 12.4 feet: blue plastic chunk.
13				6		
						@ 13.3 feet: cluster of yellow fibers.
14						
						14.3 to 15.0 feet: NO RECOVERY.
15						

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Geologic Borehole Log

Project Number	Boring Number	Sheet
M0615.20.014	**TWA-SB-12**	**2 of 2**

Depth (feet, bgs)	Water Levels	Percent Recovery	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
16				3		15.0 to 16.2 feet: SAND (SP); light gray; 100% sand, fine; medium dense; cemented together with white chalky material, strong rancid odor; moist. @ 16.1 feet: piece of shredded plastic.
17		100	TWA-SB-12-S-16.9			16.2 to 17.5 feet: SILTY GRAVELLY SAND (SM); brown; 30% fines, low plasticity; 40% sand, fine to medium; 30% gravel, medium, rounded; medium dense; moderate chemical-like odor; moist. @ 16.9 feet: 3/4" lens of sticky/stringy tar-like material, with a copper wire.
18						17.5 to 19.4 feet: SAND (SP); light gray; 100% sand, fine to medium; very dense; cemented together with white chalky material, strong rancid odor, no debris observed; moist. @ 18.0 to 18.3 feet: white; 100% fine grained paste; nonplastic; soft; strong rancid odor; moist.
19	▽		TWA-SB-12-S-18.5	1		@ 18.8 to 19.1 feet: dark gray layer of 70% fines, low plasticity; 30% sand, fine; firm; some rootlets; strong rancid odor; moist.
20						19.4 to 20.0 feet: SAND (SP); dark gray; 100% sand, medium; loose; no odor; wet.

Total Depth = 20.0 feet bgs

NOTES:

1) Depths are relative to feet bgs. 2) bgs = below ground surface. 3) ID = identification. 4) PID = photoionization detector. 5) ppm = parts per million.

Borehole Completion Details
0.0 to 20.0 feet: 2-inch-diameter borehole.
0.0 to 20.0 feet: Bentonite chips hydrated with potable water.

▽ ***Soil becomes wet at approximately 19.4 feet as observed in the core liner at time of drilling.***

MFA BOREHOLE W/RECON SCREEN W:\GINT\GINTW\PROJECTS\0615.20.014\HYLEBOS SUBSURFACE INVESTIGATION\TWA-SB-09 TO TWA-SB-16.GPJ 10/14/24

Geologic Borehole Log

MAUL FOSTER ALONG

Project Number	Boring Number	Sheet
M0615.20.014	TWA-SB-13	1 of 2

Project Name	Hylebos Marsh Subsurface Investigation		
Project Location	Tacoma, Washington	Surface Elevation (feet)	
Start/End Date	8/13/2024 to 8/13/2024	Northing	
Driller/Equipment	Anderson Environmental Contracting, LLC/Geoprobe 7822DT	Easting	
Geologist/Engineer	C. Sifford	Total Depth of Borehole	20.0 feet
Sample Method	Macro-Core	Outer Hole Diam	2.25 inch

Depth (feet, bgs)	Water Levels	Sample Data: Percent Recovery	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
1				1		0.0 to 1.7 feet: SAND WITH SILT AND GRAVEL (SP-SM); tan; 10% fines; 80% sand, fine to medium; 10% gravel, fine, rounded to subrounded; very loose; occasional pieces of bark throughout; no odor; dry.
2				1		1.7 to 2.1 feet: SAND WITH SILT AND GRAVEL (SP-SM); black; 10% fines; 80% sand, fine to medium; 10% gravel, fine, rounded to subrounded; very loose; occasional pieces of bark throughout; no odor; dry.
3		56				@ 2.0 feet: piece of plastic textile. 2.1 to 2.5 feet: light gray; 100% cobbles; shattered. 2.5 to 2.8 feet: ORGANIC MATERIAL WITH SAND AND DEBRIS; brown; 40% sand, medium; 40% organic material (wood chunks and chips); loose; 20% debris (red and clear plastic sheeting, broken glass, and a chunk of black plastic); no odor; dry
4						2.8 to 5.0 feet: NO RECOVERY.
5						@ 5.0 feet: piece of yellow plastic at tip of core.
6				1		5.0 to 6.1 feet: SILT (ML); white; 90% fines, nonplastic; 10% gravel, medium, subrounded; soft; paste-like; no odor; moist. @ 6.0 to 6.1 feet: WOODY DEBRIS; rotten wood chunk.
7	▽		TWA-SB-13-S-7.5	8		6.1 to 7.5 feet: SAND (SP); dark gray; 100% sand, medium; loose; no odor; moist. @ 6.4 to 6.5 feet: tan; 30% fines, nonplastic; 70% sand; firm; medium dense; no odor; moist. @ 7.1 feet: becomes wet.
8		50		1		7.5 to 10.0 feet: NO RECOVERY.
9						
10						10.0 to 12.1 feet: SAND (SP); dark gray; 100% sand, medium; medium dense; no odor; wet. @ 10.3 to 10.5 feet: tan; 30% fines, nonplastic; 70% sand; firm; medium dense; no odor; moist.
11				2		
12						12.1 to 13.5 feet: SANDY SILT (ML); gray; 50% fines, low plasticity; 50% sand, fine to medium; firm; occasional rootlets throughout; no odor; wet.
13		70		0		
14						13.5 to 15.0 feet: NO RECOVERY.
15						

MFA BOREHOLE W/RECON SCREEN W:\GINT\GINTW\PROJECTS\0615.20.014\HYLEBOS SUBSURFACE INVESTIGATION\TWA-SB-09 TO TWA-SB-16.GPJ 10/14/24

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Geologic Borehole Log

Project Number	Boring Number	Sheet
M0615.20.014	**TWA-SB-13**	**2 of 2**

Depth (feet, bgs)	Water Levels	Sample Data: Percent Recovery	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
16				1		15.0 to 16.1 feet: SAND (SP); dark gray; 100% sand, medium; loose; no odor; wet.
						16.1 to 17.3 feet: SILTY SAND (SM); dark gray; 30% fines, low plasticity; 70% sand, medium; medium dense; no odor; wet.
17		46				17.3 to 20.0 feet: NO RECOVERY.
18						
19						
20						

Total Depth = 20.0 feet bgs

NOTES:

1) Depths are relative to feet bgs. 2) bgs = below ground surface. 3) ID = identification. 4) PID = photoionization detector. 5) ppm = parts per million.

Borehole Completion Details
0.0 to 20.0 feet: 2-inch-diameter borehole.
0.0 to 20.0 feet: Bentonite chips hydrated with potable water.

▽ ***Soil becomes wet at approximately 7.1 feet as observed in the core liner at time of drilling.***

MFA BOREHOLE W/RECON SCREEN W:\GINT\GINTW\PROJECTS\0615.20.014\HYLEBOS SUBSURFACE INVESTIGATION\TWA-SB-09 TO TWA-SB-16.GPJ 10/14/24

Geologic Borehole Log

MAUL FOSTER ALONG

Project Number	Boring Number	Sheet
M0615.20.014	TWA-SB-14	1 of 2

Project Name	Hylebos Marsh Subsurface Investigation		
Project Location	Tacoma, Washington	Surface Elevation (feet)	
Start/End Date	8/13/2024 to 8/13/2024	Northing	
Driller/Equipment	Anderson Environmental Contracting, LLC/Geoprobe 7822DT	Easting	
Geologist/Engineer	C. Sifford	Total Depth of Borehole	20.0 feet
Sample Method	Macro-Core	Outer Hole Diam	2.25 inch

Depth (feet, bgs)	Water Levels	Sample Data: Percent Recovery	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
1				2		0.0 to 2.0 feet: GRAVELLY SAND (SP); tan; 80% sand, fine to medium; 20% gravel, fine to medium, rounded to subrounded; very loose; no odor; dry.
2			TWA-SB-14-S-1.5	3		@ 1.5 feet: piece of 1/8" thick rubber sheet. @ 1.6 feet: becomes light tan. @ 1.7 feet: chunk of wood, 3/4" thick.
		68		2		2.0 to 2.6 feet: SILT (ML); pure white; 100% fines, low plasticity; firm; paste-like; no odor; moist.
3						2.6 to 3.4 feet: SAND (SP); dark gray; 100% sand, medium; very loose; no odor; moist. @ 3.1 feet: shell.
4						3.4 to 5.0 feet: NO RECOVERY.
5	▽					5.0 to 5.5 feet: SILT (ML); pure white; 100% fines, low plasticity; very soft; paste-like; no odor; wet.
6				6		5.5 to 9.0 feet: SAND (SP); dark gray; 100% sand, medium; medium dense; no odor; wet.
7						
8				4		@ 8.1 to 8.3 feet: layer of gray; 100% fines, nonplastic; soft; no odor; wet.
9						9.0 to 10.0 feet: NO RECOVERY.
10		80				10.0 to 13.8 feet: SAND (SP); dark gray; 100% sand, medium; medium dense; no odor; wet.
11				1		
12						@ 11.7 to 11.9 feet: layer of gray; 100% fines, nonplastic; soft; no odor; wet. @ 12.0 feet: large shell.
		86				
13						@ 12.8 to 13.1 feet: layer of gray; 100% fines, nonplastic; soft; no odor; wet.
				1		
14						13.8 to 14.3 feet: SILT (ML); gray; 100% fines, nonplastic; soft; no odor; wet.
						14.3 to 15.0 feet: NO RECOVERY.
15						

MFA BOREHOLE W/RECON SCREEN W:\GINT\GINTW\PROJECTS\0615.20.014\HYLEBOS SUBSURFACE INVESTIGATION\TWA-SB-09 TO TWA-SB-16.GPJ 10/14/24

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Geologic Borehole Log

Project Number	Boring Number	Sheet
M0615.20.014	**TWA-SB-14**	**2 of 2**

Depth (feet, bgs)	Water Levels	Sample Data: Percent Recovery	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
16				1		15.0 to 17.2 feet: SAND (SP); dark gray; 100% sand, medium; medium dense; no odor; trace fines; wet. @ 15.2 to 15.3 feet: layer of gray; 100% fines, nonplastic; soft; no odor; wet. @ 16.4 to 16.5 feet: layer of gray; 100% fines, nonplastic; soft; no odor; wet.
17						
18		100		1		17.2 to 18.7 feet: SILT (ML); gray; 100% fines, nonplastic; soft; no odor; wet. @ 17.3 feet: shell.
19						18.7 to 20.0 feet: SANDY SILT (ML); dark gray; 50% fines, medium plasticity; 50% sand, medium; soft; no odor; wet.
20						

Total Depth = 20.0 feet bgs

NOTES:

1) Depths are relative to feet bgs. 2) bgs = below ground surface. 3) ID = identification. 4) PID = photoionization detector. 5) ppm = parts per million.

Borehole Completion Details
0.0 to 20.0 feet: 2-inch-diameter borehole.
0.0 to 20.0 feet: Bentonite chips hydrated with potable water.

▽ ***Soil becomes wet at approximately 5.0 feet as observed in the core liner at time of drilling.***

MFA BOREHOLE W/RECON SCREEN W:\GINT\GINTW\PROJECTS\0615.20.014\HYLEBOS SUBSURFACE INVESTIGATION\TWA-SB-09 TO TWA-SB-16.GPJ 10/14/24

Geologic Borehole Log

MAUL FOSTER ALONG

Project Number	Boring Number	Sheet
M0615.20.014	TWA-SB-15	1 of 1

Project Name	Hylebos Marsh Subsurface Investigation		
Project Location	Tacoma, Washington	Surface Elevation (feet)	
Start/End Date	8/13/2024 to 8/13/2024	Northing	
Driller/Equipment	Anderson Environmental Contracting, LLC/Geoprobe 7822DT	Easting	
Geologist/Engineer	C. Sifford	Total Depth of Borehole	15.0 feet
Sample Method	Macro-Core	Outer Hole Diam	2.25 inch

Depth (feet, bgs)	Water Levels	Percent Recovery	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
1				1		0.0 to 2.3 feet: GRAVELLY SAND WITH SILT (SP-SM); tan; 10% fines; 65% sand, medium; 25% gravel, fine to medium, rounded to subrounded; loose; no odor; dry.
2			TWA-SB-15-S-1.7	2.5		@ 1.3 feet: becomes moist.
3		68		1		2.3 to 3.4 feet: SAND WITH SILT (SP-SM); dark gray with orange mottling; 10% fines; 90% sand, medium; dense; no odor; moist.
4						3.4 to 5.0 feet: NO RECOVERY.
5						5.0 to 8.3 feet: SAND WITH SILT (SP-SM); dark gray with orange mottling; 10% fines; 90% sand, medium; dense; no odor; moist.
6	▽			1		@ 5.7 feet: no more mottling; occasional shell fragments.
7						@ 6.1 to 6.2 feet: layer of tan; 100% fines, medium plasticity; soft; no odor; wet.
8		66		1		@ 6.2 feet: becomes wet.
9						8.3 to 10.0 feet: NO RECOVERY.
10						10.0 to 11.5 feet: SAND WITH SILT (SP-SM); dark gray with orange mottling; 10% fines; 90% sand, medium; dense; no odor; wet.
11				1		
12						11.5 to 13.2 feet: SILTY SAND (SM); dark gray; 40% fines, medium plasticity; 60% sand, medium; medium dense; no odor; wet.
13		96		1		
14				1		13.2 to 13.6 feet: CLAY (CL); dark gray; 100% fines, high plasticity; soft; no odor; wet. 13.6 to 14.8 feet: PEAT (PT); dark brown; 10% fines, low plasticity; 90% organic material (peat and rootlets); firm; no odor; wet. @ 14.2 feet: fines increase to 30%; becomes dark brown with black mottling.
15						14.8 to 15.0 feet: NO RECOVERY.

Total Depth = 15.0 feet bgs

NOTES:

1) Depths are relative to feet bgs. 2) bgs = below ground surface. 3) ID = identification. 4) PID = photoionization detector. 5) ppm = parts per million.

Borehole Completion Details
0.0 to 15.0 feet: 2-inch-diameter borehole.
0.0 to 15.0 feet: Bentonite chips hydrated with potable water.

▽ **Soil becomes wet at approximately 6.1 feet as observed in the core liner at time of drilling.**

MFA BOREHOLE W/RECON SCREEN W:\GINT\GINTW\PROJECTS\0615.20.014\HYLEBOS SUBSURFACE INVESTIGATION\TWA-SB-09 TO TWA-SB-16.GPJ 10/14/24

Geologic Borehole Log

MAUL FOSTER ALONG

Project Number	Boring Number	Sheet
M0615.20.014	TWA-SB-16	1 of 1

Project Name	Hylebos Marsh Subsurface Investigation		
Project Location	Tacoma, Washington	Surface Elevation (feet)	
Start/End Date	8/13/2024 to 8/13/2024	Northing	
Driller/Equipment	Anderson Environmental Contracting, LLC/Geoprobe 7822DT	Easting	
Geologist/Engineer	C. Sifford	Total Depth of Borehole	15.0 feet
Sample Method	Macro-Core	Outer Hole Diam	2.25 inch

Depth (feet, bgs)	Water Levels	Percent Recovery	Sample Data: Sample ID	Sample Data: PID (ppm)	Lithologic Column	Soil Description
1						0.0 to 2.0 feet: SAND (SP); gray; 100% sand, medium; very loose; rootlets present from 0.09'; no odor; dry.
						@ 0.9 to 1.4 feet: orange staining.
2	▽		TWA-SB-16-S-1.5	0		@ 1.7 feet: becomes moist.
		76				2.0 to 2.4 feet: SILT WITH SAND (ML); gray ; 80% fines, medium plasticity; 20% sand, fine; soft; no odor; wet.
3				0		2.4 to 3.8 feet: SAND (SP); dark gray; 100% sand, medium; medium dense; no odor; wet.
4						3.8 to 5.0 feet: NO RECOVERY.
5						
						5.0 to 6.9 feet: SAND (SP); dark gray; 100% sand, medium; medium dense; no odor; wet.
6				0		
7						6.9 to 7.7 feet: SILT WITH SAND (ML); gray; 80% fines, medium plasticity; 20% sand, fine; soft; trace rootlets; no odor; wet.
		82		0		
8						7.7 to 9.1 feet: SILT (ML); gray; 100% fines, medium plasticity; soft; no odor; wet.
9						
						9.1 to 10.0 feet: NO RECOVERY.
10						
						10.0 to 12.9 feet: SILT (ML); gray; 100% fines, medium plasticity; soft; no rootlets; no odor; wet.
11				0		
						@ 11.4 feet: plasticity becomes high.
12				0		
		58				
13						12.9 to 15.0 feet: NO RECOVERY.
14						
15						

Total Depth = 15.0 feet bgs

NOTES:

1) Depths are relative to feet bgs. 2) bgs = below ground surface. 3) ID = identification. 4) PID = photoionization detector. 5) ppm = parts per million.

Borehole Completion Details
0.0 to 15.0 feet: 2-inch-diameter borehole.
0.0 to 15.0 feet: Bentonite chips hydrated with potable water.

▽ **Soil becomes wet at approximately 2.0 feet as observed in the core liner at time of drilling.**

MFA BOREHOLE W/RECON SCREEN W:\GINT\GINTW\PROJECTS\0615.20.014\HYLEBOS SUBSURFACE INVESTIGATION\TWA-SB-09 TO TWA-SB-16.GPJ 10/14/24

Appendix B

Port Snail Eradication Documents

MAUL FOSTER ALONGI

WASHINGTON GRAIN COMMISSION
2702 W. Sunset Boulevard, Suite A
Spokane, WA 99224
509.456.2481

WA Association of WHEAT GROWERS
109 E First Ave, Ritzville, WA 99169
509.659.0610

January 30, 2024

Jason Jordan
Director, Environmental and Planning Programs
Port of Tacoma
One Sitcum Plaza
Tacoma, WA 98421

Dear Mr. Jordan:

We write in support of the Port of Tacoma's effort to eradicate the invasive snail species *Cernuella virgata* (Mediterranean vineyard snail). We appreciate the myriad of mitigation practices that have been employed by the Port of Tacoma and Washington Department of Agriculture over the last 15 years to contain this infestation. However, the serious risk of spreading remains, which puts our industry and state economy at great risk.

These snails create economic loss in three key ways: 1. They feed on and contaminate field crops including wheat, barley, oats, peas, and canola. 2. They clog machinery that results in costly repairs and halts time-sensitive work. 3. They provide overseas trading partners reason to restrict imports from Pacific Northwest ports to avoid contamination.

The Washington wheat industry alone contributed over $3.1 billion to the state's economy in 2022, with a heightened impact in rural areas. In the same year, total direct employment associated with Washington wheat production amounted to 3,672 jobs in 2022. Indirect and induced employment supported another 11,676 jobs.[1]

In 2022, Washington was the third largest wheat producing state in the country and approximately 90% of total production was exported. It isn't just Washington grain growers who are at risk if this invasive species were to spread. The Pacific Northwest is the top wheat export gateway in the nation, accounting for more than 55 percent of all U.S. wheat exports passing through on rail or

[1] Fortenbery, T. R., & Nadreau, T. P. (n.d.). Contribution of Wheat Production to the Washington Economy. https://acrobat.adobe.com/id/urn:aaid:sc:VA6C2:43500d5f-3bf2-4b1d-a6bc-670d94acc4b3

barge and valuing nearly $4 billion.[2] In addition, the PNW is the second largest gateway for soybean and corn exports coming from as far as the Midwest.

Over the last seventy years, growers and their federal government partners at the U.S. Department of Agriculture have invested billions of dollars and countless hours to build strong relationships with our trading partners. The U.S. Wheat industry differentiates itself by providing high-quality wheat and reliable delivery. Any disruption to that system would hurt our ability to consistently provide abundant, high-value food products and weaken the competitiveness of U.S. producers in global markets.

The U.S. grain industry today faces many challenges, including greater competition on the global market, more demanding customers and consumers, record high input costs, and agronomic obstacles like extreme weather, weed resistance and pests. If this species is allowed to become established in the PNW, it will be another serious risk to the livelihood of Washington grain producers and will very likely require the use of millions of pounds of additional pesticide to control it. It would be a missed opportunity not to eliminate the Mediterranean vineyard snails before they create grave economic problems for Washington. We respectfully request that you accept the Port of Tacoma's petition to eradicate this infestation of Mediterranean vineyard snail in Washington definitively and finally.

Respectfully,

Ben Barstow
Chairman
Washington Grain Commission

Anthony Smith
President
Washington Association of Wheat Growers

[2] US Wheat Associates Price Report Data. (2023). Wheat Export Data/Value of PNW Exports. https://acrobat.adobe.com/id/urn:aaid:sc:VA6C2:dec3a7ec-b213-4c44-b700-b4e86ba42131

USDA
United State Department of Agriculture

Animal and Plant
Health Inspection
Service

Plant Protection and
Quarantine

835 South 192nd Street
Suite 1600, Bldg D
SeaTac, WA 98148

Voice: 206-391-2025
Fax: 206-870-8043
Timothy.stgermain@usda.gov

February 1, 2024

Jason Jordan
Director, Environmental and Planning Programs
Port of Tacoma
One Sitcum Plaza
Tacoma, WA 98421

Mr. Jordan,

Invasive exotic mollusks have wide host ranges, including grain crops, nursery and floriculture products, fruit and nut crops, vegetable crops, and spices. Mollusks are excellent hitchhikers, frequently taking advantage of non-host conveyances such as railcars, maritime containers, trucks, and bulk goods to move into new areas. In November of 2005, Washington State Department of Agriculture (WSDA) survey staff detected the vineyard snail, *Cernuella virgata,* at the Port of Tacoma in Pierce County, Washington. The invasive snail is native to Mediterranean Europe and is considered a serious pest of cereal crops, legumes, pasture lands, and new growth of vines, shrubs and trees. The snails also contaminate grain during harvest and can clog and damage machinery.

The snail specifically threatens the wheat, barley, and hay industries of Washington State. The snail was also introduced to Australia, and the Australian grain industry estimates the vineyard snail costs growers $10 million annually. Australia and Washington State have similar annual rainfall in their wheat-growing areas which suggests the vineyard snail could quickly become established in the grain-growing regions of the state.

WSDA and the Animal and Plant Health Inspection Service (APHIS), Plant Protection and Quarantine (PPQ) initiated efforts to eradicate vineyard snail in 2007. These efforts are still underway and have been significantly effective. The original infestation of approximately 600 acres on multiple properties is now reduced to just under an acre on a single property. The eradication program has used several treatment options and found that a combination of outreach to inform landowners about vegetation management, debris disposal/sanitation to remove snail hiding places, and metaldehyde molluscicide treatments were the most effective. However, municipal regulations prohibiting pesticide use within the remaining "wetland" area create a refuge from molluscicide treatments for the snails. From 2020 to 2023, WSDA and Washington State University tested steam treatment methods in the remaining area to eradicate the snail. Areas containing snails were steamed at 56 degrees Celsius for half an hour during late summer when the snails were less active and aggregated, and the site was primarily dry. Unfortunately, this method has shown limited efficacy, and chemical treatment options for the remaining wetland area are limited and not guaranteed to work. WSDA needs approval to explore other creative management options (i.e. alternate chemicals, changes to land use) to eradicate this pest.

An Equal Opportunity Provider and Employer

APHIS PPQ supports the continued eradication and containment of this invasive mollusk while it is localized at the port to protect Washington's and the nation's agriculture and natural resources. In the last ten years alone, APHIS PPQ has contributed nearly $1.4 million to this eradication effort and invasive snail surveys, including the vineyard snail.

Sincerely,

Timothy St. Germain
State Plant Health Director, Field Operations
USDA APHIS PPQ

STATE OF WASHINGTON

DEPARTMENT OF AGRICULTURE

P.O. Box 42560 • Olympia, Washington 98504-2560 • (360) 902-1800

February 2, 2024

Jason Jordan
Director, Environmental and Planning Programs
Port of Tacoma
One Sitcum Plaza
Tacoma, WA 98421

In 2005, a population of highly invasive *Cernuella virgata* (Mediterranean vineyard snail) was discovered on several property parcels at the Port of Tacoma (Port). This nonnative snail is extremely destructive to crops, especially grains, and its presence at the Port posed a significant threat to Washington's agriculture.

In response, the Port, in coordination with the Washington State Department of Agriculture (WSDA) and the U.S. Department of Agriculture -Animal and Plant Health Inspection Service - Plant Health and Quarantine (USDA-APHIS-PPQ), initiated containment and eradication activities for this invasive pest. Strategies have included education and outreach in combination with debris removal, vegetation management, and chemical treatments.

Because of this ongoing effort to contain and eradicate *C. virgata*, the original infestation area has been significantly reduced from nearly 400 acres on the Blair-Hylebos Peninsula, approximately 300 acres of which are under Port ownership, to a single site that is less than one acre on a single parcel.

Completing the eradication on the final infested acre has proven to be a challenge. The last remaining portion of the snail population is located on the edge of a wetland where chemical treatment cannot be used. This population has been mostly contained on this sole site, thanks to continuous and costly efforts for almost 10 years. Unfortunately, further reduction has not been possible. An effort in 2019 to incorporate a new eradication strategy of steam treatment developed by WSU to complete the eradication was not successful, as the terrain and soil composition at the Port site do not seem to be able to reach the appropriate temperature required to kill the snails.

Despite containing the population to a small, one-acre site, the risk of escape and spread is an ongoing concern. One snail did manage to hitchhike to an adjacent property in 2019. This was an alarming reminder that a very real and dangerous risk for further spread outside the containment area still exists for this invasive pest due to the increased activity and vehicle movement at the Port.

More recently, WSDA detected a snail during a survey following a stream treatment in 2023. This snail was still on the contained site. However, it was approaching and extremely close to parked vehicles on the adjacent parcel, once again underscoring the significant risk of spread.

After this serious incident, WSDA and the USDA Terrestrial Mollusk Cross Functional Working Group met to re-evaluate the direction of Mediterranean Vineyard Snail eradication project. As a result of this meeting, the Port was contacted to discuss alternative eradication strategies. At this meeting the Port indicated their desire to develop the site in a manner that would result in rendering the infested site uninhabitable for the snails, thus completing the eradication.

WSDA fully supports this course of action for the reasons listed below:

1. Mediterranean Vineyard Snail poses a direct risk to National, Regional, and Washington grain industries as the snails are known to feed directly on grain commodities as well as clogging of harvesting machinery and contamination of harvested crops.

2. The snail constitutes a direct threat to the nation's food supply. Grain exports could be subject to costly restrictions by other states or nations if the snail becomes permanently or widely established in Washington.

3. It has been demonstrated that the snail cannot be eliminated on the remaining terrain type using the methods that were effective in reducing the population from 400 acres to 1 acre.

4. Containment and eradication activity costs have been significant and are not projected to end unless the snail population is eliminated. These costs are borne by the Port, and by federal taxpayers.

5. If the snail population is allowed to remain, the snail is capable of breaking containment and establishing new infestations in Washington, which could have significant ecological and environmental ramifications.

6. Maintaining the infested site as a wetland in a port environment significantly increases the risk of spreading snails. If passing wildlife is attracted to the wetland, this introduces another pathway for spread that cannot be controlled. Increased Port activity near the wetland also risks spreading the snails.

7. As long as this small wetland area contains these invasive snails, it should be considered contaminated and not an environmental asset.

Additionally, WSDA strongly recommends that legal barriers, mitigation requirements, and permits restricting development on this remaining site infested with snails be re-evaluated and ultimately relaxed or waived for this unique situation, as it is in the best interest of Washington's and the nation's food supply.

We thank you for your consideration of this matter and appreciate the Port's efforts to responsibly address this threat.

Respectfully,

Derek I. Sandison
Director

Vineyard Snail Eradication Activities Report 2022

This report covers the snail eradication activities from January 1, 2022 to December 31, 2022. The eradication zone is located from the north side of the 2000 block Lincoln Ave E., north to East 11th Street, Pierce County, 98421. East-west boundaries are Taylor Way and Alexander Avenue, respectively.

Port of Tacoma

Background

On November 15, 2005, initial detection of an invasive and very destructive snail, *Cernuella virgata* (Vineyard Snail) was made within the Port of Tacoma's (Port) industrial area. A formal survey was completed by WSDA and USDA in 2006 that delineated an infestation area of over 300 acres on the Blair-Hylebos Peninsula. The primary infestation was centered on Port, City of Tacoma and private property north of Lincoln Avenue.

In May 2007 that WSDA and USDA sought a voluntary eradication program with the Port to avoid a prolonged process of developing a state plan. Speed was—and is—essential to control the population and to avoid quarantines that could limit the flow of cargo from the Port area. Quarantines could limit movement within the Port area and potentially restrict over one billion dollars of agricultural products from export.

In 2007, WSDA and the Port delivered letters to Port tenants and other property owners within the eradication zone discussing the seriousness of the infestation and advised owners not to remove vegetation from their sites. In the summer of 2007, the Port and others removed excess vegetation from Port owned and non-Port owned properties, and the Port conducted controlled burns of the discarded vegetation.

On June 20, 2011, the Port received the "*Prescription to the Port of Tacoma for the Eradication of the Vineyard Snail on the Blair Peninsula*" (Prescription) memorandum from WSDA. The Prescription outlined the best practices to contain and eliminate the vineyard snail from the affected areas. In April 2013, the Port provided USDA and WSDA with a proposed prescription based on historical snail detections. This prescription is updated annually based on the number of years a property has been free of snail detections.

WSDA issued a letter in September 2014 stating changes to the Deadline pesticide label allowing for application in areas where no surface water is present. The City of Tacoma reissued a Critical Areas Preservation Ordinance Letter of Approval in 2018 to conduct vegetation management and limited seasonal bait application within the wetlands and buffers located at the site known as Port Parcel 117 (also known as TPU).

In 2019, WSDA proposed to eradicate *C. virgata* within the wetlands and wetland boundaries on Port Parcel 117 using steam to kill all life stages. The City of Tacoma issued LU19-0190, Voluntary Enhancement and Restoration, Activities Allowed with Staff Review on September 5, 2019, to the Port, which allowed WSDA to conduct steam treatments and restore the wetland and wetland boundary areas with a native grass seed mix after the treatments were completed. Steam treatments were conducted in 2019, 2020, 2021 and in August and September of 2022.

One snail was observed on Port Parcel 114, also known as PQ, in October 2019. This was the first detection in over 5 years. The site was heavily baited in October and November 2019 and additional surveys have resulted in no new *C. virgata* detections.

The following summarizes the specific activities associated with the Port's snail eradication program. This reporting period is from January 1, 2022 to December 31, 2022. This snail eradication activities report has decreased from semi-annually to annually, as agreed to by WSDA and the Port in early 2021.

Summary of Activities

Seventy *C. viragta* snails were collected on Port Parcel 117 during the 2022 survey season. This is a notable reduction from the 2021 survey season in which 329 snails were collected. This reduction may be in part due to the Port's ability to resume a more intensive vegetation management schedule. Maintenance hours for vegetation maintenance and debris removal at Port Parcel 117 increased from 126 hours in 2021 to 251.25 hours in 2022. Port maintenance activities at Port Parcel 117 also included the application of molluscicide. Metarex was applied on the southern fenceline and berm area on June 2, 2022. Deadline was applied along the perimeter and fence line on October 5, 2022.

Surveys were conducted by WSDA biweekly from May to June, weekly from August until November, and once in December. Vineyard snails were observed in concentrated, discrete populations located in and around the on-site wetlands and associated buffers. No snails were detected outside the wetlands or wetland buffers on Port Parcel 117. No snails were detected on any other Port properties located within the eradication zone. A map depicting the approximate locations and quantities of live *C. virgata* collected on Port property by WSDA in 2022 is included as part of this report. These areas are the focus of intensive vegetation management, baiting and steam treatments performed.

WSDA and WSU conducted steam treatments at 20 plots on Port Parcel 117 between August 10 and September 13, 2022. The targeted soil temperature and duration for snail mortality is 56°C for 30 minutes. Steaming was less effective at reaching the targeted temperature and time metrics at depth.

Mean percent of sensors that reached 56°C for 30 minutes	Soil Depth
93%	0 cm
66%	6 cm
41%	10 cm

Following the steam treatments, WSDA set 12 baited traps on Port Parcel 117 in the areas with the highest concentration of snail detections. Three baited traps were set on Parcel 114 (PQ site). The trap locations are depicted on the attached map. No *C. virgata* were captured in the traps. However, 34 snails were collected between October 13 to December 8, 2022.

The following Snail Eradication Reporting Form is specific to eradication activities at Port Parcel 117. It includes Port parcel number, address, size, location, and description. Eradication activities are organized by date, and include pesticides used and rates, hours spent on eradication efforts, any notes associated with the activity, and the costs incurred by the Port for these activities. Properties with three or more years without any snail detections are no longer included in this report. Routine vegetation management and debris removal are still being conducted within these sites but are no longer considered part of the snail eradication program. The PQ site where one snail was detected in 2019 is not included in this report, but vegetation management and surveys are ongoing. Since no additional snails have been detected at the PQ site, it will not be included in future reports unless site conditions change.

Costs to Date

Attached is a summary of expenditures for 2022 and total since the beginning of the eradication efforts. This information is used to budget for the following years' activities as well as reporting to Port management.

For comments or questions specific to this report or the vineyard snail eradication program, please contact Kristin Evered, Environmental Project Manager, Port of Tacoma, 253.888.4776.

Next Steps

The Port will meet with WSDA in the early spring of 2023 to discuss vegetation management and baiting schedules, and possible additional trapping efforts in order to maximize eradication effectiveness. If steam treatments are anticipated again for 2023, the Port will notify the City of Tacoma to ensure permit compliance for work in the wetlands and wetland buffers. If no steam treatments are proposed for 2023, the Port will continue with the vegetation management and baiting activities, concentrating on areas with higher detections to limit the snails' ability to expand its range and population size.

Cernuella virgata Detections in Port of Tacoma, June - December 2022

Datum: North America 1983
Coordinate System: StatePlane WA S. FIPS 4602 Ft.
Projection: Lambert Conformal Conic
Data Sources: WSDA, Pierce County, Port of Tacoma, NAIP

This Data is provided on an 'AS IS,' 'AS AVAILABLE,' and 'WITH ALL FAULTS' Basis. The Content of this map and data are from many sources and are NOT warranted to be complete, accurate, or current. All critical information should be independently verified. WSDA and its officials and employees assume no responsibility or legal liability for the accuracy, completeness, reliability, timeliness, or usefulness of any of the information presented here.

Creation Date: 1/3/2023

Project Total Costs															
MO/YR	2008	2009	2010	2011	2012	2013	2014	2015	2016**	2017***	2018****	2019	2020	2021	2022
JAN		$103,212.15			$7,214.86	$3,254.00	$990.00	$2,520.00	$2,045.00	$501.00	$584.50	$835.00	$1,593.00	$2,366.00	$1,086.00
FEB		$20,858.39			$25,588.61	$2,178.00	$624.00	$788.90*	$6,381.50	$1,002.00	$167.00	$501.00	$1,858.50	$0.00	$0.00
MAR		$13,036.01	$378.00		$7,044.50	$1,254.00	$8,936.40	$3,441.00	$3,454.50	$334.00	$417.50	$83.50	$2,743.50	$929.50	$905.00
APR		$685.00			$19,227.60	$264.00	$8,395.92	$6,726.36	$14,864.90	$4,032.50	$6,638.01	$7,127.50	$6,864.63	$253.50	$0.00
MAY		$2,484.37	$504.00		$7,905.10	$4,258.00	$7,516.26	$10,237.50	$434.00	$291.00	$5,229.50	$5,210.50	$3,789.18	$4,631.50	$452.50
JUN		$666.44	$1,476.00	$20,506.00	$32,994.46	$5,502.12	$13,444.25	$4,104.00	$37,650.93	$29,069.50	$25,295.00	$11,596.50	$4,002.84	$5,905.50	$14,457.96
JUL	$12,561.60	$1,427.00	$252.00	$22,440.06	$39,397.91	$32,760.70	$8,435.16	$20,121.66	$6,780.33	$1,670.00	$11,340.62	$4,760.00	$8,887.53	$10,645.50	$8,614.81
AUG	$14,242.20	$10,559.73	$126.00	$31,623.19	$11,736.26	$340.00	$18,494.49	$692.00	$157.00	$1,264.24	$5,444.50	$3,207.50	$5,790.60	$3,707.50	$11,926.37
SEP	$22,913.12	$19,163.81	$9,524.63	$24,054.43	$11,210.82	$22,428.00	$1,199.50	$7,311.75	$11,315.00	$2,004.00	$668.00	$3,492.50	$6,065.55	$3,061.50	$1,533.42
OCT	$55,376.78	$1,631.24	$4,833.00	$45,297.32	$6,659.70	$2,538.00	$4,235.50	$14,369.38	$5,594.00	$0.00	$0.00	$11,748.50	$2,549.18	$676.00	$4,448.02
NOV	$22,257.58		$7,284.77	$12,510.00	$15,933.03	$3,853.15	$330.00	$506.50	$529.00	$372.00	$417.50	$350.00	$3,220.96	$84.50	$0.00
DEC	$40,845.10	$750.00		$5,847.75	$332.50	$614.77	$1,237.50	$432.50	$1,347.00	$334.00	$2,032.00	$0.00	$88.50	$706.50	$905.00
YTD	**$168,196.38**	**$174,474.14**	**$24,378.40**	**$162,278.75**	**$185,245.35**	**$79,244.74**	**$73,838.98**	**$71,251.55**	**$90,553.16**	**$40,874.24**	**$58,234.13**	**$48,912.50**	**$47,453.97**	**$32,967.50**	**$44,329.08**
TOTAL ALL YEARS			**$1,302,232.87**												

*Port received reimbursement in February 2015; therefore, project costs are less than line item costs

**Spring 2016 charges also include coordination for Asian gypsy moth eradication.

***Spring 2017 charges also include coordination for WA Department of Health mosquito surveys

****Spring and summer 2018 charges also include PM time for noxious weed removal

Project Manager															
MO/YR	2008	2009	2010	2011	2012	2013	2014	2015	2016**	2017***	2018****	2019	2020	2021	2022
JAN	$0.00	$2,598.52	$0.00	$0.00	$7,214.86	$2,838.00	$990.00	$1,485.00	$1,805.50	$501.00	$584.50	$835.00	$1,593.00	$2,366.00	$1,086.00
FEB	$0.00	$862.13	$0.00	$0.00	$10,170.99	$2,178.00	$0.00	$1,038.00	$863.50	$1,002.00	$167.00	$501.00	$1,858.50	$0.00	$0.00
MAR	$0.00	$75.00	$378.00	$0.00	$7,044.50	$1,254.00	$165.00	$605.50	$2,276.50	$334.00	$417.50	$83.50	$2,743.50	$929.50	$905.00
APR	$0.00	$300.00	$0.00	$0.00	$7,461.08	$264.00	$577.50	$259.50	$2,276.50	$250.50	$668.00	$2,087.50	$619.50	$253.50	$0.00
MAY	$0.00	$0.00	$504.00	$0.00	$665.00	$462.00	$330.00	$928.50	$0.00	$167.00	$83.50	$1,920.50	$0.00	$0.00	$452.50
JUN	$0.00	$438.94	$864.00	$5,700.00	$4,023.25	$528.00	$577.50	$3,194.50	$0.00	$1,417.50	$167.00	$1,586.50	$354.00	$253.50	$0.00
JUL	$3,750.00	$790.00	$252.00	$12,750.00	$8,514.75	$660.00	$1,815.00	$1,896.50	$1,334.50	$1,670.00	$3,841.00	$0.00	$1,239.00	$676.00	$181.00
AUG	$1,800.00	$975.00	$126.00	$5,328.00	$2,048.50	$132.00	$742.50	$692.00	$157.00	$373.00	$918.50	$2,087.50	$177.00	$253.50	$1,448.00
SEP	$10,016.09	$525.00	$756.00	$7,696.00	$3,391.50	$1,056.00	$825.00	$865.00	$0.00	$2,004.00	$668.00	$2,372.50	$1,504.50	$0.00	$0.00
OCT	$21,991.44	$0.00	$1,008.00	$7,575.00	$332.50	$198.00	$330.00	$4,238.50	$1,099.00	$0.00	$0.00	$4,258.50	$619.50	$676.00	$724.00
NOV	$13,525.43	$0.00	$504.00	$5,100.00	$3,009.70	$264.00	$330.00	$346.00	$157.00	$0.00	$417.50	$0.00	$3,177.00	$84.50	$0.00
DEC	$5,115.10	$750.00	$0.00	$3,455.75	$332.50	$66.00	$1,237.50	$432.50	$1,099.00	$334.00	$668.00	$0.00	$88.50	$0.00	$905.00
YTD	**$56,198.06**	**$7,314.59**	**$4,392.00**	**$47,604.75**	**$54,209.13**	**$9,900.00**	**$7,920.00**	**$15,981.50**	**$11,068.50**	**$8,053.00**	**$8,600.50**	**$15,732.50**	**$13,974.00**	**$5,492.50**	**$5,701.50**
TOTAL ALL YEARS			**$272,142.53**												

**Spring 2016 charges also include coordination for Asian gypsy moth eradication.

***Spring 2017 charges also include coordination for WA Department of Health mosquito surveys

****Spring and summer 2018 charges also include PM time for noxious weed removal

Maintenance/Contractor/Equipment															
MO/YR	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
JAN	$0.00	$100,613.63	$0.00	$0.00	$0.00	$416.00	$0.00	$1,035.00	$239.50	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
FEB	$0.00	$19,996.26	$0.00	$0.00	$15,417.62	$0.00	$624.00	$0.00	$5,518.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
MAR	$0.00	$12,961.01	$0.00	$0.00	$0.00	$0.00	$8,771.40	$2,835.50	$1,178.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
APR	$0.00	$385.00	$0.00	$0.00	$11,766.52	$0.00	$7,818.42	$6,466.86	$12,588.40	$3,782.00	$5,970.01	$5,040.00	$6,245.13	$0.00	$0.00
MAY	$0.00	$2,484.37	$0.00	$0.00	$7,240.10	$3,796.00	$7,186.26	$9,309.00	$434.00	$124.00	$5,146.00	$3,290.00	$3,789.18	$4,631.50	$0.00
JUN	$0.00	$227.50	$612.00	$14,806.00	$28,971.21	$4,974.12	$12,866.75	$909.50	$37,650.93	$27,652.00	$25,128.00	$10,010.00	$3,648.84	$5,652.00	$14,457.96
JUL	$8,811.60	$637.00	$0.00	$9,690.06	$30,883.16	$32,100.70	$6,620.16	$18,225.16	$5,445.83	$0.00	$7,499.62	$4,760.00	$7,648.53	$9,969.50	$8,433.81
AUG	$12,442.20	$9,584.73	$0.00	$26,295.19	$9,687.76	$208.00	$17,751.99	$0.00	$0.00	$39.00	$4,526.00	$1,120.00	$5,613.60	$3,454.00	$10,478.37
SEP	$12,897.03	$18,638.81	$8,768.63	$16,358.43	$7,819.32	$21,372.00	$374.50	$6,446.75	$11,315.00	$930.00	$0.00	$1,120.00	$4,561.05	$3,061.50	$1,533.42
OCT	$33,385.34	$1,631.24	$3,825.00	$37,722.32	$6,327.20	$2,340.00	$3,905.50	$10,130.88	$4,495.00	$0.00	$0.00	$7,490.00	$1,929.68	$0.00	$3,724.02
NOV	$8,732.15	$0.00	$6,780.77	$7,410.00	$12,923.33	$3,589.15	$0.00	$160.50	$372.00	$372.00	$0.00	$350.00	$43.96	$0.00	$0.00
DEC	$35,730.00	$0.00	$0.00	$2,392.00	$0.00	$548.77	$0.00	$0.00	$248.00	$0.00	$1,364.00	$0.00	$0.00	$706.50	$0.00
YTD	**$111,998.32**	**$167,159.55**	**$19,986.40**	**$114,674.00**	**$131,036.22**	**$69,344.74**	**$65,918.98**	**$55,519.15**	**$79,484.66**	**$32,899.00**	**$49,633.63**	**$33,180.00**	**$33,479.97**	**$27,475.00**	**$38,627.58**
TOTAL ALL YEARS			**$1,030,417.20**												

Site Name	Parcel 117 - TPU	Size (Acres)	17
Address	1300 Taylor Way	Location	47°16'22.34"N/122°23'40.04"W
Description	vacant land, no improvements	Tenant	None

ACTIVITY

Date	Maintenance Hours	Vegetation Management	Debris Removal	Pesticide Application	Notes	Costs
6/2/2022	1.00			X	Metarex 25 lbs/ac	$146.04
6/6/2022	7.00	X	X			$1,022.28
6/6/2022	6.00	X	X			$876.24
6/6/2022	8.00	X	X			$1,168.32
6/7/2022	2.50	X	X			$365.10
6/7/2022	3.50	X	X			$511.14
6/7/2022	4.00	X	X			$584.16
6/8/2022	4.00	X	X			$584.16
6/9/2022	4.00	X	X			$584.16
6/24/2022	1.50	X	X			$219.06
6/28/2022	8.00	X	X			$1,168.32
6/28/2022	8.00	X	X			$1,168.32
6/28/2022	7.00	X	X			$1,022.28
6/28/2022	2.00	X	X			$292.08
6/28/2022	8.00	X	X			$1,168.32
6/29/2022	4.00	X	X			$584.16
6/29/2022	8.00	X	X			$1,168.32
6/29/2022	6.50	X	X			$949.26
6/30/2022	2.00	X	X			$292.08
6/30/2022	2.00	X	X			$292.08
6/30/2022	2.00	X	X			$292.08
7/1/2022	4.00	X	X			$584.16
7/1/2022	3.00	X	X			$438.12
7/1/2022	2.00	X	X			$292.08
7/7/2022	4.25	X	X			$620.67
7/8/2022	6.00	X	X			$876.24
7/14/2022	2.00	X	X			$292.08
7/14/2022	1.50	X	X			$219.06
7/18/2022	3.50	X	X			$511.14
7/14/2022	8.50	X	X			$1,241.34
7/21/2022	3.00	X	X			$438.12
7/22/2022	4.00	X	X			$584.16
7/26/2022	8.00	X	X			$1,168.32
7/26/2022	2.00	X	X			$292.08
7/27/2022	2.00	X	X			$292.08
7/26/2022	4.00	X	X			$584.16
8/9/2022	3.00	X	X			$438.12
8/9/2022	7.00	X	X			$1,022.28
8/9/2022	2.00	X	X			$292.08
8/10/2022	8.00	X	X			$1,168.32

Site Name	Parcel 117 - TPU	Size (Acres)	17
Address	1300 Taylor Way	Location	47°16'22.34"N/122°23'40.04"W
Description	vacant land, no improvements	Tenant	None

ACTIVITY

Date	Maintenance Hours	Vegetation Management	Debris Removal	Pesticide Application	Notes	Costs
8/10/2022	8.00	X	X			$1,168.32
8/10/2022	4.00	X	X			$584.16
8/11/2022	1.75				Water truck for steam treatment	$255.57
8/11/2022	8.00	X	X			$1,168.32
8/12/2022	8.00	X	X			$1,168.32
8/12/2022	1.00	X	X			$146.04
8/16/2022	2.00	X	X			$292.08
8/15/2022	1.00				Water truck for steam treatment	$146.04
8/15/2022	2.00	X	X			$292.08
8/17/2022	2.00	X	X			$292.08
8/18/2022	2.00	X	X			$292.08
8/22/2022	2.00	X	X			$292.08
8/23/2022	1.00	X	X			$146.04
8/24/2022	1.00				Water truck for steam treatment	$146.04
8/26/2022	2.00	X	X			$292.08
8/29/2022	2.00	X	X			$292.08
8/30/2022	2.00	X	X			$292.08
8/31/2022	2.00	X	X			$292.08
9/2/2022	1.50				Water truck for steam treatment	$219.06
9/6/2022	1.50				Water truck for steam treatment	$219.06
9/7/2022	1.50				Water truck for steam treatment	$219.06
9/8/2022	2.00	X	X			$292.08
9/9/2022	2.00				Water truck for steam treatment	$292.08
9/12/2022	2.00				Water truck for steam treatment	$292.08
10/5/2022	8.00	X	X			$1,168.32
10/5/2022	8.00	X	X			$1,168.32
10/5/2022	8.00	X	X	X	Deadline Bullets 25 lbs/ac	$1,168.32
10/5/2022	1.50	X	X			$219.06
TOTAL	**264.50**				**TOTAL**	**$38,627.58**

***Cernuella virgata* detection surveys in the Port of Tacoma TPU Unit, Sept. 18-21, 2023**

Monday, September 18, 2023:

One WSDA Terrestrial Mollusk Survey team member checked on the parcel at TPU in the port of Tacoma between 9:00am and 11:00am. The first heavy rain of the season had occurred in the early morning hours prior to sunrise. The sunlight had just reached the unit when the survey began, though the ground and vegetation was still very wet. Nearing the boundary of the first steam treatment area the ground and low foliage became covered in active *Xeroplexa intersecta*, both adults and juveniles. One active adult *Cernuella virgata* was soon discovered in the berm. Ten others were discovered in the next hour, primarily on or near the central berm both within and outside the recent steam treatments. One cluster of 6 adults was detected in a mound of vegetation left from mowing near the large eastern berm. The berm was checked, and no specimens were detected. 11 total active *C. virgata* were detected during this survey.

Tuesday, September 19, 2023:

With rain forecast for the evening, three members of the survey team checked the area at dusk and during darkness the following night. Survey activities lasted from 1900H to 2200H, with no *C. virgata* detected. The rain did not materialize, though light sprinkles occurred during the survey though the ground remained dry.

Wednesday, September 20, 2023:

Four survey personnel arrived at the unit at 7:00am. A moderate rain was falling, and the ground and vegetation were saturated. Shortly after entering the unit and reaching the berm, several active adult *C. virgata* were immediately detected. Pink flags were placed at the location of each target snail to aid in visualizing the extent and density of activity. The majority of snails were found in an approximate 20m section of the main berm along the southeastern edge of the parcel, south of the raised berm/access road across the unit. While active snails were located dispersed throughout this immediate area, near the location known as “Jenni’s Rock”, and the adjacent flat wetland areas, none were found along the berm north of this area in the additional steamed area near the trees, nor anywhere else in the unit. Snail activity seemed to have ceased by 11:00am. 98 active *C. virgata* were detected during this survey.

Thursday, September 21, 2023:

One surveyor returned to the location and surveyed between 7:00am and 8:00am. No *C. virgata* were found, with all areas from the previous day checked. The ground and vegetation were wet from condensation during the survey; however, the sky was clear and the temperature was crisp (48F at end of survey). Minimal *X. intersecta* activity was detected. Most snails found during these surveys were large adults, many with thin and transparent lips to their shells rather than the developed rusty band in the inner lip.

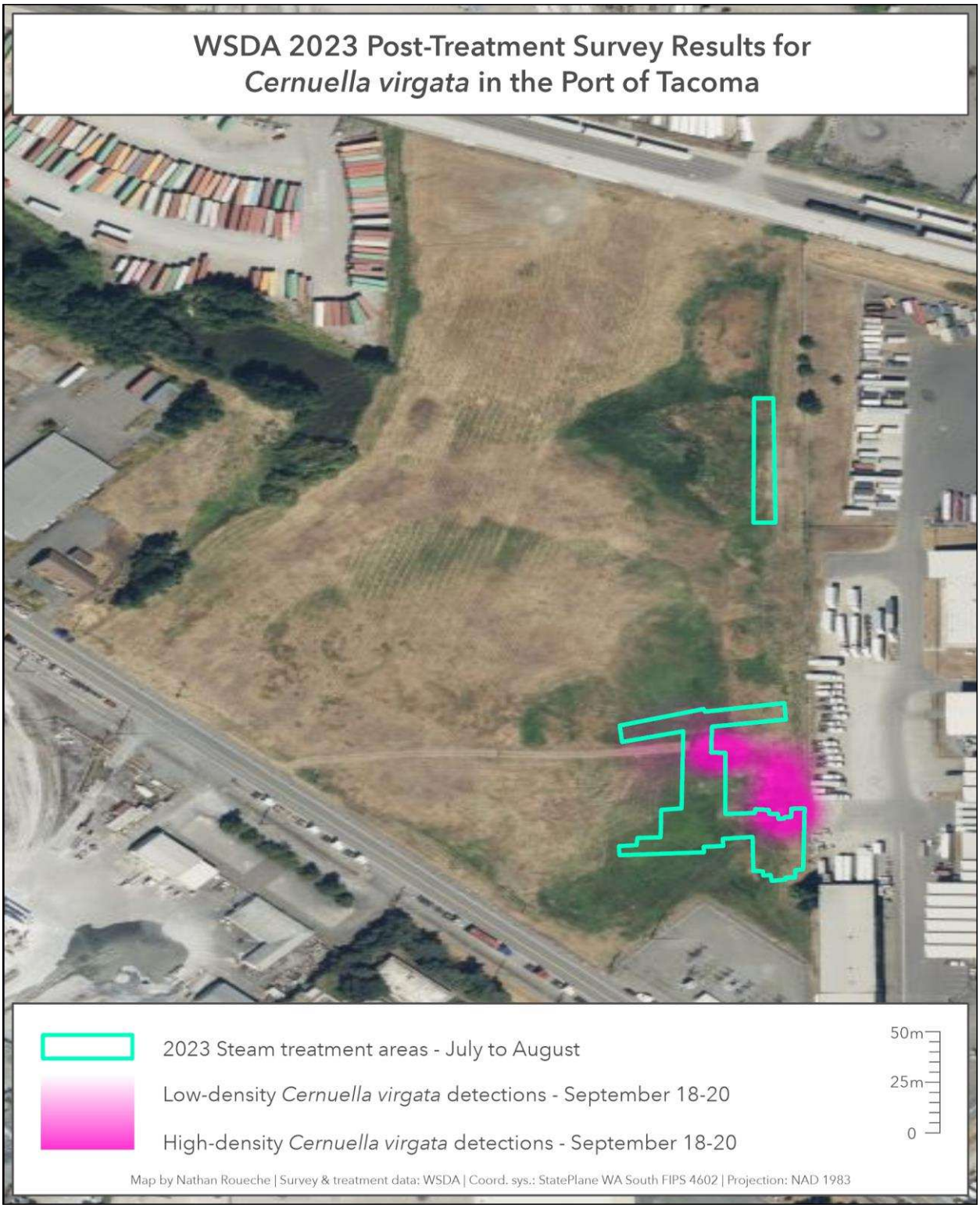


Figure 1. Overview of parcel with recent steam treatments and density gradient of September *C. virgata* detections; note central berm across parcel and green wetland areas for reference.

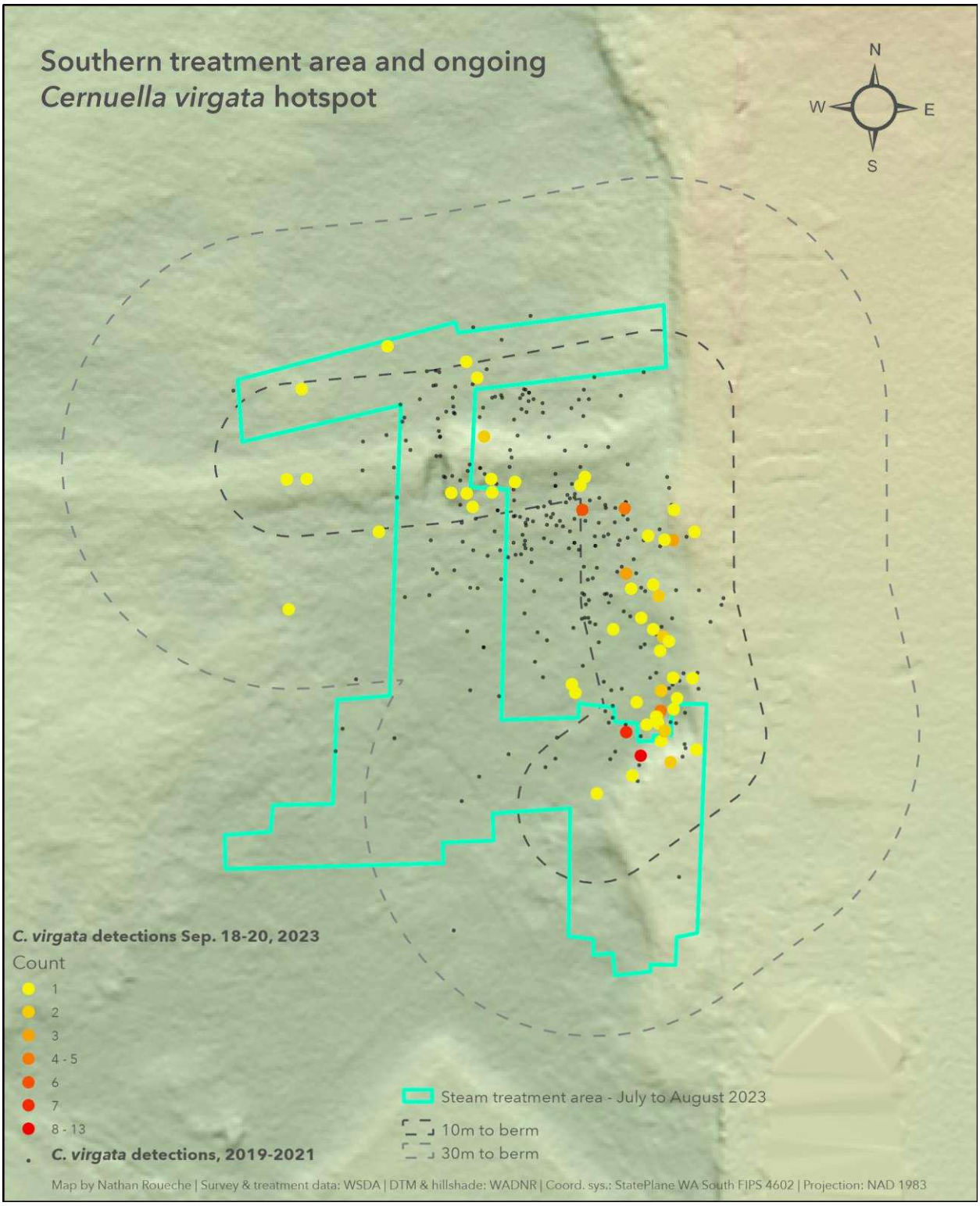


Figure 2: Recent detections of *C. virgata* in the southern hotspot, with recent steam treatments outlined, prior years' *C. virgata* detections, and approximate distance to berms (10 meters and 30 meters) shown for reference; 109 active specimens were detected during September 18-20, 2023, in the southern treatment area.

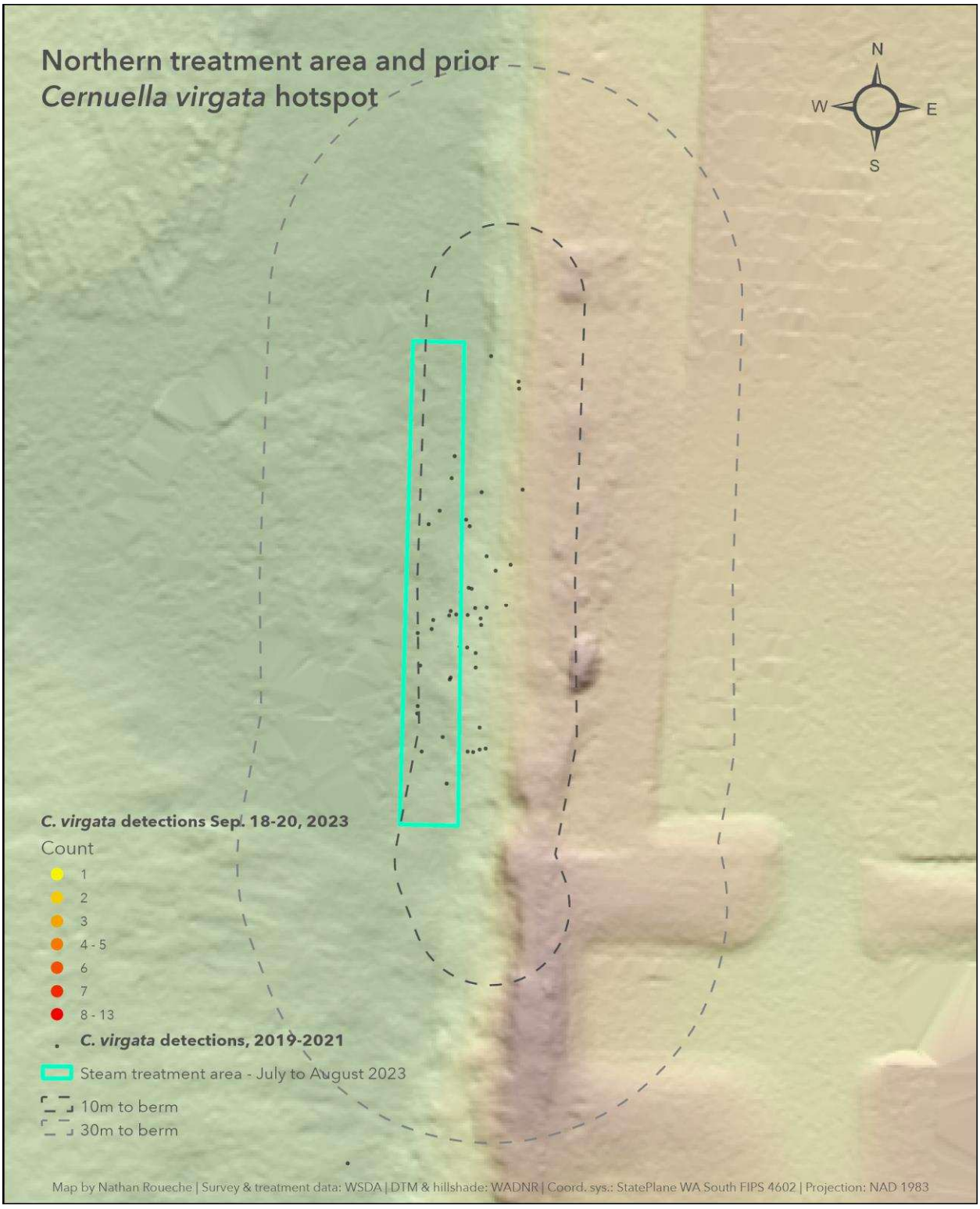


Figure 3. Recent detections of *C. virgata* in the northern hotspot, with recent steam treatments outlined, prior years' *C. virgata* detections, and approximate distance to berms (10 meters and 30 meters) shown for reference; no active specimens were detected during September 18-20, 2023, in the northern treatment area. Note one outlying specimen near the southern edge of the map frame.

Figure 4. Adult *C. virgata* showing thin clear lip of shell, many detected specimens exhibited this trait during this detection period.

Figure 5. Southeastern berm following survey of Sep. 20, 2023, with pink flags placed at each *C. virgata* detection; note edge of steam treatment in image foreground.

Vineyard Snail Eradication Activities Report 2023

This report covers the snail eradication activities from January 1, 2023 to December 31, 2023. The eradication zone is located from the north side of the 2000 block Lincoln Ave E., north to East 11th Street, Pierce County, 98421. East-west boundaries are Taylor Way and Alexander Avenue, respectively.

Port of Tacoma

Background

On November 15, 2005, initial detection of an invasive and very destructive snail, *Cernuella virgata* (vineyard snail) was made within the Port of Tacoma's (Port) industrial area. A formal survey was completed by WSDA and USDA in 2006 that delineated an infestation area of over 300 acres on the Blair-Hylebos Peninsula. The primary infestation was centered on Port, City of Tacoma and private property north of Lincoln Avenue.

In May 2007, WSDA and USDA sought a voluntary eradication program with the Port to avoid a prolonged process of developing a state plan. Speed was—and is—essential to control the population and to avoid quarantines that could limit the flow of cargo from the Port area. Quarantines could limit movement within the Port area and potentially restrict over one billion dollars of agricultural products from export.

In 2007, WSDA and the Port delivered letters to Port tenants and other property owners within the eradication zone discussing the seriousness of the infestation and advised owners not to remove vegetation from their sites. In the summer of 2007, the Port and others removed excess vegetation from Port owned and non-Port owned properties, and the Port conducted controlled burns of the discarded vegetation.

On June 20, 2011, the Port received the "*Prescription to the Port of Tacoma for the Eradication of the Vineyard Snail on the Blair Peninsula*" (Prescription) memorandum from WSDA. The Prescription outlined the best practices to contain and eliminate the vineyard snail from the affected areas. In April 2013, the Port provided USDA and WSDA with a proposed prescription based on historical snail detections. This prescription is updated annually based on the number of years a property has been free of snail detections.

WSDA issued a letter in September 2014 stating changes to the Deadline pesticide label allowing for application in areas where no surface water is present. The City of Tacoma reissued a Critical Areas Preservation Ordinance Letter of Approval in 2018 to conduct vegetation management and limited seasonal bait application within the wetlands and buffers located at the site known as Port Parcel 117 (also known as TPU).

In 2019, WSDA proposed to eradicate *C. virgata* within the wetlands and wetland boundaries on Port Parcel 117 using steam to kill all life stages. The City of Tacoma issued LU19-0190, Voluntary Enhancement and Restoration, Activities Allowed with Staff Review on September 5, 2019, to the Port, which allowed WSDA to conduct steam treatments and restore the wetland and wetland boundary areas with a native grass seed mix after the treatments were completed. Steam treatments were conducted annually from 2019 to 2023. Due to the abundance of snails located in the proximity of the steamed areas post treatment in 2023, the steam treatments have been determined to be ineffective and are no longer proposed as part of the eradication program.

One snail was observed on Port Parcel 114, also known as PQ, in October 2019. This was the first detection in over 5 years. The site was heavily baited in October and November 2019 and additional surveys have resulted in no new *C. virgata* detections since 2019.

The following summarizes the specific activities associated with the Port's snail eradication program. This reporting period is from January 1, 2023 to December 31, 2023. This snail eradication activities report has decreased from semi-annually to annually, as agreed to by WSDA and the Port in early 2021.

Summary of Activities

WSDA detected one hundred and forty-six (146) snails at Port Parcel 117 during the 2023 survey season. This is an increase from the seventy (70) snails detected during the 2022 survey season. No snails were detected on any other Port properties located within the eradication zone.

WSDA and WSU steamed 22 plots between July 25 to August 29, 2023. The plot locations were selected based on previous snail detections. Ninety-eight (98) of the one hundred and forty-six (146) snails were detected on September 20, which correlates with the first heavy rain of the season. The snails were concentrated in an approximate 20-meter section of the main berm along the southeastern edge of the parcel. This area is near steam treatment plots but was not steamed because the topography of the berm makes it challenging to create a seal to trap in the steam. It is unknown if the snails moved away from the steam treatments or estivated in the berm area. No live snails were detected after November 20. Maps depicting the approximate location and quantities of live *C. virgata* in relation to the steam treatments are included as part of this report. Due to the abundance of snails located in the proximity of the steamed areas, the steam treatments are no longer proposed as part of the eradication program.

Port maintenance resumed vegetation management and molluscicide application at Parcel 117 in 2023. Deadline pellets were applied on May 19, July 21 and September 28 along the Parcel 114 (PQ) fence line and Parcel 117 south fence line and burm areas. Bait traps were not set this year as they have not been effective in previous years.

The following Snail Eradication Reporting Form is specific to eradication activities at Port Parcel 117. It includes Port parcel number, address, size, location, and description. Eradication activities are organized by date, and include pesticides used and rates, hours spent on eradication efforts, any notes associated with the activity, and the costs incurred by the Port for these activities. Properties with three or more years without any snail detections are no longer included in this report. Routine vegetation management and debris removal are still being conducted within these sites but are no longer considered part of the snail eradication program.

Costs to Date

Attached is a summary of expenditures for 2023 and total since the beginning of the eradication efforts. This information is used to budget for the following years' activities as well as reporting to Port management.

For comments or questions specific to this report or the vineyard snail eradication program, please contact Kristin Evered, Environmental Project Manager, Port of Tacoma, 253.888.4776.

Next Steps

The Port has applied for a Voluntary Enhancement and Restoration Activities Allowed with Staff Review permit (application LU24-0010) to continue snail eradication activities including vegetation management, molluscicide application and the use of a salt barrier to limit snail movement at Parcel 117. A wetland delineation and a Critical Areas Report for Parcel 117 are pending. The Port will continue to coordinate with US/WSDA on vegetation management and baiting schedules until permanent eradication, such as the potential development of Parcel 117, occurs.

Project Total Costs																
MO/YR	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016****	**2017*****	**2018******	**2019**	**2020**	**2021**	**2022**	**2023**
JAN		$103,212.15			$7,214.86	$3,254.00	$990.00	$2,520.00	$2,045.00	$501.00	$584.50	$835.00	$1,593.00	$2,366.00	$1,086.00	$3,778.00
FEB		$20,858.39			$25,588.61	$2,178.00	$624.00	$788.90*	$6,381.50	$1,002.00	$167.00	$501.00	$1,858.50	$0.00	$0.00	$2,327.00
MAR		$13,036.01	$378.00		$7,044.50	$1,254.00	$8,936.40	$3,441.00	$3,454.50	$334.00	$417.50	$83.50	$2,743.50	$929.50	$905.00	$2,744.39
APR		$685.00			$19,227.60	$264.00	$8,395.92	$6,726.36	$14,864.90	$4,032.50	$6,638.01	$7,127.50	$6,864.63	$253.50	$0.00	$340.60
MAY		$2,484.37	$504.00		$7,905.10	$4,258.00	$7,516.26	$10,237.50	$434.00	$291.00	$5,229.50	$5,210.50	$3,789.18	$4,631.50	$452.50	$0.00
JUN		$666.44	$1,476.00	$20,506.00	$32,994.46	$5,502.12	$13,444.25	$4,104.00	$37,650.93	$29,069.50	$25,295.00	$11,596.50	$4,002.84	$5,905.50	$14,457.96	$15,377.16
JUL	$12,561.60	$1,427.00	$252.00	$22,440.06	$39,397.91	$32,760.70	$8,435.16	$20,121.66	$6,780.33	$1,670.00	$11,340.62	$4,760.00	$8,887.53	$10,645.50	$8,614.81	$17,083.09
AUG	$14,242.20	$10,559.73	$126.00	$31,623.19	$11,736.26	$340.00	$18,494.49	$692.00	$157.00	$1,264.24	$5,444.50	$3,207.50	$5,790.60	$3,707.50	$11,926.37	$9,242.40
SEP	$22,913.12	$19,163.81	$9,524.63	$24,054.43	$11,210.82	$22,428.00	$1,199.50	$7,311.75	$11,315.00	$2,004.00	$668.00	$3,492.50	$6,065.55	$3,061.50	$1,533.42	$1,824.05
OCT	$55,376.78	$1,631.24	$4,833.00	$45,297.32	$6,659.70	$2,538.00	$4,235.50	$14,369.38	$5,594.00	$0.00	$0.00	$11,748.50	$2,549.18	$676.00	$4,448.02	$2,051.37
NOV	$22,257.58		$7,284.77	$12,510.00	$15,933.03	$3,853.15	$330.00	$506.50	$529.00	$372.00	$417.50	$350.00	$3,220.96	$84.50	$0.00	$358.00
DEC	$40,845.10	$750.00		$5,847.75	$332.50	$614.77	$1,237.50	$432.50	$1,347.00	$334.00	$2,032.00	$0.00	$88.50	$706.50	$905.00	$0.00
YTD	**$168,196.38**	**$174,474.14**	**$24,378.40**	**$162,278.75**	**$185,245.35**	**$79,244.74**	**$73,838.98**	**$71,251.55**	**$90,553.16**	**$40,874.24**	**$58,234.13**	**$48,912.50**	**$47,453.97**	**$32,967.50**	**$44,329.08**	**$55,126.06**
TOTAL ALL YEARS			**$1,357,358.93**													

*Port received reimbursement in February 2015; therefore, project costs are less than line item costs

**Spring 2016 charges also include coordination for Asian gypsy moth eradication.

***Spring 2017 charges also include coordination for WA Department of Health mosquito surveys

****Spring and summer 2018 charges also include PM time for noxious weed removal

Project Manager																
MO/YR	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016****	**2017*****	**2018******	**2019**	**2020**	**2021**	**2022**	**2023**
JAN	$0.00	$2,598.52	$0.00	$0.00	$7,214.86	$2,838.00	$990.00	$1,485.00	$1,805.50	$501.00	$584.50	$835.00	$1,593.00	$2,366.00	$1,086.00	$3,778.00
FEB	$0.00	$862.13	$0.00	$0.00	$10,170.99	$2,178.00	$0.00	$1,038.00	$863.50	$1,002.00	$167.00	$501.00	$1,858.50	$0.00	$0.00	$2,327.00
MAR	$0.00	$75.00	$378.00	$0.00	$7,044.50	$1,254.00	$165.00	$605.50	$2,276.50	$334.00	$417.50	$83.50	$2,743.50	$929.50	$905.00	$1,342.50
APR	$0.00	$300.00	$0.00	$0.00	$7,461.08	$264.00	$577.50	$259.50	$2,276.50	$250.50	$668.00	$2,087.50	$619.50	$253.50	$0.00	$0.00
MAY	$0.00	$0.00	$504.00	$0.00	$665.00	$462.00	$330.00	$928.50	$0.00	$167.00	$83.50	$1,920.50	$0.00	$0.00	$452.50	$0.00
JUN	$0.00	$438.94	$864.00	$5,700.00	$4,023.25	$528.00	$577.50	$3,194.50	$0.00	$1,417.50	$167.00	$1,586.50	$354.00	$253.50	$0.00	$179.00
JUL	$3,750.00	$790.00	$252.00	$12,750.00	$8,514.75	$660.00	$1,815.00	$1,896.50	$1,334.50	$1,670.00	$3,841.00	$0.00	$1,239.00	$676.00	$181.00	$3,043.00
AUG	$1,800.00	$975.00	$126.00	$5,328.00	$2,048.50	$132.00	$742.50	$692.00	$157.00	$373.00	$918.50	$2,087.50	$177.00	$253.50	$1,448.00	$984.50
SEP	$10,016.09	$525.00	$756.00	$7,696.00	$3,391.50	$1,056.00	$825.00	$865.00	$0.00	$2,004.00	$668.00	$2,372.50	$1,504.50	$0.00	$0.00	$1,163.50
OCT	$21,991.44	$0.00	$1,008.00	$7,575.00	$332.50	$198.00	$330.00	$4,238.50	$1,099.00	$0.00	$0.00	$4,258.50	$619.50	$676.00	$724.00	$1,611.00
NOV	$13,525.43	$0.00	$504.00	$5,100.00	$3,009.70	$264.00	$330.00	$346.00	$157.00	$0.00	$417.50	$0.00	$3,177.00	$84.50	$0.00	$358.00
DEC	$5,115.10	$750.00	$0.00	$3,455.75	$332.50	$66.00	$1,237.50	$432.50	$1,099.00	$334.00	$668.00	$0.00	$88.50	$0.00	$905.00	$0.00
YTD	**$56,198.06**	**$7,314.59**	**$4,392.00**	**$47,604.75**	**$54,209.13**	**$9,900.00**	**$7,920.00**	**$15,981.50**	**$11,068.50**	**$8,053.00**	**$8,600.50**	**$15,732.50**	**$13,974.00**	**$5,492.50**	**$5,701.50**	**$14,786.50**
TOTAL ALL YEARS			**$286,929.03**													

**Spring 2016 charges also include coordination for Asian gypsy moth eradication.

***Spring 2017 charges also include coordination for WA Department of Health mosquito surveys

****Spring and summer 2018 charges also include PM time for noxious weed removal

Maintenance/Contractor/Equipment																
MO/YR	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
JAN	$0.00	$100,613.63	$0.00	$0.00	$0.00	$416.00	$0.00	$1,035.00	$239.50	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
FEB	$0.00	$19,996.26	$0.00	$0.00	$15,417.62	$0.00	$624.00	$0.00	$5,518.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
MAR	$0.00	$12,961.01	$0.00	$0.00	$0.00	$0.00	$8,771.40	$2,835.50	$1,178.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$1,401.89
APR	$0.00	$385.00	$0.00	$0.00	$11,766.52	$0.00	$7,818.42	$6,466.86	$12,588.40	$3,782.00	$5,970.01	$5,040.00	$6,245.13	$0.00	$0.00	$340.60
MAY	$0.00	$2,484.37	$0.00	$0.00	$7,240.10	$3,796.00	$7,186.26	$9,309.00	$434.00	$124.00	$5,146.00	$3,290.00	$3,789.18	$4,631.50	$0.00	$0.00
JUN	$0.00	$227.50	$612.00	$14,806.00	$28,971.21	$4,974.12	$12,866.75	$909.50	$37,650.93	$27,652.00	$25,128.00	$10,010.00	$3,648.84	$5,652.00	$14,457.96	$15,198.16
JUL	$8,811.60	$637.00	$0.00	$9,690.06	$30,883.16	$32,100.70	$6,620.16	$18,225.16	$5,445.83	$0.00	$7,499.62	$4,760.00	$7,648.53	$9,969.50	$8,433.81	$14,040.09
AUG	$12,442.20	$9,584.73	$0.00	$26,295.19	$9,687.76	$208.00	$17,751.99	$0.00	$0.00	$39.00	$4,526.00	$1,120.00	$5,613.60	$3,454.00	$10,478.37	$8,257.90
SEP	$12,897.03	$18,638.81	$8,768.63	$16,358.43	$7,819.32	$21,372.00	$374.50	$6,446.75	$11,315.00	$930.00	$0.00	$1,120.00	$4,561.05	$3,061.50	$1,533.42	$660.55
OCT	$33,385.34	$1,631.24	$3,825.00	$37,722.32	$6,327.20	$2,340.00	$3,905.50	$10,130.88	$4,495.00	$0.00	$0.00	$7,490.00	$1,929.68	$0.00	$3,724.02	$440.37
NOV	$8,732.15	$0.00	$6,780.77	$7,410.00	$12,923.33	$3,589.15	$0.00	$160.50	$372.00	$372.00	$0.00	$350.00	$43.96	$0.00	$0.00	$0.00
DEC	$35,730.00	$0.00	$0.00	$2,392.00	$0.00	$548.77	$0.00	$0.00	$248.00	$0.00	$1,364.00	$0.00	$0.00	$706.50	$0.00	$0.00
YTD	**$111,998.32**	**$167,159.55**	**$19,986.40**	**$114,674.00**	**$131,036.22**	**$69,344.74**	**$65,918.98**	**$55,519.15**	**$79,484.66**	**$32,899.00**	**$49,633.63**	**$33,180.00**	**$33,479.97**	**$27,475.00**	**$38,627.58**	**$40,339.56**
TOTAL ALL YEARS			**$1,070,756.76**													

Site Name	Parcel 117 - TPU	Size (Acres)	17
Address	1300 Taylor Way	Location	47°16'22.34"N/122°23'40.04"W
Description	vacant land, no improvements	Tenant	None

ACTIVITY

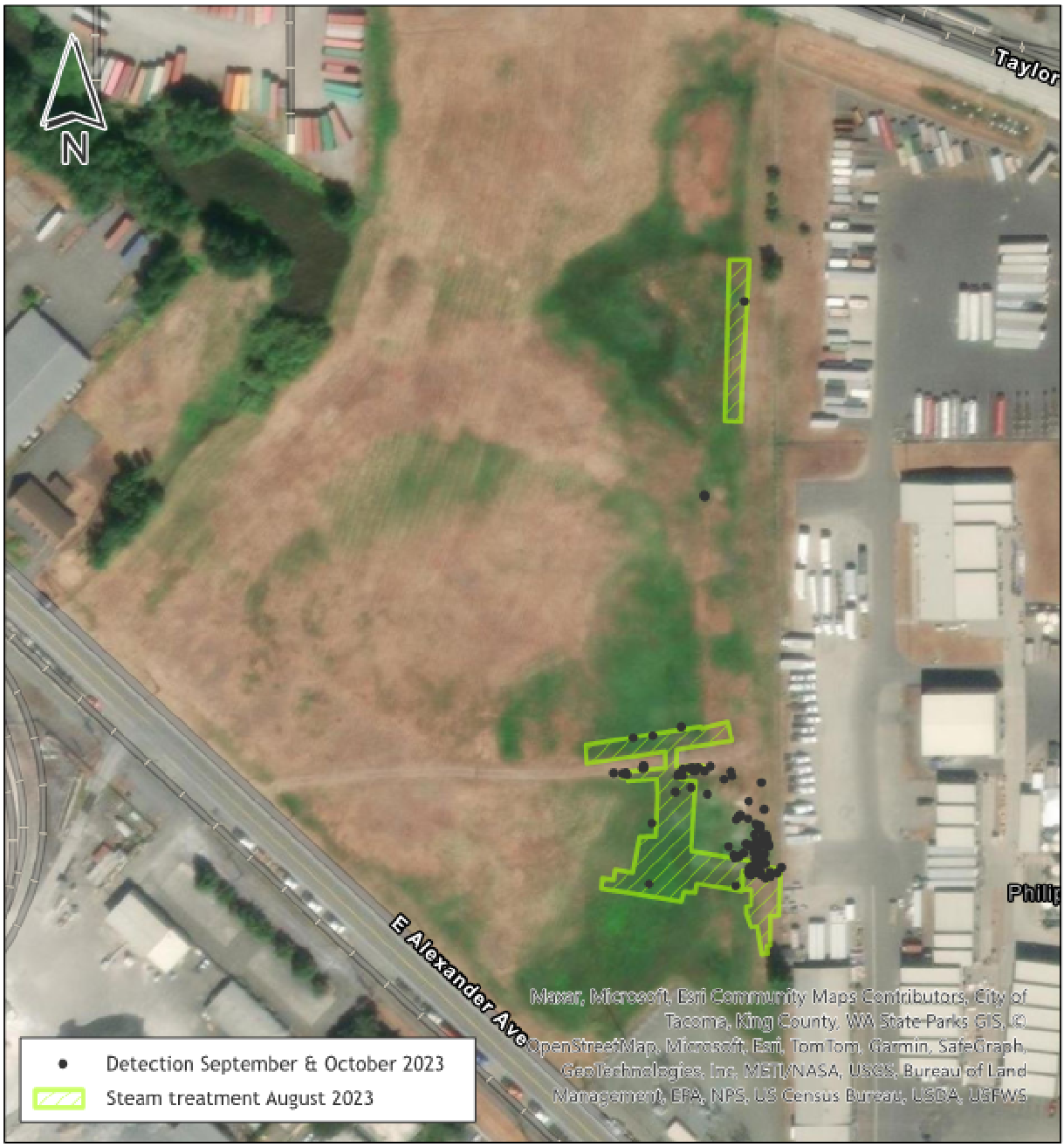
Date	Maintenance Hours	Vegetation Management	Debris Removal	Pesticide Application	Notes	Costs
3/28/2023	2.75				Placing construction barrels	$403.67
3/28/2023	4.25				Installing no parking signs	$623.86
4/4/2023	3.50				Installing no parking signs	$513.77
5/10/2023	8.00	x	x			$293.58
5/10/2023	2.00	x	x			$220.19
5/10/2023	1.50	x	x			$220.19
5/11/2023	8.00	x	x			$1,174.32
5/11/2023	8.00	x	x			$1,174.32
5/12/2023	6.00	x	x			$880.74
5/12/2023	8.00	x	x			$1,174.32
5/15/2023	6.00	x	x			$880.74
5/16/2023	4.00	x	x			$587.16
5/17/2023	9.00	x	x	x		$1,321.11
6/28/2023	6.00	x	x			$880.74
6/29/2023	20.00	x	x			$2,935.80
6/30/2023	17.00	x	x			$2,495.43
7/3/2023	24.00	x	x			$3,522.96
7/5/2023	10.00	x	x			$1,467.90
7/6/2023	17.00	x	x			$2,495.43
7/7/2023	8.00	x	x			$1,174.32
7/10/2023	14.00	x	x			$2,055.06
7/11/2023	8.00	x	x			$1,174.32
7/20/2023	8.00	x	x	x		$1,174.32
7/25/2023	1.00				Filling up steamer	$146.79
7/26/2023	2.00				Filling up steamer	$293.58
7/27/2023	1.00				Filling up steamer	$146.79
7/28/2023	1.00				Filling up steamer	$146.79
7/31/2023	1.00				Filling up steamer	$146.79
8/1/2023	1.50				Filling up steamer	$220.19
8/2/2023	1.50				Filling up steamer	$220.19
8/3/2023	12.00	x	x		Filling up steamer	$1,761.48
8/4/2023	1.00				Filling up steamer	$146.79
8/7/2023	1.00				Filling up steamer	$146.79
8/8/2023	1.00				Filling up steamer	$146.79
8/9/2023	1.00				Filling up steamer	$146.79
8/10/2023	1.00				Filling up steamer	$146.79
8/11/2023	1.00				Filling up steamer	$146.79
8/14/2023	1.00				Filling up steamer	$146.79
8/15/2023	1.50				Filling up steamer	$220.19
8/16/2023	1.00				Filling up steamer	$146.79

Site Name	Parcel 117 - TPU	Size (Acres)	17
Address	1300 Taylor Way	Location	47°16'22.34"N/122°23'40.04"W
Description	vacant land, no improvements	Tenant	None

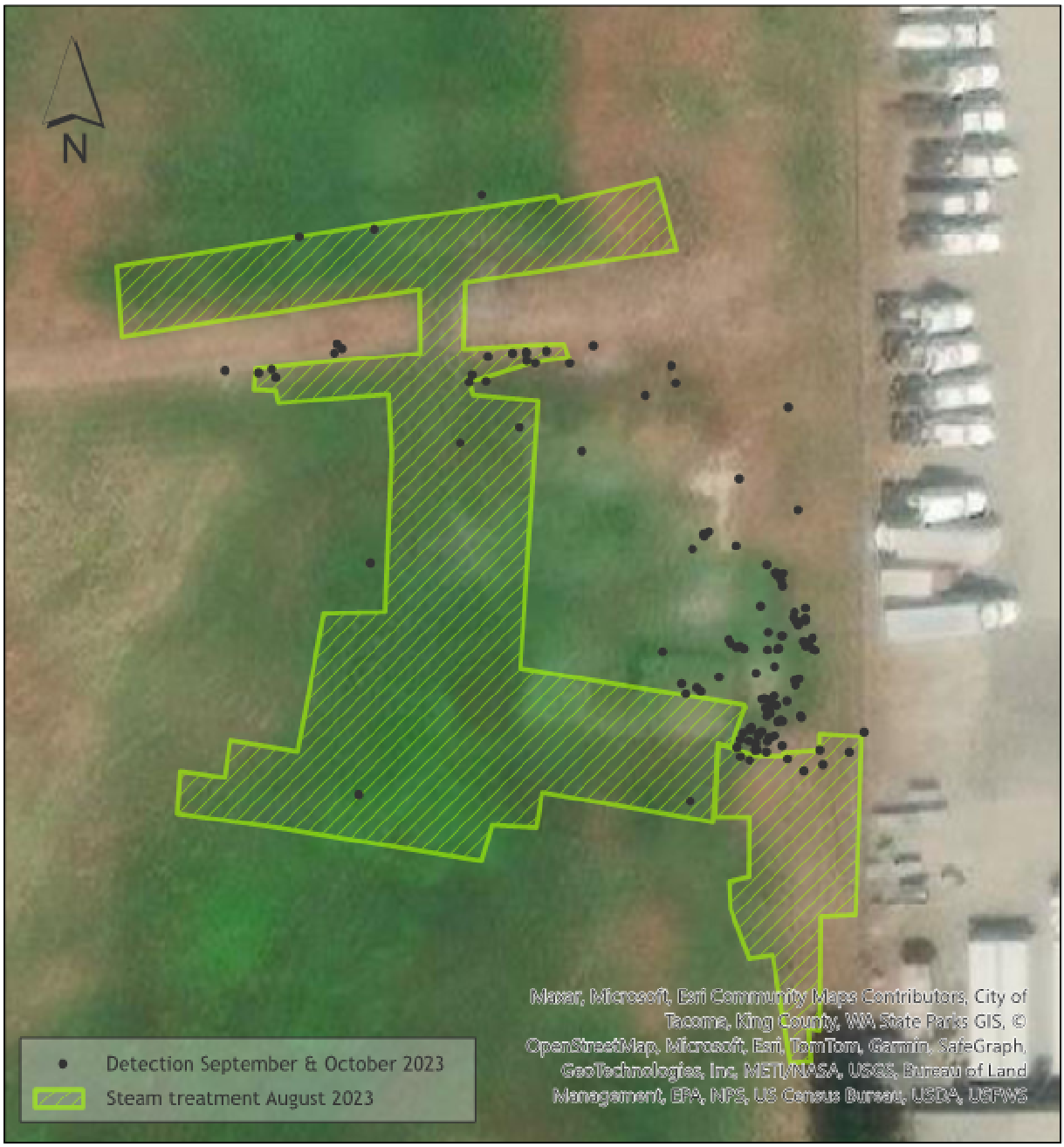
ACTIVITY

Date	Maintenance Hours	Vegetation Management	Debris Removal	Pesticide Application	Notes	Costs
8/17/2023	1.00				Filling up steamer	$146.79
8/18/2023	1.00				Filling up steamer	$146.79
8/21/2023	1.00				Filling up steamer	$146.79
8/22/2023	13.00	x	x		Filling up steamer	$1,908.27
8/23/2023	1.50				Filling up steamer	$220.19
8/24/2023	1.00				Filling up steamer	$146.79
8/28/2023	1.00				Filling up steamer	$146.79
9/28/2023	4.50	x	x	x		$660.56
10/12/2023	3.00	x	x			$440.37
TOTAL	**260.50**				**TOTAL**	**$37,284.66**

2023 Detection Locations of Vineyard Snail & Steam Treatments



2023 Detection Locations of Vineyard Snail & Steam Treatments at the Southern Treatment Area



Appendix C

Health and Safety Plan

MAUL FOSTER ALONGI

Health and Safety Plan

Taylor Way and Alexander Avenue Fill Area Site

Tacoma, Washington

Prepared for:

Port of Tacoma

January 26, 2026
Project No. M0615.20.015

Prepared by:

Maul Foster & Alongi, Inc.
2815 2nd Avenue, Suite 540, Seattle, WA 98121

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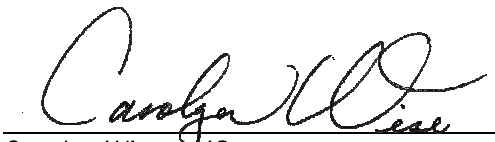
MAUL FOSTER ALONGI

Health and Safety Plan

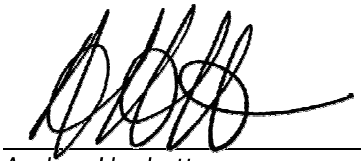
Taylor Way and Alexander Avenue Fill Area Site

The material and data in this plan were prepared under the supervision and direction of the undersigned.

Maul Foster & Alongi, Inc.



Carolyn Wise, LHG
Senior Hydrogeologist



Audrey Hackett
Principal Environmental Scientist

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Abbreviations

AED	automated external defibrillator
CFR	Code of Federal Regulations
COPC	chemical of potential concern
HASP	health and safety plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HSC	health and safety coordinator
JHA	job hazard analysis
MFA	Maul Foster & Alongi, Inc.
PIC	principal in charge
PPE	personal protective equipment
the Site	Taylor Way And Alexander Avenue Fill Area in Tacoma, Washington
TWAAFA	Taylor Way And Alexander Avenue Fill Area
SSO	site safety officer

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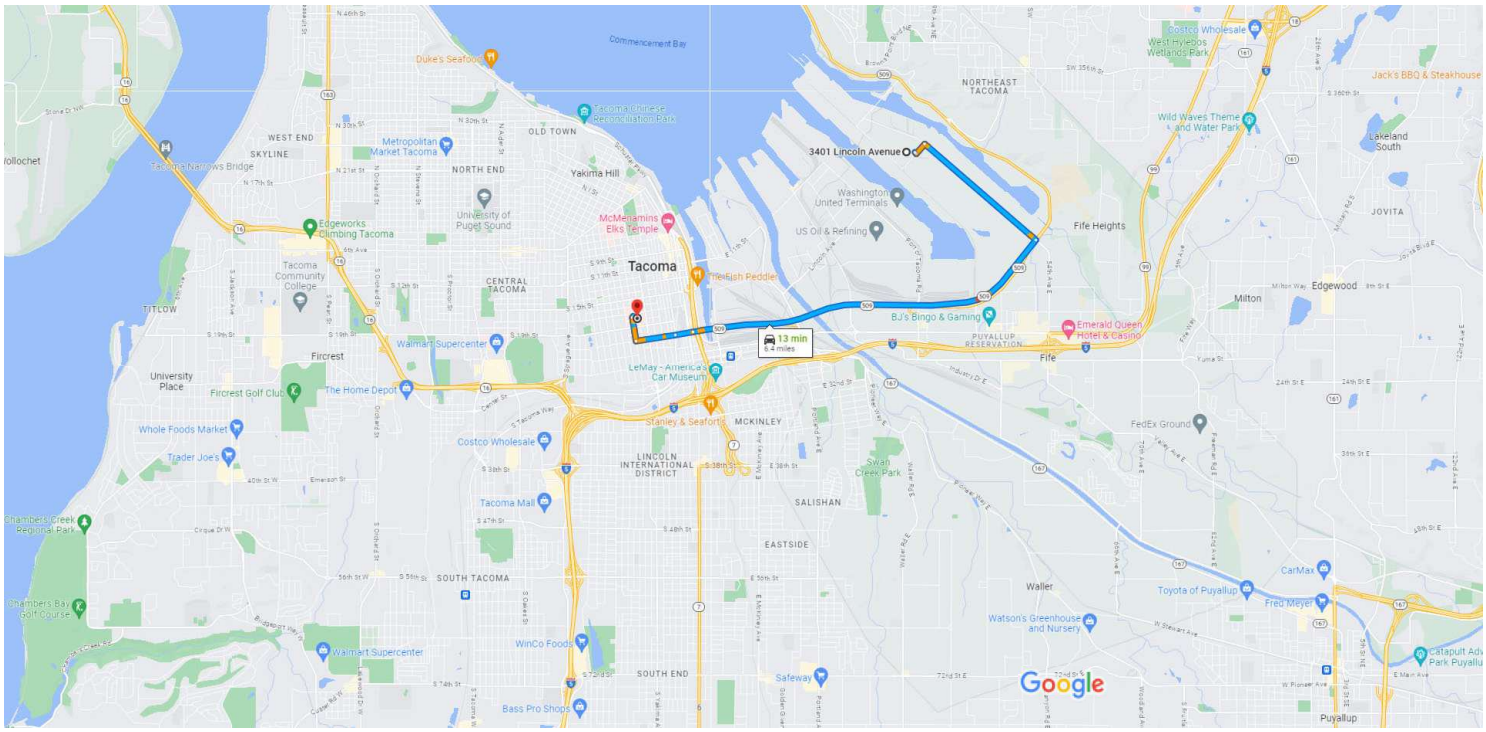
3401 Lincoln Avenue, Tacoma, WA to St. Joseph Medical Center

Drive 6.4 miles, 13 min



3401 Lincoln Ave
Tacoma, WA 98421

Continue to WA-509 S

4 min (1.7 mi)

1. Head southeast toward Lincoln Ave

108 ft

2. Turn left onto Lincoln Ave

0.1 mi

3. Turn right onto Taylor Way

1.5 mi

4. Turn right onto WA-509 S

5 min (3.9 mi)

Follow S 21st St and S J St to your destination

4 min (0.9 mi)

5. Continue onto S 21st St

0.2 mi

6. Continue straight to stay on S 21st St

0.4 mi

7. Turn right onto S J St

0.2 mi

8. Turn right
Destination will be on the right

105 ft

St Joseph Medical Ctr
1717 S J St, Tacoma, WA 98405

1 Nearest Hospital/Emergency Medical Center

1.1 Nearest Hospital

St. Joseph Medical Center

1717 S J St, Tacoma, Washington 98405

Phone: (253) 426-4101

Distance: 6.4 miles

Travel Time: 13 minutes

1.2 Route to Hospital from Site

See the map on the first page of this document.

1.2.1 Driving Directions to Hospital from Site

1. Head southeast on Alexander Avenue E towards Lincoln Avenue. 108 feet.
2. Turn left on Lincoln Avenue. 0.1 miles.
3. Turn right onto Taylor Way. 1.5 miles.
4. Turn right onto WA-509 S. 3.9 miles.
5. Continue onto S 21st Street. 0.2 miles.
6. Continue straight to stay on S 21st Street. 0.4 miles.
7. Turn right onto S J Street. 0.2 miles.
8. Turn right. Destination will be on the right. 105 feet.

1.3 Emergency Phone Numbers

Ambulance, Police, Fire	Dial 911
Audrey Hackett Project Manager	Phone: 206-556-2015 Cell: 206-331-1835
Phil Wiescher Principal in Charge (PIC)	Phone: 360-594-6267 Cell: 503-407-1036

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Andy Vidourek Health and Safety Coordinator (HSC)	Phone: 360-837-9701 Cell: 541-760-9692

2 Plan Summary

This health and safety plan (HASP) was developed to describe the procedures and practices necessary for protecting the health and safety of Maul Foster & Alongi, Inc. (MFA), employees conducting activities at TWAAFA Site, generally located north of Lincoln Avenue and between Alexander Avenue and Taylor Way in the tideflats of Tacoma, Washington (the Site). The Hylebos Marsh property is located within the TWAAFA Site. Other employers, including contractors and subcontractors, are expected to develop and implement their own HASPs to manage the health and safety of their personnel.

MFA personnel conducting activities at the Site are responsible for understanding and adhering to this HASP. Before fieldwork begins, the on-Site personnel will designate a site safety officer (SSO) who is familiar with health and safety procedures and with the Site. Safety deficiencies should be immediately communicated to the SSO and, if necessary, to the project manager, PIC/program manager, or MFA's HSC.

All contractors and subcontractors have the primary responsibility for the safety of their own personnel on the Site. All personnel on the Site have stop work authority if they observe conditions that they believe create an imminent danger.

If MFA employees work on the Site for more than a year, this HASP will be reviewed at least annually. Additionally, this HASP will be updated as new or changed conditions are encountered to ensure that it reflects the current known hazards and requirements associated with the Site.

MFA personnel who will be working on the Site are required to read and understand this HASP. MFA personnel entering the work area must sign the personnel acknowledgment sheet (Section 17), certifying that they have read and that they understand this HASP and agree to abide by it.

3 Key Project Personnel

Name	Responsibility
Phil Wiescher	Program Manager
Audrey Hackett	Project Manager
Carolyn Wise	Secondary Project Manager
Christian Sifford	Field Personnel/SSO
Arthur Clauss	Field Personnel
Amanda Bixby	Field Personnel

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Name	Responsibility
Brenden Murphy	Field Personnel
Fiona Bellows	Field Personnel
Justin Hansen	Field Personnel
Andy Vidourek	HSC

4 Emergency Supplies and Equipment List

Equipment	Location and Notes
First Aid Kit	Inside work vehicle.
Fire Extinguishers	Inside work vehicle.
Mobile Phones	On MFA staff.
Traffic Cones	Inside work vehicle, will be used as needed.
Radios	On MFA staff, inside work vehicle.
Water and Other Fluid Replenishment	Inside work vehicle, in bed of work vehicle, inside food-only cooler in bed of work vehicle.
Eyewash	Available in office, if needed.
Spill Kit	Available in office, if needed.
Health and Safety Plan	On MFA staff and in work vehicle.
Dust Meter	Available for rental, if needed.

5 Site Description and Background

5.1 Type of Site

The Site is composed of several industrial properties owned by the Port of Tacoma. Staff anticipate entering the following properties comprising the TWAAFA site:

- Prologis Property: 1514 Taylor Way is currently occupied by Burkhart Dental Distribution Center, and MacMillan-Piper Inc. and used for warehousing/freight drayage.

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- Potter Property: 1801 Alexander Avenue, is currently occupied by Handan Containers and used for freight truck maintenance, scrapping, and rebuilding.
- Hylebos Marsh: 1212 Taylor Way, is currently undeveloped marsh land and was historically used for landfilling activities.

5.2 Buildings/Structures

The Prologis Property consists of two large commercial buildings (one 155,000-square feet and one 51,900-square feet). Both buildings were constructed with concrete tilt-up construction and are zoned for Port Maritime and Industrial use.

The Potter property consists of three structures: a shop building and conjoined Quonset Huts used in support of Handan Containers' business operations.

The Hylebos Marsh property is vacant, undeveloped land.

5.3 Topography

The Property is relatively level. A steep 6-foot-tall slope is present along the eastern property line of Hylebos Marsh property.

5.4 General Geologic/Hydrologic Setting

The Site is underlain by fill, silt, sand, and a deeper interbedded sand and silt unit, listed in order of increasing depth. A stormwater detention pond is present in the southern portion of the Site.

The regional aquifer system associated with the Site is referred to as the Tideflats area, with consolidated sediment over 1,600 feet thick. Three hydrogeologic units have been identified at the site, listed in order of increasing depth: shallow, silt, and deep. Shallow groundwater approximately 2 feet below ground surface has been observed in the shallow water-bearing zone.

5.5 Site Status

The Site is currently used by various industrial properties. The Prologis and Potter properties are active light industrial facilities. Hylebos Marsh property is inactive.

5.6 General Site History

One of the defining features of the TWAAFA site is the past use of the TWAAFA site properties as the Donald Oline owned and operated unpermitted landfill at the Site. Materials discarded and used as fill at the Landfill included lime waste, lime solvent sludge waste, byproducts of auto scrapping (auto fluff), and wood waste. The fill materials have been documented in previous reports to contain and be sources of the contaminants of concern present at the TWAFFA site. In addition to the former landfill, there are several other sources of contamination associated with the TWAAFA site including wood fill; waste oil LNAPL; slag, chemical and oil spills, and waste oil ponds on the CleanCare property; and miscellaneous filling including dredge spoils, wood products, and construction debris.

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The Hylebos Marsh property encompasses approximately 15.7 acres on the western portion of the TWAAFA site. Auto fluff placed on the neighboring Stericycle property extends onto the eastern portion of the Hylebos Marsh property. Further, a former road may have been used to transport fill materials across the Hylebos Marsh property for placement in other parts of the TWAAFA site.

6 Hazard Evaluation

6.1 Site Tasks and Operations

MFA has completed job hazard analyses (JHAs) for specific tasks that may be conducted on the Site, depending on the scope of work. JHAs are provided in Appendix A. The following list summarizes planned tasks and operations:

- General work near heavy equipment
- Work near excavations and trenches
- Collecting soil samples
- Collecting groundwater samples
- Collecting soil gas samples
- Collecting air samples
- Collecting sub-slab samples

The control measures that field personnel must implement to eliminate or minimize these hazards, such as air monitoring, personal protective equipment (PPE), engineering controls, and decontamination procedures, are detailed in the JHAs and in subsequent sections of this HASP.

6.2 Chemical Hazard Evaluation

Chemicals of potential concern (COPCs), are summarized in Appendix B. Air monitoring action levels and associated controls are specified in Appendix C.

6.3 Physical Hazards

The specific physical hazards and associated controls for work on the Site are described in the JHAs provided in Appendix A.

6.4 Other Hazards

Hazards may include the presence of the invasive and very destructive snail, the Mediterranean *Cernuella virgata,* on the Hylebos Marsh property. While there is no health and safety risk to staff working near these snails, the Port is required to mitigate and seek eradication of these snails. Staff and equipment must minimize contact with soil and vegetation to the extent possible. Large

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equipment (such as vehicles and drill rigs) must be pressure washed on a gravel pad on the marsh property. Smaller equipment, shoes, etc., must be visually inspected for the presence of all life stages of the snail and removed before leaving the site using gloved hands. An infographic describing the measures and visual depictions of the snail life cycles is attached as Appendix D.

7 Site-Control Measures

Control of access to the Site will be established before the work begins. Control measures may include fencing, gates, and signs limiting access to everyone except authorized personnel. Work/exclusion zones and contaminant reduction zones will be designated by the SSO. The exclusion zone is defined as the area of known or suspected contamination (e.g., the area where a well is being installed), and the contaminant reduction zone is where support activities take place (e.g., packing sample coolers, decontamination activities).

MFA requires the buddy system if personnel conducting the work may potentially be exposed to chemical or physical hazards that would require immediate medical attention or rescue. The buddy system may involve working with non-MFA personnel.

8 Health and Safety Training

MFA personnel who could be exposed to COPCs while conducting work on the Site will have completed training consistent with the Hazardous Waste Operations and Emergency Response (HAZWOPER) requirements in 29 Code of Federal Regulations (CFR) 1910.120(e) before beginning work on the Site. The training will include the following:

- Identification of an SSO, and other safety and health personnel, if applicable
- Identification of safety and health hazards specific to work being conducted
- Proper use of required PPE
- Safe work practices required (e.g., fall protection, confined-space entry procedures, hot-work permits, general safety rules)
- Safe use of engineering controls and equipment
- Medical surveillance requirements, including the recognition of signs and symptoms that might indicate overexposure to hazards
- The project-specific emergency response plan/spill containment plan

The HSC will oversee training for MFA personnel conducting fieldwork. Training records, including an outline, signoffs, and competency records, will be maintained by the HSC.

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While the HSC is responsible for maintaining training records, the project manager is responsible for verifying that the training status of field personnel is current before these personnel deploy to the field.

9 Safety Equipment

9.1 Personal Protective Equipment

Individuals on the Site must wear PPE to protect against physical hazards. PPE required on the Site is typically modified Level D, which consists of the following:

- Hard hat
- High-visibility vest
- Work boots
- Safety glasses with side shields
- Nitrile gloves or equivalent if handling media potentially impacted or known to be impacted and for invasive snail removal, if present.
- Work gloves (if handling materials that might have sharp edges, protrusions, or splinters)

Additional PPE may be necessary for specific tasks with additional hazards. The SSO will be responsible for designating additional PPE for specific tasks. Depending on the activity, additional PPE may include the following:

- Hearing protection (to be worn during high-noise tasks)
- Chemical-resistant clothing, (e.g., Tyvek coveralls)
- Chemical-resistant boots
- Chemical-resistant goggles
- Chemical-resistant gloves
- Faceshield
- Respiratory protection

Additional PPE may be required if workers discover unexpected contamination. Characteristics of unexpected contamination could include unusual odors, discolored media, or a visible sheen. MFA employees should contact the SSO and, if necessary, the project manager and/or the HSC as soon as possible after the discovery of unexpected contamination. The SSO and, if applicable, the project manager and/or HSC will determine any need for additional controls and/or training.

PPE used at the Site must meet the requirements of recognized consensus standards (e.g., American National Standards Institute, National Institute for Occupational Safety and Health), and respiratory protection will comply with the requirements set forth in 29 CFR 1910.134.

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Project personnel are not permitted to reduce the specified level of required PPE without approval from the SSO or the project manager and/or HSC.

9.2 Safety Equipment

The SSO will be responsible for ensuring that the following safety equipment is available during fieldwork and is properly inspected and maintained:

- Soap and water for decontamination
- First aid kit
- Fire extinguisher
- Fluids for hydration, (e.g., drinking water or sports drink)
- Canopy for shade
- Hand-washing station
- Eye-flushing station

9.3 Air Monitoring Equipment

The following air monitoring equipment will be available to identify conditions that may require additional controls. See Appendix C for specified action levels and follow-up response actions.

- Photoionization detector
- Confined-space or combustible-gas indicator (CGI) monitor (e.g., for detecting oxygen, lower explosive limit, carbon monoxide, hydrogen sulfide). A CGI is only anticipated being necessary when drilling on the Potter Parcel in the diesel non-aqueous phase liquid plume has been delineated and high methane concentrations are anticipated.

9.4 Communications Equipment

MFA personnel should have a mobile phone or a radio available in case of emergency.

10 Decontamination Procedures

10.1 Partial Decontamination Procedures

MFA employees will implement the following partial decontamination procedures when exiting the work/exclusion zone but remaining on the Site.

- Wash and rinse boots and outer gloves (if wearing two pairs) in containers in the contamination-reduction zone.

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- Inspect Tyvek suit for stains, rips, or tears. If the suit is contaminated but is to be reused, full decontamination will be performed as described in Section 9.2. If the suit is damaged, it should not be reused; discard it in a container labeled for disposable items.
- Remove and inspect outer gloves. If they are ripped or otherwise damaged, discard them in a container labeled for disposable items.
- Remove respirator, if worn, and clean with premoistened alcohol wipes. Discard used cartridges at the frequency established by the SSO, project manager, or HSC.
- Wash hands and face with soap and water.

10.2 Full Decontamination Procedures

When exiting the exclusion zone and leaving the Site (e.g., at the end of the work shift), MFA employees will follow the full decontamination procedures listed below.

- Wash and rinse boots and outer gloves in containers in the contamination-reduction zone.
- Remove outer gloves and Tyvek suit and deposit in a container labeled for disposable items.
- Remove respirator and discard used cartridges at the frequency dictated by the SSO, project manager, or HSC.
- Wash and rinse respirator in decontamination container labeled “respirators only.”
- Remove work boots and put on street shoes. Place work boots in a plastic bag or container.
- Remove inner gloves and deposit in a container labeled for disposable items.
- Wash hands and face with soap and water.
- Shower as soon after the work shift as practicable.

11 Medical Surveillance

MFA will ensure that its employees who meet the following criteria are enrolled in a medical surveillance program consistent with 29 CFR 1910.120(f):

- The employees are, or may be, exposed to hazardous substances or health hazards at or above established permissible exposure limits for 30 or more days per year.
- The employees are required to wear a respirator for 30 or more days per year.

MFA employees who exhibit signs or symptoms consistent with overexposure to COPCs will be offered medical surveillance consistent with HAZWOPER requirements.

MFA will ensure that its employees who are authorized to wear respirators are medically evaluated and approved for respirator use, consistent with the respiratory protection standard (29 CFR 1910.134). The HSC or administrative designee (e.g., human resources manager) will maintain medical evaluation records, including respirator clearance documentation.

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Personnel medically cleared for respirator use will undergo an annual qualitative fit test. The MFA HSC or administrative designee will conduct the annual qualitative fit tests and will manage the documentation.

If employees are required to wear a respirator on the Site, the project manager will verify that the employee has a current annual respirator fit test.

12 Air Monitoring

Based on Site conditions, it is not anticipated that air monitoring will be necessary; however, air monitoring equipment will be available in case workers encounter conditions, such as unusual odors, discolored media, or a visible sheen, that indicate the presence of unexpected contamination. If such conditions are discovered, workers will exit the area and contact the SSO and, as needed, the project manager or the HSC. If necessary, MFA will use the air monitoring equipment to evaluate the conditions and determine whether additional controls and/or training are required. Action levels and follow-up actions are provided in Appendix C.

If air monitoring is necessary, it must be performed by individuals familiar with the calibration, use, and care of the required instruments. Measurements will be documented, and the records must include the following information:

- The name of the person conducting the measurements
- The identity of workers, if any, who have exposure indicated by the measurement results
- Information about the instrument (e.g., type, make, model, serial number)
- The location where the measurement was taken
- The measurement date and start/stop time
- Conditions represented by the measurement, including applicable activities, work practices, weather conditions, Site conditions, and controls in place
- Measurement results
- Other relevant observations or notes

12.1 Air Monitoring Action Levels

If air monitoring is conducted, the results will be compared to the action levels provided in Appendix C. These levels have been established to comply with Occupational Safety and Health Administration permissible exposure limits, American Conference of Governmental Industrial Hygienists threshold limit values, and National Institute for Occupational Safety and Health recommendations for the chemicals that may be encountered on the Site. The action levels have been adjusted for the relative response of common photoionization detection instruments to motor-fuel vapors.

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12.2 Explosion Hazard Action Levels

MFA employees will take measurements when working near known or suspected sources of explosive gases or vapors. The instrument alarm should be set to sound at 10 percent of the lower explosive limit. When measurements exceed this level, MFA employees will:

1. Extinguish ignition sources and shut down powered equipment in the work area.
2. Move personnel at least 100 feet away from the work area.
3. Contact the SSO, the project manager, and/or the HSC as applicable.
4. At the instruction of the project manager and/or the HSC and after waiting 15 minutes for explosive gases to dissipate, the SSO may use the combustible-gas meter to safely approach the work site to measure combustible gases in the work area. The SSO will not enter (or allow any personnel to enter) any area where the combustible-gas meter readings exceed the explosivity action level, nor will the SSO approach if there is a potential for fire or explosion.
5. The SSO may authorize personnel to reenter the work area after the source of the combustible gases has been identified and controlled.

12.3 Instrument Calibrations

Instruments will be calibrated consistent with manufacturers' recommendations. Calibrations will be coordinated by the SSO and the project manager. Calibration and monitoring records will be maintained by the SSO and/or the project manager.

13 Emergency Response, Spill Containment, and Confined Space

MFA employees will follow the emergency response, spill response, and confined-space procedures described in the MFA Policies and Procedures Manual. Incidents will be documented on the incident report form included as Appendix E.

14 Pre-entry Briefing

MFA employees will conduct pre-entry briefings prior to beginning work on the Site (e.g., tailgate meetings; see the checklist provided as Appendix F). Additional briefings shall be conducted as the scope of work or conditions change throughout the project to ensure that employees are familiar with and are adhering to the appropriate safety and health protocol. Attendance and discussion topics will be documented on sign-in sheets that will be maintained by the SSO.

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15 Periodic Evaluation

The project manager or designee will evaluate the effectiveness of this HASP by conducting periodic HASP audits. A HASP audit form is included as Appendix G. In addition, HASP effectiveness will be evaluated by tracking ongoing health and safety feedback from field personnel working on the project. This feedback will be reviewed and incorporated into either immediate or annual updates of this HASP, as appropriate. This HASP will be reviewed and updated at least annually. Updating this HASP as necessary ensures that it reflects the known hazards, conditions, and requirements associated with the project. MFA will maintain HASP audit or other periodic evaluation records and track all revisions to this HASP.

16 Safe Work Practices

The following safe work practices are provided to supplement the other information in this HASP.

1. Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer and ingestion of materials is prohibited in areas with potentially contaminated materials.
2. Whenever practicable, field personnel will remain upwind of drilling rigs, open excavations, and other ground-disturbing activities.
3. Subsurface work will not be performed at any location until the area has been confirmed by a utility-locator firm to be free of underground utilities or other obstructions.
4. MFA will use a CGI monitoring when drilling on the Potter parcel in the area where the diesel NAPL plume has been encountered.

17 Acknowledgment

MFA cannot guarantee the health or safety of any person entering the Site. Because of the potentially hazardous nature of active sites, it is not possible to discover, evaluate, and provide protection against all possible hazards that may be encountered at the Site. Strict adherence to the health and safety guidelines set forth herein will reduce, but not eliminate, the potential for injury and illness. The health and safety guidelines in this HASP were prepared specifically for the Site and should not be used on any other site without prior evaluation by trained health and safety personnel.

MFA personnel who will work at the Site are to read, understand, and agree to comply with the specific practices and guidelines described in this HASP regarding field safety and health hazards.

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This HASP has been developed for the exclusive use of MFA personnel. MFA may make this HASP available for review by contracted or subcontracted personnel for information only. This HASP does not cover the activities performed by employees of any other employer on the project. All contracted or subcontracted personnel are responsible for implementing their own health and safety program, including generating and using their own HASP.

I have read and I understand this HASP and all attachments, and agree to comply with the requirements described herein:

Name	Title	Date

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Appendix A

Job Hazard Analyses

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Job Hazard Analysis

Task/Operation: Conducting Fieldwork		
Project Number: M0615.20.015		**Location/Site Where Task/Operation Performed:** 1205 Alexander Avenue and 1300 Taylor Way, Tacoma, Washington
Date Prepared: 12/19/2024 **Date Reviewed:** 12/30/2024	**Employee Preparing this Job Hazard Analysis (JHA):** Justin Hansen **Employee Reviewing and Certifying this JHA:** Audrey Hackett	

Job/Task Description
This JHA describes hazards and required safe-work practices that are common to most types of fieldwork. See the separate task-specific JHA for hazards and safe-work practices that are unique to certain tasks (e.g., sampling contaminated media, working in remote areas).

Physical Hazards		
Hazard/Risk	**Source of Hazard/Risk**	**Hazard/Risk Mitigation**
Heat/cold/sunburn	Weather.	Be aware of seasonal dangers, including frostbite, hypothermia, snow blindness, trench foot, and heat stress. Drink plenty of fluids, especially when perspiring. Wear sunscreen on exposed skin. Stop work if an employee feels symptoms of dehydration, overheating, or heat stroke. Move to a shaded area and drink water. During cold or wet conditions, wear adequate clothing to reduce the potential for hypothermia. If there is lightning in the area, seek indoor shelter immediately, if possible. If outdoors, get into a hard-topped vehicle and away from trees. Turn off all radios and electronic equipment.
Eye injury	Debris (e.g., soil, water) coming into contact with eyes. Working in areas with low, dense vegetation.	Wear eye protection with side shields. Identify the location of the eyewash station before beginning the work.
Head injury	Heavy equipment, tools, overhead hazards impacting the head.	Wear a hard hat. Do not work near moving or heavy equipment or under overhead hazards.
Foot injury	Sharp objects that could be stepped on; large objects falling on feet.	Wear protective boots (composite or steel-toe).

Task/Operation: Conducting Fieldwork		
Hand injury	Pinch points, sharp objects, stress from pulling rope, dermal contact with chemicals and contaminated media.	Wear protective gloves. Appropriate gloves should be identified in the HASP. Avoid placing hands near operating equipment.
Hearing loss	Noise generated by heavy equipment/machinery.	Wear hearing protection such as earplugs or earmuffs.
Bodily harm, including to bystanders and the public and pedestrians in the locality of work	Heavy equipment, excavators, tractors, support vehicles, trucks, traffic and public rights-of-way; potential to be struck, crushed, or impacted by moving objects.	Wear a safety vest for enhanced visibility. Use cones and caution tape to cordon off the work area as appropriate. Watch for and escort pedestrians away from the work area. Pause work if necessary. Ensure traffic control measures (e.g., traffic cones, signage) are in place. Do not work near moving or heavy equipment or under overhead hazards. Maintain eye contact with equipment operators. When working around vehicles or heavy equipment, know the locations of emergency equipment (e.g., fire extinguishers, emergency shutoff features).
Physical stress	Lifting heavy equipment and objects; conducting strenuous activities; kneeling on hard or gravel surfaces.	Use proper lifting techniques, i.e., bending and lifting with the legs and not the back. Do not twist at the waist when turning. Use the buddy system for heavy objects. Use knee pads or a kneeling pad. Take breaks and rest as needed.

Task/Operation: Conducting Fieldwork		
Accidents with equipment/tools	Sample-collection equipment/tools.	Verify that you have the appropriate equipment/tools for your tasks. Use equipment/tools as intended by the manufacturer. Only use open blades or sharp-edged tools for their intended purposes. Stow tools in the vehicle properly; use appropriate cases and bags. Secure equipment (including compressed-gas cylinders) in the vehicle with netting and straps; do not leave loose—it can cause property damage or serious injuries to others or yourself.
Slips, trips, and falls	Uneven or unstable ground.	Maintain good housekeeping in work areas to minimize or eliminate slip/trip/fall hazards from equipment and supplies. Walk around rather than over hazards on the ground. Use caution when walking on uneven ground or in snowy and/or icy conditions. Dense vegetation may obscure dangerous features including biological hazards, steep slopes, and excavations. Flagging or marking dangerous areas can help reduce the likelihood of injury.
Biological/Chemical Hazards		
Biological/Chemical Risk	**Source of Hazard/Risk**	**Hazard/Risk Mitigation**
Biological—animals	Biting or stinging insects and spiders; animal feces.	Use bug repellent. Insect nests should never be disturbed. Employees who are allergic to stings should not work in areas where there is a high risk of encountering stinging insects. Use a bar to clear spiders from objects. Avoid contact with animal feces.

Task/Operation: Conducting Fieldwork		
Biological—plants	Poisonous plants and other irritant vegetation (e.g., blackberry canes).	Do not touch or approach poisonous or irritant vegetation. Wear long pants and a long-sleeved shirt while on the site if poisonous plants and other irritant vegetation is present.
Exposure to chemicals in environmental media	Chemicals or hazardous materials in soil, groundwater, LNAPL, stormwater, outdoor air, soil vapors, and excavations.	See the task-specific JHA.
Additional Control Measures and Guidance		
Engineering Controls: No engineering controls specified. The need for engineering controls should be discussed with the project manager, health and safety coordinator, and subcontractors, and identified in the HASP or Safe Work Plan.		
General Safe-Work Practices and Guidance: • Employees should not eat or drink in the immediate area where work is being conducted. Employees should wash their hands and faces before eating or drinking. If used, nitrile gloves should be disposed of in a container labeled for disposable items. • Cones, barrier tape, or equivalent methods will be used to establish the work area, if feasible. • Tasks that must be conducted in the work area must be coordinated with equipment operators before work begins. Methods of communication, such as direct eye contact, hand signals, and/or verbal communication, will be established before work begins. • Employees should carry a cellular phone and/or a security radio.		
PPE: Hard hat (when working around heavy equipment, including excavators, or overhead hazards), work boots (protective composite or steel-toe boots when working around heavy equipment), high-visibility vest or outer garment, safety glasses with side shields, nitrile gloves (or other hand protection appropriate for the type of physical or chemical hazards present), hearing protection (earplugs or earmuffs) as needed. Chemical googles if there is a chemical splash hazard.		

Job Hazard Analysis

<table>
<tr><th colspan="3">Task/Operation: Task-Specific Hazards</th></tr>
<tr><td colspan="2">Project Number:
M0615.20.015</td><td>Location/Site Where Task/Operation Performed:
1205 Alexander Avenue and 1300 Taylor Way, Tacoma, Washington</td></tr>
<tr><td rowspan="2">Date Prepared:
12/19/2024
Date Reviewed:
12/30/2024</td><td colspan="2">Employee Preparing this Job Hazard Analysis (JHA):
Justin Hansen</td></tr>
<tr><td colspan="2">Employee Reviewing and Certifying this JHA:
Audrey Hackett</td></tr>
<tr><th colspan="3">Job/Task Description</th></tr>
<tr><td colspan="3">This JHA is specific to certain elements of fieldwork that have unique hazards and require specific safe-work practices to mitigate those hazards. See the separate General Fieldwork Hazards JHA for hazards and safe-work practices that are common to most types of fieldwork.</td></tr>
<tr><th colspan="3">Handling Potentially Contaminated Soil and Water</th></tr>
<tr><th>Hazard/Risk</th><th>Source of Hazard/Risk</th><th>Hazard/Risk Mitigation</th></tr>
<tr><td rowspan="2">Exposure to chemicals or hazardous substances (e.g., contaminated soil or water) via direct contact</td><td rowspan="2">Chemicals or hazardous materials in soil or groundwater.</td><td>See the chemical hazards summary table for applicable chemical hazards.</td></tr>
<tr><td>Wear Level D PPE.</td></tr>
<tr><th colspan="3">Working around or in Excavations</th></tr>
<tr><td rowspan="6">Bodily harm or death</td><td>Confined-space entry.</td><td>Excavations may be considered confined spaces. Contact the health and safety coordinator and the project manager if work in excavations will be necessary.</td></tr>
<tr><td rowspan="5">Falling into open excavation from heights; engulfment/burial from working in excavations.</td><td>Ensure the HASP identifies project-specific procedures and engineering controls to mitigate risk of fall, engulfment, and burial.</td></tr>
<tr><td>Never enter an excavation deeper than 4 feet without first coordinating with the health and safety coordinator and the project manager. Ensure the excavation slope is appropriate for entry (i.e., 34 degrees), shoring/sheet pile is installed, and appropriate ingress and egress points are established.</td></tr>
<tr><td>When working in an excavation, minimize time spent working near the excavation sidewall.</td></tr>
<tr><td>Stay a safe distance from the excavation area—generally defined as a horizontal distance no less than the depth of the excavation.</td></tr>
</table>

<table>
<tr><th colspan="3">Task/Operation: Task-Specific Hazards</th></tr>
<tr><td rowspan="4"></td><td rowspan="3"></td><td>If close observation of an excavation is required (e.g., for describing soil stratigraphy, taking photos), slope or bench one side of the excavation sidewall to minimize potential for collapse.</td></tr>
<tr><td>Use signs, cones, barrier tape, or equivalent methods to mark open excavations.</td></tr>
<tr><td>Backfill excavations as soon as work is complete; never leave excavations unattended or open overnight.</td></tr>
<tr><td>Exposure to chemicals in soil and groundwater.</td><td>See the “Handling Potentially Contaminated Soil and Water” task-specific hazards above.</td></tr>
<tr><th colspan="3">Additional Control Measures and Guidance</th></tr>
<tr><td colspan="3">Engineering Controls: No engineering controls specified. The need for engineering controls should be discussed with the project manager, health and safety coordinator, and subcontractors, and identified in the HASP.</td></tr>
<tr><td colspan="3">General Safe-Work Practices and Guidance:
See the General Fieldwork Hazards JHA for safe-work practices and guidance common to most types of fieldwork.
If additional safe-work practices are needed to address unique, task-specific hazards, these should be specified in the HASP.</td></tr>
</table>

Appendix B

Chemicals of Potential Concern

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Table
Chemical Hazards

Analyte	OSHA PEL (TWA)	ACGIH TLV (TWA)	NIOSH IDLH[1]	LEL (%)	IP (eV)	Other Hazard
TPH						
Gasoline-range organics	NA	300 ppm	NA	1.4	NA	C, E, F, P
Diesel-range organics	NA	100 mg/m^3	NA	NA	NA	E, F, P
Residual-range organics	NA	NA	NA	NA	NA	E, F, P
VOCs						
1,1-Dichloroethane	100 ppm	100 ppm	3,000 ppm	5.4	11.06	
1,2-Dichloroethane	50 ppm	NE	50 ppm	6.2	11.05	
cis-1,2-Dichloroethene	200 ppm	NE	1,000 ppm	5.6	9.32	P
Tetrachloroethene	100 ppm	25 ppm	150 ppm	NA	9.32	C
Trichloroethylene	100 ppm	300 ppm	1,000 ppm	NA	9.45	C, P
Vinyl chloride	1 ppm	5 ppm	NA	3.6	9.99	C, F
PAHs						
Anthracene	0.2 mg/m^3	0.2 mg/m^3	80 mg/m^3	0.6	NA	F, P
Acenaphthene	NE	NE	NE	0.6	NA	F, P
Acenaphthylene	NE	NE	NE	NA	NA	F, P
Benzo(a)anthracene	NE	NE	NE	NA	NA	C, P
Benzo(a)pyrene	0.2 mg/m^3	0.2 mg/m^3	80 mg/m^3	NA	NA	C, P
Benzo(b)fluoranthene	NE	NE	NE	NA	NA	C, P
Benzo(g,h,i)perylene	NE	NE	NE	NA	NA	P
Benzo(k)fluoranthene	NE	NE	NE	NA	NA	C, P
Chrysene	0.2 mg/m^3	0.2 mg/m^3	80 mg/m^3	NA	7.59	C, P
Dibenz(a,h)anthracene	NE	NE	NE	NA	NA	C, P
Fluoranthene	NE	NE	NE	NA	NA	SC, P
Fluorene	NE	NE	NE	NA	NA	
Indeno(1,2,3-cd)pyrene	NE	NE	NE	NA	NA	SC
Naphthalene	10 ppm	10 ppm	250 ppm	0.9	8.12	SC, E, F, P

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Table
Chemical Hazards

Analyte	OSHA PEL (TWA)	ACGIH TLV (TWA)	NIOSH IDLH[1]	LEL (%)	IP (eV)	Other Hazard
PAHs (continued)						
Phenanthrene	0.2 mg/m^3	0.2 mg/m^3	80 mg/m^3	NA	NA	
Pyrene	0.2 mg/m^3	0.2 mg/m^3	80 mg/m^3	NA	NA	P
1-Methylnaphthalene	NE	0.5 ppm	NE	NA	NA	SC, E, F, P
2-Methylnaphthalene	NE	0.5 ppm	NE	NA	NA	SC, E, F, P
Remaining PAH constituents	NA	NA	NA	NA	NA	NA
Metals						
Antimony	0.5 mg/m^3	NE	50 mg/m^3	NA	NA	
Arsenic	0.01 mg/m^3	0.01 mg/m^3	5 mg/m^3	NA	NA	C, P
Cadmium	0.0050 mg/m^3	0.002 mg/m^3	9 mg/m^3	NA	NA	C
Chromium	1 mg/m^3	0.5 mg/m^3	250 mg/m^3	NA	NA	R, P
Copper	1 mg/m^3	0.2 mg/m^3	100 mg/m^3	NA	NA	
Lead	0.05 mg/m^3	0.05 mg/m^3	100 mg/m^3	NA	NA	C, P
Manganese	5 mg/m^3	0.02 mg/m^3	500 mg/m^3	NA	NA	NA
Mercury	0.1 mg/m^3 (CE)	0.01 mg/m^3	2 mg/m^3	NA	NA	R, P
Nickel	0.1 mg/m^3	0.1 mg/m^3	10 mg/m^3	NA	NA	C
Selenium	0.2 mg/m^3	0.2 mg/m^3	1 mg/m^3	NA	NA	R, P
Zinc	10 mg/m^3	2 mg/m^3	500 mg/m^3	NA	NA	

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Table
Chemical Hazards

Analyte	OSHA PEL (TWA)	ACGIH TLV (TWA)	NIOSH IDLH[1]	LEL (%)	IP (eV)	Other Hazard
Additional						
Benzene	1 ppm	5 ppm	500 ppm	1.2	9.24	F, C, P, R
Bis(2-ethylhexyl)phthalate	5 mg/m^3	5 mg/m^3	5,000 mg/m^3	2	NA	SC, P, F
1,4-Dioxane	100 ppm	NE	500 ppm	2	9.13	F, C, P, R
Ethylbenzene	100 ppm	125 ppm	800 ppm	0.8	8.76	F, P
Hexane	500 ppm	NE	1,100 ppm	10	10.18	F
Methane	NE	NE	NE	5	None	F, P
Polychlorinated biphenyls	0.5 mg/m^3	1 mg/m^3	5 mg/m^3	NA	NA	C
Toluene	100 ppm	150 ppm	500 ppm	1.1	8.82	E, F, P, R
Xylenes	100 ppm	150 ppm	900 ppm	0.9	8.44–8.56	F, P

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Table
Chemical Hazards

Notes

ACGIH = American Conference of Governmental Industrial Hygienists.
C = carcinogen.
cc = cubic centimeter.
CE = ceiling concentration.
E = explosive.
F = flammable.
IDLH = immediately dangerous to life and health.
IP (eV) = ionization potential.
LEL = lower explosive limit.
mg/kg = milligrams per kilogram.
mg/m^3 = milligrams per cubic meter.
NA = not available.
NE = not established.
NIOSH = National Institute for Occupational Safety and Health.
OSHA = Occupational Safety and Health Administration.
P = poison.
PAH = polycyclic aromatic hydrocarbon.
PEL = permissible exposure level.
ppb = parts per billion.
ppm = parts per million.
R = reactive.
SC = suspected carcinogen.
TLV = threshold limit value.
TPH = total petroleum hydrocarbons.
TWA = time-weighted average.
VOC = volatile organic compound.

Reference

[1]CDC. 2019. "Immediately Dangerous to Life or Health (IDLH) Values." Centers for Disease Control and Prevention, The National Institute for Occupational Safety and Health (NIOSH). October 8. Accessed September 13, 2022. http://www.cdc.gov/niosh/idlh/intridl4.html.

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Appendix C

Chemical Action Levels

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Air Monitoring Procedures and Toxicity Action Levels

Instrument	Action Level	Initial Action	Follow-Up Action
PID[a]	Detection of 1 ppm (above ambient) or greater in breathing zone sustained for two minutes.	Dräger tube test for benzene and vinyl chloride and communications with HSC to evaluate additional initial actions, if needed. If 1 ppm benzene detected with Dräger tube, upgrade to level C. If 1 ppm vinyl chloride detected with Dräger tube, upgrade to level C.	Ventilate area; always work upwind.
PID[a]	Detection of 10 ppm (above ambient) in breathing zone and determined not to be benzene.	Upgrade to Level C and continue to monitor breathing zone with Dräger tube. If 50 ppm, leave exclusion zone. Return only if levels decrease to below 50 ppm.	Ventilate area; always work upwind.
CGI[b]—LEL	At or above 10 percent of LEL.	Cease activities; turn off all potential sources of ignition. Evacuate.	Determine source of flammable vapors.

Notes
Bold text indicates an action level.
CGI = combustible-gas indicator.
HSC = health and safety coordinator.
LEL = lower explosive limit.
PID = photoionization detector.
ppm = parts per million.
[a]Some PIDs do not work in high (e.g., greater than 90%) humidity or rainy weather. Under these atmospheric conditions, only PIDs certified for use in high humidity should be used.
[b]See Section 12.2 for complete explosion hazard action levels.

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Appendix D

Snail Mitigation

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Don’t let snails hide and ride

Stop invasive snails from hitchhiking on your truck.

Check your trucks and tires for snails that try to stow away on freight vehicles, tires, and cargo containers.

If you find snails or other potentially invasive pests, please send photos of them to the Washington State Department of Agriculture at PestProgram@agr.wa.gov or call 1-800-443-6684 if you have questions.

AGR PUB 809-756 (N/3/20)
Do you need this publication in an alternate format?
Contact WSDA at (360) 902-1976 or TTY Relay (800) 833-6388.

WSDA Washington State Department of Agriculture | PEST PROGRAM

Appendix E

Incident Report Form

MAUL FOSTER ALONGI

Health and Safety Incident Report

This report must be completed in full and submitted within 24 hours to the MFA health and safety coordinator.

Project Name: Port of Tacoma: TWAAFA Hylebos Marsh Interim Action

Project Number: M0615.20.015

Date and Time of Incident: _____

Location: _____

Type of Incident (check all applicable items):

☐ Illness	☐ Health and safety infraction	☐ Vehicular accident
☐ Injury	☐ Fire, explosion, flash	☐ Electric shock
☐ Property damage or theft	☐ Chemical exposure	☐ Near miss
☐ Spill	☐ Other (describe):	

Description of Incident

Describe what happened and the possible cause of the incident. If reporting a spill, include the quantity or estimated quantity. Identify individual(s) involved, witnesses, and their affiliations. Describe emergency or corrective action taken. Attach additional sheets, drawings, or photographs as needed.

Incident Reporter:

Name	Signature	Date

Health and Safety Coordinator:

Name	Signature	Date

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Appendix F

Tailgate Safety Meeting

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Tailgate Safety Meeting Checklist

Client Name:	Port of Tacoma
Project No.:	M0615.20.015
Communicated By:	
Date:	

Yes	NA	Information Reviewed
☐	☐	Emergency Response Procedures and Site Evacuation Routes
☐	☐	Route to Hospital
☐	☐	HASP Review and Location
☐	☐	Key Project Personnel
☐	☐	Emergency Phone Numbers
☐	☐	Stop Work Authority
☐	☐	General Site Description/History and Chemical Hazards
☐	☐	For Active Sites—Site Activities and Vehicular/Equipment Traffic
☐	☐	Site-Specific Physical Hazards
☐	☐	Required Personal Protective Equipment
☐	☐	Available Safety Equipment and Location
☐	☐	Daily Scope of Work (reference JHAs as applicable)
☐	☐	Decontamination Procedures
☐	☐	Identify Work Zones, Exclusion Zones, and Decontamination Zones
☐	☐	Hazardous Atmospheres
☐	☐	Air Monitoring Equipment and Procedures
☐	☐	Identify Potential Site-Specific Slip, Trip, and Fall Hazards
☐	☐	Dust and Vapor Control
☐	☐	Confined Space(s)
☐	☐	Open Pits and Excavation
☐	☐	Extreme Temperatures
☐	☐	Incident Reporting
☐	☐	Other: _____

Additional Health and Safety Practices and Considerations

Attendees		
Name	Signature	Company
1)		
2)		
3)		
4)		
5)		
6)		
7)		
8)		

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Appendix G

HASP Audit Checklist

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HASP Audit Checklist

Project Name: Port of Tacoma: Hylebos Marsh Interim Action
Project No.: M0615.20.015
Project Location:
Audit Date / Time:
Person / Persons Performing Audit:
MFA Personnel Interviewed or Conducting Fieldwork:

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	Status			Comment	Recommendation	Assigned to:	Scheduled Completion Date:	Actions Completed:	Person Who Completed Actions:	Date Completed:	Current Status / Notes:
	Yes	No	N/A								
Audit Checklist Item											
1. Is there a written HASP for this project? If so, what is the revision date?											
2. Is the HASP available to project personnel?											
3. Does the HASP appear accurate and complete? For example, are the directions to the hospital and the emergency contact numbers accurate? Are the site contaminants listed?											
4. Do the JHAs appear accurate and complete? For example, do there appear to be risks addressed for all of the applicable activities?											
5. Do you observe violations of the HASP requirements?											
6. If applicable, are employees adhering to the respirator program (see SOP 03, Respiratory Protection)?											
Interview Questions											
7. Where do you keep the HASP for this project?											
8. Have you reviewed the HASP for this project? If so, what was your review process?											
9. Can you tell me how you conduct your site activities? Note to auditor—pick a JHA activity and identify major discrepancies between the answer and the JHA, if any.											
10. Do you have any health and safety questions or concerns? For example, have you observed things on this project that you thought were unsafe? Note to auditor—make sure we come up with a plan to promptly address any listed concerns.											

Signature of Person / Persons Conducting Audit			
Name	Signature	Date	

Signature of Project Manager and Principal in Charge Acknowledging Review of Completed HASP Audit Checklist			
Name	Signature	Date	

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Appendix D

Inadvertent Discovery Plan and Supporting Documents

MAUL FOSTER ALONGI

INADVERTENT DISCOVERY PLAN

PLAN AND PROCEDURES FOR THE DISCOVERY OF CULTURAL RESOURCES AND HUMAN SKELETAL REMAINS

To request ADA accommodation, including materials in a format for the visually impaired, call Ecology at 360-407-6000 or visit https://ecology.wa.gov/accessibility. People with impaired hearing may call Washington Relay Service at 711. People with a speech disability may call TTY at 877-833-6341.

Site Name(s): Taylor Way & Alexander Ave Fill Area (CSID: 4692) Location: 1300 Taylor Way, Tacoma, WA 98421

Project Lead/Organization: Audrey Hackett / Maul Foster & Alongi, Inc. County: Pierce

If this Inadvertent Discovery Plan (IDP) is for multiple (batched) projects, ensure the location information covers all project areas.

1. INTRODUCTION

The IDP outlines procedures to perform in the event of a discovery of archaeological materials or human remains, in accordance with applicable state and federal laws. An IDP is required, as part of Agency Terms and Conditions for all grants and loans, for any project that creates disturbance above or below the ground. An IDP is not a substitute for a formal cultural resource review (Executive 21-02 or Section 106).

Once completed, **the IDP should always be kept at the project site** during all project activities. All staff, contractors, and volunteers should be familiar with its contents and know where to find it.

2. CULTURAL RESOURCE DISCOVERIES

A cultural resource discovery could be prehistoric or historic. Examples include (see images for further examples):

- An accumulation of shell, burned rocks, or other food related materials.
- Bones, intact or in small pieces.
- An area of charcoal or very dark stained soil with artifacts.
- Stone tools or waste flakes (for example, an arrowhead or stone chips).
- Modified or stripped trees, often cedar or aspen, or other modified natural features, such as rock drawings.
- Agricultural or logging materials that appear older than 50 years. These could include equipment, fencing, canals, spillways, chutes, derelict sawmills, tools, and many other items.
- Clusters of tin cans or bottles, or other debris that appear older than 50 years.
- Old munitions casings. ***Always assume these are live and never touch or move.***
- Buried railroad tracks, decking, foundations, or other industrial materials.
- Remnants of homesteading. These could include bricks, nails, household items, toys, food containers, and other items associated with homes or farming sites.

The above list does not cover every possible cultural resource. When in doubt, assume the material is a cultural resource.

3. ON-SITE RESPONSIBILITIES

If any employee, contractor, or subcontractor believes that they have uncovered cultural resources or human remains at any point in the project, take the following steps to ***Stop-Protect-Notify***. **If you suspect that the discovery includes human remains, also follow Sections 5 and 6.**

STEP A: Stop Work.

All work must stop immediately in the vicinity of the discovery.

STEP B: Protect the Discovery.

Leave the discovery and the surrounding area untouched and create a clear, identifiable, and wide boundary (30 feet or larger) with temporary fencing, flagging, stakes, or other clear markings. Provide protection and ensure integrity of the discovery until cleared by the Department of Archaeological and Historical Preservation (DAHP) or a licensed, professional archaeologist.

Do not permit vehicles, equipment, or unauthorized personnel to traverse the discovery site. Do not allow work to resume within the boundary until the requirements of this IDP are met.

STEP C: Notify Project Archaeologist (if applicable).

If the project has an archaeologist, notify that person. If there is a monitoring plan in place, the archaeologist will follow the outlined procedure.

STEP D: Notify Project and Washington Department of Ecology (Ecology) contacts.

Project Lead Contacts

Primary Contact		Alternate Contact	
Name:	Audrey Hackett	Name:	Carolyn Wise
Organization:	Maul Foster & Alongi, Inc.	Organization:	Maul Foster & Alongi, Inc.
Phone:	206-556-2015	Phone:	360-594-6255
Email:	ahackett@maulfoster.com	Email:	cwise@maulfoster.com

Ecology Contacts (completed by Ecology Project Manager)

Ecology Project Manager		Alternate or Cultural Resource Contact	
Name:	Steve Teel, LHG	Name:	Sydney Hanson
Program:	Toxics Cleanup Program	Program:	Ecology Cultural Resource Specialist
Phone:	360-890-0059	Phone:	564-999-1054
Email:	steve.teel@ecy.wa.gov	Email:	syha@ecy.wa.gov

STEP E: Ecology will notify DAHP.

Once notified, the Ecology Cultural Resource Contact or the Ecology Project Manager will contact DAHP to report and confirm the discovery. To avoid delay, the Project Lead/Organization will contact DAHP if they are not able to reach Ecology.

DAHP will provide the steps to assist with identification. DAHP, Ecology, and Tribal representatives may coordinate a site visit following any necessary safety protocols. DAHP may also inform the Project Lead/Organization and Ecology of additional steps to further protect the site.

Do not continue work until DAHP has issued an approval for work to proceed in the area of, or near, the discovery.

DAHP Contacts:

Name: Rob Whitlam, PhD
Title: State Archaeologist
Cell: 360-890-2615
Email: Rob.Whitlam@dahp.wa.gov
Main Office: 360-586-3065

Human Remains/Bones:

Name: Guy Tasa, PhD
Title: State Anthropologist
Cell: 360-790-1633 (24/7)
Email: Guy.Tasa@dahp.wa.gov

4. TRIBAL CONTACTS

In the event cultural resources are discovered, the following tribes will be contacted. See Section 10 for Additional Resources.

Tribe:	Puyallup Tribe of Indians	Tribe:	Muckleshoot Indian Tribe
Name:	Brandon Reynon	Name:	Laura Murphy
Title:	Director/Tribal Historic Preservation Officer	Title:	Archaeologist
Phone:	253-573-7965	Phone:	253-876-3272
Email:	brandon.reynon@PuyallupTribe-nsn.gov	Email:	laura.murphy@muckleshoot.nsn.us
Tribe:	Nisqually Indian Tribe	Tribe:	Squaxin Island Tribe
Name:	Brad Beach	Name:	Rhonda Foster
Title:	Tribal Historic Preservation Officer	Title:	Tribal Historic Preservation Officer
Phone:	360-528-1084	Phone:	360-432-3850
Email:	beach.brad@nisqually-nsn.gov	Email:	rfoster@squaxin.us

Please provide contact information for additional tribes within your project area, if needed, in Section 11.

5. FURTHER CONTACTS (if applicable)

If the discovery is confirmed by DAHP as a cultural or archaeological resource, or as human remains, and there is a partnering federal or state agency, Ecology or the Project Lead/Organization will ensure the partnering agency is immediately notified.

Federal Agency:		State Agency:	
Agency:		Agency:	Department of Archaeology & Historic Preservation
Name:		Name:	Guy Tasa
Title:		Title:	State Physical Anthropologist
Phone:		Phone:	360-790-1633
Email:		Email:	Guy.Tasa@dahp.wa.gov

6. SPECIAL PROCEDURES FOR THE DISCOVERY OF HUMAN SKELETAL MATERIAL

Any human skeletal remains, regardless of antiquity or ethnic origin, will at all times be treated with dignity and respect. Follow the steps under ***Stop-Protect-Notify.*** For specific instructions on how to handle a human remains discovery, see: *RCW 68.50.645: Skeletal human remains—Duty to notify—Ground disturbing activities—Coroner determination—Definitions*.

Suggestion: If you are unsure whether the discovery is human bone or not, contact Guy Tasa with DAHP, for identification and next steps. Do not pick up the discovery.

Guy Tasa, PhD State Physical Anthropologist
Guy.Tasa@dahp.wa.gov
(360) 790-1633 (Cell/Office)

For discoveries that are confirmed or suspected human remains, follow these steps:

1. Notify law enforcement and the Medical Examiner/Coroner using the contacts below. **Do not call 911** unless it is the only number available to you.

   Enter contact information below (required):
   - Local Medical Examiner or Coroner name and phone: Karen Cline-Parhamovich, 253-798-6494
   - Local Law Enforcement main name and phone: Tacoma Police Department, 253-591-5950
   - Local Non-Emergency phone number (911 if without a non-emergency number): Tacoma Police Department, 253-287-4455
2. The Medical Examiner/Coroner (with assistance of law enforcement personnel) will determine if the remains are human or if the discovery site constitutes a crime scene and will notify DAHP.
3. **DO NOT speak with the media, allow photography or disturbance of the remains, or release any information about the discovery on social media.**
4. If the remains are determined to be non-forensic, Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection and to shield them from being photographed by others or disturbed.

Further activities:

- Per RCW 27.44.055, RCW 68.50, and RCW 68.60, DAHP will have jurisdiction over non-forensic human remains. Ecology staff will participate in consultation. Organizations may also participate in consultation.
- Documentation of human skeletal remains and funerary objects will be agreed upon through the consultation process described in RCW 27.44.055, RCW 68.50, and RCW 68.60.
- When consultation and documentation activities are complete, work in the discovery area may resume as described in Section 8.

If the project occurs on federal lands (such as a national forest or park or a military reservation) the provisions of the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) apply and the responsible federal agency will follow its provisions. Note that state highways that cross federal lands are on an easement and are not owned by the state.

If the project occurs on non-federal lands, the Project Lead/Organization will comply with applicable state and federal laws, and the above protocol.

7. DOCUMENTATION OF ARCHAEOLOGICAL MATERIALS

Archaeological resources discovered during construction are protected by state law RCW 27.53 and assumed eligible for inclusion in the National Register of Historic Places under Criterion D until a formal Determination of Eligibility is made.

The Project Lead/Organization must ensure that proper documentation and field assessment are made of all discovered cultural resources in cooperation with all parties: the federal agencies (if any), DAHP, Ecology, affected tribes, and the archaeologist.

The archaeologist will record all prehistoric and historic cultural material discovered during project construction on a standard DAHP archaeological site or isolate inventory form. They will photograph site overviews, features, and artifacts and prepare stratigraphic profiles and soil/sediment descriptions for minimal subsurface exposures. They will document discovery locations on scaled site plans and site location maps.

Cultural features, horizons, and artifacts detected in buried sediments may require the archaeologist to conduct further evaluation using hand-dug test units. They will excavate units in a controlled fashion to expose features, collect samples from undisturbed contexts, or to interpret complex stratigraphy. They may also use a test unit or trench excavation to determine if an intact occupation surface is present. They will only use test units when necessary to gather information on the nature, extent, and integrity of subsurface cultural deposits to evaluate the site's significance. They will conduct excavations using standard archaeological techniques to precisely document the location of cultural deposits, artifacts, and features.

The archaeologist will record spatial information, depth of excavation levels, natural and cultural stratigraphy, presence or absence of cultural material, and depth to sterile soil, regolith, or bedrock for each unit on a standard form. They will complete test excavation unit level forms, which will include plan maps for each excavation level and artifact counts and material types, number, and vertical provenience (depth below

surface and stratum association where applicable) for all recovered artifacts. They will draw a stratigraphic profile for at least one wall of each test excavation unit.

The archaeologist will screen sediments excavated for purposes of cultural resources investigation through 1/8-inch mesh, unless soil conditions warrant 1/4-inch mesh.

The archaeologist will analyze, catalogue, and temporarily curate all prehistoric and historic artifacts collected from the surface and from probes and excavation units. The ultimate disposition of cultural materials will be determined in consultation with the federal agencies (if any), DAHP, Ecology, and the affected tribe(s).

Within 90 days of concluding fieldwork, the archaeologist will provide a technical report describing any and all monitoring and resultant archaeological excavations to the Project Lead/Organization, who will forward the report to Ecology, the federal agencies (if any), DAHP, and the affected tribe(s) for review and comment.

If assessment activities expose human remains (burials, isolated teeth, or bones), the archaeologist and Project Lead/Organization will follow the process described in **Section 6**.

8. PROCEEDING WITH WORK

The Project Lead/Organization shall work with the archaeologist, DAHP, and affected tribe(s) to determine the appropriate discovery boundary and where work can continue.

Work may continue at the discovery location only after the process outlined in this plan is followed and the Project Lead/Organization, DAHP, any affected tribe(s), Ecology, and the federal agencies (if any) determine that compliance with state and federal laws is complete.

9. ORGANIZATION RESPONSIBILITY

The Project Lead/Organization is responsible for ensuring:

- This IDP has complete and accurate information.
- This IDP is immediately available to all field staff at the sites and available by request to any party.
- This IDP is implemented to address any discovery at the site.
- That all field staff, contractors, and volunteers are instructed on how to implement this IDP.

10. ADDITIONAL RESOURCES

Informative Video

Ecology recommends that all project staff, contractors, and volunteers view this informative video explaining the value of IDP protocol and what to do in the event of a discovery. The target audience is anyone working on the project who could unexpectedly find cultural resources or human remains while excavating or digging. The video is also posted on DAHP's inadvertent discovery language website.

Ecology's IDP Video (https://www.youtube.com/watch?v=ioX-4cXfbDY)

Informational Resources

DAHP (https://dahp.wa.gov)

Washington State Archeology (DAHP 2003)
(https://dahp.wa.gov/sites/default/files/Field%20Guide%20to%20WA%20Arch_0.pdf)

Association of Washington Archaeologists (https://www.archaeologyinwashington.com)

Potentially Interested Tribes

Interactive Map of Tribes by Area
(https://dahp.wa.gov/archaeology/tribal-consultation-information

WSDOT Tribal Contact Website
(https://wsdot.wa.gov/tribal/TribalContacts.htm)

11. ADDITIONAL INFORMATION

Please add any additional contact information or other information needed within this IDP.

Snoqualmie Tribe of Indians
Steven Moses
Director, Archaeology and Historic Preservation
steve@snoqualmietribe.us, 425-495-6097

Suquamish Tribe
Stephanie Trudel
Tribal Historic Preservation Officer
strudel@Suquamish.nsn.us, 360-394-8533

Confederated Tribes and Bands of the Yakama Nation
Rose Ferri
Interim Tribal Historic Preservation Officer
Rose_Ferri@yakama.com,509-307-2009

Cowlitz Indian Tribe
James Gordon
THPO
jgordon@cowlitz.org, Office: 360-577-5680 ext 2222; Cell: 360-957-3004

Implement the IDP if you see…

Chipped stone artifacts.

Examples are:

- Glass-like material.
- Angular material.
- “Unusual” material or shape for the area.
- Regularity of flaking.
- Variability of size.

Stone artifacts from Oregon.

Stone artifacts from Washington.

Biface-knife, scraper, or pre-form found in NE Washington. Thought to be a well knapped object of great antiquity. Courtesy of Methow Salmon Rec. Foundation.

Implement the IDP if you see…

Ground stone artifacts.

Examples are:

- Unusual or unnatural shapes or unusual stone.
- Striations or scratching.
- Etching, perforations, or pecking.
- Regularity in modifications.
- Variability of size, function, or complexity.

Above: Fishing Weight - credit CRITFC Treaty Fishing Rights website.

Artifacts from unknown locations (left and right images).

Implement the IDP if you see…

Bone or shell artifacts, tools, or beads.

Examples are:

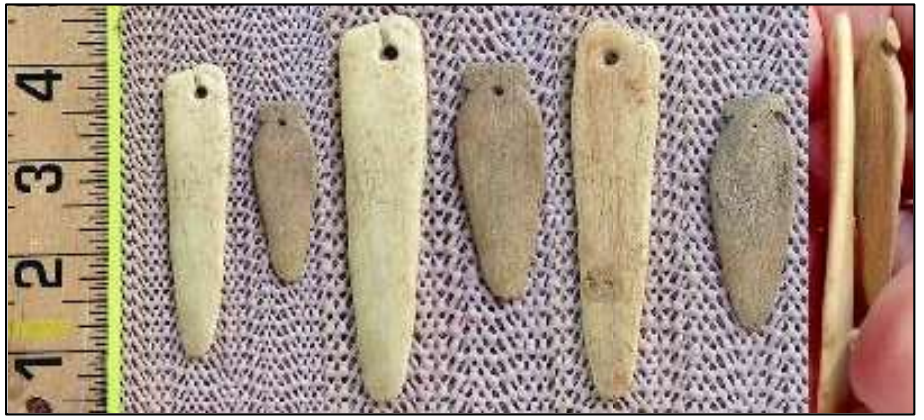
- Smooth or carved materials.
- Unusual shape.
- Pointed as if used as a tool.
- Wedge shaped like a “shoehorn”.
- Variability of size.
- Beads from shell ([illegible]) or tusk.

Upper Left:*Bone Awls from Oregon.*

Upper Center: *Bone Wedge from California.*

Upper Right: *Plateau dentalium choker and bracelet, from Nez Perce National Historical Park, 19th century, made using Antalis pretiosa shells Credit: Nez Perce - Nez Perce National Historical Park, NEPE 8762, Public Domain.*

Above: *Tooth Pendants. Right: Bone Pendants. Both from Oregon and Washington.*



Implement the IDP if you see…

Culturally modified trees, fiber, or wood artifacts.

Examples are:

- Trees with bark stripped or peeled, carvings, axe cuts, de-limbing, wood removal, and other human modifications.
- Fiber or wood artifacts in a wet environment.
- Variability of size, function, and complexity.

Left and Below: *Culturally modified tree and an old carving on an aspen (Courtesy of DAHP).*

Right, Top to Bottom: *Artifacts from Mud Bay, Olympia: Toy war club, two strand cedar rope, wet basketry*.

Implement the IDP if you see…

Strange, different, or interesting looking dirt, rocks, or shells.

Human activities leave traces in the ground that may or may not have artifacts associated with them. Examples are:

- "Unusual" accumulations of rock (especially fire-cracked rock).
- "Unusual" shaped accumulations of rock (such as a shape similar to a fire ring).
- Charcoal or charcoal-stained soils, burnt-looking soils, or soil that has a "layer cake" appearance.
- Accumulations of shell, bones, or artifacts. Shells may be crushed.
- Look for the "unusual" or out of place (for example, rock piles in areas with otherwise few rocks).

Shell Midden pocket in modern fill discovered in sewer trench.

Underground oven. Courtesy of DAHP.

Shell midden with fire cracked rock.

Hearth excavated near Hamilton, WA.

Implement the IDP if you see…

Historic period artifacts (historic archaeology considered older than 50 years).

Examples are:

- Agricultural or logging equipment. May include equipment, fencing, canals, spillways, chutes, derelict sawmills, tools, etc.
- Domestic items including square or wire nails, amethyst colored glass, or painted stoneware.

Left: Top to Bottom: *Willow pattern serving bowl and slip joint pocket knife discovered during Seattle Smith Cove shantytown (45-KI-1200) excavation.*

Right: *Collections of historic artifacts discovered during excavations in eastern Washington cities.*

Implement the IDP if you see…

Historic period artifacts (historic archaeology considered older than 50 years).

Examples are:

- Railway tokens, coins, and buttons.
- Spectacles, toys, clothing, and personal items.
- Items helping to understand a culture or identity.
- Food containers and dishware.

Main Image: *Dishes, bottles, workboot found at the North Shore Japanese bath house (ofuro) site, Courtesy Bob Muckle, Archaeologist, Capilano University, B.C. This is an example of an above ground resource.*

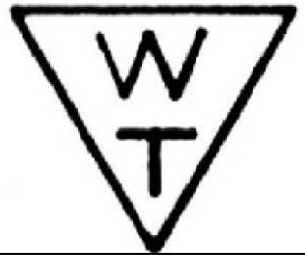
Right, from Top to Bottom: *Coins, token, spectacles and Montgomery Ward pitchfork toy discovered during Seattle Smith Cove shantytown (45-KI-1200) excavation.*

Implement the IDP if you see…

- Old munition casings – if you see ammunition of any type – ***always assume they are live and never touch or move!***
- Tin cans or glass bottles with an older manufacturer's technique – maker's mark, distinct colors such as turquoise, or an older method of opening the container.

Far Left: .303 British cartridge found by a WCC planting crew on Skagit River. Don't ever touch something like this!
Left: Maker's mark on bottom of old bottle.

Right: *Old beer can found in Oregon. ACME was owned by Olympia Brewery. Courtesy of Heather Simmons.*



Logo employed by Whithall Tatum & Co. between 1924 to 1938 (Lockhart et al. 2016).

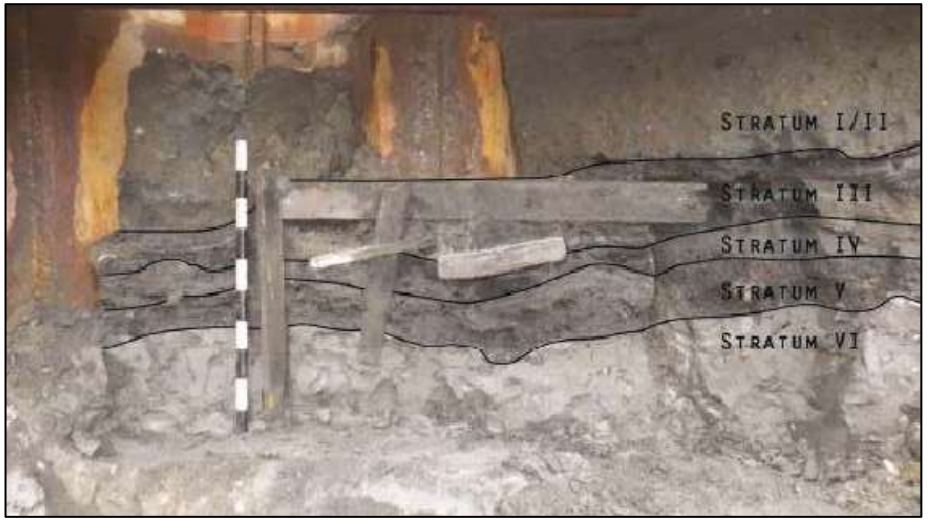
Can opening dates, courtesy of W.M. Schroeder.

Implement the IDP if you see…

You see historic foundations or buried structures.

Examples are:

- Foundations.
- Railroad and trolley tracks.
- Remnants of structures.



Counter Clockwise, Left to Right: *Historic structure 45KI924, in WSDOT right of way for SR99 tunnel. Remnants of Smith Cove shantytown (45-KI-1200) discovered during Ecology CSO excavation, City of Spokane historic trolley tracks uncovered during stormwater project, intact foundation of historic home that survived the Great Ellensburg Fire of July 4, 1889, uncovered beneath parking lot in Ellensburg.*

Implement the IDP if you see...

Potential human remains.

Examples are:

- Grave headstones that appear to be older than 50 years.
- Bones or bone tools--intact or in small pieces. It can be difficult to differentiate animal from human so they must be identified by an expert.
- These are all examples of animal bones and are not human.

Center: *Bone wedge tool, courtesy of Smith Cove Shantytown excavation (45KI1200).*

Other images (Top Right, Bottom Left, and Bottom) Center: Courtesy of DAHP.

Directly Above: This is a real discovery at an Ecology sewer project site.

What would you do if you found these items at a site? Who would be the first person you would call?

Hint: *Read the plan!*

From: Mike Shong
To: Evered, Kristin
Cc: Brandon.Reynon
Subject: RE: Neptune CRA
Date: Monday, November 24, 2025 9:10:21 AM
Attachments: ~WRD0000.jpg

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe. Report suspicious email using the Report Phish button in Outlook.

Good morning Kristin,

Sorry for the late reply. Thank you for uploading these two reports and the opportunity to review them. I have no substantive comments or concerns for the Neptune and Gog-le-hi-te CRAs.

Regards,

Mike

From: Evered, Kristin <kevered@portoftacoma.com>
Sent: Monday, November 24, 2025 8:14 AM
To: Mike Shong <Mike.Shong@PuyallupTribe-nsn.gov>
Cc: Brandon Reynon <Brandon.Reynon@PuyallupTribe-nsn.gov>
Subject: RE: Neptune CRA

Morning, Mike,

I am just checking in to see if you have any comments on the Neptune CRA for Parcel 117 and Gog-le-hi-te.

Best,
Kristin

From: Evered, Kristin
Sent: Thursday, November 6, 2025 12:09 PM
To: Mike.Shong <mike.shong@puyalluptribe-nsn.gov>
Cc: Brandon.Reynon <brandon.reynon@puyalluptribe-nsn.gov>
Subject: Neptune CRA

Hi Mike,

I uploaded the draft CRA for the Neptune Development project (Parcel 117 and Gog-le-hi-te) into your share folder. ATCRC is drafting a separate report for Parcel 12 which I will share with you once received. I anticipate receiving that draft by mid-December.

Thanks!

Kristin Evered
Environmental Project Manager
PORT OF TACOMA
O: 253.888.4776
www.portoftacoma.com

All e-mail communications with the Port of Tacoma are subject to disclosure under the Public Records Act and should be presumed to be public.

Appendix E

Supplemental Groundwater Sampling Plan

MAUL FOSTER ALONGI

Technical Memorandum

To:	Steve Teel, LHG	Date:	February 27, 2026
From:	Audrey Hackett and Carolyn Wise, LHG Maul Foster & Alongi, Inc.	Project No.:	M0615.20.016
Re:	Supplemental Groundwater Sampling Plan Hylebos Marsh - Taylor Way and Alexander Avenue Fill Area (TWAAFA) Site Facility Site ID 1403183, Cleanup Site ID 4692		

Background and Purpose

On behalf of the Port of Tacoma (the Port), Maul Foster & Alongi, Inc. (MFA) has prepared this supplemental groundwater sampling plan describing planned environmental characterization activities on the eastern portion of Hylebos Marsh (Pierce County tax parcels 0321263045 and 0321352064; the Property) (see Figure 1).

Subsurface investigation activities completed by MFA in August 2024, identified detections of tetrachloroethene (PCE) and trichloroethene (TCE) above soil to groundwater to surface water criteria in soil from boring, TWA-SB-12, colocated with lime waste located along the east boundary of the Property (see Figure 2). Concentrations of PCE and TCE colocated with lime waste is an indicator of lime solvent sludge for the TWAAFA site. The lime solvent sludge within TWA-SB-12 was observed between 8 and 18.5 feet bgs (ft bgs) with groundwater encountered at approximately 19.4 ft bgs. Because concentrations of PCE and TCE and other contaminants in soil exceed Ecology preliminary soil cleanup levels for protection of groundwater to marine surface water in TWA-SB-12, which are based on conservative transport assumptions, collection and analysis of groundwater is proposed as an empirical demonstration of whether migration into groundwater from soil is occurring due to lime solvent sludge. Therefore, assessment of PCE and TCE and other contaminant concentrations in groundwater within this area containing lime solvent sludge waste is proposed in this sampling plan.

This sampling plan summarizes the proposed advancement of two temporary groundwater monitoring wells to evaluate PCE and TCE and other contaminant concentrations in groundwater downgradient of and adjacent to boring TWA-SB-12 (see Figure 2) Proposed sample location TWA-SB-17 is located in an inferred downgradient position, approximately 35 feet west-northwest of TWA-SB-12; proposed sample location TWA-SB-18 is located adjacent, approximately 5 feet north-northwest of TWA-SB-12.

Field activities and analytical results will be conducted in accordance with the 2021 Quality Assurance Project Plan for the TWAAFA site, included as Appendix A of the Revised Groundwater Monitoring Plan (DOF 2022). Data will be validated in accordance with Washington State Department of Ecology (Ecology) data validation guidelines (Ecology 2024) and U.S. Environmental Protection Agency (EPA) national functional guidelines (EPA 2020).

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Geology and Hydrogeology

The following lithological units in order of increasing depth have been identified for the TWAAFA site, including the Property (DOF 2020, 2025):

- Fill unit: composed of heterogenous, anthropogenic fill materials. Depending on specific location within the TWAAFA site, the upper fill unit consists of a gravel road base, unconsolidated fill sediments, lime waste (consisting of light-colored, unconsolidated, fine-grained particles; some lime waste encountered has been impacted with PCE or TCE [referred to as lime solvent sludge]; other areas of lime waste contain no detections of PCE or TCE), auto fluff, wood waste, and demolition waste. At the Property, the upper fill unit is between 5 and 19.4 feet (ft) thick (CRETE 2020, MFA 2024, and DOF 2025). Lime solvent sludge waste was observed in the fill unit at TWA-SB-12 from approximately 8.5 to 18.5 ft bgs.
- Silt unit: brown to gray and soft, with local areas containing clay, sand, and organic matter, and appears to be laterally continuous across the TWAAFA site. Previous deep borings at the Property identified the silt unit as between 7 and 11.5 ft thick.
- Sand unit: Underlying the silt unit is a fine- to medium-grained sand deposit, with trace amounts of silt. The sand unit appears to be continuous across the TWAAFA site with thickness ranging from 11 to 14 ft.
- Deeper interbedded sand and silt unit: ranging from less than one inch thick to multiple ft thick. Material appears to be continuous across TWAAFA site and is organic-rich with peat noted in some historical borings.

The Property has three hydrogeological units (listed in order of increasing depth):

- Shallow aquifer: the saturated unconfined shallow groundwater unit thickness varies seasonally and is thickest in late winter or early spring. Groundwater mounds near the center of the TWAAFA site and generally flows northwest and southwest beneath the Property.
- Silt confining layer: the former mudflat, which underlies the shallow and deep aquifer units, is continuous and contains clay, sand, and organic matter as described above.
- Deep aquifer: deltaic sands are present throughout the tide flats, with silt layers encountered deeper than 50 feet below ground surface (ft bgs). The top of the deep aquifer was identified in previous borings at the Property as between 18.5 and 24.5 ft bgs; it extends to at least 60 ft bgs.

During the August 2024 field investigation at the Property, groundwater was encountered between 2 and 19.5 ft bgs, representing the significant topographic changes between boring locations due to the topographic slope along the eastern boundary of the Property (MFA 2024).

Field Activities

MFA will coordinate with subcontractors, including subsurface utility locators, a licensed driller, and an analytical laboratory, to complete the scope of work. Proposed sample locations, TWA-SB-17 and TWA-SB-18, will be advanced up to approximately 20 and 25 ft bgs, respectively, for collection of discrete groundwater samples at multiple depths within the shallow groundwater-bearing zone. The final depths of the two borings are anticipated to vary due to a difference in ground surface elevation and will not be advanced beyond the silt/clay aquitard into the deeper aquifer. Soils will be continuously logged during boring advancement for identification of silt confining layer (at least two feet in thickness) to ensure no potential of cross contamination between perched and/or unconfined groundwater and confined groundwater-bearing zones. If the silt confining layer is encountered at a shallower depth than anticipated and/or prior to encountering groundwater, contingency plans will

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be discussed with the Port of Tacoma (the Port) and Washington State Department of Ecology (Ecology).

The following sections describe the drilling and sampling procedures that will be followed during supplemental investigation activities.

General Drilling Approach

1. Proposed boring locations will be cleared of utilities in accordance with SOP 18.
2. Borings will be advanced using sonic drilling methods. The method advances a core barrel and sampler barrel into the ground without the use of rotary or hollow stem drilling, reducing the potential for cross contamination from carrying down contamination during advancement. MFA will log soils and conduct field screening in accordance with SOPs 02 and 03, respectively.
3. The licensed driller will advance borings using a six (6)-inch outer diameter core barrel until groundwater is encountered. Soils will be screened in the field to evaluate soil conditions and verify presence of groundwater.
4. MFA will collect depth-discrete groundwater samples in higher transmissive water-bearing units with a maximum completion depth of where the silt confining layer is encountered. It is anticipated that up to two samples will be collected at each temporary well from two depth intervals.
5. Groundwater at the Property is anticipated to be as shallow as 7 to 8 ft bgs at each proposed boring location. It is anticipated that up to two depth-discrete groundwater samples will be collected from each temporary well.
6. Well installation will be completed by advancing the core barrel to the depth correlated with the bottom of the well screen. The driller will install a pre-packed temporary monitoring well from one (1)-foot above the water table with two to three feet of well screen to coincide with the top of the water column and soil-water interface. The temporary monitoring well will be installed and the core barrel will be set at the top of the well screen.
7. MFA field staff will measure the water level in the temporary monitoring wells (see SOP 13 in Attachment A), and a minimum of one well volume will be purged. If the well goes dry during purging, a sample can be collected once the boring recharges enough water. During purging, the flow rates, water levels, and water quality parameters will be recorded on the groundwater field sampling data sheet (see Attachment B).
8. Reconnaissance groundwater samples will be collected from the temporary monitoring wells consistent with industry-standard techniques and SOPs 08 and 09 in Attachment A. Samples will be collected using a peristaltic pump and dedicated tubing.
9. Following groundwater sampling, the core barrel will be used to overdrill to the depth of the well screen. The temporary monitoring wells will be removed for permitted disposal and the sampler barrel will be advanced to depth to remove sloughed soils.
10. The core barrel and sampler barrel will be advanced in 5 feet increments and/or at significant hydrostratigraphic units for temporary well installation and discrete groundwater sample collection up to a depth of 15 to 20 ft bgs or to where the silt confining layer is encountered, whichever is shallower. Temporary well installation for each sampling interval will follow the same procedures described above.

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Groundwater Sampling

It is anticipated that MFA will collect up to four (4) groundwater samples from temporary monitoring well locations (TWA-SB-17, TWA-SB-18) using low-flow sampling procedures as described above. This assumes up to two (2) depth discrete groundwater samples collected at two intervals within each boring. If groundwater is encountered at shallower depths than anticipated, additional groundwater interval samples will be collected.

Groundwater monitoring samples will be analyzed for PCE and TCE, and other contaminants including:

- PCE and TCE by EPA Method 8260D,
- Gasoline-range hydrocarbons by Northwest Total Petroleum Hydrocarbons Method Gx,
- Diesel- and oil-range hydrocarbons by Northwest Total Petroleum Hydrocarbons Method Dx,
- Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8260D, and
- Dissolved metals (arsenic, chromium, copper, lead, manganese, mercury, and nickel) by EPA Method 6020B.

Sample fractions for dissolved metals analysis will be field-filtered using an in-line 45-micron filter during sample collection.

Samples will be labeled, preserved, and shipped to Friedman & Bruya, a laboratory accredited by the State of Washington and the National Environmental Laboratory Accreditation under standard chain of custody protocols.

Sample Nomenclature

Groundwater samples will be labeled with a prefix to describe the location identification number, an "GW" to indicate a sample matrix, and the sample depth in ft bgs. The depth interval should be specified as the middle of the sampling interval. The following location identification prefixes will be used:

- SB = temporary boring

For example, a groundwater sample collected from a temporary boring location TWA-SB-17 with a sampling interval from 8 to 10 ft bgs will have the sample nomenclature of TWA-SB-17-GW-9.0.

Equipment Decontamination

Non-disposable sampling equipment and reusable materials that contact the soil will be decontaminated on Property and before and after each sample collection (see SOP 01). Decontamination will consist of the following:

- Tap-water rinse. Visible soil to be removed by scrubbing.
- Non-phosphate detergent wash, consisting of a dilute mixture of Liqui-Nox (or equivalent) and tap water.
- Distilled-water rinse.
- Allow equipment to air dry or dry it with paper towels.

Decontamination fluids will be transferred to drums and managed as described below.

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Investigation-Derived Waste

Investigation-derived waste (IDW) will include soil cuttings, purged groundwater, and decontamination fluids. The IDW will be separated into solids and liquids and will be stored in a designated area on the Property in secure drums.

Each drum will include a label indicating what borings contained within the drum. Additionally, drums will be labeled with their contents (e.g., soil cuttings or purge water), the approximate volume of material, the date of collection, and the origin of the material. The drums will be sealed, secured, and transferred to a designated area on the Property, pending characterization. Analytical data from the soil and groundwater sampling activities may be used to characterize the IDW for disposal. IDW will be profiled, transported, and disposed of at an appropriate facility by an approved contractor. It is anticipated that specialized handling and disposal requirements will be required due to the potential presence of invasive snails.

Schedule and Reporting

Ecology will be provided 48 hours' notice prior to the commencement of fieldwork.

MFA will provide preliminary data deliverables to Ecology upon receipt, which is anticipated to be approximately 10 business days following submittal of data to the analytical laboratory. Following receipt of data, MFA will perform data quality review and validation consistent with DOF's Data Gaps Work Plan (Appendix L, DOF 2020) and EPA and Ecology data validation guidelines (EPA 2020, Ecology 2024).

MFA will prepare a report summarizing the field program and results of analysis, including screening the data against the applicable screening level criteria. All validated data will be uploaded to Ecology's environmental information management system within 30 days of receipt of data and no later than 120 days from the date of sampling.

Attachments

References

Limitations

Figures

Table

A—Standard Operating Procedures

B—Field Sampling Data Sheets

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References

CRETE. 2020. *Soil and Groundwater Data Report, Hylebos Marsh Property—1205 Alexander Avenue and 1300 Taylor Way, Taylor Way and Alexander Avenue Fill Area Site.* CRETE Consulting Inc.: Seattle, WA. March 27.

DOF. 2020. *Final Data Gaps Work Plan, Taylor Way and Alexander Avenue Fill Area Site, Tacoma, Washington.* Dalton, Olmsted & Fuglevand: Seattle, WA. July.

DOF. 2022. *Revised Groundwater Monitoring Plan, Taylor Way and Alexander Avenue Fill Area Site, Tacoma, Washington.* Dalton, Olmsted & Fuglevand: Seattle, WA. April.

DOF. 2025. *Draft Remedial Investigation and Feasibility Study Report, Taylor Way and Alexander Avenue Fill Area Site, Tacoma, Washington.* Dalton, Olmsted & Fuglevand: Seattle, WA. March.

Ecology. 2024. *Establishing Ecology Guidelines for Verification and Validation of Chemical Data*. Publication 24-03-023. Washington State Department of Ecology. September.

EPA. 2020. *National Functional Guidelines for Organic Superfund Methods Data Review.* EPA 540-R-20-005. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation: Washington, DC. November.

MFA. 2024. Audrey Hacket and Meaghan Pollock, LG, Maul Foster & Alongi, Inc. *Hylebos Marsh: Subsurface Investigation.* Letter to Steve Teel, LHG, Cleanup Project Manager/Hydrogeologist, Washington State Department of Ecology, Toxics Cleanup Program, Southwest. October 31.

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Limitations

The services undertaken in completing this technical memorandum were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This technical memorandum is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this technical memorandum apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this technical memorandum.

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Figures

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Notes
U.S. Geological Survey (2021) 7.5-minute topographic quadrangle: Tacoma.
Township 21 North, Range 3 East, Section 35.
TWAAFA = Taylor Way and Alexander Avenue Fill Area.

Data Source
Tax parcel obtained from Pierce County; TWAAFA site boundary obtained from Exhibit A of Agreed Order No. DE 14260.

Legend

- TWAAFA Boundary
- Hylebos Marsh Property

Figure 1
Property Location

Hylebos Marsh Property
1205 Alexander Avenue and
1300 Taylor Way
Tacoma, WA

0 1,000 2,000
Feet

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Path: X:\0035.20.10\Pro\MXD\15_20_010_100 Hylebos Fig 1 Property Location.mxd
Print Date: 6/21/2023
Reviewed By: kmathiesen
Produced By: scarter
Project: 0035.20.010

Figure 2
Sampling Plan

Hylebos Marsh Property
1212 Taylor Way
Tacoma, WA

Legend

- Proposed Temporary Monitoring Well
- Soil Boring
- Extent of Sloped Topography
- TWAAFA Site Boundary
- Hylebos Marsh Property
- Parcel

Note
TWAAFA = Taylor Way and Alexander Avenue Fill Area.

0 150
Feet

Data Sources
Parcels obtained from Pierce County; TWAAFA site boundary obtained from Exhibit A of Agreed Order No. DE 14260).

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Attachment A

Standard Operating Procedures

MAUL FOSTER ALONGI

Standard Operating Procedure

Decontamination of Field Equipment

SOP Number: 1
Date: 02/24/2025
Revision Number: 0.2

Scope and Application

This standard operating procedure (SOP) describes the decontamination procedure for field equipment that may come in contact with contaminated media and that Maul Foster & Alongi, Inc. (MFA) staff may reuse at multiple sample locations or sites. Decontamination is performed to reduce the potential for cross-contamination of samples that will be collected with multiuse equipment and that will undergo physical or chemical analyses. Other equipment that is multiuse—not used specifically for sample collection (e.g., water level meter, pump used for well development)—also requires decontamination. Finally, decontamination is necessary to minimize the potential for MFA staff's exposure to chemicals.

Typically, decontamination is not necessary for field equipment that is disposable and intended to be used only once (e.g., disposable bailer). Additionally, this SOP does not apply to equipment used by subcontractors, such as drilling equipment. However, MFA staff should confirm that subcontractors are implementing appropriate decontamination procedures to minimize the potential for cross-contamination of samples or MFA staff's exposure to chemicals.

Equipment and Materials Required

The following materials are necessary for this procedure:

- Nonphosphate detergent solution (e.g., Alconox, Liquinox)
- Distilled and potable water
- Personal protective equipment (as specified in the site-specific health and safety plan)
- Buckets to contain rinsate, brushes, paper towels

Depending on the site conditions and the types of contaminants that may be present, the use of other decontamination materials, such as deionized water, methanol, hexane, or isopropyl alcohol, may be necessary. The need for other materials should be determined prior to fieldwork. The decontamination procedures using other materials should be described in a site-specific sampling and analysis plan (SAP).

Methodology

When the site-specific SAP specifies additional or different requirements for decontamination, it takes precedence over this SOP. In the absence of a SAP, the following procedures shall be used.

General Sampling Procedure:

1. Rinse the equipment with potable water to remove visible soil, petroleum sheen, or contamination.

2. Scrub the equipment with a brush and solution of distilled water and nonphosphate detergent.

3. Rinse the equipment with distilled water.

4. Allow equipment to air dry or dry it with clean paper towels.

5. At all times, ensure that the decontaminated equipment is stored so as to prevent it from becoming contaminated while not in use. Depending on the size of the equipment, it can be wrapped with new aluminum foil or placed in a new plastic bag.

Rinsate Storage:

All fluids resulting from equipment decontamination shall initially be contained in a bucket and then transferred to a Department of Transportation-approved container (e.g., 55-gallon drum) stored on site at a location that does not interfere with on-site activities (e.g., vehicle traffic, pedestrian areas). Place a label on each container and include the following information:

- The date on which fluids were placed in the container
- Contents (e.g., “water from equipment decontamination”)
- Contact information, including MFA staff or client phone number

Note that labels on containers exposed to sunlight or precipitation are prone to fading. Use a waterproof, indelible ink pen (e.g., Sharpie®) whenever possible. In the field notebook, keep a detailed inventory of all containers, including the number of containers, the approximate quantity of liquids generated, and a description of the source of the fluids. Provide this information to the MFA project manager. For future reference, take photographs of (1) each drum label, (2) the drum(s), and (3) the drum storage vicinity on site.

Note that some clients and site owners have specific requirements for labeling and storage of containers. The requirements should be determined in advance of the fieldwork.

Standard Operating Procedure

Lithologic Logging

SOP Number: 2
Date: 03/09/2021
Revision Number: 0.1

Scope and Application

This standard operating procedure (SOP) describes the methods for observing and documenting the physical characteristics of unconsolidated geologic materials (soil and sediment) encountered during field investigations. If a Maul Foster & Alongi, Inc. (MFA) project requires hard rock drilling and description of rock core or cuttings, procedures for describing rock should be specified in a project-specific sampling and analysis plan (SAP).

Equipment and Materials Required

The following materials are necessary for this procedure:

- Blank field forms (e.g., boring logs) for documenting observations
- Dry-erase board
- Camera
- Munsell soil color chart (where required)
- MFA field logging checklist

Methodology

When the project-specific SAP specifies additional or different requirements for lithologic logging, it takes precedence over this SOP. In the absence of a SAP, the procedures in this SOP shall be used. MFA uses a combination of the Unified Soil Classification System (USCS) and the ASTM International method D2487 for describing and classifying soil and sediment by visual and manual examination. Before beginning fieldwork, verify with the project manager the logging standard to be used.

Logging Process:

The objective of lithologic logging is to document the physical characteristics of soil and sediment encountered and the changes in characteristics with depth. Typically, changes with depth will define the strata encountered. Therefore, each stratum encountered should be identified and the following characteristics described in the order given:

- Depth interval of each stratum to the nearest tenth of a foot below ground surface
- USCS classification Group Name and Symbol
- Color, using the Munsell color chart
- Grain-size distribution, as percentages of fines (silt and clay combined), sand, and gravel
- Percentages of larger gravels (cobbles and boulders) if present.
- Consistency when the content of fines is 50 percent or greater

- Density when the combined percentage of sand and gravel is 50 percent or greater
- Sand and gravel grain shapes
- Chemical odors, if noticeable
- Structures, if present (e.g., laminae, pores)
- Presence of organic matter (e.g., roots, leaves, twigs, wood fragments)
- Moisture content as “dry,” “moist,” or “wet”
- If possible, a description of the origin of each stratum (e.g., fill, alluvium)

Standard Operating Procedure

Field Screening for VOCs in Soil

SOP Number: 3
Date: 03/09/2021
Revision Number: 0.1

Scope and Application

This standard operating procedure (SOP) describes the use of a photoionization detector (PID) to field screen soil for evidence of organic vapors. The PID measures the organic vapor concentration in parts per million, is not compound-specific.

Never rely on a stand-alone PID reading to identify organic chemical contamination in soil. Always collect multiple PID readings (e.g., at multiple depths along the length of a soil core), since it is the relative difference in concentration between multiple readings (e.g., a sudden increase in concentration at a certain depth interval) that is the typical indictor of contamination. Additionally, PID readings should always be accompanied by observation of the soil samples for other indictors of contamination, such as soil staining or chemical odors, so that these multiple lines of evidence can be used together to identify potential organic chemical contamination in the field.

Equipment and Materials Required

The following materials are necessary for this procedure:

- Personal protective equipment (as specified in the health and safety plan)
- PID with calibration gas
- Ziploc®-type bags
- Field forms or notebook for documenting PID readings

Methodology

When the project-specific sampling and analysis plan (SAP) specifies additional or different requirements for organic vapor field screening, it takes precedence over this SOP. In the absence of a SAP, the procedures in this SOP shall be used.

The electron volt (eV) rating for the PID lamp (e.g., 9.8, 10.6, 11.7) must be greater than the ionization potential (in eV) of a compound in order for the PID to detect the compound. A lamp of at least 9.8 eV should be used for petroleum hydrocarbons. A lamp of at least 10.6 eV should be used for typical chlorinated alkenes. If the project health and safety plan does not specify the lamp size, verify the compatibility of the lamp size with the anticipated compounds expected to be present in soil prior to the field activities, and confirm with the project manager.

General Sampling Procedure:

Calibration:

- The PID should be calibrated daily (or more frequently, as needed).
- Calibrate the PID according to the manufacturer's instructions.

- Document the calibration activities and results in the field notebook.

Measuring organic vapor content:

- Place a representative volume (generally, a "handful") of freshly exposed soil into a Ziploc-type bag.
- Seal the bag and gently knead the bag to loosen the soil.
- Let the bag set for several minutes to allow organic vapors, if present, to volatilize from the soil into the headspace of the bag.
- Partially open the bag so that the tip of the PID intake tube can be inserted into the bag but is not in contact with the soil, then close the bag seal around the intake tube.
- Record the PID measurement and document results in the field notes or boring log.

Static Sheen Test Procedure and Observations:

Sheen Test Procedure:

- Following the PID screen discussed above, add enough water to cover the soil in the container.
- Observe the water for signs of discoloration/sheen and characterize per the table below.

When static sheen testing is required or when making observations of a water surface the following table presents descriptions to be used (consistent with Department of Ecology Guidance)[1].

No Sheen (NS)	No visible sheen on the water surface
Slight Sheen (SS)	Light, colorless, dull sheen; spread is irregular, not rapid. Natural organic oils or iron bacteria in the soil may produce a slight sheen.
Moderate Sheen (MS)	Pronounced sheen over limited area; probably has some color/iridescence; spread is irregular, may be rapid; sheen does not spread over entire water surface.
Heavy Sheen (HS)	Heavy sheen with pronounced color/iridescence; spread is rapid; the entire water surface is covered with sheen.
Biogenic Film (BF)	False positive results may be generated by the presence of decaying organic matter and iron bacteria, which can produce a rainbow-like sheen similar to an oil sheen. These sheens, unlike oil sheens, can typically be broken up creating platy or blocky fragments when agitated or disturbed. Biogenic films can also be foamy.

[1] Department of Ecology. 2016. Guidance for remediation of petroleum contaminated sites. June.

Standard Operating Procedure

Sonic Drilling

SOP Number: 8
Date: 03/09/2021
Revision Number: 0.1

Scope and Application

This standard operating procedure (SOP) describes the use of a sonic drilling rig to observe subsurface conditions and collect samples of various environmental media (e.g., soil, sediment, groundwater) for laboratory analysis. The sonic drilling method is ideal for sites with excessively gravelly/rocky soils or for drilling in bedrock.

Sonic drilling can be used for a variety of purposes, including:

- Retrieving cores to document subsurface soil, sediment, or bedrock conditions and to obtain samples for physical and/or chemical evaluation
- Collecting reconnaissance groundwater samples from temporary well screens
- Installing permanent monitoring wells

Equipment and Materials Required

The following materials are necessary for this procedure:

- Sonic drill rig and operator provided by a subcontractor to MFA. Ensure that the subcontractor is licensed to perform the drilling work.
- Sampling equipment appropriate for the media to be sampled (e.g., water level meter, pumps, hand tools, and pump tubing).
- Laboratory-supplied sample containers.
- Traffic cones, measuring tape, buckets.
- Department of Transportation (DOT)-approved containers (e.g., 55-gallon drum) for storing excess soil and decontamination water; the drums are typically provided by the drilling subcontractor.
- Boring log form and notebook.
- Equipment decontamination supplies if sampling equipment will be reused between sample locations (see SOP 1 for equipment decontamination procedures).
- Personal protective equipment (as required by the project health and safety plan).

Methodology

When the project-specific sampling and analysis plan (SAP) provides additional or different requirements for sonic drilling, it takes precedence over this SOP. In the absence of a SAP, the procedures in this SOP shall be used.

Utility Locate:

- Before beginning the fieldwork, assess the proposed drilling location(s) for the presence of overhead and underground utilities, and adjust the locations, as needed, to avoid identified utilities.
- See SOP 18 for the utility-locating procedures.

Sonic Drilling Process:

- The sonic drilling rig is equipped with a core barrel that retrieves a continuous soil core. A combination of high-frequency vibration and rotation is used to advance the core barrel into the subsurface.
- The core barrel is typically driven in 10-foot intervals. When each interval depth is reached, the core barrel is removed from the ground and vibrated to extrude the soil core from the core barrel. Plastic bags are placed over the end of the core barrel to collect and store the core in approximately 2-foot-long segments.
- After core retrieval, a temporary steel outer casing is driven to the bottom of the boring to prevent sloughing or collapse of the boring. The core barrel is then inserted into the casing and advanced to the next depth interval. This process is repeated until the targeted depth is reached.
- Ensure that the drilling subcontractor decontaminates all subsurface equipment before and after each boring. Document the decontamination procedures in the field notebook. Store decontamination water in DOT-approved containers for later off-site disposal.

Logging and Soil Sampling Process:

- Open each bagged segment of soil core for field screening, description, and sampling.
- Describe the lithology in accordance with SOP 2.
- Confirm the required depth interval(s) for soil sample collection and field screening with the MFA project manager, or conduct the work in accordance with the SAP. The sample interval may require adjustment based on core recovery, soil stratigraphy and characteristics, and evidence of contamination. Confirm any adjustments to the sample intervals with the project manager.
- If the project requires field screening for organic vapor, conduct it in accordance with SOP 3.
- If the project requires laboratory analyses for gasoline-range petroleum hydrocarbons or volatile organic compounds, conduct the sampling in accordance with SOP 5.
- Contain all soil core remaining after sample collection in DOT-approved containers for later off-site disposal. See SOP 1 for drum storage, labeling, and documentation procedures.

Reconnaissance Groundwater Sampling Process:

- Typically, reconnaissance groundwater samples are collected at the first occurrence of groundwater in a boring. Confirm the required depth and procedures for groundwater sample collection with the MFA project manager, or conduct the work in accordance with the SAP. If the project requires use of the low-flow sampling method, refer to SOP 9 for the low-flow sampling procedures.

- Reconnaissance groundwater samples are collected using a decontaminated stainless steel or disposable polyvinyl chloride temporary well screen placed in the boring. If the soils in the boring are fine-grained and may cause excessive turbidity in groundwater, consider using a filter pack around the screen to reduce turbidity. Alternatively, purging the well screen of groundwater before sample collection may also reduce the turbidity. See SOP 9 for purging procedures.
- Purging and sampling will be conducted using a peristaltic pump unless otherwise specified in the SAP. New tubing will be used for each boring. Field parameters (e.g., temperature, conductivity, and pH) will be recorded in accordance with SOP 9 during purging and sampling.

Monitoring Well Installation:

- If the project requires installation of a monitoring well in the boring, refer to SOP 11 for the well installation procedures. Confirm the procedures with the MFA project manager.
- If potable water was placed into the boring during drilling (e.g., to cool the core barrel), document the total volume of water placed in the boring; this information will be needed for well development (see SOP 12).

Borehole Abandonment Process:

- Abandon each borehole in accordance with local and state regulations/procedures. The abandonment will be performed by the drilling subcontractor.
- The abandonment procedure typically consists of backfilling the boring with granular bentonite and hydrating the bentonite with potable water.
- If the boring was advanced through concrete or asphalt, backfill the boring to about 6 inches below grade to allow for placement of asphalt or concrete in the remaining 6 inches to match the surface conditions.

Standard Operating Procedure

Low-Flow Groundwater Sampling

SOP Number: 9
Date: 07/25/2023
Revision Number: 0.3

Scope and Application

This standard operating procedure (SOP) describes use of the low-flow sampling method for collection of reconnaissance groundwater samples from borings and groundwater samples from monitoring wells. The method uses low pumping rates during purging and sample collection to minimize water-level drawdown and hydraulic stress at the well-aquifer interface.

Equipment and Materials Required

The following materials are necessary for this procedure:

- Personal protective equipment (as specified in the health and safety plan)
- Water quality meter (e.g., Oakton, YSI Inc. multiparameter meter)
- Turbidity meter
- Water-level meter
- Peristaltic pump and tubing
- Laboratory-supplied sample containers
- Laboratory chain-of-custody form and cooler with ice
- Filter if dissolved analyses will be performed
- Well construction logs documenting the screen depth and interval for all wells to be sampled
- Equipment decontamination supplies if sampling equipment will be reused between sample locations (see SOP 1 for equipment decontamination procedures)
- 5-gallon buckets with lids
- Department of Transportation-approved storage containers (e.g., drums, totes)
- Groundwater field sampling datasheet and notebook

Methodology

When the project-specific sampling and analysis plan (SAP) provides additional or different requirements for low-flow groundwater sampling, it takes precedence over this SOP. In the absence of a SAP, the procedures in this SOP shall be used.

General Sampling Procedure:

Water Level Measurement

- Water-level measurement procedures are described in detail in SOP 13.

- Open the well cap to allow the water level to equilibrate (approximately ten minutes).
- Measure the water level in the well, using an electronic water-level meter to the nearest 0.01 foot to determine the depth to groundwater below the top of the well casing.
- If light nonaqueous-phase liquid (LNAPL)is present (typically indicated by a dark, oily sheen on the top of the water level meter), discuss with the MFA project manager how to proceed.

Purging

- If the water level is above the top of the well screen, place the end of the sample tubing in the middle of the well screen interval. If the water level is below the top of the screen, place the end of the sample tubing at the midpoint between the water level and the bottom of the well screen.
- Typical low-flow sampling pumping rates range from 0.1 to 0.5 liters per minute, depending on the hydrogeologic characteristics at the site. The objective of the rate selected is to minimize excessive drawdown (<0.3 feet) of the water level.
- Measure water quality parameters (dissolved oxygen, pH, electrical conductivity, turbidity, and temperature) using a flow-through cell connected to the discharge end of the peristaltic pump tubing. Purging will be considered complete when the water quality parameters stabilize per the following for three consecutive readings taken over 3-minute intervals (consistent with EPA guidance)[1]:

Turbidity (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized),
Dissolved Oxygen (10% for values greater than 0.5 mg/L, if three Dissolved Oxygen values are less than 0.5 mg/L, consider the values as stabilized),
Specific Conductance (3%),
Temperature (3%),
pH (± 0.1 unit),
Oxidation/Reduction Potential (±10 millivolts).

- Document the purge procedures, including pumping rates, water quality parameter measurements, and the water level during purging, on the groundwater field sampling datasheet.
- Place purge water in Department of Transportation-approved containers (e.g., 55-gallon drum) stored on site. See SOP 1 for drum storage, labeling, and documentation procedures.

Sample Collection

- Following the purging process, collect groundwater samples in laboratory-supplied containers.
- Confirm the laboratory analytical methods and sample container requirement with the MFA project manager or project chemist. If analysis for gasoline-range petroleum hydrocarbons or volatile organic compounds (VOCs) is proposed, fill the sample containers for gasoline and VOC analysis before filling sample containers for other analytical methods. Sample containers for gasoline and VOC analysis shall be filled to capacity without overfilling and capped so that no headspace or air bubbles remain in the container.

[1] EPA. 2017. Low stress (low flow) purging and sampling procedure for the collection of groundwater samples from monitoring wells. September 19.

Low Yield (Alternate Method)

- If drawdown of the water table cannot be avoided by reducing the pumping rate, and the well goes dry during purging, discontinue pumping and water quality parameter measurements.
- Collect the groundwater sample after the water level above the well bottom recovers to 90 percent of the prepurge water level. For example, if the water level was 10 feet above the well bottom before purging, begin sampling when the water level has recovered to 9 feet or more above the well bottom.
- If the water column volume is insufficient to meet the sample volume requirement, allow the water level to again recover to 90 percent before continuing sampling. Repeat this procedure until all sample containers are filled.

MAUL FOSTER ALONGI

Standard Operating Procedure

Underground Utility Locates

SOP Number: 18
Date: 03/09/2021
Revision Number: 0.1

Scope and Application

This standard operating procedure (SOP) describes the practices for locating underground utilities. Refer to the MFA health and safety plan (HASP) for additional information regarding communication procedures to be followed when an inadvertent utility strike occurs, as well as regarding methods for mitigating hazards during a utility strike.

Equipment and Materials Required

The following materials are necessary for this procedure:

- Personal protective equipment (as specified in the HASP)
- Marking materials (e.g., marking paint, stakes, flags)
- Field documentation materials

Methodology

When the project-specific sampling and analysis plan (SAP) specifies additional or different requirements for underground utility locates, it takes precedence over this SOP. In the absence of a SAP, the procedures in this SOP shall be used.

Before Conducting Utility Locates:

- Ensure that the locate will be conducted reasonably soon before the excavation work begins, e.g., within 48 hours. There may be project-specific conditions, e.g., weather and/or ground features that could cause markings to fade, which would require scheduling of the excavation work sooner than 48 hours after the locate.
- Clearly define the boundary of the work and the locations of all proposed excavations. Prepare a map of the project area showing the excavation locations.
- Interview site managers/property owners and obtain plans or drawings, if available, showing on-site utilities.
- For project work that will not take place in the public right-of-way, ensure that the public rights-of-way nearest to the project are identified and communicated during the one-call notification.
- Identify the township and range of the project area. This information can be easily attained by a quick email to MFA's GIS Exchange.
- If feasible, conduct a site visit to identify site conditions that could cause fading or disruption of marking paint. Such conditions could include gravel or ground sensitive to erosion and high traffic.
- Check the weather forecast to assess the potential for snow or rain to make marking utilities difficult or cause the markings to fade.

One-Call Utility Notification:

- If possible, initiate the one-call utility notification at least one week before the proposed work begins.
- Include a map or GPS coordinates when submitting the notification.
- Before conducting any excavation activities, confirm with each public utility that the utility locate has been completed.
- On remote or complicated sites, consider meeting public locators on site.
- Document the one-call ticket number and results in the project files.
- Provide the one-call ticket number to subcontractors who will be doing the excavations.

Private Utility Locate:

- Conduct the private utility locate only after confirmation that the public utility locate has been completed and all public utilities have been marked and the results reviewed by MFA staff who will be overseeing the excavations.
- Meet the private locator on site and participate in the entire private utility locate. Be engaged in the process, ask questions, and take time to walk the site thoroughly with the locator.
- Bring a copy of the one-call utility ticket and results of the one-call utility locater to check against the utility markings on the ground.
- If possible, have a site/property representative knowledgeable of on-site utilities participate in the private utility locate.
- If paint alone may not suffice to ensure clear marking of utilities, add vertical markers such as stakes or flags.
- Visually assess the area of the proposed excavation(s) to identify features potentially indicative of buried utilities. Have the private utility locator examine each feature identified below to assess the presence of buried utilities.
  - Examine adjacent public rights-of-way where public utilities have been marked for evidence of utilities that may extend onto the project site.
  - Identify nearby light poles, telephone poles, electrical utility poles, or other overhead utility poles with wires or conductors that run from the overhead utility, down the pole, and into the ground.
  - Identify the location of gas meters, water meters, or other aboveground junction boxes for evidence of utilities extending from these features into the ground.
  - Examine asphalt and concrete ground surfaces for discontinuities in the surface indicative of utility installations. Discontinuities may include recent patches of asphalt or concrete inlaid within older concrete or asphalt surfaces.
  - Identify manholes and catch basins indicative of buried storm or sanitary sewer pipes. Open manholes to examine the orientation of associated pipes to assess whether the utilities may be present near proposed excavations.
  - Identify tank ports and vent pipes.

- Identify irrigation systems and associated features such as valve boxes and controllers.
- Identify any other signs indicating the presence of buried utilities.
- Be wary of utility marks that suddenly begin or dead end.

Preparing to Perform Subsurface Activities after a Locate:

- Ensure that the markings are still visible when the work begins.
- Adjust locations, as needed, to avoid identified utilities, or use alternative methods such as nonmechanical excavation means (i.e., manual excavation or air-knifing) to a minimum depth of 5 feet.

Table
APWA UNIFORM COLOR CODE

	WHITE—Proposed Excavation
	PINK—Temporary Survey Markings
	RED—Electric Power Lines, Cables, Conduit and Lighting Cables
	YELLOW—Gas, Oil, Steam, Petroleum or Gaseous Materials
	ORANGE—Communication, Alarm or Signal Lines, Cables or Conduit
	BLUE—Potable Water
	PURPLE—Reclaimed Water, Irrigation and Slurry Lines
	GREEN—Sewers and Drain Lines

Source: Uniform Color Codes, ANSI Standard Z535.1. American Public Works Association. Revised 1999.

Attachment B

Field Sampling Data Sheets

MAUL FOSTER ALONGI

Maul Foster & Alongi, Inc.

Geologic Borehole Log/Well Construction

Project Number	Well Number	Sheet

Project Name
Project Location
Start/End Date
Driller/Equipment
Geologist/Engineer
Sample Method

TOC Elevation (feet)
Surface Elevation (feet)
Northing
Easting
Hole Depth
Outer Hole Diam

Depth (feet, BGS)	Well Details	Sample Data: Interval	Sample Data: Percent Recovery	Sample Data: Collection Method	Sample Data: Number	Sample Data: Name (Type)	Sample Data: Blows/6"	Lithologic Column	Soil Description
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

NOTES:

GBLWC W:\GINT\GINTW\BLANK_TEST\BLANK_TEST.GPJ 9/11/15

Groundwater Field Sampling Data Sheet

MAUL FOSTER ALONGI

Project Information

Project No.	Client Name	Project Name	Sampling Event	Sampler(s)

Well Information

Location ID	Well Type	Monument Type	Depth Measuring Point	Well Diameter (in)	Screen Interval (ft)	Sample Depth (ft)

Hydrology/Level Measurements

Date	Time	Depth to Bottom (ft)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Water Column (ft)	Well Casing Volume (gal)	
		DTB	*DTP*	*DTW*	*DTW - DTP*	*DTB - DTW*	*(gal/ft x water column)*	*0.75" = 0.023 gal/ft* *1" = 0.041 gal/ft* *1.5" = 0.092 gal/ft* *2" = 0.163 gal/ft* *3" = 0.367 gal/ft* *4" = 0.653 gal/ft* *6" = 1.469 gal/ft* *8" = 2.611 gal/ft*

Water Quality Data

Purge Method		*Purge/Sampling Methods: peristaltic pump, submersible pump, vacuum pump, inertia pump, dedicated pump, disposable bailer, bladder pump, other*						
Purge Start Time		*ideally < 0.3 ft drawdown*	*± 0.1*	*± 3%*	*± 3%*	*± 10% if > 0.5*	*± 10*	*< 5 or ± 10% if > 5*

Time	Cumulative Purge Volume	Flowrate	Water Level	pH	Temperature	Conductivity	Dissolved Oxygen	ORP	Turbidity
	gal	*L/min*	*ft*	*SU*	*degrees C*	*uS/cm*	*mg/L*	*mV*	*NTU*

Last row of water quality data are considered final field parameters unless otherwise noted.

Water Quality Observations *(clarity, tint, odor, sheen, etc.)*

Sample Information

Sampling Method			
Sample Name			
Sample Date		Sample Time	
Container Type	**Preservative**	**Filtered (Y/N)**	**No. Containers**
VOA			
Amber glass			
Poly			
		Total No. Containers:	0

General Comments

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Appendix F

Preliminary Design Drawings

MAUL FOSTER ALONGI

PORT OF TACOMA

PARCEL 117 SNAIL ERADICATION

1229 ALEXANDER AVE

TACOMA, WA 98421

PROJECT INFORMATION:

SITE DATA:

ZONING:	PORT MARITIME INDUSTRIAL (PMI)
NEW IMPERVIOUS SURFACE: REPLACED IMPERVIOUS SURFACE:	695,970 SF (15.97 ACRES) 0 SF (0.00 ACRES)
SCOPE OF WORK:	INSTALL CRUSH SURFACING BASE COURSE (CSBC) THROUGHOUT THE ENTIRE SITE AND ASSOCIATED STORM IMPROVEMENTS. THE PURPOSE IS TO ERADICATE SNAILS ON SITE.
SITE ADDRESS:	1229 E ALEXANDER AVE TAOMCA, WA 98421
PARCEL NUMBERS:	032135-2064 (5.52 ACRES) 032126-3045 (10.16 ACRES)
ESTIMATED EARTHWORK:	
(FOR PERMITTING PURPOSES ONLY)	CUT: 17,900 CY (0 CY EXPORT) FILL: 27,925 CY (10,025 CY IMPORT OF CSTC) TOTAL: 45,825 CY (10,025 CY NET IMPORT)
ESTIMATED CONSTRUCTION COST:	$XX

SURVEY DATA:

SEE NOTES ON SHEET SV1.00

PREPARED FOR:

Port of Tacoma

P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

CONTACT: ELLY BULEGA

EMIAL: EBULEGA@PORTOFTACOMA.COM

PREPARED BY:

sitts&hill

CIVIL | STRUCTURAL | SURVEY

4815 CENTER STREET | TACOMA, WA. 98409

PHONE: (253) 474-9449 | FAX: (253) 474-0153

http://www.sittshill.com/

CONTACT: DON DAVIS, PROJECT MANAGER

EMAIL: DOND@SITTSHILL.COM

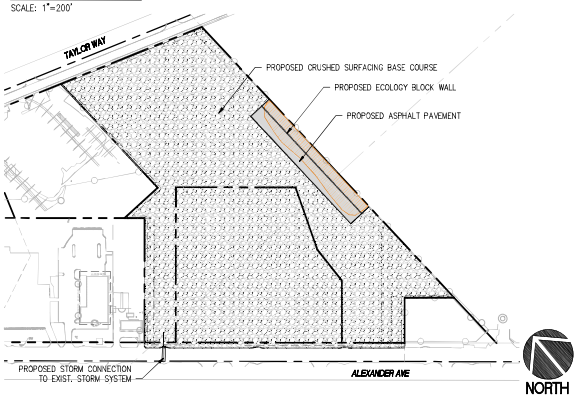
INDEX OF DRAWINGS:

SHEET	DWG NO.	DRAWING TITLE
1 OF 24	T1.00	COVER SHEET
2 OF 24	G1.01	CIVIL LEGEND AND GENERAL NOTES
3 OF 24	G1.02	COT RIGHT OF WAY GENERAL NOTES
4 OF 24	G1.03	CIVIL GENERAL NOTES
5 OF 24	SV1.00	BOUNDARY & TOPOGRAPHIC SURVEY
6 OF 24	SV1.01	BOUNDARY & TOPOGRAPHIC SURVEY
7 OF 24	SV1.02	BOUNDARY & TOPOGRAPHIC SURVEY
8 OF 24	SV1.03	BOUNDARY & TOPOGRAPHIC SURVEY
9 OF 24	SV1.04	BOUNDARY & TOPOGRAPHIC SURVEY
10 OF 24	SV1.05	BOUNDARY & TOPOGRAPHIC SURVEY
11 OF 24	SV1.06	BOUNDARY & TOPOGRAPHIC SURVEY
12 OF 24	SV1.07	BOUNDARY & TOPOGRAPHIC SURVEY
13 OF 24	SV1.08	BOUNDARY & TOPOGRAPHIC SURVEY
14 OF 24	SV1.09	BOUNDARY & TOPOGRAPHIC SURVEY
15 OF 24	SV1.10	BOUNDARY & TOPOGRAPHIC SURVEY
16 OF 24	SV1.11	BOUNDARY & TOPOGRAPHIC SURVEY
17 OF 24	SV1.12	BOUNDARY & TOPOGRAPHIC SURVEY
18 OF 24	C1.00	DEMOLITION AND TESC PLAN
19 OF 24	C2.00	SURFACING AND LAYOUT PLAN
20 OF 24	C3.00	SUBGRADE PLAN
21 OF 24	C3.01	FINAL GRADING AND DRAINAGE PLAN
22 OF 24	C3.02	SITE PROFILES
23 OF 24	C4.00	PROJECT DETAILS
24 OF 24	C4.01	PROJECT DETAILS

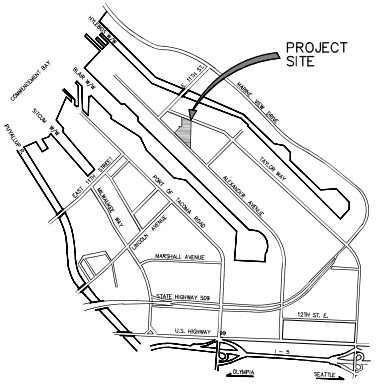
TOPOGRAPHIC SURVEY WILL BE PROVIDED IN A LATER SUBMITTAL.

OVERALL SITE PLAN:

SCALE: 1"=200'



VICINITY MAP:



30% DESIGN REVIEW

PREPARED BY: sitts&hill — CIVIL | STRUCTURAL | SURVEY — 4815 CENTER STREET | TACOMA, WA, 98409 — PHONE: (253) 474-9449 | FAX: (253) 474-0153 — http://www.sittshill.com/

PREPARED FOR: Port of Tacoma — P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

Tacoma

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED — BY — DATE — FIELD BOOKS

DATE 11/18/25 | SCALE AS NOTED
DESIGNED DCD | CHECKED DCD
DRAWN KNL | FILE NAME T1.00

PRELIMINARY — NOT FOR CONSTRUCTION

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL SERVICES SCIENCE & ENGINEERING

PORT OF TACOMA
PARCEL 117 SNAIL ERADICATION
CIVIL COVER SHEET

-- | 20618 | SHEET NO. T1.00 | SHEET 1 OF 24

GENERAL CIVIL NOTES

1. SEE SURVEY NOTES ON SHEET SV1.00.
2. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING FEATURES, ELEVATIONS, AND PROPERTY LINES SHOWN. IF DISCREPANCIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
3. WHERE CONFLICTS OCCUR BETWEEN EXISTING FEATURES AND THE PLACEMENT OF NEW FACILITIES, THEY SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BY THE CONTRACTOR, AND WILL BE RESOLVED BY THE ENGINEER.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING SURVEY MONUMENTS AND OTHER SURVEY MARKERS DURING CONSTRUCTION. ALL SUCH MONUMENTS OR MARKERS DESTROYED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
5. THE CONTRACTOR FOR THIS PROJECT SHALL MAINTAIN A CLEAN, LEGIBLE SET OF THESE PLANS AND NOTE ALL DEVIATIONS THEREON. UPON COMPLETION OF CONSTRUCTION, THESE DRAWINGS SHALL BE DELIVERED TO THE OWNER FOR THE PREPARATION OF RECORD DRAWINGS. IF REQUIRED BY THE CITY OF TACOMA ENVIRONMENTAL SERVICES, THE ENGINEER SHALL SUBMIT RECORD DRAWINGS TO THE CITY OF TACOMA UPON COMPLETION OF THE PROJECT.
6. THE CONTRACTOR SHALL HAVE A CURRENT COPY OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STANDARD PLANS AND SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION (PUBLICATIONS M21-01 AND M41-10) AT THE JOB SITE AT ALL TIMES DURING CONSTRUCTION.
7. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY EQUIPMENT TO PREVENT UTILITY INTERRUPTION. NOTIFY PORT OF TACOMA ONE WEEK IN ADVANCE OF EACH UTILITY CONNECTION.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL ON-SITE AND OFF-SITE SHALL COORDINATE HIS ACTIVITIES WITH THE OWNER AND ENGINEER A MINIMUM OF TWO (2) WEEKS IN ADVANCE OF THE BEGINNING OF WORK. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL TRAFFIC CONTROL SIGNS. SAFE VEHICULAR AND PEDESTRIAN ACCESS SHALL BE PROVIDED AT ALL TIMES DURING CONSTRUCTION. SHUTDOWN OF OWNER OPERATION OR ACCESS WILL NOT BE PERMITTED.
9. PRIOR TO BIDDING, IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MAKE ALL NECESSARY SITE INSPECTIONS AND DETERMINATIONS OF ITEMS AND QUANTITIES OF WORK TO ENSURE THAT ALL ITEMS OF WORK NECESSARY TO PERFORM A COMPLETE AN ACCEPTABLE JOB HAVE BEEN TAKEN INTO CONSIDERATION.
10. DEWATERING AND PUMPING MAY BE REQUIRED AND SHALL BE CONSIDERED PART OF THE CONTRACTORS BID PRICE. CONTRACTOR SHALL ASSUME GROUNDWATER WILL BE ENCOUNTERED AT A DEPTH OF 4'-0" BENEATH EXISTING GRADE. CONTRACTOR IS RESPONSIBLE FOR PROVIDING NECESSARY EQUIPMENT AND COORDINATING WITH PORT OF TACOMA FOR DISCHARGE LOCATIONS.

DEMOLITION NOTES

1. REMOVE ALL DELETERIOUS MATERIAL FOUND ON-SITE INCLUDING SCRAP WOOD, TRASH, ETC. AND DISPOSE OF AT AN APPROVED OFF-SITE LOCATION. MATERIALS, SUCH AS VEGETATION AND SOILS, SHALL REMAIN ONSITE AND BE RELOCATED WITHIN PROJECT LIMITS.
2. AT ALL TIMES THE CONTRACTOR SHALL MAINTAIN SIGNS, BARRICADES, FENCING, OR OTHER MEASURES TO ENSURE CONTINUOUS PROTECTION OF THE PUBLIC AND TO PREVENT UNAUTHORIZED ENTRY TO THE CONSTRUCTION AREA. AT A MINIMUM FENCING SHALL BE 6.0 FEET HIGH. COORDINATE SAFETY AND SECURITY MEASURES WITH ADJACENT WORK.
3. DAMAGE TO ANY PROPERTY, INCLUDING BUT NOT LIMITED TO, BUILDINGS, UTILITIES, VEHICLES, FENCING, OR LANDSCAPING AS A RESULT OF CONTRACTORS ACTIVITIES WILL BE REPAIRED OR REPLACED AT THE CONTRACTORS EXPENSE.
4. THE CONTRACTOR IS FINANCIALLY RESPONSIBLE FOR THE MAINTENANCE AND REPAIR OF OFF-SITE AND ON-SITE PAVED SURFACES WHERE DAMAGE HAS BEEN SUSTAINED BECAUSE OF CONSTRUCTION TRAFFIC.
5. ALL CONCRETE, PAVEMENT, CURBS, SIDEWALKS AND RAMPS INDICATED TO BE REMOVED OR REPLACED SHALL BE REMOVED TO THE NEAREST EXPANSION JOINT AS IDENTIFIED DURING CONSTRUCTION. WHERE THIS IS NOT POSSIBLE DUE TO CONFLICTS OR ADJACENT DAMAGED CONCRETE / ASPHALT, THE CONTRACTOR SHALL MAKE A FULL PAVEMENT DEPTH SAWCUT AT THE PROPOSED JOINT IN SOUND PAVEMENT. PROPOSED CONCRETE / ASPHALT SHALL EXTEND TO THE SAWCUT EDGE AND BE APPROPRIATELY JOINED / SEALED. THE CONTRACTOR SHALL MAKE SAWCUTS AT EXISTING CONTRACTION JOINTS WHERE POSSIBLE.
6. TO THE MAXIMUM EXTENT POSSIBLE, THE CONTRACTOR SHALL SALVAGE AND RETURN TO OWNER ALL CATCH BASIN FRAMES, GRATES, COVERS, MANHOLE LIDS AND ANY OTHER EXISTING METAL WORKS IN PAVEMENTS DESIGNATED FOR REMOVAL / REPLACEMENT. COORDINATE STORAGE LOCATION WITH OWNER.

DEMOLITION DEFINITIONS

DEMOLISH: CAREFULLY REMOVE EXISTING ITEM AS INDICATED AND LEGALLY DISPOSE OF SAME OFF-SITE.

REUSE: CAREFULLY REMOVE EXISTING ITEM/FEATURE, INTACT, AS INDICATED. TEMPORARILY STORE (IF NECESSARY) AND PROTECT FOR REINSTALLATION, INTACT, AS INDICATED.

SALVAGE: CAREFULLY REMOVE EXISTING ITEM/FEATURE, INTACT, AS INDICATED. DELIVER ITEM/FEATURE TO OWNER, AS INSTRUCTED.

PROTECT: LEAVE EXISTING ITEM/FEATURE INTACT, AS INDICATED, AND PROTECT FROM DAMAGE. THIS ACTION SHOULD BE ASSUMED FOR ALL ITEMS/FEATURES ON-SITE NOT SPECIFICALLY IDENTIFIED FOR DEMOLITION.

STANDARD TESC NOTES (2021 CITY OF TACOMA SWMM)

1. THE IMPLEMENTATION OF THESE TESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF TESC FACILITIES IS THE RESPONSIBILITY OF THE APPLICANT/CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED, VEGETATION/LANDSCAPING IS ESTABLISHED AND THE ENTIRE SITE IS STABILIZED.
2. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY MARKED IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE CLEARING LIMITS SHALL BE PERMITTED. THE MARKING SHALL BE MAINTAINED BY THE APPLICANT/CONTRACTOR FOR THE DURATION OF CONSTRUCTION.
3. THE TESC FACILITIES SHOWN ON THIS PLAN SHALL BE CONSTRUCTED PRIOR TO AND/OR IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT ENTER THE DRAINAGE SYSTEM OR ROADWAYS, OR VIOLATE APPLICABLE WATER STANDARDS.
4. THE TESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, TESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT LEAVE THE SITE.
5. THE CESCL, CPESC, OR ESC LEAD SHALL BE IDENTIFIED IN THE SWPPP AND SHALL BE ONSITE OR ON-CALL AT ALL TIMES.
6. THE CESCL, CPESC, OR ESC LEAD MUST BE KNOWLEDGEABLE IN THE PRINCIPLES AND PRACTICES OF EROSION AND SEDIMENT CONTROL AND HAVE THE SKILLS TO ASSESS:
   A. SITE CONDITIONS AND CONSTRUCTION ACTIVITIES THAT COULD IMPACT THE QUALITY OF STORMWATER.
   B. EFFECTIVENESS OF EROSION AND SEDIMENT CONTROL MEASURES USED TO CONTROL THE QUALITY OF STORMWATER DISCHARGES.
7. THE CESCL, CPESC, OR ESC LEAD MUST EXAMINE STORMWATER VISUALLY FOR THE PRESENCE OF SUSPENDED SEDIMENT, TURBIDITY, DISCOLORATION, AND OIL SHEEN AND EVALUATE THE EFFECTIVENESS OF BMPS TO DETERMINE IF IT IS NECESSARY TO INSTALL, MAINTAIN, OR REPAIR BMPS.
8. THE CESCL, CPESC, OR ESC LEAD 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. (INDIVIDUAL DISCHARGE EVENTS THAT LAST MORE THAN ONE DAY DO NOT REQUIRE DAILY INSPECTIONS). THE CESCL OR INSPECTOR MAY REDUCE THE INSPECTION FREQUENCY FOR TEMPORARY STABILIZED, INACTIVE SITES TO ONCE EVERY CALENDAR MONTH.
9. CONSTRUCTION SITE OPERATORS MUST CORRECT ANY PROBLEMS IDENTIFIED BY THE CESCL, CPESC, OR ESC LEAD BY:
   A. REVIEWING THE SWPPP FOR COMPLIANCE WITH THE 13 CONSTRUCTION SWPPP ELEMENTS AND MAKING APPROPRIATE REVISIONS WITHIN 7 DAYS OF THE INSPECTION.
   B. FULLY IMPLEMENT AND MAINTAIN APPROPRIATE SOURCE CONTROL AND/OR TREATMENT BMPS AS SOON AS POSSIBLE BUT CORRECTING THE PROBLEM WITHIN 10 DAYS.
   C. DOCUMENTING BMP IMPLEMENTATION AND MAINTENANCE IN THE SITE LOG BOOK. (REQUIRED FOR SITES LARGER THAN 1 ACRE BUT RECOMMENDED FOR ALL SITES).

   SAMPLING AND ANALYSIS OF THE STORMWATER DISCHARGES FROM A CONSTRUCTION SITE MAY BE NECESSARY ON A CASE-BY-CASE BASIS TO ENSURE COMPLIANCE WITH STANDARDS. ECOLOGY OR THE CITY WILL ESTABLISH THESE MONITORING AND ASSOCIATED REPORTING REQUIREMENTS.
10. AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN SEDIMENT TRAP.
11. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT-LADEN WATER INTO THE DOWNSTREAM SYSTEM.
12. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

CB PROTECTION NOTES

1. CATCH BASIN INSERTS SHALL BE PROVIDED IN THE CATCH BASINS NOTED ON THE PLANS.
2. AT ALL PROPOSED CATCH BASINS, CATCH BASIN PROTECTION SHALL BE INSTALLED IMMEDIATELY UPON CATCH BASIN INSTALLATION AND SHALL REMAIN UNTIL FINAL SITE STABILIZATION.
3. CATCH BASIN INSERT SHALL BE STREAMGUARD SEDIMENT CATCH BASIN INSERT #3003, ULTRA-DRAIN GUARD #9217, OR APPROVED EQUAL.
4. CATCH BASIN INSERTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, AND MAINTAINED TO OPERATE PROPERLY.
5. CATCH BASIN INSERTS SHALL BE REMOVED FOLLOWING COMPLETION OF CONSTRUCTION AND STABILIZATION OF ALL CLEARED AREAS.

SILT FENCE NOTES (AS REQUIRED)

1. FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL AND CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY FASTENED AT BOTH ENDS TO POSTS.
2. POSTS SHALL BE SPACED A MAXIMUM OF 6 FEET APART AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 30 INCHES).
3. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 8 INCHES WIDE AND 12 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER. THIS TRENCH SHALL BE BACKFILLED WITH WASHED GRAVEL.
4. WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY-DUTY WIRE STAPLES AT LEAST 1 INCH LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 4 INCHES AND SHALL NOT EXTEND MORE THAN 24 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
5. THE STANDARD STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 20 INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 24 INCHES ABOVE THE ORIGINAL SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
6. WHEN EXTRA-STRENGTH FILTER FABRIC AND CLOSER POST SPACING IS USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISION OF ABOVE NOTES APPLYING.
7. FILTER FABRIC FENCES SHALL NOT BE REMOVED BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
8. FILTER FABRIC FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
9. SILT FENCES WILL BE INSTALLED PARALLEL TO ANY SLOPE CONTOURS.
10. CONTRIBUTING LENGTH TO FENCE WILL NOT BE GREATER THAN 100 FEET.
11. DO NOT INSTALL BELOW AN OUTLET PIPE OR WEIR.
12. INSTALL DOWNSLOPE OF EXPOSED AREAS.
13. DO NOT DRIVE OVER OR FILL OVER SILT FENCES.
14. PLACE 1" OF 3/4" – 1-1/2" WASHED ROCK OR PEA-GRAVEL ON BOTH SIDES OF FENCE TO CREATE A BEVEL SHAPE.
15. FABRIC SHALL COVER BOTTOM OF 6"x6" TRENCH AND EXTEND BEYOND THE LIMITS OF THE GRAVEL IN ORDER TO MAINTAIN AN EXCESS OVERLAP OF 2" MINIMUM AS SHOWN IN TYPICAL CROSS-SECTION.

STOCKPILE NOTES

1. STOCKPILES SHALL BE STABILIZED (WITH PLASTIC COVERING OR OTHER APPROVED DEVICE) DAILY BETWEEN NOVEMBER 1 AND MARCH 31.
2. IN ANY SEASON, SEDIMENT LEACHING FROM STOCK PILES MUST BE PREVENTED.
3. TOPSOILS SHALL NOT BE PLACED WHILE IN A FROZEN OR MUDDY CONDITION OR WHEN THE SUBGRADE IS EXCESSIVELY WET OR WHEN CONDITIONS EXIST THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING OR PROPOSED SODDING OR SEEDING.
4. PREVIOUSLY ESTABLISHED GRADES ON THE AREAS TO BE TOPSOILED SHALL BE MAINTAINED ACCORDING TO THE APPROVED PLAN.

PLASTIC COVERING NOTES

1. PLASTIC SHEETING SHALL HAVE A MINIMUM THICKNESS OF 6 MILS AND SHALL MEET THE REQUIREMENTS OF WSDOT STANDARD SPECIFICATIONS SECTION 9-14.5(3).
2. COVERING SHALL BE INSTALLED AND MAINTAINED TIGHTLY IN PLACE BY USING SANDBAGS OR TIRES ON ROPES WITH A MAXIMUM 10-FOOT GRID SPACING IN ALL DIRECTIONS. ALL SEAMS SHALL BE TAPED OR WEIGHTED DOWN FULL LENGTH AND THERE SHALL BE AT LEAST A 12-INCH OVERLAP OF ALL SEAMS.
3. CLEAR PLASTIC COVERING SHALL BE INSTALLED IMMEDIATELY ON AREAS SEEDED BETWEEN NOVEMBER 1 AND MARCH 31 AND REMAIN UNTIL VEGETATION IS FIRMLY ESTABLISHED.
4. WHEN THE COVERING IS USED ON UN-SEEDED SLOPES, IT SHALL BE KEPT IN PLACE UNTIL THE NEXT SEEDING PERIOD.
5. PLASTIC COVERING SHEETS SHALL BE BURIED TWO FEET AT THE TOP OF SLOPES IN ORDER TO PREVENT SURFACE WATER FLOW BENEATH SHEETS.
6. PROPER MAINTENANCE INCLUDES REGULAR CHECKS FOR RIPS AND DISLODGED ENDS.

WATTLE NOTES (AS REQUIRED)

1. WATTLES SHALL BE IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATION 9-14.5(5). INSTALL WATTLES ALONG CONTOURS. INSTALLATION SHALL BE IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATION 8-01.3(10).
2. SECURELY KNOT EACH END OF WATTLE, ABUT ADJACENT WATTLES TIGHTLY, END TO END, WITHOUT OVERLAPPING THE ENDS.
3. PILOT HOLES MAY BE DRIVEN THROUGH THE WATTLES AND INTO THE SOIL WHEN CONDITIONS REQUIRE.
4. WATTLES SHALL BE INSPECTED REGULARLY, AND IMMEDIATELY AFTER A RAINFALL PRODUCES RUNOFF, TO ENSURE THEY REMAIN THOROUGHLY ENTRENCHED AND IN CONTACT WITH THE SOIL.
5. PERFORM MAINTENANCE IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATION 8-01.3(15).
6. STRAW WATTLES MAY BE LAID DIRECTLY UPON PAVED AREAS DOWNHILL OF PAVED TEMPORARY EXCAVATIONS AND DISTURBED AREAS. STABILIZE WATTLES BY INSTALLING SANDBAGS OVER THE WATTLE AT EVERY 6 LINEAL FEET.

CIVIL CONSTRUCTION SEQUENCE

WORK ITEMS BELOW SHALL BE PERFORMED WITHIN THE IDENTIFIED PROJECT WORK LIMITS. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE, SCHEDULE, AND SEQUENCE WORK. ON-SITE CONSTRUCTION EFFORTS SHALL BE CLOSELY COORDINATED WITH OFF-SITE IMPROVEMENTS.

1. PRIOR TO STARTING ANY WORK, ARRANGE & ATTEND PRE-CONSTRUCTION CONFERENCE WITH THE CITY OF TACOMA, AN ESC SUPERVISOR WILL BE DESIGNATED AT THE MEETING.
2. POST A SIGN W/THE NAME AND PHONE NUMBER OF THE ESC SUPERVISOR.
3. FLAG OR OTHERWISE DELINEATE ALL CLEARING AND CONSTRUCTION LIMITS AS SHOWN ON THE PLANS.
4. INSTALL EROSION AND SEDIMENTATION CONTROL MEASURES AS IDENTIFIED ON THE APPROVED EROSION CONTROL PLANS AND CITY OF TACOMA REQUIREMENTS.
5. DEMOLISH/REMOVE EXISTING FEATURES IN ACCORDANCE WITH APPROVED EROSION CONTROL/DEMOLITION PLANS AND CITY OF TACOMA REQUIREMENTS.
6. CONTRACTOR SHALL DETERMINE WATER TABLE ELEVATION PRIOR TO EXCAVATION. IF WATER TABLE IS WITHIN PROPOSED EXCAVATION LIMITS, DEWATERING EFFORTS SHALL BE IN PLACE PRIOR TO GRADING. SEE PROJECT NOTES ON G1.03 FOR MORE INFORMATION ON DEWATERING.
7. BEGIN EXCAVATION AND MASS GRADING TO ESTABLISH SUBGRADE OF PROPOSED IMPROVEMENTS.
8. INSTALL ECOLOGY BLOCK WALL AROUND THE BOUNDARIES OF THE IDENTIFIED AUTOFLUFF CONTAMINATION AND STORMWATER UTILITIES.
9. COMPLETE SUBGRADE PREPARATION AND IMPORT CRUSHED SURFACING TOP COURSE.
10. INSTALL ASPHALT PAVEMENT.
11. MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH CITY OF TACOMA SURFACE WATER DESIGN MANUAL AND MANUFACTURER'S RECOMMENDATIONS.
12. COVER ALL AREAS THAT WILL BE UNWORKED FOR MORE THAN SEVEN DAYS DURING THE DRY SEASON OR TWO DAYS DURING THE WET SEASON WITH PLASTIC SHEETING OR EQUIVALENT.
13. REMOVE EROSION CONTROL AND POLLUTION PREVENTION MEASURES UPON APPROVAL FROM CITY INSPECTOR.
14. CLEANUP PROJECT SITE. CLEAN ALL CATCH BASINS AND PIPING WITH VACTOR TRUCK. PROVIDE INVOICE TO ENGINEER UPON COMPLETION.
15. REMOVE EROSION CONTROL, AND POLLUTION PREVENTION MEASURES UPON APPROVAL FROM CITY INSPECTOR.

LEGEND

EXISTING FEATURES-

- FOUND MONUMENT AS NOTED
- SANITARY SEWER MANHOLE
- SANITARY SEWER CLEANOUT
- STORM CATCH BASIN
- STORM MANHOLE
- ROOF DRAIN
- STORM CULVERT
- WATER VAULT
- WATER METER
- WATER VALVE
- IRRIGATION CONTROL VALVE
- WATER BLOW OFF VALVE
- FIRE HYDRANT
- FIRE DEPARTMENT CONNECTION
- POST INDICATOR VALVE
- WATER MANHOLE
- MONITORING WELL
- GUY ANCHOR
- UTILITY POLE
- TP TRANSMISSION LINE POWER POLE
- LIGHT POLE
- P POWER VAULT
- JUNCTION BOX
- ELECTRIC METER OR PANEL
- POWER MANHOLE
- TRANSFORMER
- TELEPHONE VAULT
- TELEPHONE RISER
- GAS VALVE
- GAS METER
- V UTILITY VAULT
- SIGN
- GATE POST
- BOLLARD
- MAIL BOX
- RAILROAD SWITCH
- COLUMN
- CLEANOUT

- ASPHALT SURFACE
- CONCRETE SURFACE
- GRAVEL SURFACE
- BOUNDARY LINE
- RIGHT OF WAY LINE
- EASEMENT LINE
- QUARTER SECTION LINE
- SD BURIED STORM LINE
- SS BURIED SANITARY SEWER LINE
- W BURIED WATER LINE
- TEL BURIED TELECOMMUNICATIONS LINE
- GAS BURIED NATURAL GAS LINE
- FL BURIED PETROLEUM/OIL LINE
- BP BURIED POWER LINE
- TV RECORD CABLE LINE
- SD RECORD STORM LINE
- SS RECORD SANITARY SEWER LINE
- W RECORD WATER LINE
- OHP OVERHEAD UTILITY LINE
- DITCH CENTERLINE
- GUARD RAIL
- RAILROAD TRACK
- CHAIN LINK FENCE
- BARBED WIRE FENCE
- EDGE OF VEGETATION/LANDSCAPING
- 12"FIR / EVERGREEN TREE
- 12"MAPLE / DECIDUOUS TREE

PROPOSED FEATURES-

- 12 CONTOUR W/ ELEVATION
- SD STORM DRAIN PIPE
- GRADE BREAK
- FLOW LINE
- TYPE 1 CATCH BASIN
- TYPE 2 CATCH BASIN
- TC TOP OF CONCRETE/CURB
- BC BOTTOM OF CONCRETE/CURB
- F/C FACE OF CONCRETE/CURB
- TP TOP OF PAVEMENT
- S SCOPE
- FL FLOWLINE
- SLOPE ARROW
- 12.85 SPOT ELEVATION

- CATCH BASIN PROTECTION
- SILT FENCE
- DEMOLITION
- SAWCUT LINE
- PROJECT LIMITS
- STOCKPILE AREA
- ASPHALT PAVEMENT
- RAIL ROAD BALLAST
- BOLLARD
- SIGN

30% DESIGN REVIEW

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Tacoma

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED BY: | DATE: | FIELD BOOKS:

DATE 11/18/25 | SCALE AS NOTED | DESIGNED DCD | CHECKED DCD | DRAWN KNL | FILE NAME G1.01

DONALD C. HILL — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL SERVICES SCIENCE & ENGINEERING

PORT OF TACOMA
PARCEL 117 SNAIL ERADICATION
CIVIL LEGEND AND GENERAL NOTES

-- | 20618 | SHEET NO. G1.01 | SHEET 2 OF 24

CITY OF TACOMA RIGHT OF WAY GENERAL NOTES

GENERAL

A.The following special provisions are to be used in conjunction with the City of Tacoma Special Provisions, City of Tacoma Standard Plans and City of Tacoma Right-of-Way Design Manual, " 2022 Standard Specifications for Road, Bridge and Municipal Construction" and "Standard Plans for Road, Bridge and Municipal Construction" as prepared by the Washington State Department of Transportation (WSDOT).
B.Any inconsistency between these work order drawings and the 2022 Standard Specifications or the WSDOT Standard Plans shall be resolved by the following order of precedence (e.g., 1 presiding over 2, 3, and so forth):

1. Approved Work Order Drawings
2. City of Tacoma Special Provisions, including APWA General Special Provisions, as applicable
3. City of Tacoma Right-of-Way Design Manual
4. Amendments to WSDOT Standard Specifications
5. 2020 WSDOT Standard Specifications
6. City of Tacoma Standard Plans
7. WSDOT Standard Plans

C.Any revisions to these plans must be submitted as a Field Revision through Planning Development Services, reviewed and approved by the City of Tacoma prior to any implementation in the field.
D.Contractors shall familiarize themselves with the site and shall bring any discrepancies to the attention of the Engineer of Record prior to undertaking the affected work.
E.Any discrepancy in these drawings, specifications, these notes, and the site conditions shall be reported to the Engineer of Record, who shall correct such discrepancy in writing after reviewing any changes. Any work done by the Contractor after the discovery of such discrepancy shall be done at the Contractor's risk. The Contractor shall verify and coordinate the dimensions among all drawings with their field survey and measurements prior to proceeding with any work.
F.A pre-construction meeting, if required shall be held between the City of Tacoma, the applicant, contractor, and City Inspectors prior to issuance of a Work Order permit.
G.No traffic shall be allowed on any newly placed pavement without the approval of the City Inspector.
H.Cold Weather Concrete Work. The following requirements for placing concrete shall be in effect from November 1 to April 1:

1. The Inspector shall be notified at least 24 hours prior to any concrete placement.
2. Weather permitting, all concrete placement shall be completed no later than 2:00 p.m. each day.
3. Where forms have been placed and the subgrade has been subjected to severe frost, no concrete shall be placed until the ground is competely thawed. At that time, the forms shall be adjusted and subgrade repaired as determined by the Engineer.

ADDITIONAL PERMITS

A.Separate site development and building permits are required for on-site work including all retaining walls, grading, and erosion control. Adherence to all conditions of these permits is required as a part of this plan.
B.Separate right-of-way construction permits are required for sidewalk installation, as well as, curb and gutter removal and driveway construction when constructed under a site development permit and not a work order.
C.Separate storm and sanitary sewer connection permits are required for each individual connections to the stormwater or wastewater systems and/or each individual treatment device, whichever total is greater. These are over the counter permits.
D.New franchise site services require separate right-of-way utility permits to serve the site. Final restoration shall be coordinated by the project.

SAFETY/EXCAVATION

A.The existing underground utilities shown hereon are based upon available existing record drawings and are not guaranteed to be accurate, nor all-inclusive.
B. All utilities must be verified prior to construction. If the project requires any excavation, the developer/contractor is required to call the Utility Underground Location Center at (800) 424-5555 at least two business days before starting such excavation in accordance with RCW 19.122.
C.It shall be the Contractor's responsibility to protect in place, all utilities and/or structures whether shown or not shown on this plan. Damage due to the Contractor's operations shall be repaired at the Contractor's expense. A preliminary walk through with photos shared with the inspector prior to the start of work is advised.
D.If workers enter any trench or other excavation four feet or more in depth that does not meet the open pit requirements of Section 2-09.3(3)B, it shall be shored and cribbed. All trench safety systems shall meet the requirements of the Washington Industrial Safety and Health Act, Chapter 49.17 RCW. The Contractor alone shall be responsible for all worker safety, and neither the City of Tacoma nor the Engineer of Record assumes any responsibility.

PAVEMENT PREPARATION / RESTORATION

A. Additional removal and replacement of pavement may be required to provide proper transition/crown as directed by the City of Tacoma Inspector in the field. Final restoration limits shall be determined in the field by the City of Tacoma Inspector.
B. The street sections shown on this plan are designed to be placed upon a firm and unyielding base.
C. Subgrade compaction shall be tested by a testing professional prior to placing base material.
D.Pavement Preparation shall meet all applicable requirements of City of Tacoma Right-of-Way Design Manual Chapter 4 Sections 5.4 and 5.5.
E. Mix design shall be based on Standard Plan PD-01-Pavement Design Standards and PD-02 Pavement Design Worksheet.
F.Pavement restoration shall be constructed in accordance with the City of Tacoma Restoration Policy and applicable Standard Plans.
G. Unsuitable material to be removed and replaced.
H.All permanent traffic channelization, such as but not limited to legends, raised pavement markings, paint, and signage, shall be restored to current Tacoma Standards. Temporary striping shall be maintained as indicated on the plans or as directed by the City of Tacoma Inspector.

HOT MIX ASPHALT

A. All standard hot mix asphalt shall be compacted to a minimum of 92 percent of the maximum density as determined by AASHTO T209. All standard hot mix asphalt utilized shall be considered compactable. The level of compaction attained will be determined as the average of not less than 5 nuclear density gauge tests taken on the day the mix is placed (after completion of the finish rolling) at randomly selected locations within each lot. The quantity represented by each lot will be no greater than a single day's production or approximately 400 tons, whichever is less.
B. All testing results shall be provided to the City Inspector within 48 hours of the test.
C. Control lots not meeting the minimum density standard shall be removed and replaced with satisfactory material.
D. In addition to the randomly selected locations for test of the control lot, the City Inspector reserves the right to test any area which appears defective and to require further compaction of areas that fall below acceptable density readings. These additional tests shall not impact the compaction evaluation of the entire control lot.
E. Hot mix asphalt pavement shall not be placed on any traveled way between October 1 and April 1, without written approval from a Planning and Development Services Review Engineer.

CONCRETE

A.Curing of concrete shall be in accordance with Section 5-05.3(13) of the Standard Specifications.
B. The slump for standard concrete used for sidewalks shall not exceed four inches +/- one inch.
C.Sidewalks and curb ramps shall be constructed in accordance with ADA Standards for Accessible Design, 28 CFR, Part 35 and as supplemented by the Public Works Right of Way Accessibility Guidelines (PROWAG).

SANITARY AND STORM SEWERS

A. 7-08.3(2)F Plugs and Connections:
Rigid Couplings, manufactured by Romac Industries, Inc., or City of Tacoma approved equal, shall be used at any pipe joint in which bell and spigot or fused joints are not used. Flexible couplings are not permitted.
B. 7-08.3(2)G Jointing of Dissimilar Pipe:
Dissimilar pipes shall be joined by use of rigid couplings manufactured by Romac Industries, Inc., or City of Tacoma approved equal, except for side sewer installation.
C.Sewers and appurtenances shall be cleaned and tested after backfilling by either exfiltration or low-pressure air method at the option of the Contractor, except where the ground water table is such that the Engineer may require the infiltration test.
D. All abandoned pipes encountered during construction and new stormwater and wastewater stub outs shall be sealed with a watertight pipe plug.
E. All frames and grates for standard catch basin inlets on this project shall be "vaned" type and shall conform to that shown on WSDOT Standard Plan No. B-30.10-03, B-30.30-03, and B-30.40-03.
F. Where existing catch basins are modified, grates may be required to be replaced with vaned grates. The City will make the final determination based on the condition of the existing grate and structure.
G. Recycled concrete aggregate shall not be used as gravel backfill where stormwater or groundwater may come into contact with the concrete aggregate, be collected and discharged to the stormwater system or receiving waterbody (such as underdrain systems.). Recycled materials used shall meet the requirements of all applicable loca, state, and federal regulations including the City's SWMM, Right-of-Way Design Manual, and Tacoma Municipal Code as applicable to the give application.
H. New connections to brick manholes may be allowed on a case-by-case basis and will be assessed by City staff if it can be structurally cored. Manhole replacement may be required by the Environmental Services Department based upon the condition of the existing manhole.
I. The property side ends of the side sewers shall be marked in the field by means of a 2-inch by 4-inch board and locate wire that extends from the flow line of the side sewer to at least 1 foot above the finished lot grade.
J. After any new stormwater and/or wastewater pipes have been deaned and the manholes channeled, the main(s) shall be televised for video inspection to provide a record of the constructed conditions and for the wastewater system to verify side sewer connection locations. The City of Tacoma will coordinate this inspection.

MISCELLANEOUS

A.Fences and structures replaced and/or relocated shall be maintained and remain functional.
B.Independent quality assurance sampling and testing will be provided by a certified independent laboratory for all improvements within the right-of-way. All special inspection reports shall be forwarded to the Site Development Group on a monthly basis consistent with the directions given in the preconstruction meeting, and/or as requested by the City of Tacoma inspector.
C. If hydrant water is needed the contractor is required to contact Tacoma Public Utilities Water department, at (253) 502-8247, to obtain a permit. TPU may impose a fine for use of a non-registered water meter and/or backflow device.

EARTHWORKS, GRADING, EXCAVATION, AND EROSION CONTROL NOTES

A.All work is to be done in accordance with the approved grading plan, soils report, the most current WSDOT Standard Specifications For Road, Bridge And Municipal Construction, the 2021 City of Tacoma Stormwater Management Manual, City of Tacoma Standard Plans, and TMC 2.0.
B.When construction operations are such that debris from the work is deposited on the streets, the Contractor shall immediately remove any deposits or debris which may accumulate on the roadway surface. If the Contractor fails to keep the streets free from deposits and debris resulting from the work, the Contractor shall, upon order of the City of Tacoma Inspector, clean the streets and provide facilities for the removal of all rock and sediment from the tires and between wheels before trucks or other equipment will be allowed to travel over paved streets. Should the Contractor fail or refuse to clean the streets in question, or the trucks or equipment in question, the City of Tacoma Inspector may order the work suspended at the Contractor's risk until compliance with the Contractor's obligations is assured, or the City of Tacoma Inspector may order the streets in question cleaned by others and such costs incurred by the City in achieving compliance with these requirements, including cleaning of the streets, shall be charged to the work order account.
C.The Contractor shall protect existing drainage structures using acceptable methods and materials as shown on this plan. If the methods and materials as shown on this plan are not adequate, the City of Tacoma Inspector may require additional/alternative methods for erosion control and/or protection of existing drainage structures. Additional or alternative methods shall be submitted by the design engineer and accepted by the City of Tacoma Inspector. Any damage caused to the City of Tacoma stormwater system as a result of the work outlined on this plan shall be the sole responsibility of the Contractor. Resolving said damage may include, but not be limited to, the cleaning of the drainage system in question by the Contractor.
D.Watering provisions when applicable must be in place to prevent dust from becoming air borne. Violation of this condition will result in a stop work order until corrected.
E.Fill that will support a street section or other structures shall be placed under the inspection of a Washington State licensed Professional Engineer. Soil to be placed shall be tested and compacted to 95 percent of its maximum density. Engineer shall document existing site conditions, soil and its placement and allowable bearing capacity submitted. Standard requirements for cuts and fill are contained in the WSDOT Standard Specifications For Road, Bridges, and Municipal Construction.
F. A Construction Stormwater Pollution Prevention Plan (SWPPP) in accorcance with the 2021 City of Tacoma Stormwater Management Manual is required for all projects with over 2,000 square feet of impervious surface.
G. Soil shall not remain unworked or exposed for more than 2 days.
H. Per TMC 10.22.140.C, no construction shall be performed nor shall any traffic lane be closed to traffic between Thanksgiving day and New Year's day within the downtown core and outlying business districts unless otherwise approved by the Director. View maps of these areas online:
https://www.cityoftacoma.org/government/city_departments/community_and_economic_development/neighborhood_business_districts

INSPECTIONS

A.All erosion control shall be in place prior to clearing except for that clearing necessary to install said erosion control measures. The contractor shall schedule an inspection for the City of Tacoma Inspector for initial erosion control inspection prior to start of work, per item E. below.
B.Erosion control measures shall be maintained at all times to the approval of the City of Tacoma Inspector.
C.Should temporary erosion and sedimentation control measures, as shown on plans become inadequate, the contractor shall install facilities as necessary to protect adjacent properties and the City of Tacoma drainage system, meeting approval of the City of Tacoma Inspector.
D.Not considered a complete list of inspections required. Call for inspection of the City of Tacoma Inspector upon completion of:
Erosion control measures and ongoing regular maintenance
Compaction reports on trenches prior to placement of crushed rock/backfill
Channeling of manholes
Air-testing of sewer mains
Compaction reports for crushed rock prior to placing asphalt
Any concrete work: inspection is required for subgrade, forms, and finish
Adjustments of Utilities
Monumentation
Stand Alone Permits: such as driveways, sidewalk, SEWER, STORM, RUTI, street lighting
WATER permits – these cover the connection from the meter to the house
Hydroseeding of cuts/fills and slope stablization
Final clean-up and project completion
Construction Deficiency List (Punchlist)
E. All material removed from site shall be placed only at a permitted site. Verify location of destination of material prior to exportation. Material excavated from the site shall be discarded at an approved facility per Pierce County Health, Ecology.
F. All wastewater and stormwater pipes shall be video inspected by City Forces prior to paving where paving occurs over sewers. All other sewers will be video inspected prior to final acceptance of new mains.
G. If contaminated soils are suspected and/or encountered within the project contact your inspector. For more information contact the Department of Ecology.
H. All work performed by contractor shall comply with the procedures required WAC 296-62 and WAC 296-65. Contractor shall contact the Puget Sound Air Pollution Control Authority in Seattle at 206-344-7330 for information regarding removal and packaging and Pierce County Environmental Health Department in Tacoma, WA at 253-591-6571 for information regarding transportation and disposal.
I. Contractor shall conform to Department of Ecology's guidelines for contamination cleanup for projects within the Tacoma Smelter Plume Project Area. For more information contact the Department of Ecology at 360-407-7096.

TREE REMOVAL/PROTECTION

A. All areas that are cleared and grubbed, graded, excavated or filled are subject to stabilization. Any of these areas that are left unpaved or lack landscaping shall be hydroseeded or otherwise fully stabilized under the direction and approval of the Construction Inspector.
B. Hydroseeding may occur only during the periods of April 1 though May 31 or September 1 though October 15. Hydroseeding may be allowed during the months of June through August if irrigation is provided.
C. Monitor and maintain hydroseeded areas throughout the winter wet season to ensure that no erosion occurs.
D. Trees to be removed shall be clearly marked for removal. Trees to be saved shall be fenced with barricade fence at the drip line (outer edge of tree branches) to keep construction vehicles from compacting root zone and killing trees. This fencing shall be maintained until construction ends.
E . Tree protection measures to be installed with initial TESC measures and shall be maintained throughout the duration of site work. Refer to City of Tacoma Std. Plans 15-08 through 15-11.

TRAFFIC CONTROL

A. Per TMC 10..22.140.C, no construction shall be performed nor shall any traffic lane be closed to traffic between Thanksgiving day and New Year's day within the downtown core and outlying business districts unless otherwise approved by the Director. View maps of these areas online:
https://www.cityoftacoma.org/government/city_departments/community_and_economic_development/neighborhood_business_districts
B.Prior to the start of any work within the City of Tacoma ROW a complete TCP set shall be on site in addition to a complete set of approve drawing.

MONUMENT REMOVAL PERMIT PROCESS

A. "No survey monument shall be removed or destroyed (the physical disturbance or covering of a monument such that the survey point is no longer visible or readily accessible) before a permit is obtained from the Department of Natural Resources (DNR)." WAC 332-120-030(2) states "It shall be the responsibility of those performing construction work or other activity (including road and street resurfacing projects) to adequately search the records and the physical area of the proposed construction work or other activity for the purpose of locating and referencing any known or existing survey monuments." Construction shall not commence until WAC outlined in Chapter 332-120 is complied with.
B. Monuments on the plans shall be protected in place or the plans will call out the identified DNR permit for removal and replacement.

HORIZONTAL CONTROL AND VERTICAL CONTROL

Work in the right-of-way will be performed using construction staking established from two (2) City monuments for establishing control and basis of bearing. A list of survey monuments can be found at https://cms.cityoftacoma.org/PublicWorks/Engineering/LandSurvey/SurveyMons.pdf

HORIZONTAL AND VERTICAL CURVES

For all infrastructure constructed using horizontal and/or vertical curves, grade stakes must be set every 25 feet and at grade breaks with a minimum of 3 stakes for each curve. Stakes shall be placed at radius points on street returns.

STAKING REQUIREMENTS

A. Construction staking shall be per Standard Plan SU-26.
B. SANITARY SEWER AND STORMWATER
1. Clearing stakes if needed.
2.Stakes every 50 feet plus grade breaks. Try to maintain 12 foot offsets in streets and 8 foot offsets in alleys.
3.Double offsets at manholes and catch basins (ahead and back stakes at angle points).
4.Catch basin station shall be to the centerline of the basin. Catch basin offsets shall be to the face of the curb.
C. RESIDENTIAL STREETS AND PRIVATE ACCESSWAYS
1.Clearing stakes as needed.
2. Slope stakes every 50 feet and grade breaks if cuts or fills exceed 2 feet.
3.Curb stakes every 50 feet and grade breaks, on 4 foot offset to the face of curb. Curb stakes are set to the top of curb grade (Blue Tops).
4. Also stake the beginning and end of all approaches.
5. No centerline of street grades unless the street grade is warped. If street grades are needed, set blue tops for each course.
D. ARTERIAL STREETS
1.Clearing stakes as needed.
2.Slope stakes every 50 feet and grade breaks if cuts or fills exceed 2 feet.
3.Curb stakes every 50 feet and grade breaks, on 4 foot offset to the face of curb.
4.Curb stakes are set to the top of curb grade (Blue Tops). Also stake the beginning and end of all approaches.
5. Stake centerline and quarterline grade every 50 feet and grade breaks at grade for each course.
E. ALLEYS
1.Stake both sides every 50 feet and grade breaks, on a 2 foot offset to the edge of paving, with a cut or fill to edge of paving on high side and flow line on low side.
F. SIDEWALKS
1.Offsets for walks are set on 50' intervals and grade breaks normally at 2 foot to edge of walk and at edge of walk grade (Blue Tops).
2.Sidewalk alignment is normally at 5 feet from the face of curb. No walk grades are needed if curbs are built but running slope and cross slope per American with Disabilities must be met for all new walk meeting the design.

RECORD DRAWINGS CRITERIA FOR ACCEPTANCE OF ALL PRIVATE WORK ORDERS

A. Record drawings shall be received and accepted prior to issuing utility connection permits or release of performance bonds.
B. All revisions to the approved plans must be approved by the City of Tacoma prior to implementation of the changes.
C. A determination at the time of proposal to the Site Review Engineer shall be made whether the revision can be addressed with red line drawings submitted as a part of the record drawings or if it will require formal submission for approval.
D. Record drawings shall show the station, offset, centerline and gutter flowline elevations, to nearest 0.01 foot; for all horizontal and vertical roadway alignment changes, at the intersection end of radius points and at the beginning and end of new paving.
E. Record drawings shall show the station, offset, invert, and rim elevations to the nearest 0.01 foot for all stormwater and wastewater structures. (i.e.: manholes, catch basins, etc.)
F. Record drawings shall show all side sewers and shall locate them by measurements from permanent objects. (i.e.: curb, property corner, etc.) In addition, the depth of all side sewers shall be noted on the record drawings and locate board.
G. Record drawings shall show vertical and horizontal datum for survey monuments (existing or new construction) within the limits of the project.
H. Record drawings shall consist of a clean set of approved work order drawings with all changes noted above shown in red.
I. Record drawings, including the Engineer's Certification, as applicable, must be submitted within 30 days of substantial completion and prior to release of the performance bond or assignment of funds or City survey crews will collect the necessary data and bill against the work order.

BOND RELEASE

The following are required to be collected for the performance bond to be release to the owner:
Punchist Completion.
Record Drawings
Engineer Certification for Stormwater Facilities

Revised: January 26, 2023

30% DESIGN REVIEW

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Port of Tacoma
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Tacoma

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED BY
DATE
FIELD BOOKS

DATE	11/18/25
SCALE	AS NOTED
DESIGNED	DCD
CHECKED	DCD
DRAWN	KNL
FILE NAME	G1.02

PRELIMINARY

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL SERVICES SCIENCE & ENGINEERING

PORT OF TACOMA
PARCEL 117 SNAIL ERADICATION
COT RIGHT OF WAY GENERAL NOTES

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20618
SHEET NO. G1.02
SHEET 3 OF 24

GENERAL STORMWATER NOTES

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH CITY STANDARDS AND THE MOST CURRENT COPY OF THE STATE OF WASHINGTON STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION (WSDOT/APWA) AND AS AMENDED BY THE CITY.

2. TEMPORARY EROSION/WATER POLLUTION PREVENTION MEASURES SHALL BE REQUIRED IN ACCORDANCE WITH SECTION 1-07.15, AS MODIFIED BY THE APWA SUPPLEMENT, OF THE CURRENT STATE OF WASHINGTON STANDARD SPECIFICATIONS AND THE CITY OF TACOMA STORMWATER MANAGEMENT MANUAL. SHOULD THE TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AS SHOWN ON THIS DRAWING NOT PROVE ADEQUATE TO CONTROL EROSION AND SEDIMENTATION, THE CONTRACTOR SHALL INSTALL ADDITIONAL FACILITIES AS NECESSARY TO PROTECT ADJACENT PROPERTIES, SENSITIVE AREAS, NATURAL WATER COURSES AND/OR STORM DRAINAGE SYSTEMS.

3. CALL THE UNDERGROUND LOCATE LINE 1-800-424-5555 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATIONS.

4. THE STORM DRAINAGE SYSTEM SHALL BE CONSTRUCTED ACCORDING TO APPROVED PLANS ON FILE WITH THE MUNICIPALITY. ANY SIGNIFICANT DEVIATION FROM THE APPROVED PLANS WILL REQUIRE WRITTEN APPROVAL FROM THE MUNICIPALITY.

5. A COPY OF THE APPROVED STORMWATER PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.

6. ALL EROSION CONTROL AND STORMWATER FACILITIES SHALL BE REGULARLY INSPECTED AND MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION.

7. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN STREET USE AND OTHER RELATED OR REQUIRED PERMITS PRIOR TO ANY CONSTRUCTION ACTIVITY IN THE MUNICIPALITY'S RIGHT-OF-WAY. IT SHALL ALSO BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL REQUIRED PERMITS PRIOR TO ANY CONSTRUCTION. THE CONTRACTOR SHALL ABIDE BY ALL REQUIREMENTS FOR TRAFFIC CONTROL AND SAFETY WHEN WORKING IN THE ROAD RIGHT-OF-WAY.

8. THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IN THE EVENT OF DISCOVERY OF POOR SOILS, STANDING GROUNDWATER OR SEVERE DISCREPANCIES FROM SOIL LOG DESCRIPTIONS AS NOTED ON THE PLANS.

9. FOR PUBLIC SYSTEMS, THE CONTRACTOR SHALL CALL FOR INSPECTION 48 HOURS PRIOR TO COVERING ANY DRAINAGE STRUCTURE.

10. ALL DRAINAGE STRUCTURES, SUCH AS CATCH BASINS AND MANHOLES, NOT LOCATED WITHIN A TRAVELED ROADWAY OR SIDEWALK, SHALL HAVE SOLID LOCKING LIDS.

11. BARE GALVANIZED METAL SHALL NOT BE USED FOR MATERIALS THAT CONVEY STORMWATER, SUCH AS ROOFS, CANOPIES, SIDING, GUTTERS, DOWNSPOUTS, ROOF DRAINS, AND PIPES. ANY GALVANIZED MATERIALS SHALL HAVE AN INERT, NON-LEACHABLE FINISH, SUCH AS A BAKED ENAMEL, FLUOROCARBON PAINT (SUCH AS KYNAR® OR HYLAR®), FACTORY-APPLIED EPOXY, PURE ALUMINUM, OR ASPHALT COATING. ACRYLIC PAINT, POLYESTER PAINT, FIELD-APPLIED, AND PART ZINC (SUCH AS GALVALUME®)COATINGS ARE NOT ACCEPTABLE.

12. THE ENGINEER OF RECORD SHALL PROVIDE AN ENGINEER'S CERTIFICATION TO THE CITY OF TACOMA AFTER THE FACILITY INSTALLATION AND PRIOR TO PERMIT FINAL INSPECTION AND/OR CLOSEOUT. THE ENGINEER'S CERTIFICATION SHALL INCLUDE:

    A. THE PERMIT NUMBER
    B. STATEMENTS TO ATTEST:

    1.1. THAT ALL STORMWATER FACILITIES HAVE BEEN INSTALLED ACCORDING TO THE APPROVED PERMIT DOCUMENTS. CHANGES TO THE APPROVED PERMIT SET THAT ARE REQUIRED DURING CONSTRUCTION SHALL BE SUBMITTED TO CITY OF TACOMA B.L.U.S. FOR E.S.S.E. TO REVIEW AND APPROVE DURING THE CONSTRUCTION PHASE AND PRIOR TO THE CHANGE BEING CONSTRUCTED.

DEWATERING NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING ALL EXCAVATIONS. ALL WATER GENERATED FROM DEWATERING OPERATIONS SHALL BE DISPOSED OF IN MANNER AND LOCATION APPROVED BY PORT OF TACOMA.

2. CONTRACTOR TO ANTICIPATE GROUNDWATER WITHIN 5 FEET OF SURFACE AND PROVIDE ALL EQUIPMENT NECESSARY TO DE-WATER EXCAVATIONS. COORDINATE DISCHARGE WITH OWNER IN TRAFFIC AREAS AND NEAR OPERATIONAL FACILITIES (I.E. SURFACE PIPING IS NOT ACCEPTABLE WITHOUT APPROPRIATE, APPROVED TRAFFIC CONTROL MEASURES).

3. ALL GROUNDWATER OR INCIDENTAL SURFACE RUNOFF COLLECTED SHALL BE DISCHARGED TO THE MILL STORMWATER SYSTEM FOLLOWING APPROPRIATE TREATMENT UNTIL CONSTRUCTION IS COMPLETE.

4. NO SEDIMENT, TURBID WATER, OR OTHER POLLUTANTS (HEAVY METALS, OIL SHEEN, ETC.) SHALL BE DISCHARGED TO THE MILL STORMWATER SYSTEM. ANY TREATMENT OF COLLECTED WATER SHALL BE APPROVED BY PORT OF TACOMA PRIOR TO DISCHARGE.

5. ANY DISCHARGE TO THE STORM SEWER SYSTEM WILL REQUIRE PRIOR COORDINATION WITH PORT OF TACOMA TO ESTABLISH SAMPLING PROTOCOL, DISCHARGE VOLUMES, AND NOTIFICATION TO CITY OF TACOMA.

6. A LOG OF ALL DISCHARGED STORMWATER SHALL BE KEPT ON-SITE AT ALL TIMES DURING CONSTRUCTION. AT A MINIMUM, THE LOG SHALL CONTAIN THE FOLLOWING ITEMS:
    - DATE DISCHARGED
    - SOURCE OF WATER (VAULT, PIPE, ETC.)
    - TYPE OF WATER DISCHARGED (GROUNDWATER, STORMWATER, ETC.)
    - METHOD OF COLLECTION (PUMP TO TANK, ETC.)
    - METHOD OF DISCHARGE (DRAIN FROM TANK, PUMPED DISCHARGE, ETC.)
    - VOLUME OF WATER DISCHARGED
    - DISCHARGE LOCATION
    - RECEIVING SYSTEM (ON-SITE STORM SYSTEM, OFF-SITE FACILITY, ETC.)
    - DURATION OF DISCHARGE

7. ANY STORMWATER COLLECTED INTO A TRUCK SHALL NOT BE DISCHARGED TO THE STORMWATER SYSTEM. THE CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FROM PORT OF TACOMA FOR ANY OFF-SITE DISPOSAL OF WATER, SEDIMENT, OR DEBRIS.

EXCAVATION NOTES

1. EXCAVATE TO ELEVATIONS, LINES AND GRADES INDICATED TO NOT MORE THAN 1/2-INCH ABOVE OR BELOW THAT REQUIRED.

2. SLOPE SIDES OF EXCAVATION AS INDICATED OR COMPLY WITH LOCAL CODES AND ORDINANCES HAVING JURISDICTION, WHICHEVER IS MORE STRINGENT. SHORE AND BRACE WHERE SLOPING IS NOT POSSIBLE BECAUSE OF SPACE RESTRICTIONS OR STABILITY OF MATERIAL EXCAVATED.

3. STOCKPILE SATISFACTORY EXCAVATED MATERIALS WHERE DIRECTED UNTIL REQUIRED FOR BACKFILL OR FILL. PLACE, GRADE AND SHAPE STOCKPILES FOR PROPER DRAINAGE. LOCATE AND RETAIN SOIL MATERIALS AWAY FROM EDGE OF EXCAVATIONS.

4. DISPOSE OF EXCESS SOIL AND UNSUITABLE SOIL MATERIAL LEGALLY OFF-SITE.

COMPACTION NOTES

1. CONTROL SOIL COMPACTION DURING CONSTRUCTION PROVIDING MINIMUM PERCENTAGE OF DENSITY SPECIFIED FOR EACH AREA CLASSIFICATION. PERCENTAGES ARE RELATED TO MAXIMUM DRY DENSITY AS MEASURED IN CONFORMANCE WITH ASTM D 1557.

2. COMPACT TOP 12-INCHES OF SUBGRADE (24-INCHES UNDER PROPOSED DRIVING SURFACES) TO 95-PERCENT OF MAXIMUM DRY DENSITY UNDER PAVEMENTS AND GRAVEL SURFACING.

3. WHERE SUBGRADE OR LAYER OF SOIL MATERIAL MUST BE MOISTURE CONDITIONED BEFORE COMPACTION, UNIFORMLY APPLY WATER TO SURFACE OF SUBGRADE OR LAYER OF SOIL MATERIAL TO PREVENT FREE WATER APPEARING ON SURFACE DURING OR SUBSEQUENT TO COMPACTION OPERATIONS. REMOVE AND REPLACE, OR SCARIFY AND AIR DRY, SOIL MATERIAL THAT IS TOO WET TO PERMIT COMPACTION TO SPECIFIED DENSITY. SOIL MATERIAL THAT HAS BEEN REMOVED BECAUSE IT IS TOO WET TO PERMIT COMPACTION MAY BE STOCKPILED OR SPREAD AND ALLOWED TO DRY. ASSIST DRYING BY DISKING, HARROWING OR PULVERIZING UNTIL MOISTURE CONTENT IS REDUCED TO SATISFACTORY VALUE.

GEOTEXTILE FABRIC NOTES

1. STABILIZATION GEOTEXTILE: WOVEN GEOTEXTILE FABRIC, MANUFACTURED FOR SEPARATION APPLICATIONS MADE FROM POLYOLEFINS OR POLYESTERS WITH ELONGATION LESS THAN 50 PERCENT COMPLYING WITH WSDOT 9-33.2 TABLE 3 REQUIREMENTS:

    GRAB TENSILE STRENGTH: 315 LBF; ASTM D 4632.

    SEWN SEAM STRENGTH: 270 LBF; ASTM D 4632.

    TEAR STRENGTH: 112 LBF; ASTM D 4533.

    PUNCTURE STRENGTH: 112 LBF; ASTM D 4833.

    APPARENT OPENING SIZE: NUMBER 40 SIEVE, MAXIMUM; ASTM D 4751.

    PERMITTIVITY: 0.10 PER SECOND, MINIMUM; ASTM D 4491.

    UV STABILITY: 50 PERCENT AFTER 500 HOURS EXPOSURE; ASTM D 4355.

CATCH BASIN NOTES

1. TYPE 1 CATCH BASINS SHALL COMPLY WITH WSDOT STANDARD PLAN B-5.20-01.

2. TYPE 1 CATCH BASINS SHALL BE EQUIPPED WITH RECTANGULAR FRAMES PER WSDOT STANDARD PLAN B-30.10-01. TYPE 1 CATCH BASINS SHALL BE COVERED WITH BOLT-DOWN CAST IRON GRATES PER WSDOT STANDARD PLANS OR OTHER NOTED ON PLANS.

    A. RECTANGULAR VANED GRATE PER WSDOT B 30.30-01.
    B. RECTANGULAR BI-DIRECTIONAL VANED GRATE PER B 30.40-01.

3. STORM STRUCTURES SHALL BE INSTALLED PER WSDOT STANDARD SPECIFICATION 7-05.

4. ALL CATCH BASINS SHALL BE MARKED AS FOLLOWS: "DUMP NO WASTE. DRAINS TO SOUND." THE CONTRACTOR SHALL INSTALL STICKER PROVIDED BY THE CITY ON EACH REPLACED CATCH BASINS (TYP.).

GRAVEL NOTES

1. TOP COURSE OR CRUSHED SURFACING TOP COURSE SHALL CONFORM TO WSDOT 9-03.9(3) REQUIREMENTS.

2. BASE COURSE OR CRUSHED SURFACING BASE COURSE SHALL CONFORM TO WSDOT 9-03.9(3) REQUIREMENTS.

RIGHT-OF-WAY ASPHALT NOTES

1. CONTRACTOR TO MATCH EXISTING ASPAHLT PAVEMENT SECTION, OR REFER TO CITY OF TACOMA STANDARD PLAN PD-01/C4.01.

2. AGGREGATE SHALL COMPLY WITH CLASS 1/2" GRADATION PER WSDOT STANDARD SPECIFICATION SECTION 9-03.8

3. BINDER SHALL COMPLY WITH PERFORMANCE GRADE ASPHALT BINDER PG 58-22 PER WSDOT STANDARD SPECIFICATION SECTION 9-02.1(4)

4. HMA PAVEMENT SHALL BE COMPACTED TO 92% RICE VALUE.

30% DESIGN REVIEW

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NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED
BY
DATE
FIELD BOOKS

DATE	SCALE
11/18/25	AS NOTED
DESIGNED DCD	CHECKED DCD
DRAWN KNL	FILE NAME G1.03

PRELIMINARY

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL SERVICES SCIENCE & ENGINEERING

PORT OF TACOMA
PARCEL 117 SNAIL ERADICATION
CIVIL GENERAL NOTES

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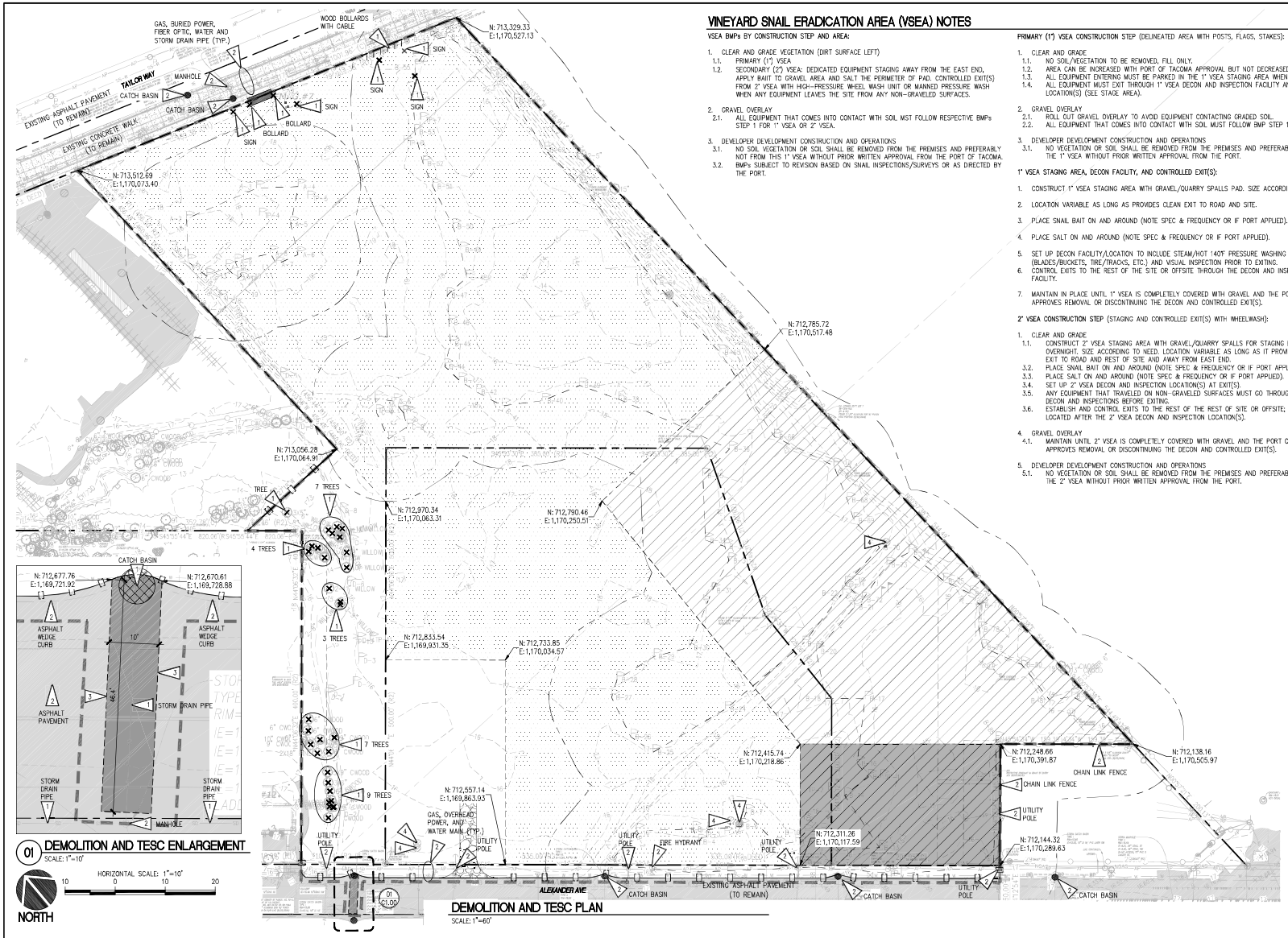
20618
SHEET NO. G1.03
SHEET 04 OF 24



01 DEMOLITION AND TESC ENLARGEMENT

SCALE: 1"=10'

HORIZONTAL SCALE: 1"=10'

10 0 10 20

NORTH

DEMOLITION AND TESC PLAN

SCALE: 1"=60'

NORTH

HORIZONTAL SCALE: 1"=40'

40 0 40 80

VINEYARD SNAIL ERADICATION AREA (VSEA) NOTES

VSEA BMPs BY CONSTRUCTION STEP AND AREA:

1. CLEAR AND GRADE VEGETATION (DIRT SURFACE LEFT)
   - 1.1. PRIMARY (1') VSEA
   - 1.2. SECONDARY (2') VSEA: DEDICATED EQUIPMENT STAGING AWAY FROM THE EAST END, APPLY BAIT TO GRAVEL AREA AND SALT THE PERIMETER OF PAD. CONTROLLED EXIT(S) FROM 2' VSEA WITH HIGH-PRESSURE WHEEL WASH UNIT OR MANNED PRESSURE WASH WHEN ANY EQUIPMENT LEAVES THE SITE FROM ANY NON-GRAVELED SURFACES.
2. GRAVEL OVERLAY
   - 2.1. ALL EQUIPMENT THAT COMES INTO CONTACT WITH SOIL MST FOLLOW RESPECTIVE BMPs STEP 1 FOR 1' VSEA OR 2' VSEA.
3. DEVELOPER DEVELOPMENT CONSTRUCTION AND OPERATIONS
   - 3.1. NO SOIL VEGETATION OR SOIL SHALL BE REMOVED FROM THE PREMISES AND PREFERABLY NOT FROM THIS 1' VSEA WITHOUT PRIOR WRITTEN APPROVAL FROM THE PORT OF TACOMA.
   - 3.2. BMPs SUBJECT TO REVISION BASED ON SNAIL INSPECTIONS/SURVEYS OR AS DIRECTED BY THE PORT.

PRIMARY (1') VSEA CONSTRUCTION STEP (DELINEATED AREA WITH POSTS, FLAGS, STAKES):

1. CLEAR AND GRADE
   - 1.1. NO SOIL/VEGETATION TO BE REMOVED, FILL ONLY.
   - 1.2. AREA CAN BE INCREASED WITH PORT OF TACOMA APPROVAL BUT NOT DECREASED.
   - 1.3. ALL EQUIPMENT ENTERING MUST BE PARKED IN THE 1' VSEA STAGING AREA WHEN NOT IN USE.
   - 1.4. ALL EQUIPMENT MUST EXIT THROUGH 1' VSEA DECON AND INSPECTION FACILITY AND EXIT LOCATION(S) (SEE STAGE AREA).
2. GRAVEL OVERLAY
   - 2.1. ROLL OUT GRAVEL OVERLAY TO AVOID EQUIPMENT CONTACTING GRADED SOIL.
   - 2.2. ALL EQUIPMENT THAT COMES INTO CONTACT WITH SOIL MUST FOLLOW BMP STEP 1 ABOVE.
3. DEVELOPER DEVELOPMENT CONSTRUCTION AND OPERATIONS
   - 3.1. NO VEGETATION OR SOIL SHALL BE REMOVED FROM THE PREMISES AND PREFERABLY NOT FROM THE 1' VSEA WITHOUT PRIOR WRITTEN APPROVAL FROM THE PORT.

1' VSEA STAGING AREA, DECON FACILITY, AND CONTROLLED EXIT(S):

1. CONSTRUCT 1' VSEA STAGING AREA WITH GRAVEL/QUARRY SPALLS PAD. SIZE ACCORDING TO NEED.
2. LOCATION VARIABLE AS LONG AS PROVIDES CLEAN EXIT TO ROAD AND SITE.
3. PLACE SNAIL BAIT ON AND AROUND (NOTE SPEC & FREQUENCY OR IF PORT APPLIED).
4. PLACE SALT ON AND AROUND (NOTE SPEC & FREQUENCY OR IF PORT APPLIED).
5. SET UP DECON FACILITY/LOCATION TO INCLUDE STEAM/HOT 140°F PRESSURE WASHING (BLADES/BUCKETS, TIRE/TRACKS, ETC.) AND VISUAL INSPECTION PRIOR TO EXITING.
6. CONTROL EXITS TO THE REST OF THE SITE OR OFFSITE THROUGH THE DECON AND INSPECTION FACILITY.
7. MAINTAIN IN PLACE UNTIL 1' VSEA IS COMPLETELY COVERED WITH GRAVEL AND THE PORT OF TACOMA APPROVES REMOVAL OR DISCONTINUING THE DECON AND CONTROLLED EXIT(S).

2' VSEA CONSTRUCTION STEP (STAGING AND CONTROLLED EXIT(S) WITH WHEELWASH):

1. CLEAR AND GRADE
   - 1.1. CONSTRUCT 2' VSEA STAGING AREA WITH GRAVEL/QUARRY SPALLS FOR STAGING EQUIPMENT OVERNIGHT. SIZE ACCORDING TO NEED. LOCATION VARIABLE AS LONG AS IT PROVIDES CLEAN EXIT TO ROAD AND REST OF SITE AND AWAY FROM EAST END.
   - 3.2. PLACE SNAIL BAIT ON AND AROUND (NOTE SPEC & FREQUENCY OR IF PORT APPLIED).
   - 3.3. PLACE SALT ON AND AROUND (NOTE SPEC & FREQUENCY OR IF PORT APPLIED).
   - 3.4. SET UP 2' VSEA DECON AND INSPECTION LOCATION(S) AT EXIT(S).
   - 3.5. ANY EQUIPMENT THAT TRAVELED ON NON-GRAVELED SURFACES MUST GO THROUGH 2' VSEA DECON AND INSPECTIONS BEFORE EXITING.
   - 3.6. ESTABLISH AND CONTROL EXITS TO THE REST OF THE REST OF SITE OR OFFSITE; EXISTS LOCATED AFTER THE 2' VSEA DECON AND INSPECTION LOCATION(S).
4. GRAVEL OVERLAY
   - 4.1. MAINTAIN UNTIL 2' VSEA IS COMPLETELY COVERED WITH GRAVEL AND THE PORT OF TACOMA APPROVES REMOVAL OR DISCONTINUING THE DECON AND CONTROLLED EXIT(S).
5. DEVELOPER DEVELOPMENT CONSTRUCTION AND OPERATIONS
   - 5.1. NO VEGETATION OR SOIL SHALL BE REMOVED FROM THE PREMISES AND PREFERABLY NOT FROM THE 2' VSEA WITHOUT PRIOR WRITTEN APPROVAL FROM THE PORT.

LEGEND

- PRIMARY (1') VSEA — SEE VSEA NOTES.
- 1' VSEA — SEE VSEA NOTES.
- 2' VSEA — SEE VSEA NOTES.
- ASPHALT DEMO/REMOVAL
- TEMPORARY CONSTRUCTION ENTRANCE (03 C4.00)
- PROPERTY LINE
- WETLAND
- WETLAND BUFFER
- DEMOLITION
- SAWCUT LINE
- SILT FENCE (01 C4.00)
- CLEARING LIMITS
- CATCH BASIN PROTECTION (02 C4.00)
- TREE REMOVAL

GENERAL NOTES

1. SEE APPLICABLE PROJECT NOTES ON SHEETS G1.01, G1.02, AND G1.03.
2. CONTRACTOR IS COORDINATE AND CONFIRM FINAL VSEA BOUNDARY LOCATIONS WITH PORT OF TACOMA.

KEY NOTES

1. REMOVE EXISTING FEATURE AS NOTED.
2. PROTECT EXISTING FEATURE AS NOTED.
3. SAWCUT ASPHALT PAVEMENT TO FULL DEPTH, UNYIELDING EDGE.
4. PROTECT EXISTING MONITORING WELL AND RAISE RIM TO FINISH GRADE. REF. SHEET C3.01.

30% DESIGN REVIEW

PREPARED BY: sitts&hill — CIVIL | STRUCTURAL | SURVEY — 4616 CENTER STREET, TACOMA, WA, 98409 — PHONE: (253) 474-9449 | FAX: (253) 474-9155 — http://www.sittshill.com

PREPARED FOR: Port of Tacoma — P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

Tacoma

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED BY / DATE / FIELD BOOKS

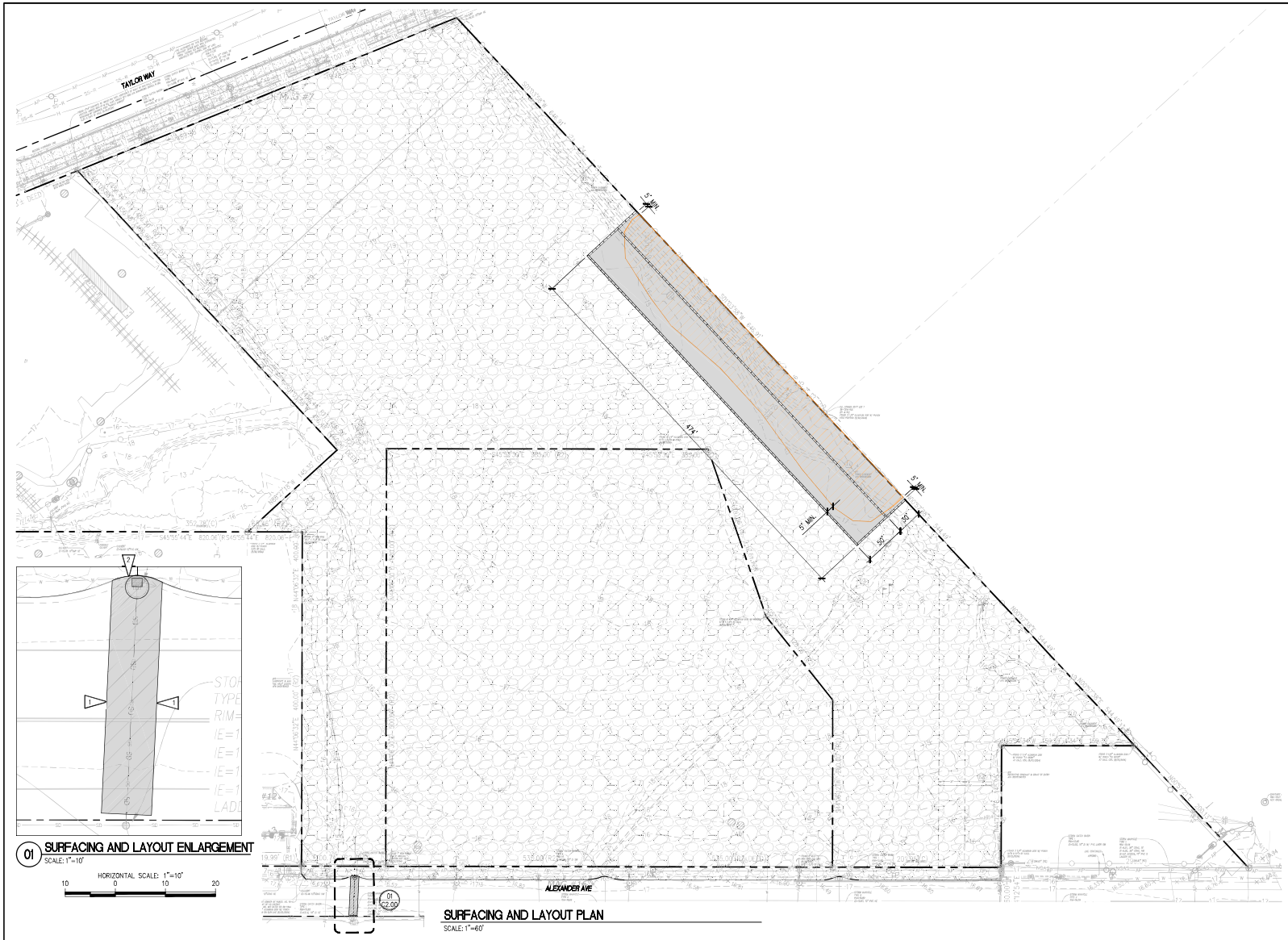
DATE 11/18/25 | SCALE AS NOTED | DESIGNED DCD | CHECKED DCD | DRAWN KNL | FILE NAME C1.00

PRELIMINARY — NOT FOR CONSTRUCTION

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL SERVICES SCIENCE & ENGINEERING

PORT OF TACOMA
PARCEL 117 SNAIL ERADICATION
DEMOLITION AND TESC PLAN

-- | 20618 | SHEET NO. C1.00 | SHEET 18 OF 24



01 SURFACING AND LAYOUT ENLARGEMENT
SCALE: 1"=10'

HORIZONTAL SCALE: 1"=10'
10 0 10 20

SURFACING AND LAYOUT PLAN
SCALE: 1"=60'

LEGEND

- PROPERTY LINE
- CRUSHED SURFACING BASE COURSE (05/C4.00)
- ONSITE ASPHALT PAVEMENT (05/C4.00)
- R.O.W. ASPHALT PAVEMENT
- AUTOFLUFF CONTAMINATION
- ECOLOGY BLOCK (08/C4.00)

GENERAL NOTES

1. SEE APPLICABLE PROJECT NOTES ON SHEETS G1.01, G1.02, AND G1.03.

KEY NOTES

1. ASPHALT PAVEMENT RESTORATION PER DETAIL
2. INSTALL NEW ASPHALT WEDGE CURB IN KIND, MATCHING EXISTING CURB ALIGNMENT, WIDTH, AND HEIGHT. REF. "HMA WEDGE CURB STANDARD" ON COT DETAIL SU-03A/C4.00.

NORTH
HORIZONTAL SCALE: 1"=60'
60 0 60 120

30% DESIGN REVIEW

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Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

Tacoma

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED BY / DATE / FIELD BOOKS

DATE	SCALE
11/18/25	AS NOTED
DESIGNED DCD	CHECKED DCD
DRAWN KNL	FILE NAME C2.00

PRELIMINARY

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL SERVICES SCIENCE & ENGINEERING

PORT OF TACOMA
PARCEL 117 SNAIL ERADICATION
SURFACING AND LAYOUT PLAN

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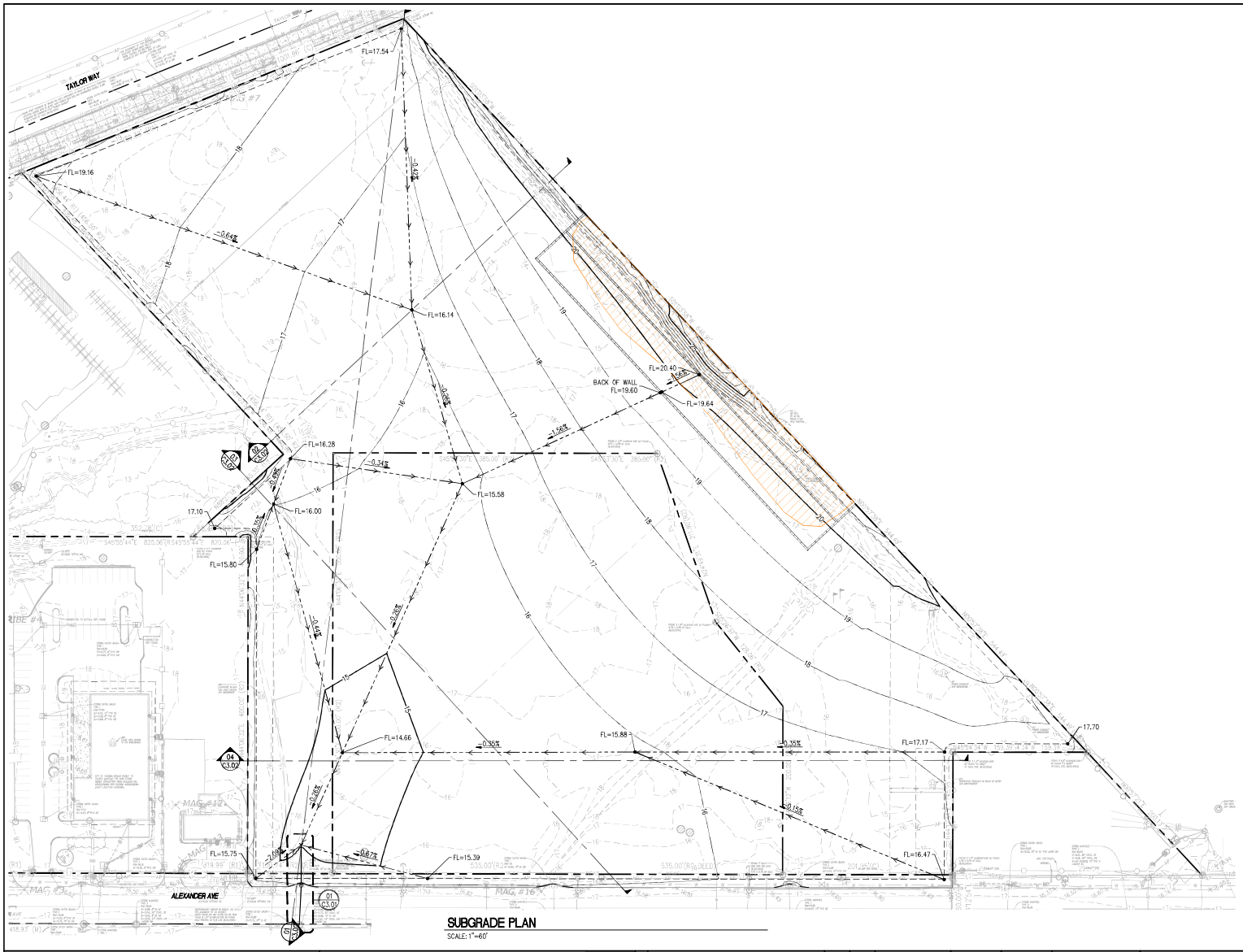
20618
SHEET NO. C2.00
SHEET 19 OF 24



SUBGRADE PLAN

SCALE: 1"=60'

LEGEND

- PROPERTY LINE
- SD — STORM DRAIN PIPE
- 15 — SUBGRADE MAJOR CONTOUR
- 14 — SUBGRADE MINOR CONTOUR
- SUBGRADE TOP OF SLOPE
- SUBGRADE TOE OF SLOPE
- FLOW LINE
- GRADE BREAK
- MANHOLE, TYPE 1
- 18.18 — PROPOSED ELEVATION
- 0.49% — SLOPE
- FL — FLOW LINE
- AUTOFLUFF CONTAMINATION

GENERAL NOTES

1. SEE APPLICABLE PROJECT NOTES ON SHEETS G1.01, G1.02, AND G1.03.
2. PERMANENT BACKFILL SLOPES SHALL NOT EXCEED 2H:1V.

NORTH

HORIZONTAL SCALE: 1"=60'

60 0 60 120

30% DESIGN REVIEW

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Tacoma

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED — BY — DATE — FIELD BOOKS

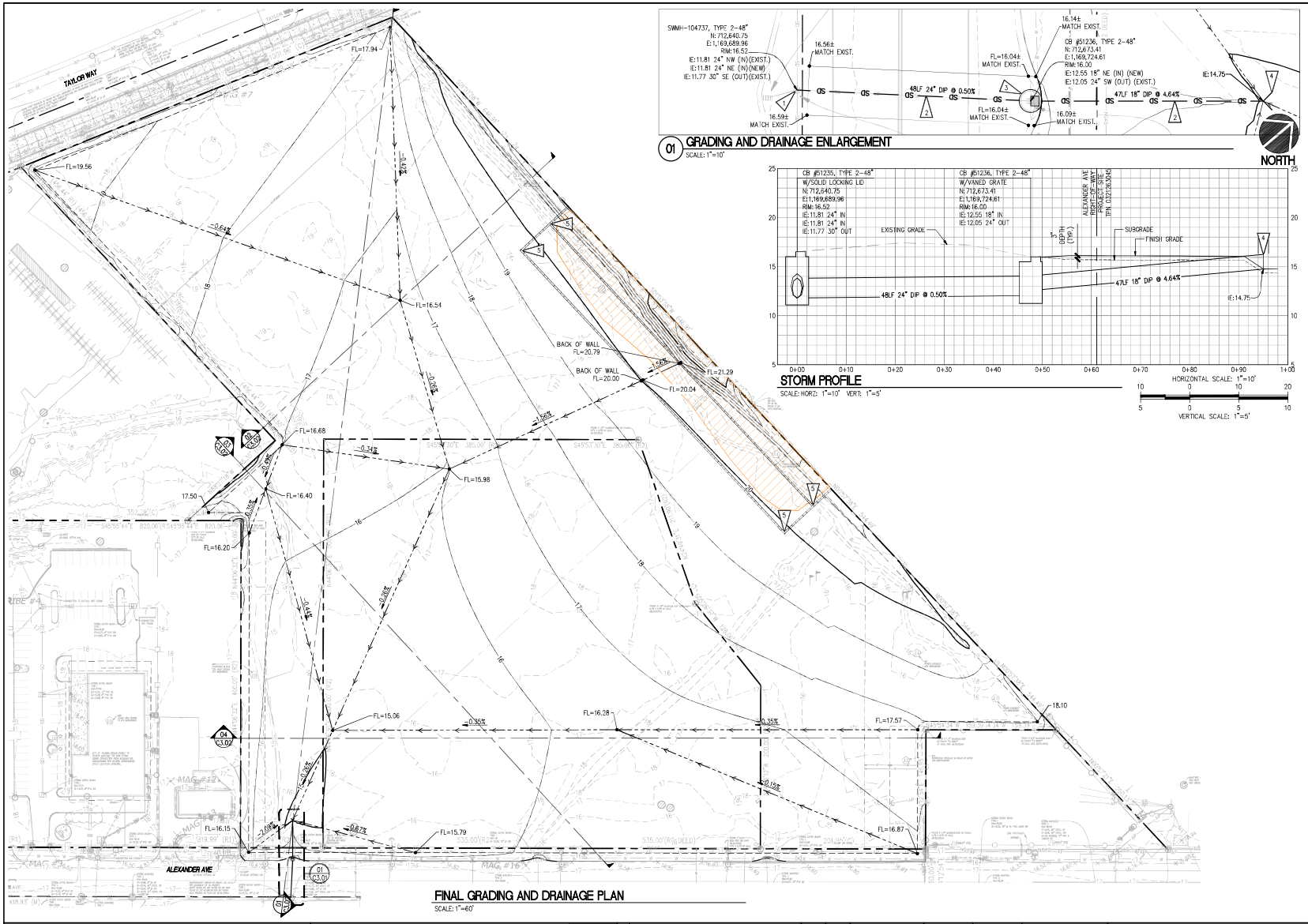
DATE 11/18/25 | SCALE AS NOTED | DESIGNED DCD | CHECKED DCD | DRAWN KNL | FILE NAME C3.00

PRELIMINARY

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL SERVICES SCIENCE & ENGINEERING

PORT OF TACOMA
PARCEL 117 SNAIL ERADICATION
SUBGRADE PLAN

-- | 20618 | SHEET NO. C3.00 | SHEET 20 OF 24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ALEXANDER AVE
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FL=17.94
FL=16.54
FL=16.68
FL=16.40
FL=16.20
FL=15.98
FL=15.06
FL=16.28
FL=17.57
FL=16.87
FL=15.79
FL=16.15
BACK OF WALL FL=20.79
BACK OF WALL FL=20.00
FL=21.29
FL=20.04
18.10
17.50
-0.64%
-0.34%
-0.35%
-0.67%
-1.09%
-0.15%
-0.50%
-0.49%
-0.56%
-0.24%
-0.30%
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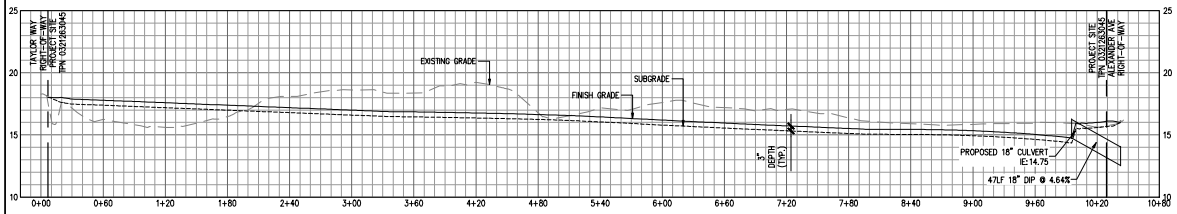
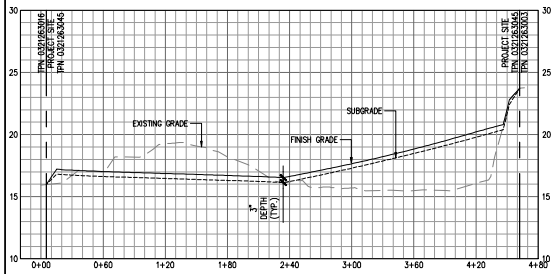


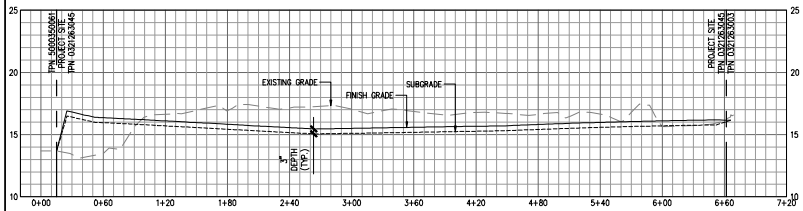
01 SITE PROFILE

SCALE: HORZ: 1"=60' VERT: 1"=5'



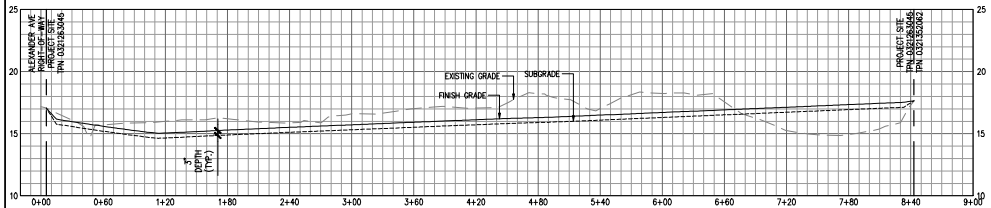
02 SITE PROFILE

SCALE: HORZ: 1"=60' VERT: 1"=5'



03 SITE PROFILE

SCALE: HORZ: 1"=60' VERT: 1"=5'



04 SITE PROFILE

SCALE: HORZ: 1"=60' VERT: 1"=5'

HORIZONTAL SCALE: 1"=60'

60 0 60 120

5 0 5 10

VERTICAL SCALE: 1"=5'

30% DESIGN REVIEW

PREPARED BY

sitts&hill

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PREPARED FOR

Port of Tacoma

P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED

BY

DATE

FIELD BOOKS

DATE	SCALE
11/18/25	AS NOTED
DESIGNED DCD	CHECKED DCD
DRAWN KNL	FILE NAME C3.02

DONALD C. DAVIS — PRELIMINARY

CITY OF TACOMA

DEPARTMENT OF PUBLIC WORKS

ENVIRONMENTAL SERVICES SCIENCE & ENGINEERING

PORT OF TACOMA

PARCEL 117 SNAIL ERADICATION

SITE PROFILES

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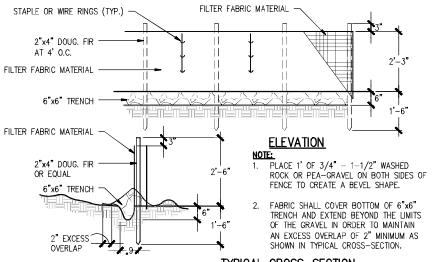
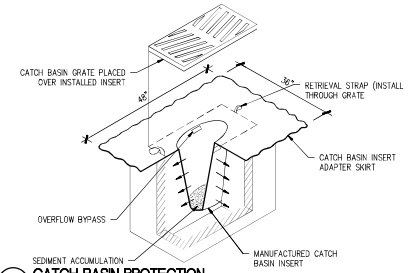
20618

SHEET NO. C3.02

SHEET 22 OF 24



01 SILT FENCE
SCALE: N.T.S.



02 CATCH BASIN PROTECTION
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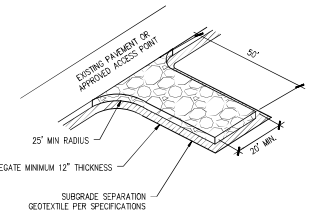

03 TEMPORARY CONSTRUCTION ENTRANCE
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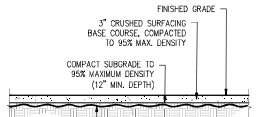

04 CRUSHED SURFACING BASE COURSE
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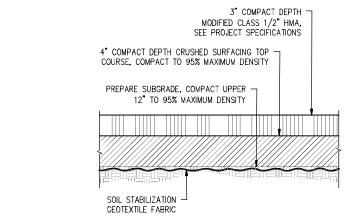

05 LIGHT DUTY ASPHALT PAVEMENT
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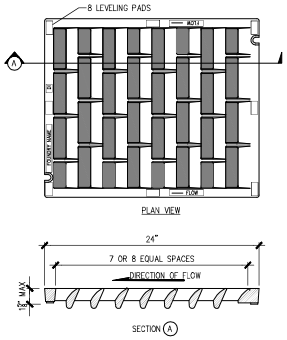

06 VANED GRATE
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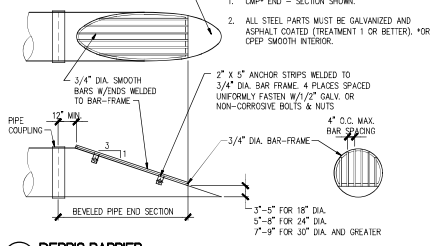

07 DEBRIS BARRIER
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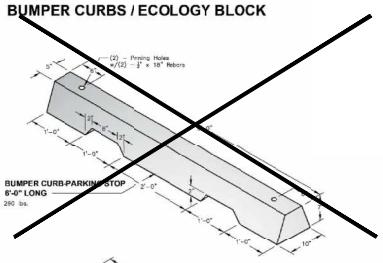
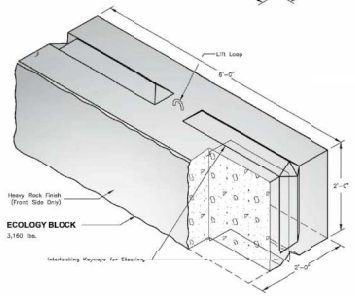


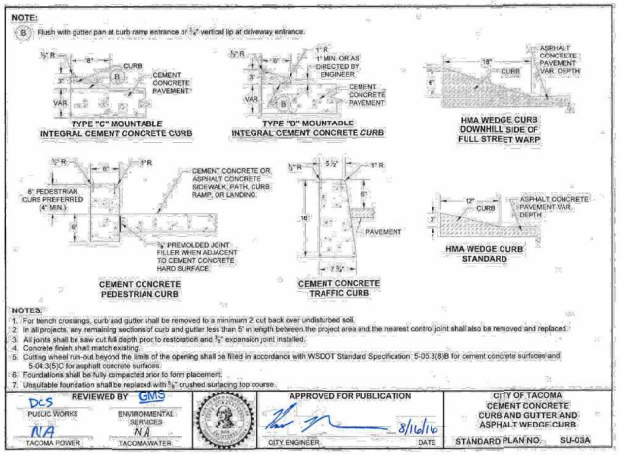


Oldcastle Precast
PO Box 323 Wilsonville, Oregon 97070-0323
Tel: (503) 682-2844 Fax: (503) 682-2857

B. CURB / E. BLOCK	
File Name: 020-CRBBLK	
Issue Date: 2016	
oldcastleprecast.com/wilsonville	

BUMPER CURBS ECOLOGY BLOCK

08 OLDCASTLE PRECAST ECOLOGY BLOCK
SCALE: N.T.S.



30% DESIGN REVIEW

PREPARED BY
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PREPARED FOR
Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

Tacoma

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED
BY
DATE
FIELD BOOKS

DATE	SCALE
11/18/25	AS NOTED
DESIGNED	CHECKED
DCD	DCD
DRAWN	FILE NAME
KNL	C4.00

PRELIMINARY

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL SERVICES SCIENCE & ENGINEERING

PORT OF TACOMA
PARCEL 117 SNAIL ERADICATION
PROJECT DETAILS

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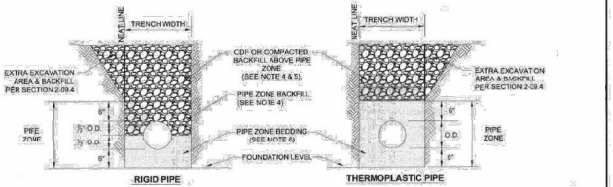
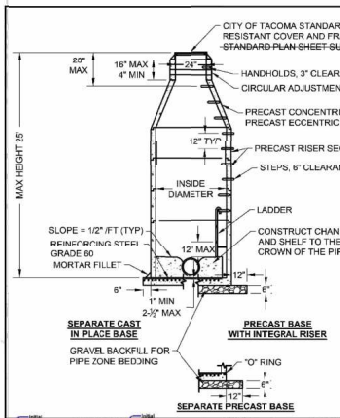
20618
SHEET NO. C4.00
SHEET 23 OF 24



NOTES:

1. Provide uniform support under barrel and provide pockets in bedding for pipe bells.
2. Hand tamp under haunches.
3. Trench width shall be as specified in Section 2-09.4 of the WSDOT Standard Specifications.
4. Pipe zone backfill and backfill above pipe zone shall meet the material requirements of WSDOT Standard Specification Section 9-03.12(2) for gravel backfill for walls.
5. All trenches shall be compacted in accordance with SU-28.
6. Pipe zone bedding shall meet the material requirements of WSDOT Standard Specification Section 9-03.9(3) for crushed surfacing top course.

REVIEWED BY		APPROVED FOR PUBLICATION	CITY OF TACOMA
DCS PUBLIC WORKS	GMS ENVIRONMENTAL SERVICES	CITY ENGINEER 8/16/16 DATE	PIPE ZONE BEDDING AND BACKFILL FOR SANITARY AND STORM SEWERS
NA TACOMA POWER	NA TACOMA WATER		STANDARD PLAN NO. SU-16



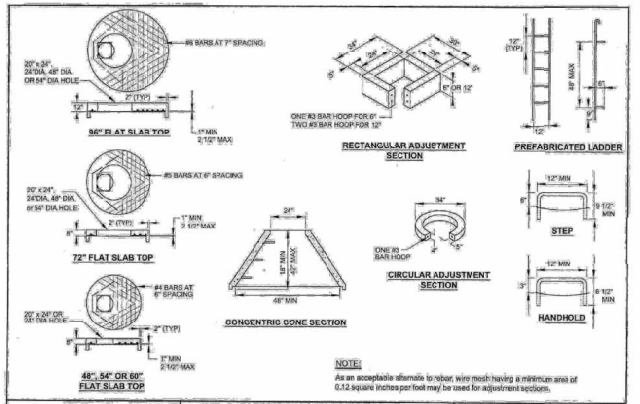
NOTES

1. For details showing grade ring, ladder, steps, handholds and top slabs, see Standard Plan No. SU-21.
2. Non-reinforced concrete in channel and shelf shall be Class 3000. All precast concrete shall be Class 4000.
3. Rubber gaskets shall be used in tongue and groove joints of pre-cast sections.
4. A flexible pipe-to-manhole connector shall be employed in all connections of rigid and flexible pipes to new precast concrete manholes. The connector shall be "non-re-seal" with "Wedge Koraend" manufactured by NPC, Inc., or approved equal.
5. Base reinforcing steel shall be per manufacturer's recommendation.

MANHOLE DIMENSION TABLE

INSIDE DIAMETER	MINIMUM WALL THICKNESS	MINIMUM BASE THICKNESS	MAXIMUM HOLE SIZE	MINIMUM DISTANCE BETWEEN HOLES
48"	4"	6"	36"	8"
54"	4 ½"	8"	42"	8"
60"	5"	8"	48"	8"

REVIEWED BY		APPROVED FOR PUBLICATION	CITY OF TACOMA
PUBLIC WORKS	ENVIRONMENTAL SERVICES	Signed by: Ramiro Chavez, P.E. PgM 09/15/2025 CITY ENGINEER DATE	MANHOLE - TYPE 1 48", 54", AND 60"
TACOMA POWER	TACOMA WATER		STANDARD PLAN NO. SU-17



NOTE:
As an acceptable alternate to rebar, wire mesh having a minimum area of 0.12 square inches per foot may be used for adjustment sections.

CITY OF TACOMA	APPROVED FOR PUBLICATION	MISCELLANEOUS DETAILS FOR MANHOLES AND CATCH BASINS
DEPARTMENT OF PUBLIC WORKS	CITY ENGINEER 12 Jan 2009 DATE	STANDARD PLAN NO. SU-21

COMPACTION TESTING REQUIREMENTS [A]

DEPTH	TESTING FREQUENCY [B] VERTICAL	HORIZONTAL
SURFACE (BELOW HMA)	N/A	1 TEST EVERY 150 LINEAR FEET OF TRENCH OR MINIMUM 2 PER TRENCH
		1 TEST FOR 150 SQUARE FEET FOR ISOLATED PATCHES [3]
1 TO 4 FEET (OR MIN 18 IN. ABOVE PIPE)	1 EVERY 12 INCHES	SAME AS FOR SURFACE
> 4 FEET TO BOTTOM OF TRENCH	NO SPECIFIC REQUIREMENT - MAY BE REQUIRED BY CITY INSPECTOR FOR VERIFICATION OF COMPACTION	

A. TESTING SHALL BE PERFORMED BY A CERTIFIED INDEPENDENT TESTING LABORATORY OR A CERTIFIED TESTOR AS APPROVED BY THE CITY'S CONSTRUCTION DIVISION. THE COST OF TESTING IS THE RESPONSIBILITY OF THE PERMITTEE. TESTS SHALL BE COMPLETED AND REPORTS IDENTIFYING THE PROJECT NUMBER SUBMITTED TO THE CONSTRUCTION DIVISION WITHIN 48 HOURS OF TESTS.
B. ONLY ONE COMPACTION TEST WILL BE REQUIRED FOR MULTIPLE TRENCHES WITHIN A 150 SF AREA PROVIDED COMPACTION PROCEDURES ARE THE SAME.
C. EACH LIFT SHALL BE COMPACTED TO 95% MODIFIED PROCTOR DENSITY, AS VERIFIED BY COMPACTION TESTING, BEFORE PROCEEDING TO THE NEXT LIFT. CDT INSPECTOR MAY REQUIRE EXCAVATION AND REMOVAL OF SOIL WHERE COMPACTION IS IN QUESTION.

NOTES:

1. Compact backfill material in max. 12 in. lifts. Compact backfill material to 95% max. modified proctor density (ASTM 1557) except directly over pipe, hand tamp only.
2. Native backfill will require laboratory testing to determine max. modified proctor density. Imported backfill will require submittal of proctor test results from supplier.
3. See WSDOT Standard Specification Section 2-09.3(1)E for material requirements on "Controlled Density Fill" (CDF). CDF may be used for trenches less than 24 in. wide or as approved by the City Engineer. CDF shall be vibrated/compacted.

APPROVED FOR PUBLICATION	TRENCH BACKFILL COMPACTION REQUIREMENTS
CITY OF TACOMA DEPARTMENT OF PUBLIC WORKS	CITY ENGINEER 11/3/16 DATE
	STANDARD PLAN NO. SU-28

TYPE		Heavy Haul Industrial Corridors	Port Area Arterials	Non-classified Port Area Roadways	Primary Transit Streets	Principal Arterials	Minor Arterials	Collector Arterials	Nonclassified Arterials and Commercial Alleys	Residential	Residential Alleys	Shared use Paths and Trails
AASHTO Flexible Pavement Design Standards	Tacoma Municipal Code Ref.	11.50.020.C	13.10	13.10	11.05.492	11.05.490	11.05.490	11.05.490	11.05.490			
	Initial ADT	30,000	30,000	10,000	30,000	30,000	20,000	15,000	10,000	2,000	500	100
	% ADT, Truck	30	30	30	8	8	8	5	5	5	5	1
	% ADT, Bus	0	0	0	5	1	1	1	1	0	0	0
	GROWTH RATE (compound)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	Assumed CBR	5	5	5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
	Assumed Mr	7,500	7,500	7,500	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600
	Lanes in Design Direction	2	1	1	2	2	1	1	1	1	1	1
	Percent Trucks, Design Direction	50	50	50	50	50	50	50	50	100	100	100
	Percent Trucks, Design Lane	80	100	100	80	80	100	100	100	100	100	100
	DESIGN ESAL	26,367,386	21,972,588	10,986,294	8,410,756	5,678,017	4,898,348	3,445,675	1,369,542	986,831	49,305	4,087
	Reliability, R%	95%	95%	90%	95%	95%	90%	90%	80%	80%	80%	80%
	Deviation, S_o	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
	Initial Serviceability, P_i	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20
	Terminal Serviceability, P_t	2.5	2.5	2.4	3	3	2.7	2.5	2.4	2.3	2.2	2.2
	ΔPSI	1.70	1.70	1.80	1.20	1.20	1.50	1.70	1.80	1.90	1.95	1.95
	Design SN	8.19	8.62	9.09	5.89	5.61	6.18	6.58	6.96	7.45	8.03	8.13

Refer to PD-01 Sheet 2 for pavement design sections and notes.

REVIEWED BY		APPROVED FOR PUBLICATION	CITY OF TACOMA
DCS PUBLIC WORKS	GMS ENVIRONMENTAL SERVICES	CITY ENGINEER 9/1/17 DATE	PAVEMENT DESIGN STANDARDS
NA TACOMA POWER	NA TACOMA WATER		STANDARD PLAN NO. PD-01 SHEET 1 OF 2

TYPE		Heavy Haul Industrial Corridors	Port Area Arterials	Non-classified Port Area Roadways	Primary Transit Streets	Principal Arterials	Minor Arterials	Collector Arterials	Nonclassified Arterials and Commercial Alleys	Residential	Residential Alleys	Shared use Paths and Trails
Standard Asphalt Pavement Section	HMA	10	10	8	8	8	6	6	5	4	2	2
	CSTC	2	2	2	2	2	2	2	2	2	2	2
	CSBC	26	26	22	16	14	14	8	8	10	6	2
Minimum Asphalt Pavement Section	HMA	8	8	6	6	6	6	4	4	3	2	2
	CSTC	2	2	2	2	2	2	2	2	2	2	2
with Approved Design	CSBC	10	10	10	8	6	6	6	5	4		
Minimum Concrete Pavement Section with Approved Design	PCC	Concrete Streets are allowed with approved supporting design										
	CSBC	10	10	8	10	10	8	8	8	8	8	6
Standard Porous Asphalt Pavement Section	HMA	2	2	2	2	2	2	2	2	2	2	2
	ATPB	NA	NA	Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	4	3
	Permeable Base			Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	0
Minimum Porous Asphalt Pavement Section with Approved Design	HMA	NA	NA	Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	6 (Note 7)	4 (Note 7)
	ATPB			Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	4 (Note 7)	4 (Note 7)
	Permeable Base			Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	4 (Note 7)	4 (Note 7)
Minimum Pervious Concrete Section	PCPC	NA	NA	Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	6	4
	Permeable Base			Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	4 (Note 7)	4 (Note 7)

NOTES:

1 Standard Pavement Section shall be used when no custom design is provided
2 Minimum Pavement Sections are the minimum acceptable pavement sections for custom designs
3 Refer to the City of Tacoma Design Manual for additional road design information.
4 Pavement sections for other facilities, such as parking lots, shall be substantiated by geotechnical analyses and design documentation.
5 Pavement design for Stateroutes shall be determined by the Washington State Department of Transportation.
6 Contact Public Works Engineering to discuss acceptability and requirements for specific projects. Design required if acceptable.
7 Minimum Structural Values, Hydrological Properties may require a thicker base.
8 Permeable pavement shall be designed or reviewed by a geotechnical professional. All custom designs shall be stamped by a Washington State licensed professional engineer. Calculations showing the required permeable ballast thickness necessary for stormwater control is required for all permeable pavement projects. Refer to the City of Tacoma Stormwater Management Manual.

NA: Not Allowed

REVIEWED BY		APPROVED FOR PUBLICATION	CITY OF TACOMA
DCS PUBLIC WORKS	GMS ENVIRONMENTAL SERVICES	CITY ENGINEER 9/1/17 DATE	PAVEMENT DESIGN STANDARDS
NA TACOMA POWER	NA TACOMA WATER		STANDARD PLAN NO. PD-01 SHEET 2 OF 2

30% DESIGN REVIEW

PREPARED BY
sitts&hill
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4616 CENTER STREET | TACOMA, WA, 98409
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http://www.sittshill.com

PREPARED FOR
Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

Tacoma

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED BY
DATE
FIELD BOOKS

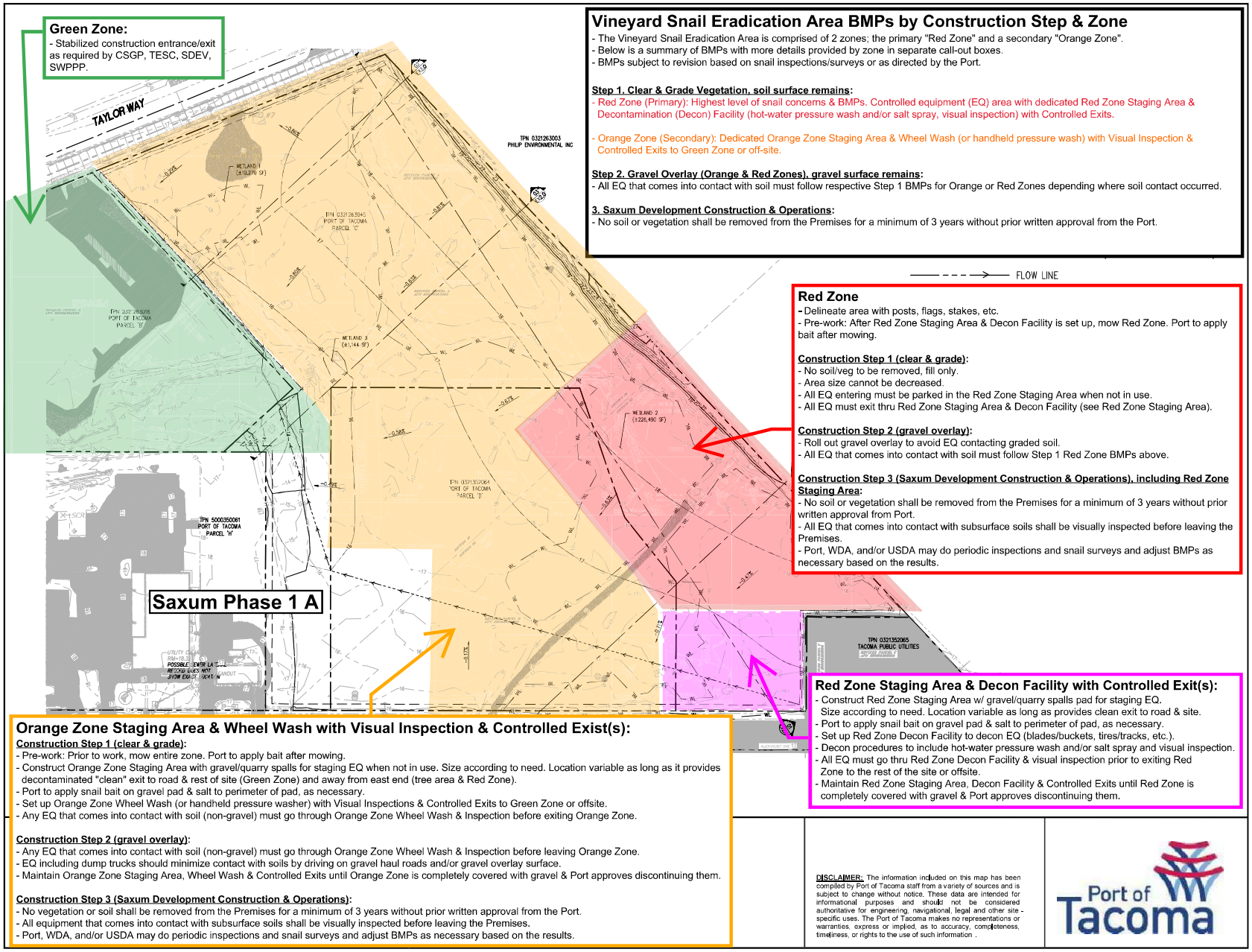
DATE 11/18/25 | SCALE AS NOTED
DESIGNED DCD | CHECKED DCD
DRAWN KNL | FILE NAME C4.01

PRELIMINARY

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL SERVICES SCIENCE & ENGINEERING

PORT OF TACOMA
PARCEL 117 SNAIL ERADICATION
PROJECT DETAILS

-- | 20618
SHEET NO. C4.01
SHEET 24 OF 24



Green Zone:

- Stabilized construction entrance/exit as required by CSGP, TESC, SDEV, SWPPP.

Vineyard Snail Eradication Area BMPs by Construction Step & Zone

- The Vineyard Snail Eradication Area is comprised of 2 zones; the primary "Red Zone" and a secondary "Orange Zone".
- Below is a summary of BMPs with more details provided by zone in separate call-out boxes.
- BMPs subject to revision based on snail inspections/surveys or as directed by the Port.

Step 1. Clear & Grade Vegetation, soil surface remains:

- Red Zone (Primary): Highest level of snail concerns & BMPs. Controlled equipment (EQ) area with dedicated Red Zone Staging Area & Decontamination (Decon) Facility (hot-water pressure wash and/or salt spray, visual inspection) with Controlled Exits.

- Orange Zone (Secondary): Dedicated Orange Zone Staging Area & Wheel Wash (or handheld pressure wash) with Visual Inspection & Controlled Exits to Green Zone or off-site.

Step 2. Gravel Overlay (Orange & Red Zones), gravel surface remains:

- All EQ that comes into contact with soil must follow respective Step 1 BMPs for Orange or Red Zones depending where soil contact occurred.

3. Saxum Development Construction & Operations:

- No soil or vegetation shall be removed from the Premises for a minimum of 3 years without prior written approval from the Port.

Red Zone

- Delineate area with posts, flags, stakes, etc.
- Pre-work: After Red Zone Staging Area & Decon Facility is set up, mow Red Zone. Port to apply bait after mowing.

Construction Step 1 (clear & grade):

- No soil/veg to be removed, fill only.
- Area size cannot be decreased.
- All EQ entering must be parked in the Red Zone Staging Area when not in use.
- All EQ must exit thru Red Zone Staging Area & Decon Facility (see Red Zone Staging Area).

Construction Step 2 (gravel overlay):

- Roll out gravel overlay to avoid EQ contacting graded soil.
- All EQ that comes into contact with soil must follow Step 1 Red Zone BMPs above.

Construction Step 3 (Saxum Development Construction & Operations), including Red Zone Staging Area:

- No soil or vegetation shall be removed from the Premises for a minimum of 3 years without prior written approval from Port.
- All EQ that comes into contact with subsurface soils shall be visually inspected before leaving the Premises.
- Port, WDA, and/or USDA may do periodic inspections and snail surveys and adjust BMPs as necessary based on the results.

Red Zone Staging Area & Decon Facility with Controlled Exit(s):

- Construct Red Zone Staging Area w/ gravel/quarry spalls pad for staging EQ. Size according to need. Location variable as long as provides clean exit to road & site.
- Port to apply snail bait on gravel pad & salt to perimeter of pad, as necessary.
- Set up Red Zone Decon Facility to decon EQ (blades/buckets, tires/tracks, etc.).
- Decon procedures to include hot-water pressure wash and/or salt spray and visual inspection.
- All EQ must go thru Red Zone Decon Facility & visual inspection prior to exiting Red Zone to the rest of the site or offsite.
- Maintain Red Zone Staging Area, Decon Facility & Controlled Exits until Red Zone is completely covered with gravel & Port approves discontinuing them.

Orange Zone Staging Area & Wheel Wash with Visual Inspection & Controlled Exist(s):

Construction Step 1 (clear & grade):

- Pre-work: Prior to work, mow entire zone. Port to apply bait after mowing.
- Construct Orange Zone Staging Area with gravel/quarry spalls for staging EQ when not in use. Size according to need. Location variable as long as it provides decontaminated "clean" exit to road & rest of site (Green Zone) and away from east end (tree area & Red Zone).
- Port to apply snail bait on gravel pad & salt to perimeter of pad, as necessary.
- Set up Orange Zone Wheel Wash (or handheld pressure washer) with Visual Inspections & Controlled Exits to Green Zone or offsite.
- Any EQ that comes into contact with soil (non-gravel) must go through Orange Zone Wheel Wash & Inspection before exiting Orange Zone.

Construction Step 2 (gravel overlay):

- Any EQ that comes into contact with soil (non-gravel) must go through Orange Zone Wheel Wash & Inspection before leaving Orange Zone.
- EQ including dump trucks should minimize contact with soils by driving on gravel haul roads and/or gravel overlay surface.
- Maintain Orange Zone Staging Area, Wheel Wash & Controlled Exits until Orange Zone is completely covered with gravel & Port approves discontinuing them.

Construction Step 3 (Saxum Development Construction & Operations):

- No vegetation or soil shall be removed from the Premises for a minimum of 3 years without prior written approval from the Port.
- All equipment that comes into contact with subsurface soils shall be visually inspected before leaving the Premises.
- Port, WDA, and/or USDA may do periodic inspections and snail surveys and adjust BMPs as necessary based on the results.

DISCLAIMER: The information included on this map has been compiled by Port of Tacoma staff from a variety of sources and is subject to change without notice. These data are intended for informational purposes and should not be considered authoritative for engineering, navigational, legal and other site-specific uses. The Port of Tacoma makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information .

Port of Tacoma

Appendix B
Site Subsurface Conditions

REPORT

TACOMA COGENERATION PROJECT PHASE 2 SITE ASSESSMENT

Prepared for
Sithe Energies, U.S.A., Inc.
Western Division
San Diego, California
May 1991

Woodward-Clyde

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Bank of California Center
900 Fourth Avenue
Seattle, Washington 98164

3440 Bank of California Center
900 Fourth Avenue
Seattle, WA 98164
(206) 343-7933
Fax: (206) 343-0513

Woodward-Clyde Consultants

May 16, 1991

Mr. Jim Urick
Sithe Energies U.S.A., Inc.
1230 Columbia Street, Suite 500
San Diego, CA 92101-3543

Re: Tacoma Cogeneration Project, Phase 2 Site Assessment
Dear Jim,

Woodward-Clyde Consultants is pleased to submit this report for your proposed power plant in Tacoma, Washington. The site assessment indicates that it is unlikely that remedial actions in accordance with the State of Washington Model Toxics Control Act would be required at this site. If you would like to discuss this conclusion, please call me or Alex Tula at any time.

We appreciate the opportunity to provide our services to Sithe Energies U.S.A, Inc., and look forward to working with you again. Please let us know if we can be of further assistance to you.

Sincerely,

WOODWARD-CLYDE CONSULTANTS

Nancy E. Walker
Senior Project Scientist

Operations

nw.wwp.hd

Phyllis Brunner
Vice President
Manager, Seattle

EXECUTIVE SUMMARY

Sithe Energies U.S.A., Inc. (Sithe) is proposing construction and operation of a 225-megawatt cogeneration plant to produce electrical power for sale to Puget Sound Power & Light Company and to provide thermal energy to Domtar Gypsum. Sithe requested that Woodward-Clyde Consultants (WCC) conduct a Phase 2 Site Assessment to evaluate the potential for soil and/or groundwater contamination at the proposed project site. Data from the site assessment indicate that it is unlikely that remedial actions in accordance with State of Washington Model Toxics Control Act would be required at this site.

The site assessment included a terrain conductivity study, excavation of 16 test pits, installation of seven monitoring wells, and collecting and chemically analyzing four composite soil samples and four groundwater samples. Analytical results were compared to the State of Washington Model Toxics Control Act (MTCA) Soil and Ground Water Cleanup Levels and State of Washington Draft Ground Water Quality Standards to determine whether remedial action could be needed. The following summarizes the results of the site assessment.

The terrain conductivity study did not indicate areas of anomalous conductivity that would suggest the presence of buried drums. Debris on the site is evidence that recent, unauthorized disposal at the site has occurred. Chemical analysis of soil and groundwater samples, however, show no indication that significant impact to soil or groundwater has occurred as result of the unauthorized disposal.

Chemicals detected in soil samples include acetone, methylene chloride, 1,1,1-Trichloroethane, Di-n-butylphthalate and bis (2-ethylhexyl) phthalate, several polynuclear aromatic hydrocarbon compounds and several metals, all at very low concentrations. All occurrences can likely be attributed to laboratory/sampling contamination or are present at concentrations well below regulatory guidelines. The presence of these chemicals in soil is considered insignificant.

Di-n-butylphthalate, and bis (2-ethylhexyl) phthalate were detected in groundwater samples at concentrations below method detection limits and in some cases also were detected in laboratory QA/QC blank samples. The presence of these compounds likely can be attributed to laboratory or sample handling contamination and is considered insignificant. Carbon disulfide and chloroform were detected in groundwater at concentrations below regulatory standards or equal to the method detection limit. Carbon disulfide is a common laboratory solvent. The presence of these chemicals in groundwater also is considered insignificant.

Arsenic was detected in groundwater samples from two wells screened in the dredge fills at concentrations exceeding the MTCA Method A Cleanup Level. Levels of arsenic found in groundwater range from .005 mg/L to 0.48 mg/L compared to the MTCA Method A Cleanup level of 0.005 mg/L. It is widely recognized that arsenic is ubiquitous in soil and shallow groundwater in the south Puget Sound region. The levels of arsenic found at the site in groundwater sampled from wells screened in dredge fill likely represent local area background concentrations.

Lead was detected in groundwater samples from two wells at equal to or slightly above both the method detection limit and the MTCA Cleanup Level of 0.005 mg/L. The levels of lead also likely represent area background concentrations.

Arsenic and lead are the only groundwater constituents that exceed MTCA Method A cleanup levels, and these levels most likely represent area background levels. Regardless, MTCA Method A cleanup levels are based on the use of groundwater as a drinking water source, as defined in Section 720 of the Model Toxics Control Act (WAC 173-340-720). Groundwater present in the dredge fill at the proposed facility site does not meet the requirements for being a current or potential future source of drinking water. Cleanup levels established for arsenic and lead in groundwater by the Model Toxics Control Act therefore would not be applicable to the levels of lead or arsenic detected at the site.

Based on this data, in our opinion it appears unlikely that remedial action in accordance with the Model Toxics Control Act would be required at this site.

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APPENDIX B WELL BORING LOGS
APPENDIX C LABORATORY DATA SHEETS

1.0 INTRODUCTION

1.1 BACKGROUND

Sithe Energies U.S.A., Inc. (Sithe) is proposing construction and operation of a 225-megawatt cogeneration plant to produce electrical power to sell to Puget Sound Power & Light Company and to provide thermal energy to a manufacturing facility owned by Domtar Gypsum. The plant will use natural gas as its primary fuel source, with provision for a secondary fuel. Sithe requested that Woodward-Clyde Consultants (WCC) conduct a Phase 2 Site Assessment to evaluate the potential for soil and/or groundwater contamination at the proposed project site.

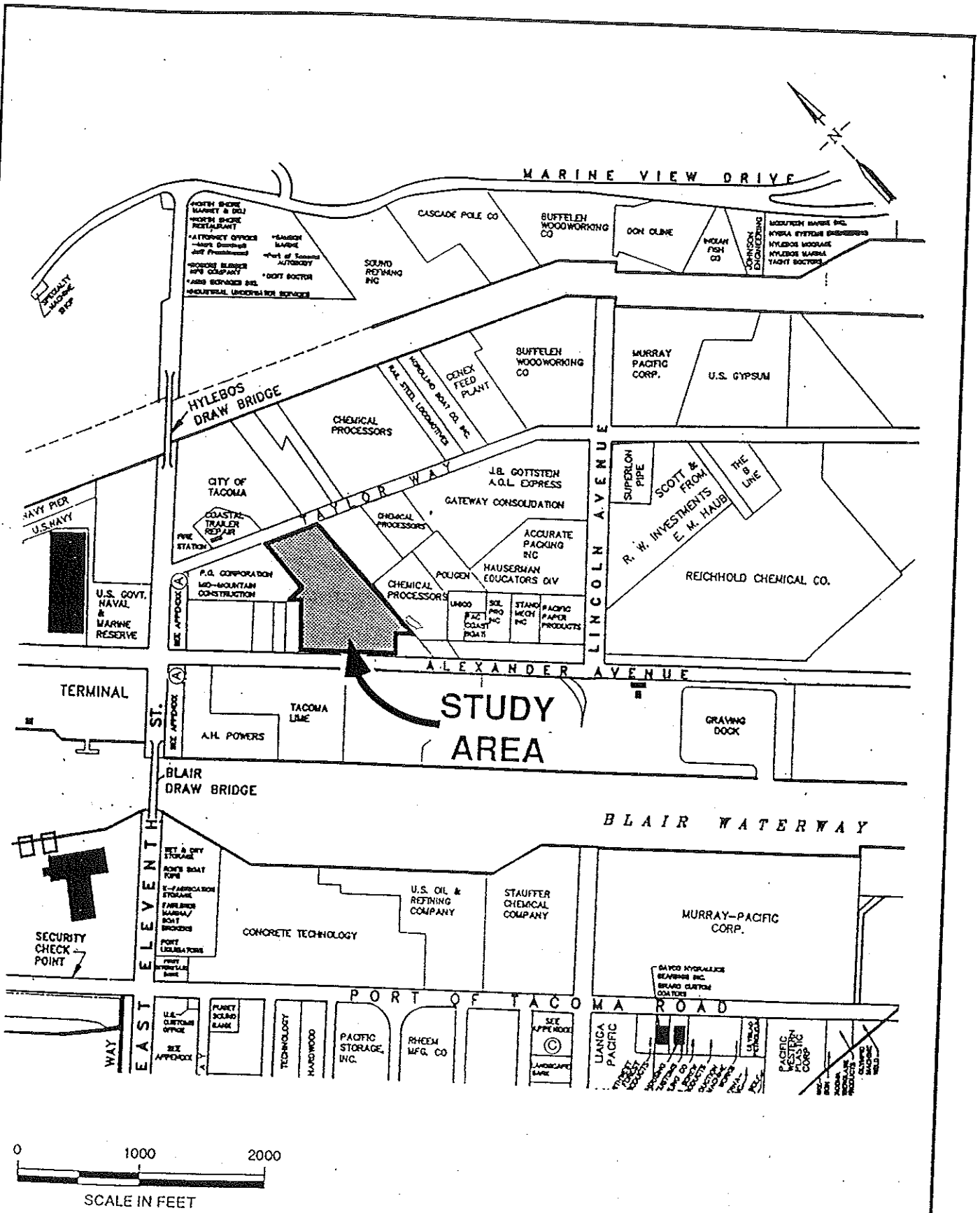
The proposed site is located between Alexander Avenue and Taylor Way in the City of Tacoma (Fig. 1-1). The City is the current property owner. The site consists of two undeveloped parcels (Parcel 1 and Parcel 2) within an industrial neighborhood of the Port of Tacoma. The site is within the Environmental Protection Agency's (EPA) Commencement Bay Nearshore/Tideflats Superfund Site. The site has not been identified by EPA or the Washington State Department of Ecology (Ecology) as a potential source of contamination. Ecology has jurisdiction over any cleanup activities at the site.

A Phase 1 Site Assessment has been conducted at the site (Dames and Moore, 1990).

1.2 PURPOSE

Evaluation of the presence of soil or groundwater contamination, and the extent and costs of site cleanup are needed to determine the viability of developing the site. The purpose of the investigation was to collect data that could be used to address the following questions:

- Has the site been impacted by unauthorized disposal of hazardous materials, either above or below ground?



Project No. 91C0191A	Sithe Energies, U.S.A., Inc. Tacoma Cogeneration Project		
Woodward-Clyde Consultants		SITE LOCATION MAP	Figure 1-1

- Has soil (via the surface water pathway) or groundwater been impacted by adjacent facility operations, particularly the Chemical Processors site to the northeast?

- Are levels of chemicals in soil and groundwater at the site such that remedial action in accordance with the Washington Department of Ecology Model Toxics Control Act (MTCA) may be required in the future?

- Is groundwater leaving the site chemically impacted, and could the site be a source of chemicals to either the Blair or Hylebos waterways, via surface water or ground water pathways?

- Are levels of chemicals in soil such that construction excavation spoils would have to be treated by expensive remedial techniques?

- What are planning level costs associated with remedial actions, should any be required, and disposal of construction excavation spoils?

In addition to addressing these specific questions, this program is designed to demonstrate that Sithe has used "due diligence" toward investigating potential environmental impacts resulting from soil or groundwater contamination at this site. Due diligence is not clearly defined in the CERCLA regulations. Instead it is a legal concept that signifies levels of effort to determine if a site is or is not contaminated. In light of the historical non-development of the site, it is judged that this program is sufficient to demonstrate due diligence.

1.3 SCOPE

The scope of our investigation included the following:

- A terrain conductivity survey

- Excavation of 16 test pits

- Installation of three monitoring wells in the shallow, unconfined groundwater unit and four monitoring wells in a deeper, confined groundwater unit

- Laboratory analysis for volatile and semi-volatile organic compounds, chlorinated pesticides, PCBs, priority pollutant metals, total phenols, and cyanide of four soil samples collected from the test pits, three groundwater samples collected from the shallow monitoring wells, and one groundwater sample collected from a deep monitoring well

- Preparation of a report comparing levels of chemicals detected in soil and groundwater to MTCA Soil and Ground Water Cleanup Levels and State of Washington Draft Ground Water Quality Standards to determine if remedial action is needed

2.0
FIELD INVESTIGATION METHODOLOGY

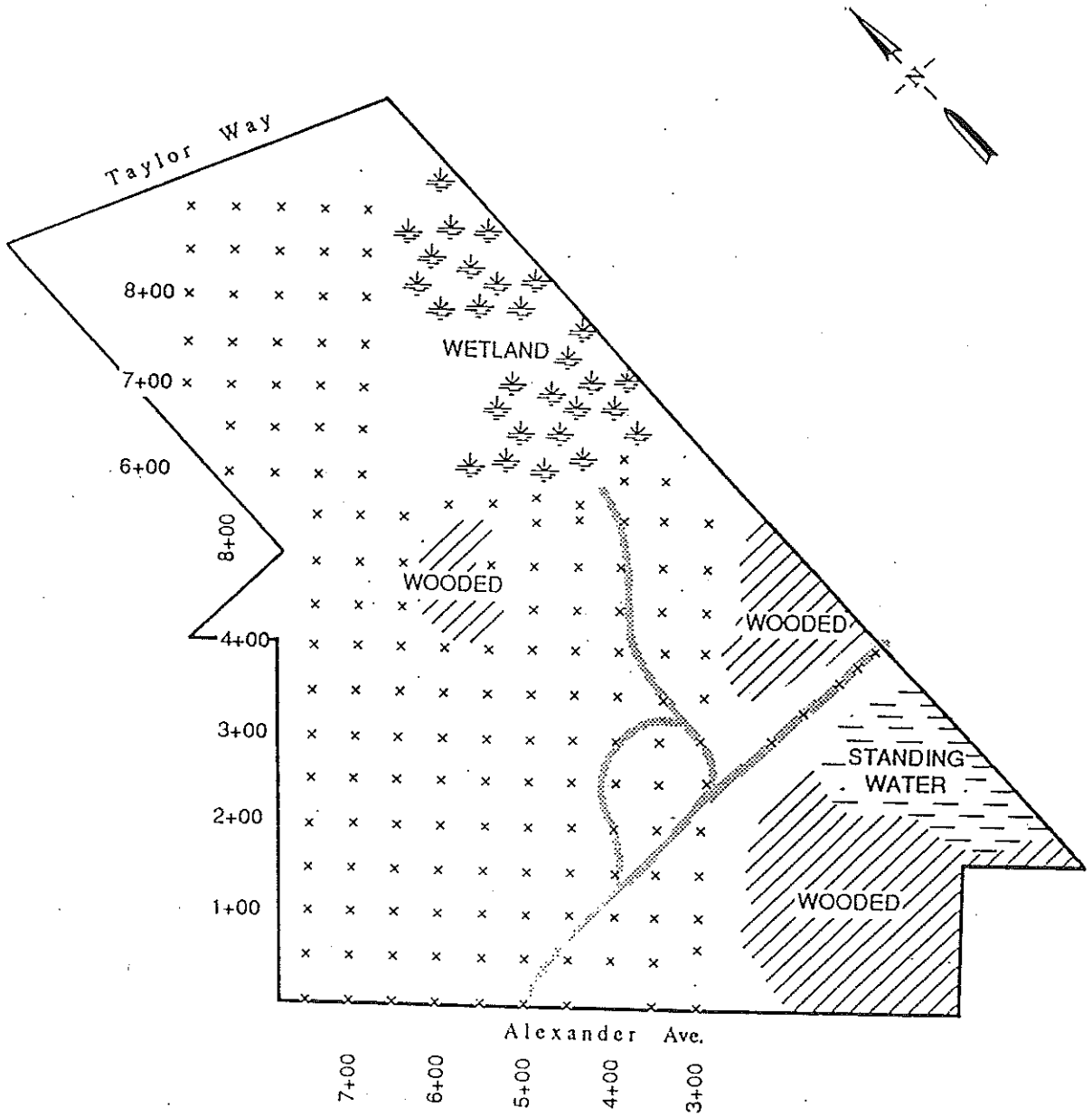
2.1 TERRAIN CONDUCTIVITY SURVEY

The terrain conductivity survey (TCS) was conducted by WCC on March 27, 1991. The primary objectives of the TCS were to identify areas of anomalous conductivity that may indicate the presence of buried drums that could contain potentially hazardous material, and to guide selection of test pit locations.

Terrain conductivity was measured at individual points on a 50-foot grid spacing (Fig. 2-1). A regular grid spacing could not be maintained over some parts of the site due to the presence of dense foliage. These areas were surveyed as access allowed. Other areas were not surveyed due to the presence of standing water.

A Geonics EM-31 electromagnetic conductivity meter was used to measure the apparent conductivity of subsurface materials. The unit consists of transmitting and receiving coils mounted on opposite ends of a rigid beam. Measurements were taken with the coils oriented in horizontal and vertical planes with the beam oriented parallel to the survey line. Measurements also were taken with the coils oriented in a vertical plane with the beam oriented perpendicular to the survey line. Data gathered from the survey are presented in Appendix A. The averages of the horizontal plane readings were used to prepare a contour map (Fig. 2-2). A contour map of the vertical plane readings was also prepared (Fig. 2-3).

Terrain conductivity is influenced by the moisture content of subsurface materials, the presence and concentration of dissolved ionic species, and the porosity, clay content, mineral composition, and density of the soil matrix. Individual terrain conductivity measurements reflect the combined influence of these factors over the effective exploration depth of the instrument. The effective exploration depth during this survey was estimated to be about 20 feet. The TCS did not indicate any areas of anomalous conductivity that would suggest the presence of any buried metal drums.



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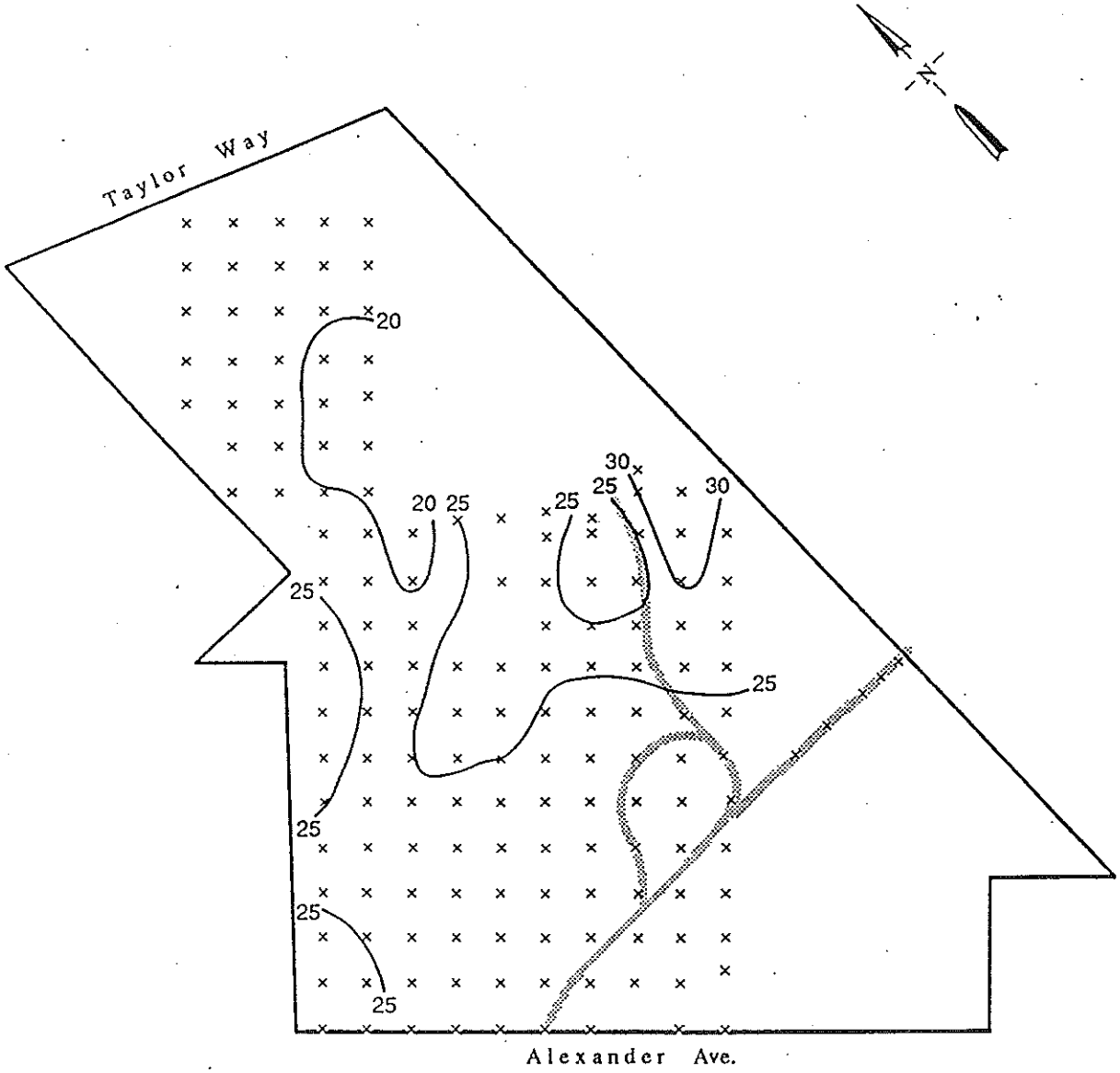
SCALE IN FEET

Project No. 91C0191A	Sithe Energies, U.S.A., Inc. Tacoma Cogeneration Project	ELECTROMAGNETIC SURVEY GRID POINTS	Figure 2-1
Woodward-Clyde Consultants			



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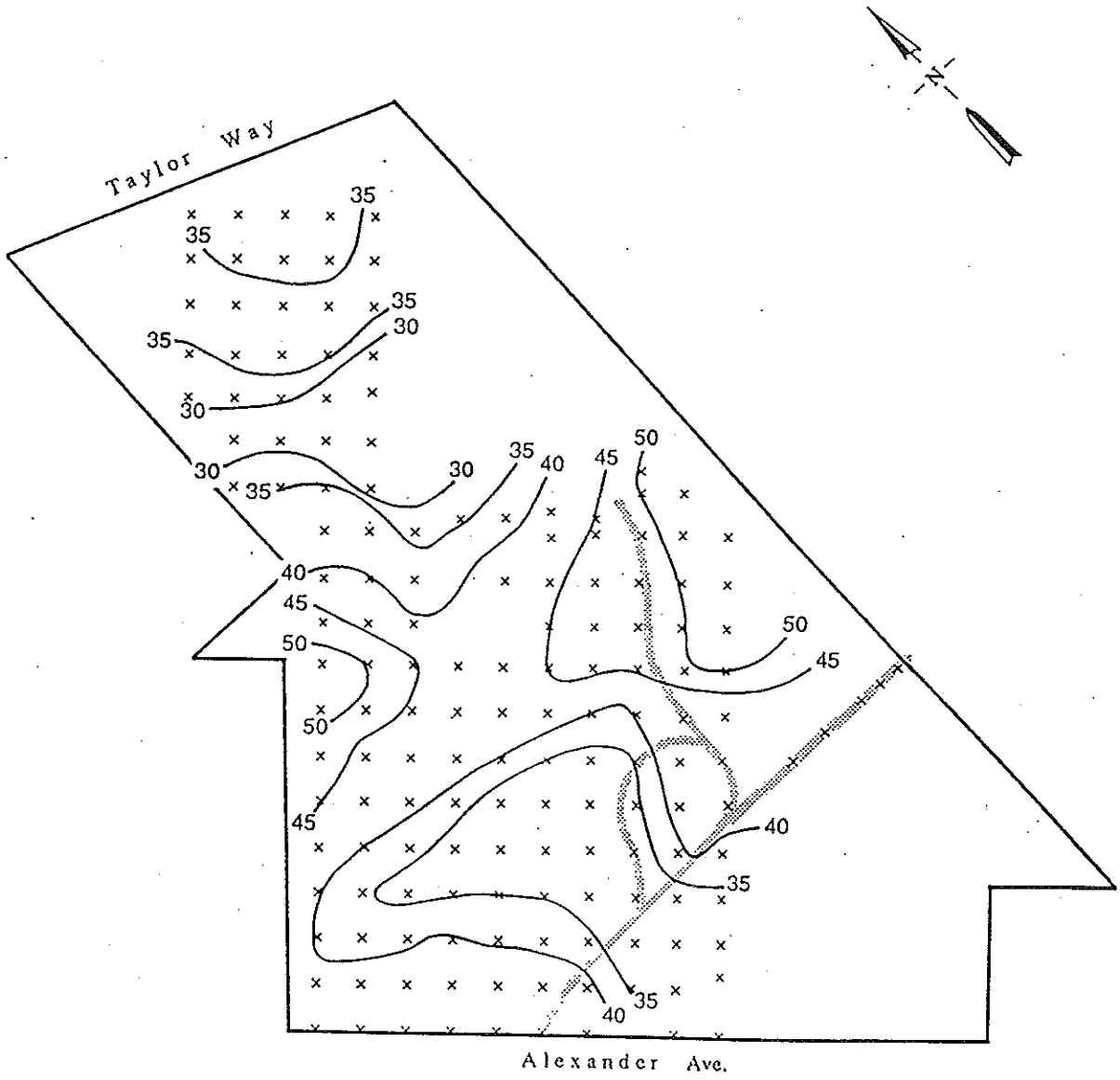
SCALE IN FEET

Project No. 91C0191A	Sithe Energies, U.S.A., Inc. Tacoma Cogeneration Project	TERRAIN CONDUCTIVITY CONTOURS HORIZONTAL POSITION (in millimhos/meter)	Figure 2-2
Woodward-Clyde Consultants			



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SCALE IN FEET

Project No. 91C0191A	Sithe Energies, U.S.A., Inc. Tacoma Cogeneration Project	TERRAIN CONDUCTIVITY CONTOURS VERTICAL POSITION (in millimhos/meter)	Figure 2-3
Woodward-Clyde Consultants			

2.2 TEST PITS

2.2.1 Test Pit Locations

Test pits were excavated in groups of two to four pits, where each group was intended to characterize the subsurface associated with particular features of the site (Fig. 2-4). Soil collected from each of the pits within a group was composited and submitted for laboratory analysis.

The test pits within each group were excavated to assess any chemical impacts associated with the following site features:

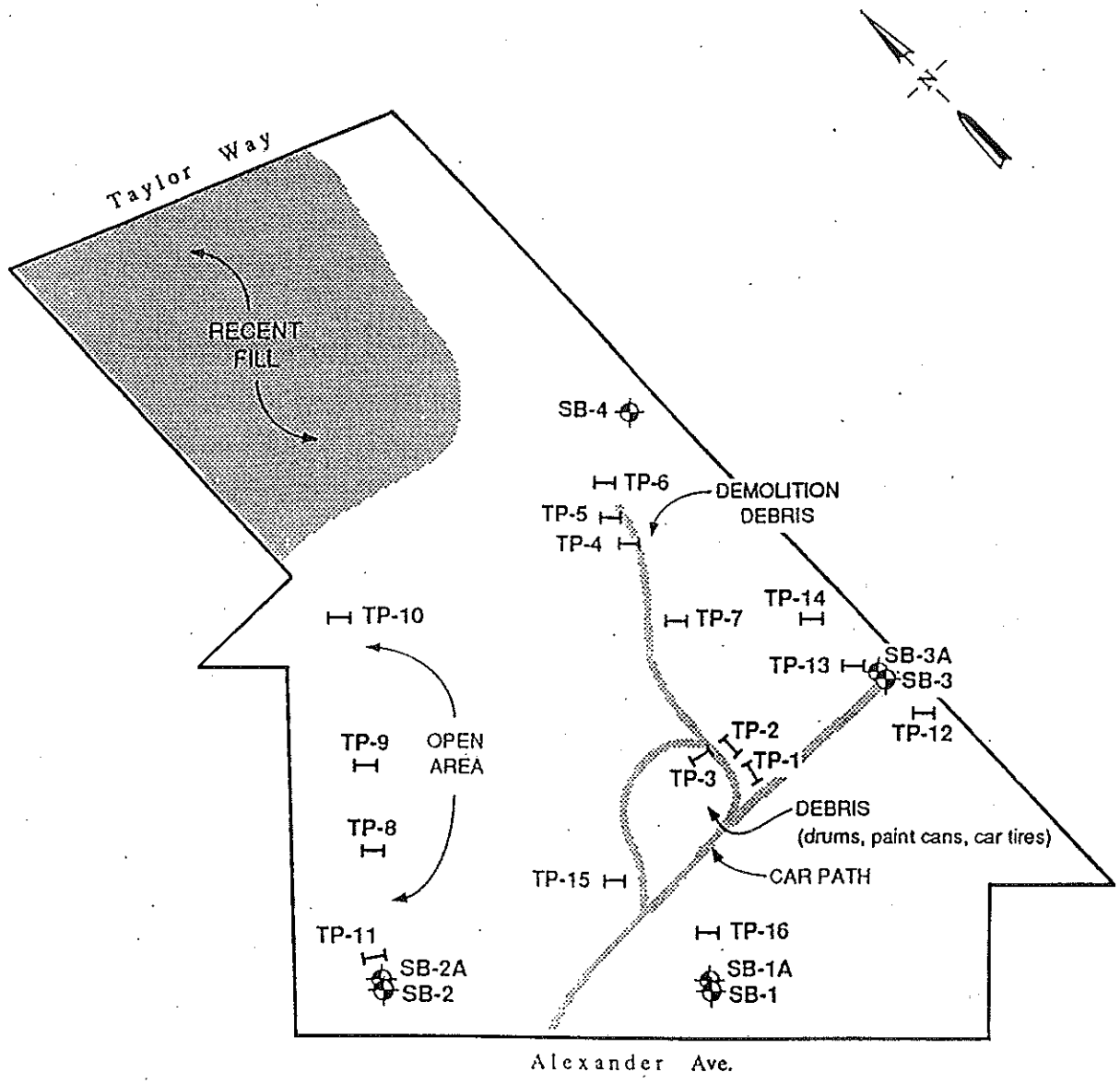
- Test Pits 1, 2, and 3 were excavated to assess any chemical impact to soil associated with empty drums, paint cans, and other surface debris present onsite (Sample TP010203).

- Test Pits 4, 5, 6, and 7 were excavated to assess chemical impact to soil associated with demolition debris (Sample TP040507).

- Test Pits 8, 9, 10, and 11 were excavated in an area devoid of trees. The lack of trees suggests that the fill is relatively recent (Sample TP08091011).

- Test Pits 12, 13, and 14 were excavated near the eastern property line and along an abandoned road that crosses the property to assess any chemical impact from the adjacent property owned by Chemical Processors (Sample TP121314).

- Test Pits 15 and 16 were excavated to assess any chemical impact in the central southwest portion of the site. A sample from these test pits was not collected for chemical analysis. Soil from these test pits was similar in appearance to soil from other test pits.



KEY TO SYMBOLS

- Monitoring well location
- Test pit location

0 200 400

SCALE IN FEET

Project No. 91C0191A	Sithe Energies, U.S.A., Inc. Tacoma Cogeneration Project	MONITORING WELL AND TEST PIT LOCATION MAP	Figure 2-4
Woodward-Clyde Consultants			

Soil from the portion of the site adjacent to Taylor Avenue was not sampled. According to Russell Post of Tacoma City Light, this area is presently receiving fill of known chemical composition (personal communication, March 28, 1991).

2.2.2 Method of Excavation

A backhoe was used to excavate the test pits. The bucket of the backhoe was cleaned using a pressure washer between each group of test pits.

2.2.3 Soil Sampling Methods

Composite soil samples were prepared from soil collected from each group of test pits. The sampling and compositing procedure was conducted as follows:

- Soil was collected from the wall of each of the test pits just above the water table using a stainless steel spoon and placing it in a capped glass jar to prevent loss of volatile chemicals.

- When soil had been collected from each of the test pits within a group, it was removed from the jars and placed into a stainless steel mixing bowl and thoroughly homogenized.

- The spoon and mixing bowl were decontaminated before collecting a sample from each test pit using a solution of laboratory grade detergent and water followed by a rinse with nanograde methanol and a final rinse with distilled water.

2.3 GROUNDWATER MONITORING WELLS

2.3.1 Drilling and Well Construction Methods

Three monitoring wells were installed in the shallow, unconfined groundwater unit and four monitoring wells were installed in a deeper, confined groundwater unit at the locations depicted on Figure 2-4. All of the wells were drilled using hollow stem auger

techniques. Soil cuttings were contained in drums for proper disposal according to regulatory guidelines. Soil samples for describing lithology and possible chemical analysis were collected at approximately 5-foot intervals using a split-spoon sampler. The sampler was washed in a solution of laboratory grade detergent and tap water and rinsed with distilled water prior to each sampling event. All other downhole equipment and materials were steam-cleaned prior to use in each well.

The wells were constructed through the augers with 2-inch diameter Schedule 40, flush-threaded PVC well casing with 5 feet of 0.010-inch slotted PVC well screen. A select silica sand filter pack was installed adjacent to and approximately 2 feet above the well screen. Bentonite clay pellets were installed above the filter pack to approximately 2 feet below ground surface. A concrete cap and a locking steel protective monument were installed above the bentonite seal to protect the well from unauthorized access. Well logs are presented in Appendix B.

The wells were developed by inserting a length of 1-inch diameter PVC hose and pumping water from the well using a gasoline-powered centrifugal pump. The wells were pumped dry repeatedly to flush sediment from the well and induce flow of groundwater into the well. The wells were pumped until the water produced was relatively free of suspended silt and clay. Water produced during development was contained in drums for proper disposal according to regulatory guidelines.

2.3.2 Water Sampling Methods

Prior to collecting groundwater samples, at least three casing volumes of water were purged from each well using a teflon bailer and new nylon line. Prior to sampling, the bailer was washed in a solution of laboratory grade detergent and tap water, rinsed with distilled water, rinsed with nanograde methanol, and final rinsed with distilled water. The samples were transferred directly from the bailer to the sample container. The bottles were labeled, wrapped in protective material and placed in an ice chest with ice. The samples were transported to Analytical Technologies, Inc., of Renton, Washington, under standard WCC chain-of custody procedures.

3.0
SITE DESCRIPTION

3.1 SITE LOCATION

The property is located on Alexander Avenue southeast of East 11th Street in the NW 1/4 of the NW 1/4 of Section 35 and the SW 1/4 of the SW 1/4 of Section 26, Township 25 N, Range 4 E, Tacoma, Pierce County, Washington. Land surface elevation at the site is 10 to 15 feet above mean sea level.

3.2 SITE HISTORY

The site history was derived from aerial photographs and reviewed for the Phase 1 site assessment.

3.2.1 Aerial Photographs

Black and white aerial photographs of the site vicinity were obtained for the years 1946, 1969, 1979, and 1985. The scale of the photographs is one inch = 200 feet (1 to 2400). The following descriptions of the site from the aerial photographs provide a pictorial history of the site.

1946: Eighty to ninety percent of the subject site is covered with low vegetation and small, dendritic surface drainages. One larger channel crosses the southern part of the site near Alexander Avenue. Ten to twenty percent of the site adjacent to Taylor Avenue, has apparently received fill. This area is covered with bushes and trees and drainage channels are absent. The extreme northeast corner of the property may have been receiving fill at the time of the photograph.

The property currently operated by Chemical Processors is undeveloped. Several above-ground storage tanks are present on the adjacent property to the northwest, which is currently owned by the P.Q. Corporation.

1969: The dendritic surface drainage channels are absent and a large pond is present on the property currently owned by Chemical Processors. A white colored material, possibly lime, has been placed in the area of the pond. The area in the extreme northeast corner of the site, in which fill was being placed in 1949, has been expanded. What may be wood waste has been placed on the property in this area.

1979: The electrical substation has been constructed in the southeast corner of the site. Trees are present in a distribution similar to today. A well-defined haul road crosses the site to the property currently owned by Chemical Processors. Earth-moving operations and several chemical process areas are active on the Chemical Processors property.

1985: The process areas on the Chemical Processors property have been expanded and the storage yard is in place.

3.2.2 Phase 1 Site Assessment

A Phase 1 site assessment of the property was conducted in 1990 by the firm of Dames & Moore. Information presented in the Phase 1 Assessment is not repeated here. The assessment included:

- A reconnaissance-level wetlands survey.
- A review of aerial photographs from the years 1965, 1970, 1971, 1975, 1980, 1985, and 1988.
- A review of historical topographic maps, land ownership maps, fire insurance maps, and city directories.
- A review of state and federal hazardous waste sites lists.

3.3 SURFICIAL FEATURES

Surficial features observed at the site include wetlands, wooded areas, wildlife habitat, recent fill, and debris piles. Wetlands and wildlife habitat are discussed in a separate report to Sithe (WCC, 1991)

3.3.1 Fill

Fill was observed being stockpiled in the northernmost part of the site at the time of the field investigation. It is understood this material is railroad ballast and contains petroleum hydrocarbons (Russell Post, personal communication to Nancy Walker, March 28, 1991). According to Mr. Post, Tacoma City Light has been using the site for storing sediment for about two years. The fill is approximately three feet thick and covers an area of about two acres. The fill is not evident in the 1985 aerial photograph.

3.3.2 Debris

Surface debris was present at the site during the field investigation. The debris included empty 55-gallon drums, empty paint cans, automobile tires, creosoted logs, and household and demolition debris.

3.4 GEOLOGY

The site is located in the Nearshore/Tideflats area of Tacoma. The Nearshore/Tideflats area is located on a sequence of silts and sands within the Puyallup River delta. In addition, the area is covered with dredge fill associated with the industrial development of the Port of Tacoma.

Investigations performed in the Port of Tacoma area have identified four stratigraphic units within the deltaic sediments beneath the dredge fill.

(1) Upper Silts: Sediments ranging from sandy silt to clay with locally abundant organic material.

(2) Sands and Silts: Sands and silty sands with interbedded silt. This zone is commonly found interbedded with the Upper Silts and is reportedly encountered at depths ranging from just below ground surface (bgs) to 25 feet bgs. The lower contact of this zone is reportedly gradational but generally occurs at depths of between 70 and 100 feet bgs.

(3) Lower Silts: Predominantly silts interbedded with the overlying Sands and Silts, encountered at depths ranging from about 70 to 120 feet bgs.

(4) Deep Sands: Sand and silty sand generally encountered at depths greater than about 120 feet bgs.

The deep monitoring wells at the site penetrate the fill and Upper Silts and are screened in the Sands and Silts. The shallow wells are screened in the dredge fill.

The thickness of dredge fill encountered at the site ranges from 8 to 15 feet. The fill consists of loose, fine- to medium-grained sands with little silt. Debris consisting of asphalt, wood, bricks, and rope was encountered within the dredge fill below 6 feet bgs in Test Pits 8 and 9 and Well SB-2A. Wood waste was encountered in Well SB-4 from 1 to 10.5 feet bgs.

The Upper Silts range in thickness from less than 5 feet to about 12 feet. The Upper Silts at the site consist of soft clays with occasional interbeds of silt. The Sands and Silts beneath the Upper Silts at the site consist of medium dense, fine- to medium-grained sands.

3.5 HYDROGEOLOGY

3.5.1 Hydrostratigraphy

Groundwater is present in an unconfined condition in the fill and in a confined condition in the Sands and Silts beneath the site. At the time of our investigation, groundwater elevation was 10.47 to 10.82 feet above sea level in the wells screened in the fill, and 2.87 to 3.12 feet above sea level in the deeper wells screened within the Sands and Silts.

3.5.2 Direction and Gradient of Groundwater Flow

Groundwater elevations in wells screened in the fill were measured on April 4, 1991. The direction of groundwater flow calculated from these measurements is directly south towards the Blair Waterway at an average gradient of 0.001 feet per foot. It should be noted, however, that heavy rainfall occurred on the day water levels were measured (April 4). Groundwater gradient may be altered by such events.

Groundwater elevations in the Sands and Silts were measured on April 2 and 4, 1991. These data indicate that on April 4, groundwater flow was directly north towards the Hylebos Waterway at an average gradient of 0.003 feet per foot.

4.0
LABORATORY ANALYSIS

Soil and groundwater chemical analysis was conducted by Analytical Technologies Inc. (ATI) of Renton, Washington. Four soil samples were collected from the test pits. Three groundwater samples were collected from wells screened in the dredge fill and one sample was collected from a well screened in the Sands and Silts. Soil and groundwater samples were analyzed for the following parameters:

- Volatile Organic Compounds (EPA Method 8240)
- Semi-Volatile Organic Compounds (EPA Method 8270)
- Priority Pollutant Metals (various methods)
- Chlorinated Pesticides and PCBs (EPA Method 8080)
- Total Phenols (EPA Method 9066)
- Total Cyanide (EPA Method 9012)

Analytical results are discussed in Section 5.0. Laboratory data sheets are presented in Appendix C.

Laboratory quality control/quality assurance (QA/QC) consisted of (1) one reagent blank, one matrix spike, and one matrix spike duplicate for each media (soil and groundwater) and (2) surrogate recoveries on each sample analysis.

5.0
ANALYTICAL RESULTS

5.1 RESULTS OF ORGANIC, GENERAL CHEMICAL, AND METALS ANALYSES IN SOIL

Soil samples were collected and composited from groups of test pits as discussed in Section 2.2. Results of organic, general chemical, and metals analyses were compared to the Washington Department of Ecology Model Toxics Control Act (MTCA) Method A- Industrial Cleanup Levels for Soil.

5.1.1 Detections of Volatile Organic Chemicals (EPA Method 8240) in Soil

Acetone was detected in Soil Samples TP010203, TP08091011, and TP121314 at concentrations of 4.3, 1.0, and 0.96 milligrams per kilogram (mg/kg), respectively. Acetone was not detected in Sample TP040507. A Method A cleanup level for acetone in industrial soils has not been established by the MTCA.

Methylene chloride was detected in all four soil samples at concentrations ranging from 0.82 to 0.97 mg/kg. Methylene chloride also was detected in laboratory QA/QC blank samples. The MTCA Method A Cleanup level for methylene chloride in industrial soil is 0.5 mg/kg. Methylene chloride is a common laboratory contaminant. Because it was detected in laboratory QA/QC blank samples, methylene chloride values are considered artifacts of laboratory procedures.

Trichloroethane (1,1,1-Trichloroethane) was detected in Sample TP121314 at 0.13 mg/kg. The MTCA Method A Cleanup level for industrial soil is 20.0 mg/kg.

A summary of detections for Volatile Organic Chemicals is presented in Table 5-1.

TABLE 5–1: SUMMARY OF DETECTIONS IN SOIL OF ORGANIC AND GENERAL CHEMICAL PARAMETERS

Analytical Method/Parameter (Results in mg/kg)	Sample ID Number TP010203	TP040507	TP08091011	TP121314	MTCA Method A Industrial Cleanup Level (mg/kg)
Volatile Organic Compounds (Method 8240)					
Acetone	4.3	<1.0	1.0	0.96	NE
Methylene Chloride	0.85 B	0.82 B	0.97 B	0.88 B	.05
1,1,1–Trichloroethane	<0.050	<0.050	<0.050	0.13	20.0
Semi–Volatile Organic Compounds (Method 8270)					
Di–N–Butylphthalate	0.19 JB	0.084 JB	0.16 JB	0.079 JB	NE
Bis (2–Ethylhexyl) Phthalate	0.047 JB	0.12 JB	<0.17	<0.17	NE
Phenanthrene	<0.17	0.042 J	<0.17	<0.17	20.0 (1)
Fluoranthrene	<0.17	<0.17	0.056 J	<0.17	20.0 (1)
Pyrene	<0.17	<0.17	0.091 J	<0.17	20.0 (1)
Organochlorine Pesticidesa and PCBs (Method 8080)					
None Detected					
General Chemistry					
Total Cyanide	<0.1	<0.1	<0.1	<0.1	NE
Total Phenols	<0.2	<0.2	<0.2	<0.2	NE

Notes:

(1) = Cleanup standard listed is for carcinogenic Polynuclear Aromatic Hydrocarbons (PAHs)

NE = MTCA Cleanup Level not established for this parameter, detected level is considered to be low enough to be of no significant concern.

Value recorded with "less than" (<) symbol indicates analytical result was less than the listed detection limit

J = Value estimated by laboratory

B = Compound also detected in laboratory QA/QC blank

5.1.2 Detections of Semi-Volatile Organic Chemicals (EPA Method 8270) in Soil

Di-n-butylphthalate was detected in all soil samples at concentrations ranging from 0.079 to 0.19 mg/kg. All reported values are below method detection limits and are estimated by the laboratory. The compound was also detected in the laboratory QA/QC blanks. A Method A cleanup level for di-n-butylphthalate in industrial soils has not been established. Di-n-butylphthalate is a compound used as a plasticizer in rubber products. It is a common laboratory contaminant. Because it was detected in laboratory QA/QC blank samples, di-n-butylphthalate values are considered artifacts of laboratory or sampling procedures.

Bis (2-ethylhexyl) phthalate was detected in Samples TP010203 and TP040507 at 0.047 and 0.12 mg/kg, respectively. All reported values are below method detection limits and are estimated by the laboratory. Bis (2-ethylhexyl) phthalate was also detected in the laboratory QA/QC blanks. A Method A cleanup level for this compound in industrial soils has not been established by the MTCA. Bis (2-ethylhexyl) phthalate is a compound used as a plasticizer in rubber products. It is also a common laboratory contaminant. Because it was detected at concentrations below the analytical method detection limit, it is considered an artifact of laboratory or sampling procedures.

The polynuclear aromatic hydrocarbon (PAH) compounds phenanthrene, fluoranthrene, and pyrene were detected in Samples TP040507 and TP08091011. The reported values of these compounds were all below method detection limits and are thus concentrations estimated by the laboratory. Phenanthrene was detected in Sample TP040507 at 0.042 mg/kg. Fluoranthrene and pyrene were detected in Sample TP08091011 at concentrations of 0.056 and 0.091 mg/kg, respectively. The MTCA Method A Cleanup level for carcinogenic PAH compounds in industrial soils is 20.0 mg/kg.

A summary of detections for Semi-Volatile Organic Chemicals is presented in Table 5-1.

5.1.3 Detections of Organochlorine Pesticides and PCBs (EPA Method 8080) in Soil

No compounds were detected in any samples under Method 8080. The analytical results for this method are presented in Table 5-1.

5.1.4 General Chemical Results for Soil

Cyanide and phenols were not detected in any soil samples at detection limits of 0.1 and 0.2 mg/kg, respectively. The analytical results for general chemical parameters are presented in Table 5-1.

5.1.5 Analytical Results for Metals in Soil

Soil samples were collected from the test pits and submitted for laboratory analysis for the Priority Pollutant suite of metals. These metals are antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc. All analytical results for metals were either below detection limits or were below MTCA Method A Cleanup Levels for industrial soils. Results for these analyses are provided in Table 5-2.

5.2 RESULTS OF ORGANIC, GENERAL CHEMICAL, AND METALS ANALYSES OF GROUNDWATER

Groundwater samples were collected from monitoring wells screened in the dredge fill (SB1A, SB2A, and SB3A) and from Well SB3, screened in the Sands and Silts. Analytical results of organic, general chemical, and metals analyses were compared to the Washington Department of Ecology Model Toxics Control Act (MTCA) Method A Cleanup Levels for Groundwater and to State of Washington Draft Groundwater Quality Standards (173-200 WAC).

5.2.1 Detections of Volatile Organic Chemicals (EPA Method 8240) in Groundwater

Carbon disulfide was detected in the groundwater sample from Well SB2A at a concentration at the method detection limit of 5 micrograms per liter (μg/L). Carbon disulfide is a solvent commonly used in analytical laboratories. A Draft Groundwater Quality Standard or MTCA Method A Cleanup level for carbon disulfide in groundwater has not been established. The presence of carbon disulfide is likely attributable to sample bottle cleaning and treating procedures.

TABLE 5-2: SUMMARY OF RESULTS FOR METALS IN SOIL

Analytical Parameter (Results in mg/kg)	Sample ID Number TP010203	TP040507	TP08091011	TP121314	MTCA Method A Industrial Cleanup Level (mg/kg)
Antimony (Sb)	<0.5	<0.5	<0.5	<0.5	NE
Arsenic (As)	1.6	1.3	1.8	1.7	200.0
Beryllium (Be)	<0.07	<0.06	<0.06	<0.06	NE
Cadmium (Cd)	1.1	1.2	1.5	1.3	10.0
Chromium (Cr)	4.7	1.5	7.2	3.4	500.0
Copper (Cu)	6.3	4.5	3.4	3.6	NE
Lead (Pb)	<1.3	1.3	6.5	3.6	1000.0
Mercury (Hg)	<0.15	<0.15	<0.15	<0.15	1.0
Nickel (Ni)	4.3	4.8	5.2	6.1	NE
Selenium (Se)	<0.5	<0.5	<0.5	<0.5	NE
Silver (Ag)	<0.20	<0.20	<0.20	<0.20	NE
Thallium (Tl)	<0.5	<0.5	<0.5	<0.5	NE
Zinc (Zn)	12	13	21	15	NE

Notes:

NE = MTCA Cleanup Level not established for this parameter, detected level is considered to be low enough to be of no significant concern.

Value recorded with "less than" (<) symbol indicates analytical result was less than the listed detection limit.

Chloroform was detected in the sample from Well SB3 at the method detection limit of 2 μg/L. An MTCA Method A cleanup level for chloroform in groundwater has not been established. The Draft Groundwater Quality Standard for chloroform is 7.0 μg/L.

A summary of detections for Volatile Organic Chemicals in groundwater is presented in Table 5-3.

5.2.2 Detections of Semi-Volatile Organic Chemicals (EPA Method 8270) in Groundwater

Bis (2-ethylhexyl) phthalate was detected in the sample collected from Well SB3 at an estimated concentration of 6.3 μg/L. This value is below the method detection limit of <10.0 μg/L. A Method A cleanup level for this compound has not been established by the MTCA. The Draft Groundwater Quality Standard for bis (2-ethylhexyl) phthalate is 6.0 μg/L. Bis (2-ethylhexyl) phthalate is a compound used as a plasticizer in rubber products. It is also a common laboratory contaminant. Because it was detected at concentrations below the analytical method detection limit, it is considered an artifact of laboratory or sampling procedures.

A summary of detections for Semi-Volatile Organic Chemicals in groundwater is presented in Table 5-3.

5.2.3 Detections of Organochlorine Pesticides and PCBs (EPA Method 8080) in Soil

No compounds were detected in groundwater samples under Method 8080. The analytical results for this method are presented in Table 5-3.

5.2.4 General Chemical Results for Groundwater

Cyanide and phenols were not detected in any groundwater samples at detection limits of 0.01 and 0.02 mg/L, respectively. The detection limits for cyanide and phenols were elevated to <0.05 and <0.10 mg/L in Sample SB3 due to matrix interference. The analytical results for general chemical parameters are presented in Table 5-3.

TABLE 5-3: SUMMARY OF DETECTIONS IN GROUNDWATER OF ORGANIC AND GENERAL CHEMICAL PARAMETERS

Analytical Method/Parameter (Results in µg/L)	Well ID Number/ Screened Unit SB1A (fill)	SB2A (fill)	SB3 (deeper)	SB3A (fill)	MTCA Method A Cleanup Level (µg/L)	State of Washington Draft Groundwater Quality Standard (1) (µg/L)
Volatile Organic Compounds (Method 8240)						
Carbon Disulfide	<1	5	<1	<1	NE	NE
Chloroform	<1	<1	2	<1	NE	7.0
Semi-Volatile Organic Compounds (Method 8270)						
Bis (2-Ethylhexyl) Phthalate	<10	<10	6.3 J	<10	NE	6.0
Organochlorine Pesticides and PCBs (Method 8080)						
No Compounds Detected						
General Chemistry						
Total Cyanide (mg/L)	<0.01	<0.01	<0.05 (2)	<0.01	NE	NE
Total Phenols (mgIL)	<0.02	<0.02	<0.10 (2)	<0.02	NE	NE

Notes:

(1) = Draft Water Quality Standards for Ground Waters of the State of Washington, dated April 1990.

(2) = Elevated detection limit due to matrix interference.

NE = Cleanup Level or Ground Water Quality Standard not established for this parameter.

Value recorded with "less than" (<) symbol indicates analytical result was less than the listed detection limit

J = Value estimated by laboratory

5.2.5 Analytical Results for Metals in Groundwater

Groundwater samples were collected from the monitoring wells and submitted for laboratory analysis for the Priority Pollutant suite of metals. These metals are antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc. Analytical results are provided in Table 5-4.

Antimony, beryllium, cadmium, chromium, copper, mercury, nickel, selenium, silver, and thallium were either below detection limits or were below both MTCA Method A Cleanup Levels for groundwater and Draft Groundwater Quality Standards.

Arsenic in samples collected from SB1A and SB3A was detected at concentrations of 0.005, and 0.006 mg/L, respectively. These concentrations are equal to or slightly greater than the method detection limit of 0.005 mg/L. Arsenic in Sample SB2A was detected at 0.048 mg/L. Arsenic concentrations in SB2A and SB3A exceed both the MTCA Method A Cleanup level of 0.005 mg/L and the Draft Groundwater Quality Standard of 0.00005 mg/L.

Lead was detected in samples from SB1A and SB2A at concentrations of 0.006 and 0.005 mg/L, respectively. These concentrations are equal to or slightly greater than the method detection limit of 0.005 mg/L. The concentration in Sample SB1A exceeds the MTCA Method A Cleanup level of 0.005 mg/L, but does not exceed the Draft Groundwater Quality Standard of 0.05 mg/L.

5.3 SUMMARY OF ANALYTICAL RESULTS

Acetone, methylene chloride, and 1,1,1-Trichloroethane detected in soil samples collected from test pits can be attributed to laboratory contamination or are present at concentrations well below regulatory guidelines. The presence of these chemicals in soil is considered insignificant.

Di-n-butylphthalate and bis (2-ethylhexyl) phthalate were detected in soil and groundwater samples at concentrations below method detection limits and in some cases were also detected in laboratory QA/QC blank samples. The presence of these

TABLE 5–4: SUMMARY OF RESULTS FOR METALS IN GROUNDWATER

Analytical Parameter (Results in mg/L)	Well ID Number/ Screened Unit SB1A (fill)	SB2A (fill)	SB3 (deeper)	SB3A (fill)	MTCA Method A Cleanup Level (mg/L)	State of Washington Draft Groundwater Quality Standard (1) (mg/L)
Antimony (Sb)	<0.005	<0.005	<0.005	<0.005	NE	NE
Arsenic (As)	0.005	0.048	<0.005	0.006	0.005	0.00005
Beryllium (Be)	<0.001	<0.001	<0.001	<0.001	NE	NE
Cadmium (Cd)	<0.0003	<0.0003	<0.0003	<0.0003	0.005	0.01
Chromium (Cr)	<0.005	<0.005	0.015	0.006	0.050	0.05
Copper (Cu)	0.025	0.023	0.026	0.016	NE	1.0
Lead (Pb)	0.006	0.005	<0.005	<0.005	0.005	0.05
Mercury (Hg)	<0.0005	<0.0005	<0.0005	<0.0005	0.002	0.002
Nickel (Ni)	<0.01	<0.01	<0.01	<0.01	NE	NE
Selenium (Se)	<0.005	<0.005	<0.005	<0.005	NE	0.01
Silver (Ag)	<0.003	<0.003	<0.003	<0.003	NE	0.05
Thallium (Tl)	<0.005	<0.005	<0.005	<0.005	NE	NE
Zinc (Zn)	0.039	0.062	0.063	0.038	NE	5.0

Notes:

(1) = Draft Water Quality Standards for Ground Waters of the State of Washington, dated April 1990.

NE = Cleanup Level or Ground Water Quality Standard not established for this parameter, detected level is considered to be low enough to be of no significant concern.

Bold type indicates value exceeding Cleanup Level or Ground Water Quality Standard.

Value recorded with "less than" (<) symbol indicates analytical result was less than the listed detection limit.

compounds can be attributed to laboratory or sample handling contamination and is considered insignificant.

Several polynuclear aromatic hydrocarbon compounds and several metals were detected in soil samples at concentrations well below regulatory guidelines and are considered insignificant.

Carbon disulfide and chloroform were detected in groundwater at concentrations below regulatory standards or equal to the method detection limit. Carbon disulfide is a common laboratory solvent. The presence of these chemicals is considered insignificant.

Arsenic was detected in groundwater samples from Wells SB2A and SB3A at concentrations exceeding the MTCA Method A Cleanup Level. The concentration in Sample SB3A was 0.006 mg/L, 0.001 mg/L above the method detection limit and MTCA Method A Cleanup Level which are both 0.005 mg/L. The concentration of arsenic in sample from SB2A was 0.048 mg/L.

Lead was detected in groundwater samples from SB1A and SB2A equal to or slightly above both the method detection limit and the MTCA Cleanup Level, which are 0.005 mg/L.

6.0
CONCLUSIONS

A Phase 2 investigation was undertaken to address the questions presented in Section 1.2 of this report. Based upon a review of historical aerial photographs, field observation and investigation, and chemical analysis of soil and groundwater, the following may be concluded concerning the proposed project site:

- Unauthorized disposal of empty 55-gallon drums and paint cans, automobile tires, creosoted logs, and household and demolition debris has taken place on the proposed construction site. Chemical analysis of soil and groundwater samples indicate that no significant impact to soil or groundwater has occurred as result of the unauthorized disposal.

- Chemical analysis of a soil sample collected along the eastern boundary of the site, closest to the adjacent Chemical Processors property, indicate that 1,1,1-Trichloroethane is present at a concentration well below the MTCA Method A Cleanup Level. This compound was not detected in any other soil or groundwater samples. There is no further evidence that operations at the Chemical Processors property have impacted the proposed construction site.

- Chemical analyses of groundwater sampled from wells screened in dredge fill at the site indicate that arsenic and lead are present at concentrations exceeding MTCA Method A Cleanup Levels. The MTCA Cleanup level for both arsenic and lead is 0.005 mg/L and is equal to the analytical method detection limit. The levels of lead found in groundwater are just above the MTCA Cleanup Level and likely represent area background concentrations. Levels of arsenic found in groundwater range from slightly greater than to approximately nine times the MTCA Method A Cleanup level. It is widely recognized that arsenic is ubiquitous in soil and shallow groundwater in the south Puget Sound region. The levels of arsenic found at the site in groundwater sampled from wells screened in dredge fill likely represent area

background concentrations. Arsenic was not detected in groundwater sampled from a monitoring well screened in the deeper Silts and Sand unit.

MTCA Method A cleanup levels are based on the most stringent beneficial use of groundwater, as a drinking water source. The characteristics of a drinking water source are defined in Section 720, Groundwater Cleanup Standards (WAC 173-340-720). Groundwater present in the dredge fill at the proposed facility site does not meet the requirements for being a current or potential future source of drinking water. Cleanup levels established for arsenic in groundwater by the Model Toxics Control Act therefore would not be applicable to the levels of arsenic detected at the subject site. It is thus unlikely that remedial action in accordance with the Model Toxics Control Act would be required.

- Groundwater leaving the site may be impacted by concentrations of chemicals that are well below regulatory criteria. Chemical analysis of soil and groundwater indicate that the proposed facility site is not a likely source of chemical impact to the Blair or Hylebos waterways.

- Levels of chemicals in the soil are considered low enough that remediation of construction spoils would not be necessary.

7.0
REFERENCES

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Russell Post, Tacoma City Light. Personal Communication. March 28, 1991.

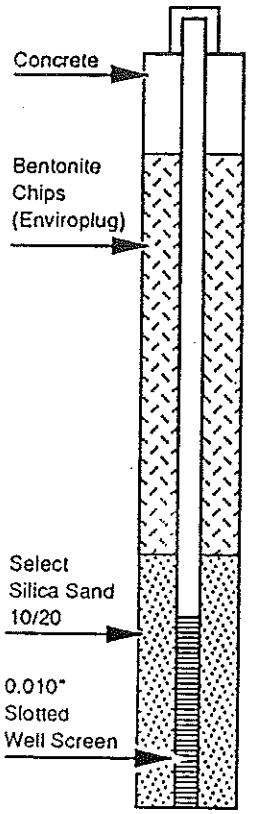
Washington Administrative Code, February 28, 1991. Model Toxics Control Act Cleanup Regulation and Amendments, Chapter 173-340 WAC.

Washington Administrative Code, April 17, 1990. Draft, Water Quality Standards for Ground Waters of the State of Washington, Chapter 173-200 WAC.

Woodward-Clyde Consultants. May 1991. Wetlands Survey of the Proposed Sithe Energies Tacoma Cogeneration Facilities Site.

APPENDIX B
WELL BORING LOGS

BORING NO.	SB-1	ELEVATION:	11.32 ft
LOCATION:		DATE STARTED:	3/28/91
DRILLING AGENCY:	Soil Sampling Service	DATE COMPLTED:	3/28/91
DRILLING EQUIPMENT:	All-terrain CME-50	DRILLER: W. Lindholm	LOGGED BY: K. Teague
DRILLING METHOD:	4" ID HSA	SAMPLER:	SPT

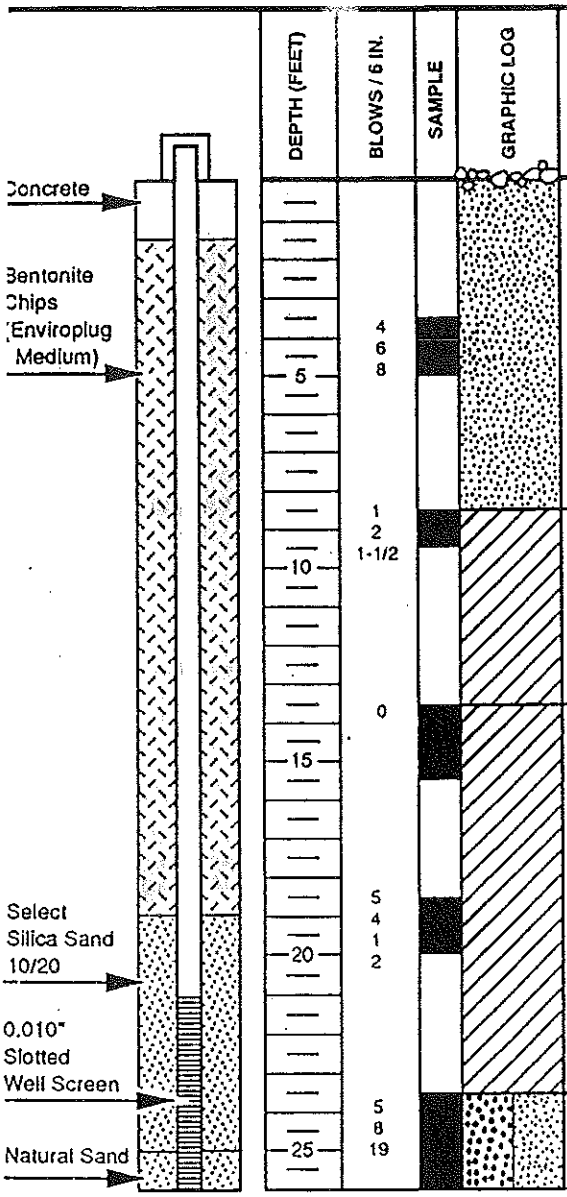


DEPTH (FEET)	BLOWS / 6 IN.	SAMPLE	GRAPHIC LOG	DESCRIPTION
5	1 4 2			(2.5 - 4.0) Loose, saturated, brown, medium grained sand (SP), trace of calcareous shell material (FILL)
10	1 0 0	AIR		(8.5 - 10.0) No recovery. Likely fine to medium grained saturated sand
15	0 0 4			(13.5 - 15.0) Very soft, plastic, saturated, clay (CL) with loose, saturated, gray, fine sand (SP)
20	7 11 16			(18.5 -20.0) Medium dense, saturated, gray, fine to medium sand (SP)

Screened in silt?
15 – 8.5 unknown

Project No. 91C0191A	Sithe Energies, U.S.A., Inc. Tacoma Cogeneration Project	LOG OF BORING SB-1	SHEET 1 of 7
Woodward-Clyde Consultants			

BORING NO.	SB-3	ELEVATION:	14.07 ft
LOCATION:		DATE STARTED:	3/29/91
DRILLING AGENCY:	Soil Sampling Service	DATE COMPLTED:	3/29/91
DRILLING EQUIPMENT:	All-terrain CME-50	DRILLER: W. Lindholm / LOGGED BY:	K. Teague
DRILLING METHOD:	4" ID HSA	SAMPLER:	SPT

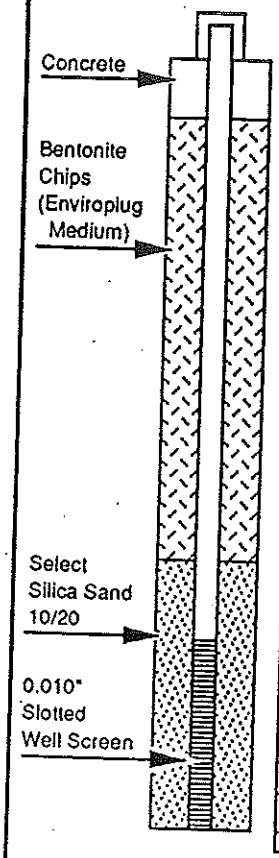


DEPTH (FEET)	BLOWS / 6 IN.	DESCRIPTION
		Surface: Coarse sandy gravel with cobbles mixed with white powdery lime
5	4 6 8	(3.5 - 5.5) Loose to medium, dense, saturated, medium sand (SP) trace of fine sand (FILL)
10	1 2 1-1/2	(8.5 - 10.5) Very soft, saturated, gray-tan clay (CL) with some darker gray vertically oriented streaks
15	0	(13.5 - 15.5) Very soft, saturated, gray clay (CL), trace to some silt in lower 3"
20	5 4 1 2	(18.5 -20.5) Very soft, saturated gray clay (2 layers, 4" and 7" thick) interbedded with loose, saturated, gray, medium sand
25	5 8 19	(23.5 - 25.5) Loose, saturated, poorly sorted gray silty fine sand (SW) with trace of clay, grading to dense, saturated, gray, medium sand (SP) with serveral white-tan clam shell fragments

screen in clay ?
20.5 - 23.5' unknown

Project No.			
91C0191A	Sithe Energies, U.S.A., Inc. Tacoma Cogeneration Project	LOG OF BORING SB-3	SHEET 3 of 7
Woodward-Clyde Consultants			

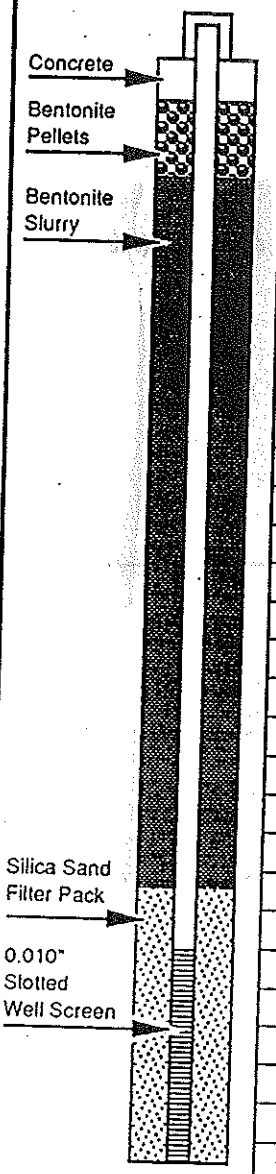
BORING NO. SB-2	ELEVATION: 10.91 ft
LOCATION:	DATE STARTED: 3/29/91
DRILLING AGENCY: Soil Sampling Service	DATE COMPLTED: 3/29/91
DRILLING EQUIPMENT: All-terrain CME-50	DRILLER: W. Lindholm / LOGGED BY: K. Teague
DRILLING METHOD: 4" ID HSA	SAMPLER: SPT



DEPTH (FEET)	BLOWS / 6 IN.	SAMPLE	GRAPHIC LOG	DESCRIPTION
5	2, 2, 2			(3.5 - 5.5) Loose, wet to saturated, dark gray to brown fine to medium sand (SP), trace of silt, trace of clayey blebs to 4mm diameter (FILL)
10	2, 2, 1			(8.5 - 10.5) Soft, saturated, gray-brown clay (CL) with abundant roots and rootlets
15	0			(13.5 - 15.5) Very soft, saturated, gray clay (CL)
20	1, 8, 14, 12			(18.5 -20.5) Medium dense, saturated, dark gray, fine to medium sand (SP)

Screened in silt/clay?
15.5 - 18.5 unknown

BORING NO. SB-4	ELEVATION: 13.82 ft
LOCATION:	DATE STARTED: 4/1/91
DRILLING AGENCY: Soil Sampling Service	DATE COMPLTED: 4/1/91
DRILLING EQUIPMENT: All-terrain CME-50	DRILLER: W. Lindholm / LOGGED BY: K. Teague
DRILLING METHOD: 4" ID HSA	SAMPLER: SPT

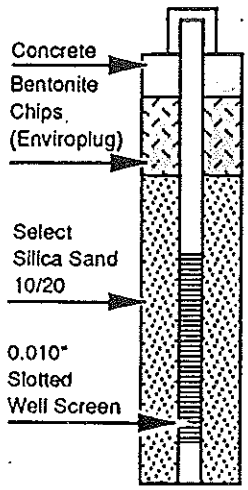


DEPTH (FEET)	BLOWS / 6 IN.	SAMPLE	GRAPHIC LOG	DESCRIPTION
				Surface - sandy gravel
				(1.0) Wood pulp & chunks of rubber
	3			(3.5 - 5.5) Tan wood, fibrous (FILL)
5	3			
	2			
	3			(8.5 - 10.5) Dark brown saturated, wood waste, with bits of black rubber material
	4			
10	3			
	0			(13.5 - 15.5) Very soft, saturated, gray clay (CL) uniform
15				
	3			(18.5 -20.5) Soft, saturated, interbedded gray clay (CL) and gray sandy silt (ML)
	2			
20	1			
	1			(23.5 - 25.5) Soft, saturated, gray silty clay (CL) grading at 25.0 to loose, saturated, gray fine to medium sand
	3			
25	3			
	9			(28.5 30.5) Dense, saturated, gray medium sand (SP) with thin 1/2" - 3/4" interbedded fine sand stringers and one 4" silt lense
	18			
30	14			

screened in clay at least 23.5 - 25'

Project No. 91C0191A	Sithe Energies, U.S.A., Inc. Tacoma Cogeneration Project	LOG OF BORING SB-4	SHEET 4 of 7
Woodward-Clyde Consultants			

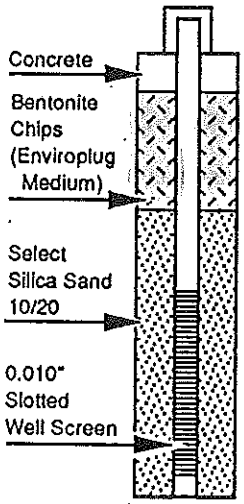
BORING NO. SB-1A	ELEVATION: 11.91 ft
LOCATION:	DATE STARTED: 3/28/91
DRILLING AGENCY: Soil Sampling Service	DATE COMPLTED: 3/28/91
DRILLING EQUIPMENT: All-terrain CME-50	DRILLER: W. Lindholm / LOGGED BY: K. Teague / D. Walker
DRILLING METHOD: 4" ID HSA	SAMPLER:



DEPTH (FEET)	BLOWS / 6 IN.	SAMPLE	GRAPHIC LOG	DESCRIPTION
				Note: Not Sampled. Stratigraphic information from Well SB-1 except as noted (*)
				(2.3 - 4.0) Loose, saturated, brown, medium grained sand (SP) (FILL)
5				
10				* (10,5) Clay encountered

Project No. 91C0191A	Sithe Energies, U.S.A., Inc. Tacoma Cogeneration Project	LOG OF BORING SB-1A	SHEET 5 of 7
Woodward-Clyde Consultants			

BORING NO. SB-2A		ELEVATION: 11.78 ft	
LOCATION:		DATE STARTED: 3/29/91	
DRILLING AGENCY: Soil Sampling Service		DATE COMPLTED: 3/29/91	
DRILLING EQUIPMENT: All-terrain CME-50		DRILLER: W. Lindholm	LOGGED BY: K. Teague / D. Walker
DRILLING METHOD: 4" ID HSA		SAMPLER:	

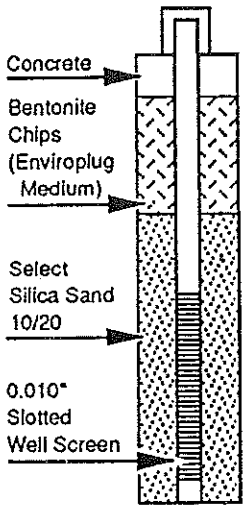


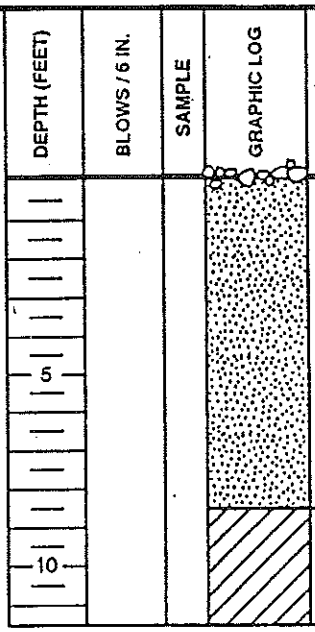
DEPTH (FEET)	BLOWS / 6 IN.	SAMPLE	GRAPHIC LOG	DESCRIPTION
5				Note: Not Sampled. Stratigraphic information from Well SB-2, except as noted (*) (3.5 - 5.5) Loose, wet to saturated, dark gray to brown fine to medium sand (SP), trace of silt, trace of clayey blebs to 4mm diameter (FILL) *(7.0 - 8.5) Refuse encountered
10				(8.5 - 10.5) Soft, saturated, gray-brown clay (CL) with abundant roots and rootlets

Screened in clay 8.5 - 10.5'

Project No. 91C0191A	Sithe Energies, U.S.A., Inc. Tacoma Cogeneration Project	LOG OF BORING SB-2A	SHEET 6 of 7
Woodward-Clyde Consultants			

BORING NO.	SB-3A	ELEVATION:	13.26 ft
LOCATION:		DATE STARTED:	3/29/91
DRILLING AGENCY:	Soil Sampling Service	DATE COMPLTED:	3/29/91
DRILLING EQUIPMENT:	All-terrain CME-50	DRILLER: W. Lindholm	LOGGED BY: K. Teague / D. Walker
DRILLING METHOD:	4" ID HSA	SAMPLER:	





DESCRIPTION

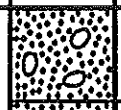
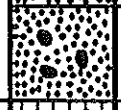
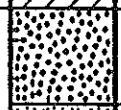
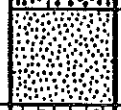
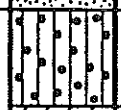
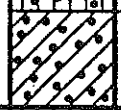
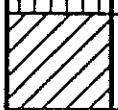
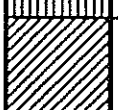
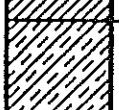
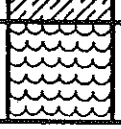
Note: Not Sampled. Stratigraphic information from Well SB-3

(3.5 - 5.5) Loose to medium, dense, saturated, medium sand (SP) trace of fine sand (FILL)

(8.5 - 10.5) Very soft, saturated, gray-tan clay (CL) with some darker gray vertically oriented streaks

Screen in clay 8.5-10.5' (at least)

Project No. 91C0191A	Sithe Energies, U.S.A., Inc. Tacoma Cogeneration Project	LOG OF BORING SB-3A	SHEET 7 of 7
Woodward-Clyde Consultants			

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE-GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	CLEAN SANDS		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES		SM	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE-GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50			ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLACTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLACTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLACTICITY, ORGANIC SILTS
HIGHTLY ORGANIC SOILS				PT	PEAT AND OTHER HIGHLY ORGANIC SOILS

WOODWARD-CLYDE ANCHORAGE LIBRARY

Project No. 91C0191A	Sithe Energies, U.S.A., Inc. Tacoma Cogeneration Project	UNIFIED SOIL CLASSIFICATION SYSTEM	Figure 0
Woodward-Clyde Consultants			

Appendix C
Port of Tacoma
Inadvertent
Discovery Plan (IDP).

Port of Tacoma
Inadvertent Discovery Plan

The following Inadvertent Discovery Plan (IDP) outlines the procedures to be implemented if cultural resource materials are inadvertently discovered during construction, in accordance with state and federal laws. The separate protocol for discovery of human skeletal remains is also described below. The IDP shall be kept at the project site during all project activities. **All staff, contractors, and consultants should be familiar with its contents and know where to find it.**

1. RECOGNIZING CULTURAL RESOURCES

A cultural resource is an item of historical, traditional, or cultural importance. The item could be prehistoric or historic (older than 50 years). Examples might include, but are not limited to:

- An accumulation of shell (shell-midden) with associated bone, stone, antler or wood artifacts, burned rocks or charcoal.
- Animal bones that have been modified or associated with other artifacts.
- An area of charcoal or very dark stained soil with associated artifacts.
- Artifacts made of chipped or ground stone (i.e. an arrowhead, adze or maul) or an accumulation (more than one) of stone flakes (lithic debitage).
- Basketry, cedar garments, fish weir stakes or items made of plant materials.
- Clusters of tin cans or bottles, logging or agricultural equipment that appear to be older than 50 years.
- Buried railroad tracks, decking, or other industrial materials.

NRHP Eligibility

To be eligible for the National Register of Historic Places (NRHP) cultural resources identified during construction must be 50 years of age or older, meet one or more of the four criteria listed below, and retain sufficient physical integrity to convey historical significance (36 CFR 60.4), and/or meet the fifth criterion established by the PTOI (Brandon Reynon, Personal; communication 2025). A building, site, object, or structure may be considered for inclusion in the NRHP if it meets at least one of the following criteria:

1. The property is associated with events that have made a significant contribution to the broad patterns of our history.
2. The property is associated with the lives of persons significant in our past.
3. The property embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components might lack individual distinction.

4. The property has yielded, or might be likely to yield, information important in prehistory or history.
5. The property is of significance to the PTOI.

The following archaeological resources will indicate potentially NRHP-eligible deposits and will be assumed NRHP-eligible until determined otherwise by the State Historic Preservation Officer (SHPO):

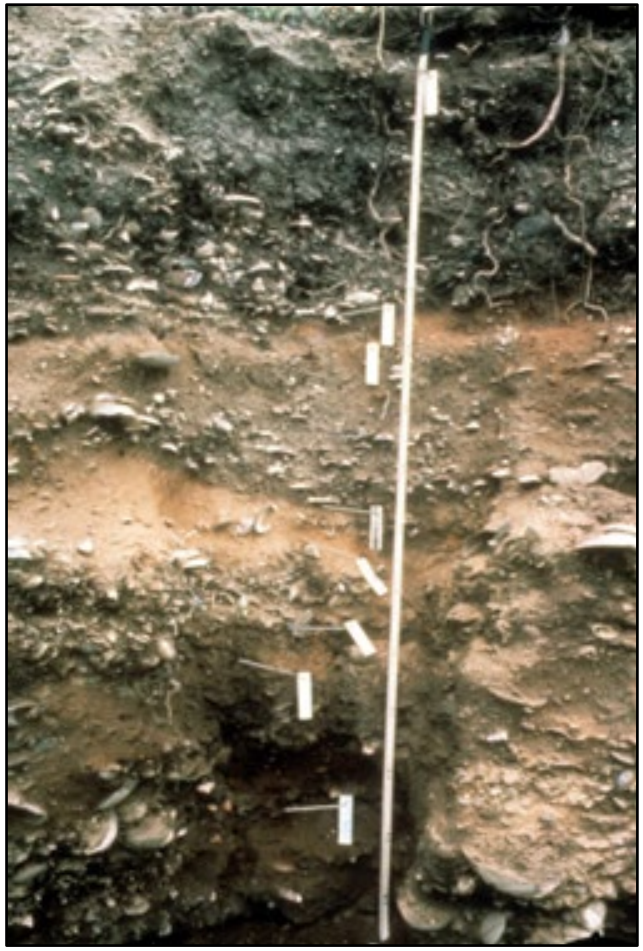
- Precontact deposits (such as midden) associated with Native American use or occupation.
- Historic-era artifacts from NRHP-eligible (or potentially NRHP eligible) deposits.
- Historic era non-Native American artifacts from non-eligible contexts, only if they are diagnostic or have educational value.
- Historic features consisting of stratified deposits with artifact concentrations that appear to be spatially or temporally distinct. This includes refuse deposits, privies, or discrete accumulations.
- Courses of brick or other architectural materials that are part of a building foundation or pavement in their original position.

Examples of deposits that will not be considered NRHP-eligible include:

- Isolated or loose construction materials (brick, mortar, window glass), bottles, cans, located within fill sediments (not located in primary context).
- Mass deposits of lumber, concrete, granite, coal, etc.
- Pilings, decking, trestle, and railroad track, unless of clearly unique construction.
- Historic-era artifacts not associated with a feature or stable surface.

Artifacts or deposits that are not potentially eligible, as described above, will only be noted in daily field logs, photographed, and documented on scaled site plans (if possible). The procedures for an inadvertent discovery will not be implemented for artifacts or deposits that are not potentially eligible for listing in the NRHP (including the stop-work clause, noted in the procedure below).

Examples of Potentially NRHP-Eligible Cultural Resources

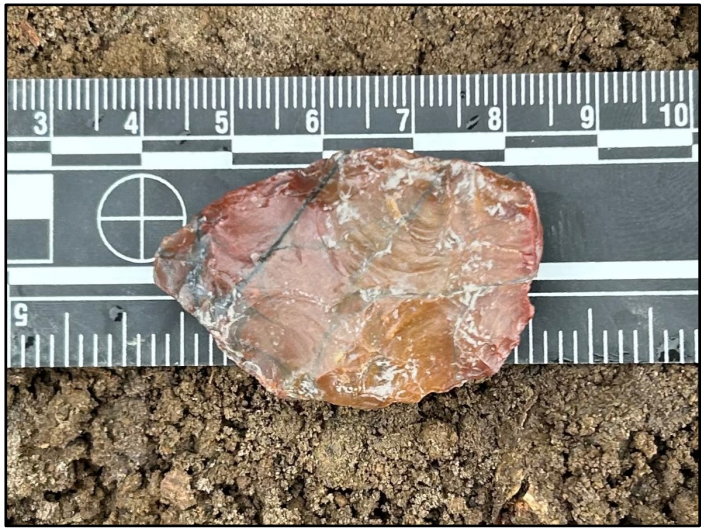


Precontact Shell Midden

Precontact Stone Tool from 45PI1631 (courtesy of the PTOI HPD).

Precontact Shell Midden

Precontact Stone Tool from the Study Area (courtesy of Port)



Precontact Stone Tool from site 45PI1631, (courtesy of the PTOI HPD).

**Images Public Domain from National Park Service unless noted*

Precontact Animal Bone Mandible (lower jar, possibly with butcher marks), from 45PI1631 (courtesy of the PTOI HPD).

Precontact Animal Bone Tools

Precontact Animal Bone Tool from 45PI1631 (courtesy of the PTOI HPD).

Precontact Animal Bone Tool from 45PI1631 (courtesy of the PTOI HPD).

Historic Artifacts (from top to bottom: ceramic plate, glass bead, glass bottle)

Historic Hearth Feature from Fort Vancouver

Historic house ruins

Profile of archaeological site in Study Area (courtesy of Port). Note the woody fill layer over native sediments.

Fish Weir in-situ(Courtesy of Burke Museum #45PI00470057)

Site 45PI1636 during construction monitoring (Courtesy of PTOI HPD)

2. PROTOCOL FOR DISCOVERY OF CULTURAL RESOURCES (EXCEPT FOR HUMAN SKELETAL REMAINS DISCOVERY)

STEP 1: STOP WORK & PROTECT THE DISCOVERY
If any employee, contractor, or subcontractor believes that a cultural resource has been uncovered during the project activities they shall instruct all work within 30 feet of the discovery to stop. If that perimeter impedes on health, safety, environmental, or legal requirements, the perimeter will be as near to 50 feet as practical. The discovery location should be secured at all times. The discovering party, or their direct on-site supervisor, shall implement Step 2.

STEP 2: NOTIFY MONITOR and PORT OF TACOMA (Port)
The discovering party shall notify the project's archaeological monitor (if applicable) and Port. If there is a cultural resource monitoring plan in place, the monitor will follow its provisions for monitoring (i.e. determine if the inadvertent discovery is an intact archaeological deposit) and proceed to Step 3 for notifications.

Port of Tacoma (Port)

Engineering Contact (if PM unknown): Thais Howard Director of Engineering 253.888.4718 desk / 253.209.3086 cell thoward@nwseaportalliance.com 253.383.5841 receptionist	Environmental Contact: Mark Rettmann Environmental Project Manager 253-592-6716 desk and cell (no text) mrettmann@portoftacoma.com

STEP 3: Port WILL NOTIFY PTOI HPD

Puyallup Tribe of Indians (PTOI) Historic Preservation Department (HPD)

Primary Contact: Brandon Reynon Archaeologist/Historic Preservation Department 253-573-7965 (desk) / 253-442-9361 (cell) brandon.reynon@puyalluptribe-nsn.gov	Alternative Contact: Mike Shong Archaeologist 253-573-7897 (desk) / 253-339-1967 (cell) Mike.Shong@puyalluptribe-nsn.gov

STEP 4: PORT WILL NOTIFY DAHP and/or FEDERAL LEAD AGENCY (when applicable) – Except for discovery of human skeletal remains (see protocol below in section 3)

DAHP

Primary Contact: Rob Whitlam, Ph.D. DAHP, State Archaeologist 360-890-2615 Rob.Whitlam@dahp.wa.gov	Alternative Contact: Allyson Brooks, Ph.D. DAHP, SHPO 360-586-3066 Allyson.Brooks@dahp.wa.gov	Alternate Contact: Stephanie Jolivette Local Gov't Archaeologist 360-628-2755 Stephanie.Jolivette@dahp.wa.gov

The Washington State Department of Archaeology and Historic Preservation (DAHP) will review eligibility criteria, make a recommendation to the artifact or deposits potential eligibility, and will proceed with agency and tribal notification as necessary (so long as the artifact or deposit is determined eligible). After consultation, DAHP will complete a written plan of action describing the treatment of cultural resources pursuant to 43 CFR Part 10 and will execute their prescribed duties within that plan of action.

3. PROTOCOL FOR DISCOVERY OF HUMAN SKELETAL REMAINS

In the event that human remains are discovered during the construction, the following procedures are to be followed to ensure compliance with RCW 68.60: Abandoned and Historic Cemeteries and Historic Graves, and RCW 27.44: Indian Graves and Records. Washington State law requires immediate notification of known or suspected human remains to county and/or municipal law enforcement agencies, county medical examiner or coroner's offices, DAHP, and federal and local agencies involved directly with the project or having jurisdiction over the subject properties.

If ground-disturbing activities encounter human skeletal remains during construction, then all activity that may cause further disturbance to those remains must immediately cease and the area of the find must be secured and protected from further disturbance. Any human remains that are discovered will be treated with dignity and respect. *No photography* is allowed except for the purpose of the lead archaeologist or tribal archaeologist to communicate with the PTOI HPD or State Physical Anthropologist to confirm human remains. Photographs sent to the PTOI or State Physical Anthropologist shall have a scale. If and when human remains are confirmed, no further photography shall occur, and the lead archaeologist shall delete photos.

The remains should not be touched, moved, or further disturbed. If, however, handling of human remains is unavoidable, the archaeological monitor and/or professional archaeologist will use cloth gloves. All remains will remain covered with a tarp that will not be removed until such time that the coroner or DAHP assumes jurisdiction of the find.

Upon the discovery of human skeletal remains, the above Steps 1-3 will be implemented. The Port will *first notify the PTOI HPD* and subsequently notify and report to the County Sheriff, County Medical Examiner, and the Port Security in the most expeditious manner possible. The County Medical Examiner will determine if the remains are human and whether the discovery constitutes a crime scene. If the remains are determined to not be a crime scene, the County Medical Examiner will notify DAHP. The DAHP will be responsible for informing the affiliated tribes regarding the discovery. Contact information for the County Medical Examiner and the DAHP is provided below.

CONTACT INFORMATION IF HUMAN SKELETAL REMAINS ARE DISCOVERED

Port to first contact the PTOI HPD:

Primary Contact: Brandon Reynon Archaeologist/HPD 253-573-7965 (desk) / 253-442-9361 (cell) brandon.reynon@puyalluptribe-nsn.gov	Alternative Contact: Mike Shong Archaeologist 253-573-7897 (desk) / 253-339-1967 (cell) Mike.Shong@puyalluptribe-nsn.gov

Port to contact the following in the most expeditious manner possible:

Pierce County Sheriff: Office Non-emergency (253)798-7530	Pierce County Medical Examiner: Medical Examiner's Office: (253) 798-6494
Port Security: Fabulich Center, 3600 Port of Tacoma Rd, 24 hr, 7 days a week 253-383-9472	

The County Medical Examiner will contact DAHP if they determine the remains are not a crime scene/non-forensic and *DAHP will be responsible for informing the affiliated tribes* regarding the discovery.

Primary DAHP: Guy Tasa, Ph.D. State Physical Anthropologist (360) 790-1633 Guy.Tasa@dahp.wa.gov	Alternative DAHP: Jackie Berger, Ph.D., RPA Assistant State Physical Anthropologist (360) 890-2633 Jackie.Berger@dahp.wa.gov

4. PROCEEDING WITH CONSTRUCTION

Project construction outside the discovery location may continue while documentation and assessment of the cultural resources proceed. A Cultural Resources Specialist (either from DAHP, a consulting Tribe, or a professional consultant) must determine the boundaries of the discovery location. In consultation with DAHP and affected tribes, the project lead will determine the appropriate level of documentation and treatment of the resource. If federal agencies are involved, the agencies will make the final determinations about treatment and documentation.

Construction may continue at the discovery location only after the process outlined in this plan is followed, and DAHP (and the federal agencies, if any) determine that compliance with state and federal laws is complete.

5. CONFIDENTIALITY

All parties, including Port and its employees, contractors, and consultants, shall keep inadvertent discoveries confidential. Parties shall not contact the press, post social media, or share information with any third party or member of the public. Prior to releasing any information about the inadvertent discovery, the Port, concerned Tribe(s), and DAHP will concur on the procedures and the level of information which may be released, as allowed by law.

Appendix D
Stormwater Pollution Prevention Plan (SWPPP)

Construction Stormwater Pollution Prevention Plan (SWPPP) Report

Port of Tacoma Parcel 117 Snail Eradication

Prepared For
SDEV26-0069

Project Location
1212 Taylor Way, Tacoma, WA 98421

Pierce County TPN 0321263045, 0321352064

Port Parcel 117

SWPPP Prepared By

Name	Organization	Contact Telephone Number	Email Address
Don Davis, P.E.	Sitts & Hill Engineers, Inc.	(253) 474-9449	dond@sittshill.com

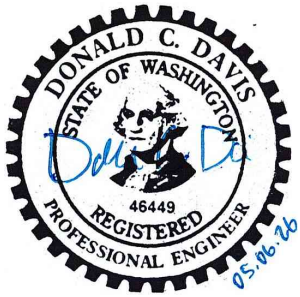
Erosion and Sediment Control Lead

Name	Organization	Contact Telephone Number	Email Address	CESCL/CPESC Number (if applicable)
TBD	**TBD**	**TBD**	**TBD**	**TBD**

Proposed Construction Schedule

Proposed Start Date	Proposed End Date	Described proposed phasing or sequencing (if any)
8/1/2026	11/1/2026	**No Phasing Proposed**

Date Prepared
3/13/2026



5/5/2026

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1. Project Information

A. Project Contents

See Title Page for Construction Stormwater Pollution Prevention Plan Development Team and Erosion and Sediment Control Lead.

B. Property Owner

Name	Organization	Mailing Address	Contact Telephone Number	Email Address
Elly Bulega	Port of Tacoma	1 Sitcum Plaza Tacoma, WA 98421	(253) 428-8638	ebulega@portoftacoma.com

C. Applicant (if different than Property Owner)

Name	Organization	Mailing Address	Contact Telephone Number	Email Address
Don Davis, P.E.	Sitts & Hill Engineers, Inc.	4815 Center St Tacoma, WA 98409	(253) 474-9449	dond@sittshill.com

D. Associated Permits

i) Associated City of Tacoma Permit Number(s)

SDEV26-0069

ii) Other Federal, State, or Local Associated Permit Types and Numbers

TBD

E. Vesting

i) City of Tacoma Stormwater Management Manual Edition Used

July 2021

ii) If using a manual other than the most current version, provide vesting justification:

N/A

2. Project Overview

A. Provide a brief description of the proposed project.

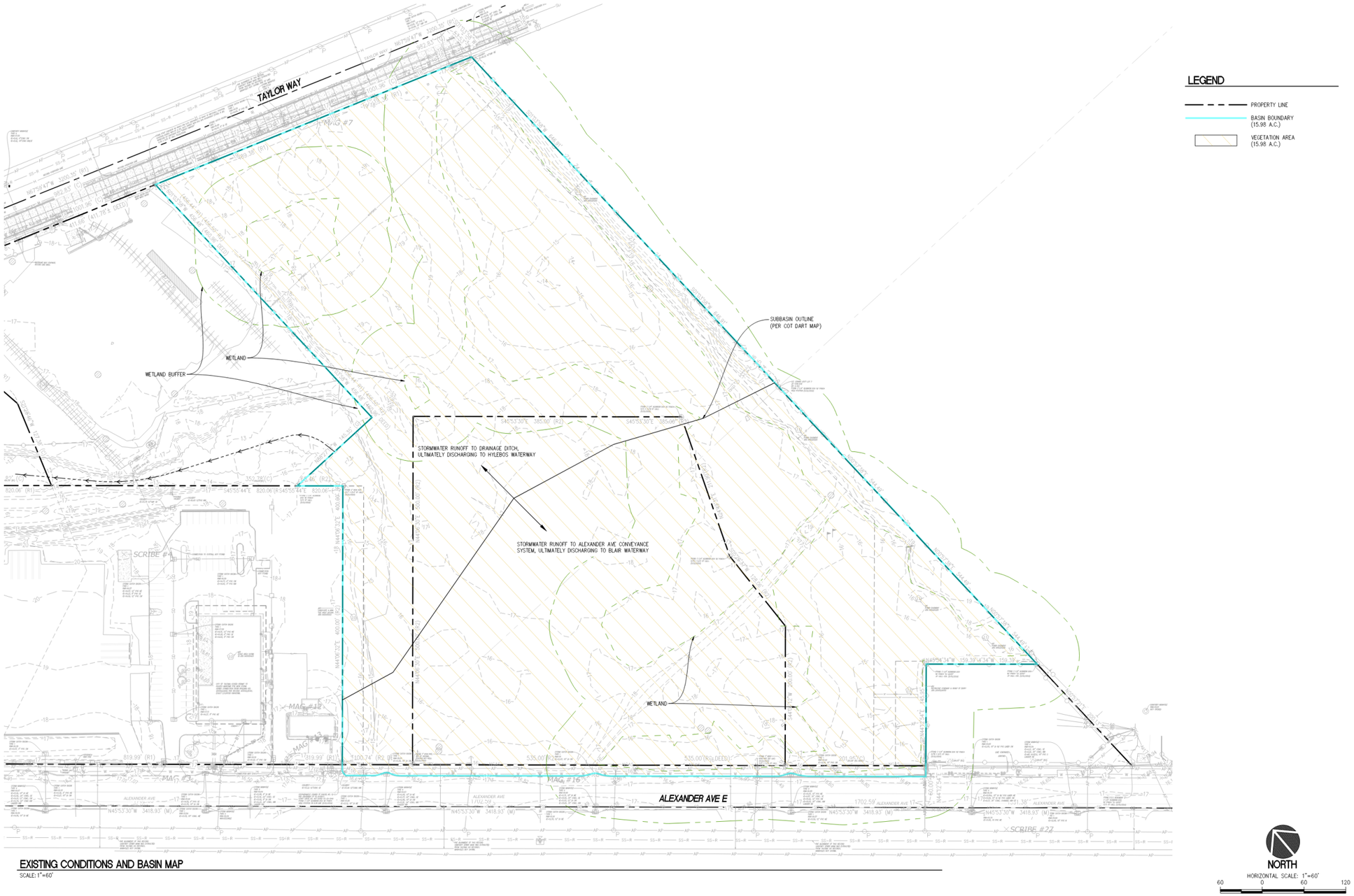
The project proposes to surface the entire site with crushed surfacing top course, with a portion of the site paved with asphalt pavement at the identified autofluff contamination area. An ecology block wall will be installed at the boundaries of the autofluff contamination. The site will be graded for stormwater runoff to discharge into the stormwater conveyance system along Alexander Ave. The purpose of this project is to eradicate the snails on the site and to prepare the property for the full buildout by the future developer.

3. Existing Project Site Conditions

A. Describe in words and/or provide a figure(s) or drawing(s) that describe the existing site conditions.

The project site is currently undeveloped and consists primarily of grass-covered surfacing. There are wetlands and autofluff contamination on this site. There are no groundwater wells, superfund area, structures, or fuel tanks located on site. See Figure 1 and 2 for the Existing Conditions Map and Tacoma DART Map, respectively

The site is generally flat and stormwater runoff is naturally collected by the wetlands and low areas on the site. Stormwater runoff is naturally collected by the wetlands and low areas on the site. Once those areas overtop, stormwater runoff from the easterly half of the site flows to a drainage ditch on the westerly adjacent property (PoT Parcel 114) From the drainage ditch, it enters an piped stormwater system located on Taylor Way and E 11th St, which ultimately discharges into the Hylebos Waterway. Stormwater runoff from the westerly portion of the site would enters the existing Alexander Ave. public stormwater network and ultimately discharges into the Blair Waterway. See Figure 3 for Existing Downstream Flow Map.

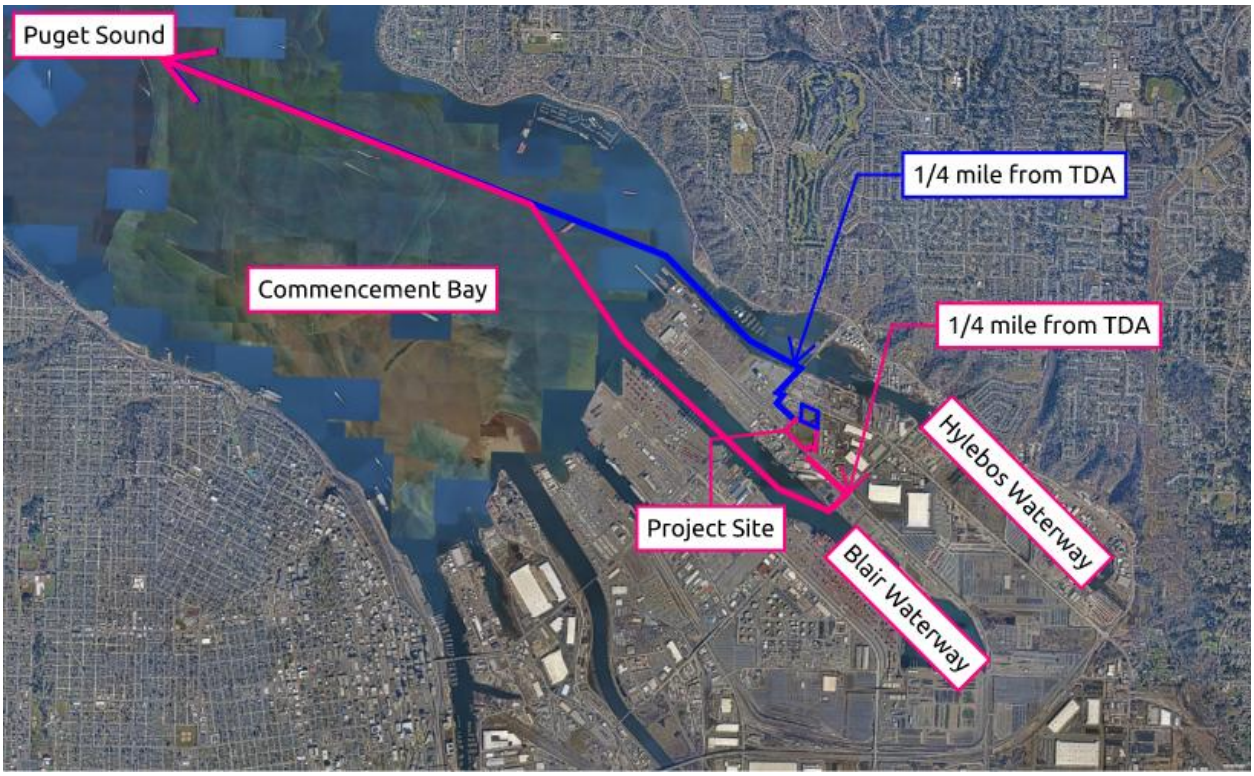


EXISTING CONDITIONS AND BASIN MAP
SCALE: 1"=60'

Figure 1 – Existing Conditions and Basin Map

Figure 2 – Tacoma DART Map

Figure 3 – Existing Downstream Flowpath



4. 13 Elements of Construction Stormwater Pollution Prevention

Below the 13 Elements of Construction Stormwater Pollution Prevention are provided. For each element, place a checkmark next to the BMP that will be used to satisfy the element. If Other is checked describe how the element will be addressed in detail. If an element is not required, justification for why that element is not required must be included. Volume 3, Table 3-1: Construction Stormwater BMPs by SWPP Element is a guide that can be used to help determine appropriate BMPs to address each Element.

4.1 Element #1: Preserve Vegetation and Mark Clearing Limits

- Before beginning any 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 to prevent damage and offsite impacts. Mark clearing limits both in the field and on the plans.
- Retain the duff layer, native topsoil, and natural vegetation in an undisturbed state to the maximum degree practicable. If it is not practicable to retain the duff layer in place, stockpile it onsite, cover it to prevent erosion, and replace it immediately upon completion of the ground-disturbing activities.
- Plastic, metal, fabric fence, or other physical barriers may be used to mark the clearing limits.

The BMP(s) proposed to meet this element are:

☐ BMP C101: Preserving Natural Vegetation
☐ BMP C102: Buffer Zone
☒ BMP C103: High Visibility Fence
☐ Other: (Insert description of how element will be addressed)
☐ This Element is not required for this project because: (Insert Justification as to why Element is not required)

4.2 Element #2: Establish Construction Access

- Limit construction vehicle ingress and egress to one route, if possible.
- Stabilize access points with a pad of quarry spalls, crushed rock, or other equivalent BMPs to minimize tracking of sediment.
- Locate wheel wash or tire baths onsite if other measures fail to control sediment from leaving the site.
- No tracking of sediment offsite is allowed. If sediment is tracked offsite, offsite areas (including roadways) shall be thoroughly and immediately cleaned by shoveling or pickup sweeping. Transport sediment to a controlled sediment disposal area.
- Keep streets clean at ALL times. Clean tracked sediment immediately.
- Washing of sediment to the stormwater system is not allowed.

The BMP(s) proposed to meet this element are:

☒ BMP C105: Stabilized Construction Entrance

☒ BMP C106: Wheel Wash

☐ BMP C107: Construction Road/Parking Area Stabilization

☐ Other: (Insert description of how element will be addressed)

☐ This Element is not required for this project because: (Insert justification as to why Element is not required)

4.3 Element #3: Control Flow Rates

- Protect downstream properties, receiving waters, and conveyance systems from erosion and other damage due to increases in the velocity and peak volumetric flowrate of stormwater from the project site. A quantitative downstream analysis may be required to ensure no damage to the downstream conveyance system during construction. See Additional Protective Measure - Infrastructure Protection.
- Where necessary, construct flow control facilities as one of the first steps in grading.
- Flow control facilities shall be functional prior to construction of site improvements (e.g. impervious surfaces). It may be necessary to install temporary flow control facilities to meet flow control requirements during construction.
- Control structures designed for permanent flow control BMPs are not appropriate for use during construction without modification. If used during construction, modify the control structure to allow for long-term storage of runoff and enable sediments to settle. Verify that the BMP is sized appropriately for this purpose. Restore BMPs to their original design dimensions, remove sediment, and install a final control structure at completion of the project.
- Velocity of water leaving the site shall not exceed 3 feet/second if the discharge is to a stream or ditch.
- Permanent infiltration facilities shall not be used for flow control during construction unless lined. The bottom of the facility shall be scarified to ensure any compaction that occurred during construction is mitigated.

<u>The BMP(s) proposed to meet this element are:</u>

☐ BMP C203: Water Bars

☐ BMP C207: Check Dams

☐ BMP C209: Outlet Protection

☐ BMP C235: Wattles

☐ BMP C240: Sediment Trap

☐ BMP C241: Temporary Sediment Pond

☐ Other: (Insert description of how element will be addressed)

☐ This Element is not required for this project because: The proposed culvert (connecting to the City conveyance system) provides adequate capacity for the entire site and TDA for this project discharges into a flow-exempt waterbody. Flow rate control is not applicable to this project.

4.4 Element #4: Install Sediment Controls

- Design, install, and maintain effective erosion controls and sediment control to minimize the discharge of pollutants.
- 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, and soil characteristics, including the range of soil particle sizes expected to be present on the site.
- Prior to leaving a construction site or prior to discharge to an infiltration facility, stormwater from disturbed areas shall pass through a sediment removal BMP.
- Construct sediment control BMPs as one of the first steps in grading. These BMPs shall be functional before other land disturbing activities take place.
- Locate BMPs in a manner to avoid interference with the movement of juvenile salmonids attempting to enter off-channel areas or conveyance channels.
- Provide and maintain natural buffers around surface waters, direct stormwater to vegetated areas to increase sediment removal and maximize infiltration, where feasible.
- Seed and mulch earthen structures such as dams, dikes, and diversions according to the timing indicated in Element #5.
- Design outlet structures to withdraw impounded stormwater from the surface to avoid discharging sediment that is still suspended lower in the water column. If installing a floating pump structure, include a stopper to prevent the pump basket from hitting the bottom of the pond.
- Full stabilization includes concrete or asphalt paving; quarry spalls used as ditch lining; or the use of rolled erosion products, a bonded fiber matrix product, or vegetative cover in a manner that will fully prevent soil erosion.

The BMP(s) proposed to meet this element are:

☐ BMP C231: Brush Barrier
☐ BMP C232: Gravel Filter
☒ BMP C233: Silt Fence
☐ BMP C234: Vegetated Filter Strip
☐ BMP C235: Wattles
☐ BMP C240: Sediment Trap
☐ BMP C241: Temporary Sediment Pond
☐ BMP C250: Construction Stormwater Chemical Treatment
☐ Other: (Insert description of how element will be addressed)
☐ This Element is not required for this project because: (Insert justification as to why Element is no required)

4.5 Element #5: Stabilize Soils

- Stabilize exposed and unworked soils by application of effective BMPs that prevent erosion.

- From October 1 through April 30, no soils shall remain exposed and unworked for more than 2 days. From May 1 to September 30, no soils shall remain exposed and unworked for more than 7 days. This stabilization requirement applies to all soils onsite, whether at final grade or not.
- Stabilize soils at the end of the shift, before a holiday or weekend, if needed, based on the weather forecast.
- Select appropriate soil stabilization measures for the time of year, site conditions, estimated duration of use, and the potential water quality impacts that stabilization agents may have on downstream waters or groundwater.
- Stabilize soil stockpiles from erosion, protect stockpiles with sediment trapping measures, and where possible, locate piles away from stormwater system inlets, waterways, and conveyance channels.
- Control stormwater volume and velocity within the site to minimize soil erosion.
- Control stormwater discharges, including peak volumetric flowrates and total stormwater volume, to minimize erosion at outlets and to minimize downstream channel and stream bank erosion.
- Minimize the amount of soil exposed during construction activity.
- Minimize the disturbance of steep slopes.
- Minimize soil compaction and, unless infeasible, preserve topsoil.
- Ensure the gravel base used for stabilization is clean and does not contain fines or sediment.

<u>The BMP(s) proposed to meet this element are:</u>

☐ BMP C120: Temporary and Permanent Seeding
☐ BMP C121: Mulching
☐ BMP C122: Nets and Blankets
☒ BMP C123: Plastic Covering
☐ BMP C124: Sodding
☐ BMP C125: Compost
☐ BMP C126: Topsoiling
☐ BMP C127: Polyacrylamide for Soil Erosion Protection
☐ BMP C130: Surface Roughening
☐ BMP C131: Gradient Terraces
☒ BMP C140: Dust Control
☐ Other: (Insert description of how element will be addressed)
☐ This Element is not required for this project because: (Insert justification as to why Element is not required)

4.6 Element #6: Protect Slopes

- 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).
- Divert offsite stormwater (sometimes called run-on) or groundwater away from slopes and disturbed areas with interceptor dikes and/or swales. Manage offsite stormwater separately from stormwater generated on the site.
- At the top of the slopes, collect stormwater in pipe slope drains or protected channels to prevent erosion. Size temporary pipe slope drains to convey either:
  - The peak volumetric flowrate calculated using a 10-minute time step from a Type 1A, 10-year, 24-hour frequency storm using a single event model, or
  - The 10-year return period flowrate, indicated by an Ecology-approved continuous simulation model, using a 15-minute time step.
- Use the existing land cover condition for predicting flowrates from tributary areas outside the project limits. For tributary areas on the project site, use the temporary or permanent project land cover condition, whichever will produce the highest flowrate. If using, a continuous simulation model, model bare soils as landscaped areas.
- Provide temporary or permanent conveyance to remove groundwater seepage from the slope surface of exposed soil areas.
- Place excavated material on the uphill side of trenches, consistent with safety and space considerations.
- Place check dams at regular intervals within channels that are cut down a slope.
- Stabilize soils on slopes, as specified in Element #5.

<u>The BMP(s) proposed to meet this element are:</u>

☐ BMP C120: Temporary and Permanent Seeding
☐ BMP C121: Mulching
☐ BMP C122: Nets and Blankets
☐ BMP C123: Plastic Covering
☐ BMP C124: Sodding
☐ BMP C130: Surface Roughening
☐ BMP C131: Gradient Terraces
☐ BMP C200: Interceptor Dike and Swale
☐ BMP C201: Grass-Lined Channels
☐ BMP C203: Water Bars
☐ BMP C204: Pipe Slope Drains
☐ BMP C205: Subsurface Drains
☐ BMP C206: Level Spreader
☐ BMP C207: Check Dams
☐ BMP C208: Triangular Silt Dike (Geotextile-Encased Check Dam)
☐ Other: (Insert description of how element will be addressed)

☒ BMP This Element is not required for this project because: The project site is generally flat and there will be no run-on to the site. Slope protection is not applicable to this project.

4.7 Element #7: Protect Stormwater System Inlets

- Protect all stormwater system inlets that are operable during construction so that stormwater does not enter the conveyance system without first being filtered or treated to remove sediment.
- Clean or remove and replace inlet protection devices when sediment has filled 1/3 of the available storage (unless a different standard is specified by the product manufacturer).
- Keep all approach roads clean. Do not allow sediment to enter the stormwater system.
- Inspect inlets weekly at a minimum and daily during storm events.

The BMP(s) proposed to meet this element are:

☒ BMP C220: Stormwater System Inlet Protection

☐ Other: (Insert description of how element will be addressed)

☐ This Element is not required for this project because: (Insert justification as to why Element is not required)

4.8 Element #8: Stabilize Channels and Outlets

- Design, construct, and stabilize all temporary onsite conveyance channels to prevent erosion from either:
  - The peak volumetric flowrate calculated using a 10-minute time step from a Type 1A, 10-year, 24-hour frequency storm using a single event model, or
  - The 10-year return period flowrate, indicated by an Ecology-approved continuous simulation model, using a 15-minute time step.
- Use the existing land cover condition for predicting flowrates from tributary areas outside the project limits. For tributary areas on the project site, use the temporary or permanent project land cover condition, whichever will produce the highest flowrate. If using a continuous simulation model, model bare soils as landscaped areas.
- 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.

The BMP(s) proposed to meet this element are:

☐ BMP C122: Nets and Blankets

☐ BMP C202: Rip Rap Channel Lining

☐ BMP C207: Check Dams

☐ Other: (Insert description of how element will be addressed)

☒ This Element is not required for this project because: TDA for this project discharges into a flow-exempt waterbody. Channel and outlet stabilization are not applicable to this project.

4.9 Element #9: Control Pollutants

- Design, install, implement and maintain effective pollution prevention measures to minimize the discharge of pollutants.
- All discharges to the City of Tacoma wastewater system require City approval. Some discharges to the City of Tacoma stormwater system require City approval. The approval may include a separate Special Approved Discharge (SAD) permit. Visit https://www.cityoftacoma.org/government/city_departments/environmentalservices/wastewater/wastewater_permits_and_manuals for additional information about SAD Permits.
- 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.
- 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 and the environment. Provide secondary containment for tanks holding pollutants including onsite fueling tanks. 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.
- Conduct maintenance, fueling, and repair of heavy equipment and vehicles using spill prevention and control measures. Clean contaminated surfaces immediately following any spill incident.
- Conduct oil changes, hydraulic system drain down, solvent and degreasing cleaning operations, fuel tank drain down and removal, and other activities, which may result in discharge or spillage of pollutants to the ground or into stormwater using spill prevention measures, such as drip pans.
- Discharge wheel wash or tire bath wastewater to a separate onsite treatment system that prevents discharge to surface water. Alternatively, discharge wheel wash or tire bath wastewater to the wastewater system (only allowed with SAD Permit approval).
- Apply fertilizers and pesticides in a manner and at application rates that will not result in loss of chemicals to stormwater. Follow manufacturers' recommendations for application rates and procedures.
- Use BMPs to prevent or treat contamination of stormwater by pH modifying sources. These sources include, but are not limited to, recycled concrete stockpiles, bulk cement, cement kiln dust, fly ash, new concrete washing and curing waters, waste streams generated from concrete grinding and sawing, exposed aggregate processes, dewatering concrete vaults, and concrete pumping and mixer washout waters.
- Adjust the pH of stormwater if necessary to prevent violations of water quality standards.
- Manage concrete washout appropriately.
    - Washout concrete truck drums or concrete handling equipment in onsite or offsite designated concrete washout areas only.
        - Do not washout concrete truck drums or concrete handling equipment to streets, the stormwater system, receiving waterbodies, or the ground.
    - Washout of small concrete handling equipment may be disposed of in a formed areas awaiting concrete where it will not contaminate stormwater and surface water or groundwater.
    - Do not use upland land applications for discharging wastewater from concrete washout areas.
    - Do not dump excess concrete onsite, except in designated concrete washout areas.

    - Do not washout anything contaminated with concrete into formed areas awaiting infiltration BMPs.
    - Concrete spillage or concrete discharge directly to groundwater or surface waters of the State is prohibited.
- Written approval from the Department of Ecology is required prior to using chemical treatment other than CO2, dry ice, or food grade vinegar to adjust pH.
- Clean contaminated surfaces immediately following any discharge or spill incident.
- 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.

The BMP(s) proposed to meet this element are:

☐ BMP C151: Concrete Handling
☒ BMP C152: Sawcutting and Surface Pollution Prevention
☒ BMP C153: Material Delivery, Storage and Containment
☐ BMP C154: Concrete Washout Area
☐ BMP C250: Construction Stormwater Chemical Treatment
☐ Other: (Insert description of how element will be addressed)
☐ This Element is not required for this project because: (Insert justification as to why Element is not required)

4.10 Element #10: Dewatering

- Dewatering discharges to the City of Tacoma stormwater conveyance system or the City of Tacoma wastewater system may require City approval through a Special Approved Discharge (SAD) Permit. See https://www.cityoftacoma.org/government/city_departments/environmentalservices/wastewater/wastewater_permits_and_manuals for more information on the SAD Permit Process.
- Discharge foundation, vault, and trench dewatering water that has similar characteristics to site stormwater into a controlled conveyance system prior to discharge to a sediment trap or sediment pond. Stabilize channels as specified in Element #8.
- Clean, non-turbid dewatering water, such as well-point groundwater, can be discharged to systems tributary to state surface waters, as specified in Element #8, provided the dewatering flow does not cause erosion or flooding of receiving waters. Do not route clean dewatering water through TESC BMPs.
- Handle highly turbid or contaminated dewatering water separately from stormwater at the site.
- Other disposal options, depending on site constraints, may include:
    - Infiltration
    - Transport offsite in vehicle, such as a vacuum flush truck, for legal disposal in a manner that does not pollute state waters
    - Ecology approved onsite chemical treatment or other suitable treatment technologies

- Use of a sedimentation bag that discharges to a ditch or swale for small volumes of localized dewatering

The BMP(s) proposed to meet this element are:

☐ BMP C203: Water Bars
☐ BMP C206: Level Spreader
☐ BMP C236: Vegetative Filtration
☒ Other: If dewatering is needed during excavation, the water shall be collected into a tank, treated as necessary, and discharged to an location/facility approved by Port of Tacoma.
☐ This Element is not required for this project because: (Insert justification as to why Element is not required)

4.11 Element #11: Maintain BMPs

- Maintain and repair as needed all temporary and permanent erosion and sediment control BMPs to assure continued performance of their intended function. Conduct maintenance and repairs in accordance with BMP specifications.
- Remove temporary erosion and sediment control BMPs within 30 days after final site stabilization is achieved or after the temporary BMPs are no longer needed. Trapped sediment shall be removed or stabilized onsite. Permanently stabilize disturbed soil resulting from removal of BMPs or vegetation.

The BMP(s) proposed to meet this element are:

☒ BMP C150: Materials on Hand
☒ BMP C160: Erosion and Sediment Control Lead
☐ BMP C236: Vegetative Filtration
☐ Other: (Insert description of how element will be addressed)
☐ This Element is not required for this project because: (Insert justification as to why Element is not required)

4.12 Element #12: Manage the Project

- *Phasing of Construction* – Phase development projects in order to prevent soil erosion and the transport of sediment from the project site during construction, unless the Erosion and Sediment Control Lead can demonstrate that construction phasing is infeasible. Revegetation of exposed areas and maintenance of that vegetation shall be an integral part of the clearing activities for any phase.
- *Seasonal Work Limitations* – From October 1 through April 30, clearing, grading, and other soil disturbing activities shall only be permitted if shown to the satisfaction of the City that silt-laden stormwater will be prevented from leaving the site through a combination of the following:
    - Site conditions including existing vegetative coverage, slope, soil type, and proximity to receiving waters;

- Limitations on activities and the extent of disturbed areas; and
- Proposed erosion and sediment control measures.

Based on the information provided and local weather conditions, the City may expand or restrict the seasonal limitation onsite disturbance. The following activities are exempt from the seasonal clearing and grading limitations:

- Routine maintenance and necessary repair of erosion and sediment control BMPs
- Routine maintenance of public facilities or existing utility structures that do not expose the soil or result in the removal of the vegetative cover to soil
- Activities where there is one hundred percent infiltration of stormwater within the site in approved and installed erosion and sediment control facilities

- *Inspection and Monitoring*
  a. Inspect, maintain, and repair all BMPs as needed to assure continued performance of their intended function. Projects regulated under the Construction Stormwater General Permit (CSWGP) must conduct site inspections and monitoring in accordance with Special Condition S4 of the CSWGP.
  b. Projects that disturb one or more acres must have site inspections conducted by a Certified Erosion and Sediment Control Lead (CESCL) or Certified Professional in Erosion and Sediment Control (CPESC).
  c. Projects disturbing less than one acre must have an Erosion Sediment Control Lead (ESC) conduct inspections. The ESC Lead does not have to have CESCL or CPESC certification.
  d. The CESCL, CPESC, or ESC Lead shall be identified in the SWPPP and shall be onsite or on-call at all times.
  e. The CESCL, CPESC, or ESC Lead must examine stormwater visually for the presence of suspended sediment, turbidity, discoloration, and oil sheen and evaluate the effectiveness of BMPs to determine if it is necessary to install, maintain, or repair BMPs.
  f. The CESCL, CPESC, or ESC Lead must inspect all areas disturbed by construction activities, all BMPs, and all locations where stormwater leaves the site at least once every calendar week and within 24 hours of any discharge from the site. (Individual discharge events that last more than one day do not require daily inspections). The CESCL, CPESC, or ESC Lead may reduce the inspection frequency for temporary stabilized, inactive sites to once every calendar month.
  g. Construction site operators must correct any problems identified by the CESCL, CPESC, or ESC Lead by:
     - Reviewing the SWPPP for compliance with the 13 construction SWPPP elements and making appropriate revisions within 7 days of the inspection.
     - Fully implementing and maintaining appropriate source control and/or treatment BMPs as soon as possible but correcting the problem within 10 days.
     - Documenting BMP implementation and maintenance in the site log book. (Required for sites larger than 1 acre but recommended for all sites).

     Sampling and analysis of the stormwater discharges from a construction site may be necessary on a case-by-case basis to ensure compliance with standards. Ecology or the City will establish these monitoring and associated reporting requirements.
- *Responsible Party* – For all projects, a 24-hour responsible party shall be listed in the SWPPP, along with that person's telephone number and email address.
- *Maintenance of the Construction SWPPP* – Keep the Construction SWPPP onsite or within reasonable access to the site. Modify the SWPPP whenever there is a change in the 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.
Modify the SWPPP if, during inspections or investigations conducted by the owner/operator, City staff, or by local or state officials, it is determined that the SWPPP is ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site. Modify the SWPPP as necessary to include additional or modified BMPs designed to correct problems identified. Complete revisions to the SWPPP within seven (7) days following the inspection. City of Tacoma Environment Services (review staff or inspector) may require that a modification to the SWPPP go through additional City review.

The BMP(s) proposed to meet this element are:

☒ BMP C150: Materials on Hand
☒ BMP C160: Erosion and Sediment Control Lead
☒ BMP C162: Scheduling
☐ Other: (Insert description of how element will be addressed)
☐ This Element is not required for this project because: (Insert justification as to why Element is not required)

4.13 Element #13: Protect Permanent Stormwater BMPs

- Protect all permanent stormwater BMPs from sedimentation through installation and maintenance of erosion and sediment control BMPs on portions of the site that drain into the BMPs. Restore all BMPs to their fully functioning condition if they accumulate sediment during construction. Sediment impacting Best Management Practices shall be removed before system start-up. Restoring the BMP shall include removal of all sediment and full replacement of treatment media.
- Prevent compacting infiltration facilities by excluding construction equipment and foot traffic.
- Keep all heavy equipment off native soils under infiltration BMPs that have been excavated to final grade to retain the infiltration rate of the soils.
- Protect lawn and landscaped areas from compaction due to construction equipment and material stockpiles.
- Do not allow muddy construction equipment on the base material of permeable pavement or on the permeable pavement section.
- Do not allow sediment laden runoff onto permeable pavements or base materials of permeable pavements.
- Permeable pavements fouled with sediment or that can no longer pass an initial infiltration test must be cleaned prior to final acceptance.

The BMP(s) proposed to meet this element are:

☐ BMP C102: Buffer Zone
☒ BMP C103: High Visibility Fence
☐ BMP C200: Interceptor Dike and Swale

☐ BMP C201: Grass-Lined Channels
☐ BMP C207: Check Dams
☐ BMP C208: Triangular Silt Dike (Geotextile-Encased Check Dam)
☐ BMP C231: Brush Barrier
☒ BMP C233: Silt Fence
☐ BMP C234: Vegetated Filter Strip
☐ Other: (Insert description of how element will be addressed)
☐ This Element is not required for this project because: (Insert justification as to why Element is not required)

Appendices

A. Soils Report

A Soils Report was not created as part of this project.

B. Emerging Technology Use Level Designations

No Emerging Technology is proposed for use in this project.

C. Relevant Historical Reports

No Historical Reports are included as part of this project.

D. Temporary Erosion and Sediment Control BMPs

1.3 BMP C103: High Visibility Fence

1.3.1 Purpose

Fencing is intended to:

- Restrict clearing to approved limits.
- Prevent disturbance of sensitive areas, their buffers, and other areas required to be left undisturbed.
- Limit construction traffic to designated construction entrances or roads.
- Protect areas where marking with survey tape or flagging may not provide adequate protection.

1.3.2 Conditions of Use

To establish clearing limits, plastic, fabric, or metal fence may be used:

- At the boundary of sensitive areas, their buffers, and other areas required to be left uncleared.
- As necessary to control vehicle access to and on the site.

1.3.3 Design and Installation Specifications

- High visibility plastic fence shall be composed of a high-density polyethylene material and shall be at least four feet in height. Posts for the fencing shall be steel or wood and placed every 6 feet on center (maximum) or as needed to ensure rigidity. The fencing shall be fastened to the post every six inches with a polyethylene tie. On long continuous lengths of fencing, a tension wire or rope shall be used as a top stringer to prevent sagging between posts. The fence color shall be high visibility orange. The fence tensile strength shall be 360 lbs./ft. using the ASTM D4595 testing method.
- If appropriate, install fabric silt fence in accordance with BMP C233: Silt Fence to act as high visibility fence. Silt fence shall be at least 3 feet high and must be highly visible to meet the requirement of this BMP.
- Design and install metal fences according to the manufacturer's specifications.
- Metal fences shall be at least 3 feet high and must be highly visible.
- Do not wire or staple fences to trees.

1.3.4 Maintenance Standards

- If the fence has been damaged or its visibility reduced, it shall be repaired or replaced immediately and visibility restored.

1.4 BMP C105: Stabilized Construction Entrance/Exit

1.4.1 Purpose

Construction entrances are stabilized to reduce the amount of sediment transported onto paved roads by vehicles or equipment by constructing a stabilized pad of quarry spalls at entrances and exits to construction sites.

1.4.2 Conditions of Use

Construction entrances shall be stabilized wherever traffic will be leaving a construction site and traveling on paved roads or other paved areas within 1,000 feet of the site.

Construction vehicle ingress and egress shall be limited to one route. Additional routes may be allowed for very large projects or linear projects.

For residential construction provide stabilized construction entrances/exits for each residence. Stabilized surfaces shall be of sufficient length/width to provide vehicle access/parking based upon lot size and configuration. See Figure 3 - 1: Stabilized Construction Entrance.

1.4.3 Design and Installation Specifications

- The stabilized construction entrance shall be:
  - A minimum of 15' wide; and a minimum of 100' feet long.

  The length of the entrance may be reduced to the maximum practicable size when the size or configuration of the site does not allow the full lengths.

- Construct stabilized construction entrance with a pad that is:
  - A minimum 12" thick pad of 4" to 8" quarry spalls, or
  - A minimum 4" course of asphalt treated base, or
  - Existing pavement, or
  - A minimum 12" thick pad of permeable ballast meeting the requirements of WSDOT's Standard Specifications for Road, Bridge, and Municipal Construction Section 9-03.9(2).
  - For single-family residence construction, the concrete pad may be clean 1 ½" minimum aggregate placed at least 8" thick.
  - Manufactured alternatives to construction entrance may be used provided they ensure no track-out.
- Do not use crushed concrete, cement or asphalt rubble for the stabilized construction entrance.
- Place a separation geotextile under the spalls to prevent fine sediment from pumping up into the rock pad. The geotextile shall meet WSDOT Standard Specification 9-33.2(1) Table 3 - Geotextile for Separation or Soil Stabilization or the following standards:
  - Grab Tensile Strength (ASTM D4751) – 200 psi min.
  - Grab Tensile Elongation (ASTM D4632) – 30% max.
  - Mullen Burst Strength (ASTM D3786-80a) – 400 psi min.

- AOS (ASTM D4751) – 20 to 45 (U.S. standard sieve size)

- Consider early installation of the first lift of asphalt or extra concrete in areas that will be paved; this can be used as a stabilized entrance.
- Install fencing (see BMP C103: High Visibility Fence) as necessary to restrict traffic to the construction entrance.
- Whenever possible, construct the entrance on a firm, compacted subgrade. This can substantially increase the effectiveness of the pad and reduce the need for maintenance
- If possible, install the stabilized construction entrance on the uphill side of the site so that stormwater will not pond near the stabilized construction entrance.
- Construction entrance should avoid crossing existing sidewalks if possible. If a construction entrance must cross a sidewalk, the sidewalk must be covered and protected from sediment leaving the site.

1.4.4 Maintenance Standards

- Add quarry spalls or additional permeable ballast if the pad is no longer in accordance with the specifications.
- If the entrance is not preventing sediment from being tracked onto pavement, alternative measures to keep the streets free of sediment shall be used. This may include replacement of the stabilized construction entrance, street sweeping, an increase in the dimensions of the entrance, or the installation of a wheel wash.
- No tracking of sediment onto the roadway is allowed. If sediment is tracked onto the road, immediately clean the road thoroughly by shoveling or pickup sweeping. Transport sediment to a controlled sediment disposal area.
- Perform street sweeping by hand or with a high efficiency sweeper. Do not use a non-high efficiency mechanical sweeper because this creates dust and throws soils into storm systems or conveyance ditches.
- Keep streets clean at ALL times. Clean tracked sediment immediately.
- Street washing of sediment to the stormwater system is not allowed.
- If sediment is discharged to the stormwater system it is the responsibility of the applicant to clean the downstream system.
- Immediately remove any materials that are loosened from the pad and end up on the roadway.
- Install fencing if vehicles are entering or exiting the site at points other than the construction entrance(s).
- Upon project completion and site stabilization, permanently stabilize all construction accesses intended as permanent access for maintenance.

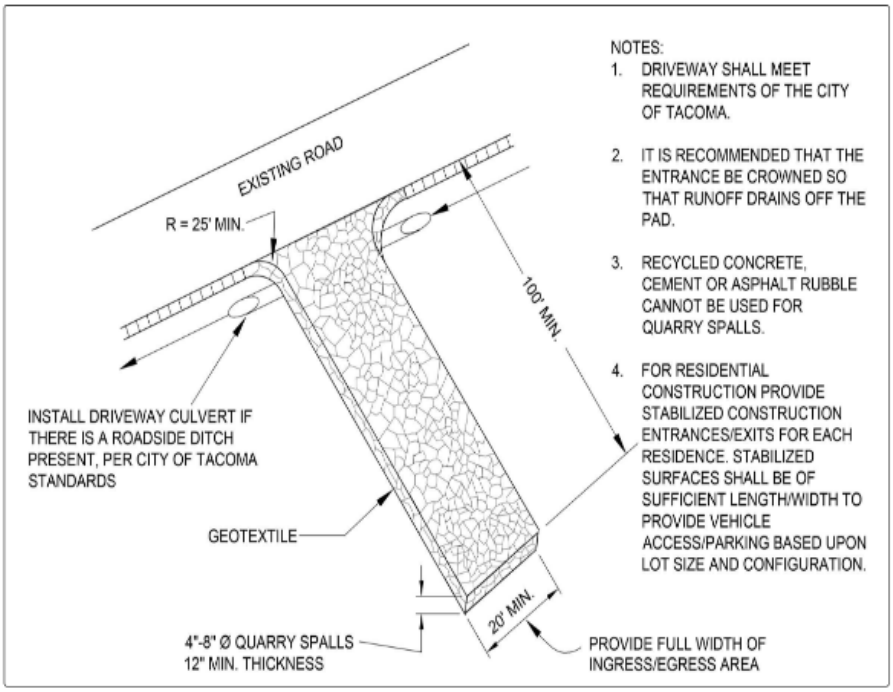


Figure 3 - 1: Stabilized Construction Entrance

1.5 BMP C106: Wheel Wash

1.5.1 Purpose

Wheel washes reduce the amount of sediment transported onto paved roads by washing sediment from the wheels of motor vehicles prior to the motor vehicle leaving the construction site.

1.5.2 Conditions of Use

- Can be used when a stabilized construction entrance (see BMP C105: Stabilized Construction Entrance/Exit) is not preventing sediment from being tracked onto pavement.
- Wheel washing is generally an effective BMP when installed with careful attention to topography. For example, a wheel wash can be detrimental if installed at the top of a slope abutting a right-of-way where the water from the dripping truck can run unimpeded into the street.
- Pressure washing combined with an adequately sized and surfaced pad with direct discharge to a large 10-foot x 10-foot sump can be very effective.
- Discharge wheel wash or tire bath wastewater to a separate onsite treatment system that prevents discharge to surface water or to the wastewater system with a City of Tacoma Special Approved Discharge permit.
- Consider using a closed-loop recirculation system to conserve water.
- Wheel wash or tire bath wastewater shall not include wastewater from concrete washout areas.

1.5.3 Design and Installation Specifications

- A minimum of 6 inches of asphalt treated base (ATB) over crushed base material or 8 inches over a good subgrade is recommended to pave the wheel wash.
- Use a low clearance truck to test the wheel wash before paving. Either a belly dump or lowboy will work well to test clearance.
- Keep the water level from 12 to 14 inches deep to avoid damage to truck hubs and filling the truck tongues with water.
- Figure 3 - 2: Wheel Wash provides a potential detail for a design of a wheel wash. The applicant is not required to construct the wheel wash per this detail.
    - An effective wheel wash will have:
        - A stabilized approach (pavement, permeable ballast, rumble plates) that is clear of exposed soil.
        - An appropriately sized wash deck that allows for at least one complete tire revolution (additional revolutions will be required for more cohesive soil)
        - Multiple angled spray patterns that reach all tires and the vehicle undercarriage
        - High-volume, moderate-pressure spray
        - Reasonably clear rinse water

  - A collection system for overspray and drip out
  - A stabilized egress (pavement, permeable ballast, rumble plates) that is clear of exposed soil.
- Midpoint spray nozzles are only needed in extremely muddy conditions.
- Polymers may be used to promote coagulation and flocculation in a closed-loop system. Polyacrylamide (PAM) added to the wheel wash water at a rate of 0.25 - 0.5 pounds per 1,000 gallons of water increases effectiveness and reduces cleanup time. If PAM is already being used for dust or erosion control and is being applied by a water truck, the same truck can be used to change the wash water.

1.5.4 Maintenance Standards

- The wheel wash should start out the day with fresh water.
- The wash water should be changed as necessary with a minimum of once per day. On large earthwork jobs where more than 10-20 trucks per hour are expected, the wash water will need to be changed more often.
- Wheel wash or tire bath wastewater shall be discharged to a separate onsite treatment system, such as closed-loop recirculation or land application, or to the wastewater system with a City of Tacoma Special Approved Discharge permit.

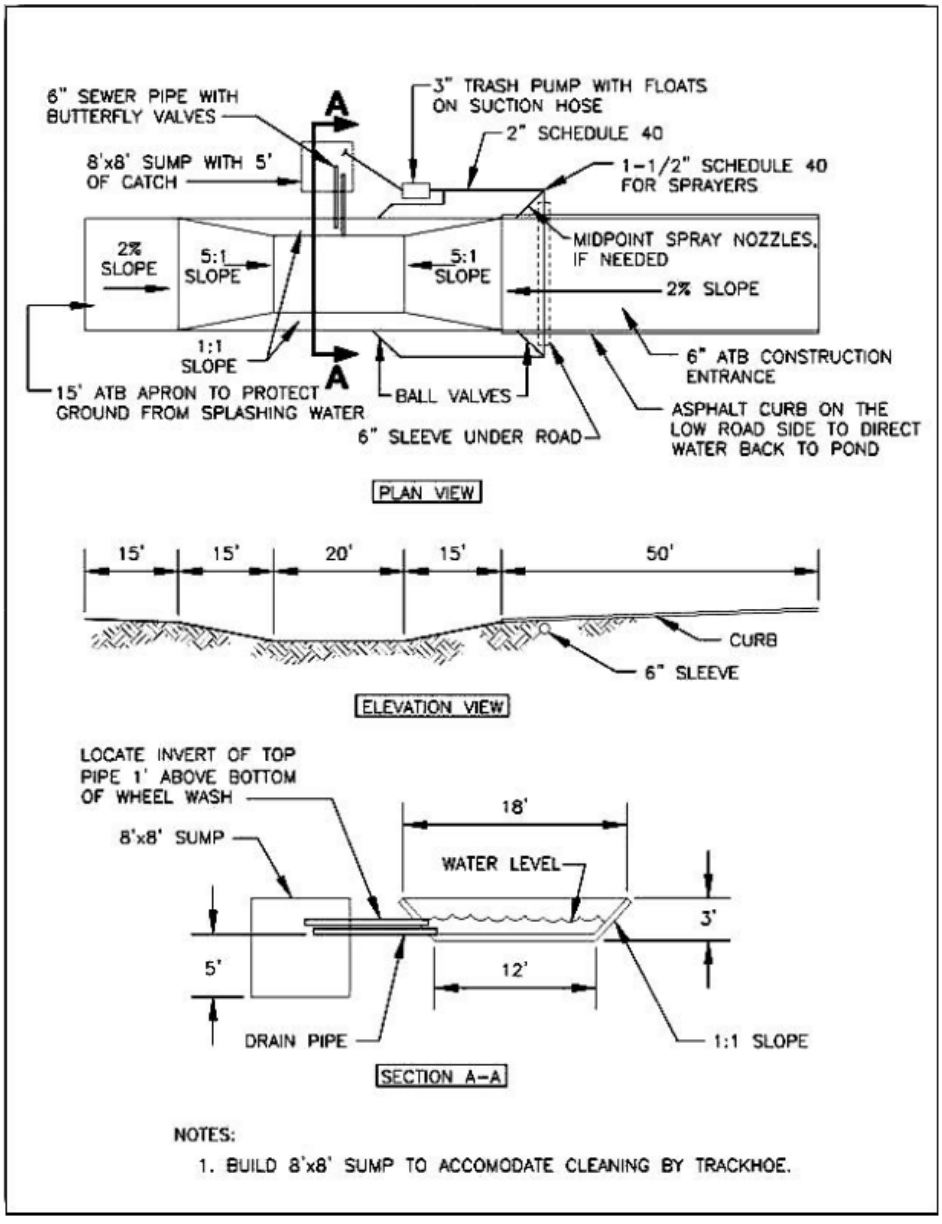


Figure 3 - 2: Wheel Wash

1.10 BMP C123: Plastic Covering

1.10.1 Purpose

Plastic covering provides immediate, short-term erosion protection to slopes and disturbed areas.

1.10.2 Conditions of Use

- Plastic covering may be used on disturbed areas that require cover measures for less than 30 days, except as stated below.
- Plastic is particularly useful for protecting cut and fill slopes and stockpiles.
- The relatively rapid breakdown of most polyethylene sheeting makes it unsuitable for long-term (greater than six months) applications.
- Due to rapid runoff caused by plastic covering, this method shall not be used upslope of areas that might be adversely impacted by concentrated runoff. Such areas include steep and/or unstable slopes.
- Whenever plastic is used to protect slopes, water collection measures must be installed at the base of the slope. These measures include plastic-covered berms, channels, and pipes used to convey clean rainwater away from bare soil and disturbed areas. At no time is clean runoff from a plastic covered slope to be mixed with dirty runoff from a project.
- Other uses for plastic include:
  - Temporary ditch liner;
  - Pond liner in temporary sediment pond;
  - Liner for bermed temporary fuel storage area if plastic is not reactive to the type of fuel being stored;
  - Emergency slope protection during heavy rains; and
  - Temporary conveyance used to direct stormwater and surface water.

1.10.3 Design and Installation Specifications

Plastic slope cover must be installed as follows:

- Run plastic up and down slope, not across slope.
- Plastic may be installed perpendicular to a slope if the slope length is less than 10 feet.
- Minimum of 8-inch overlap at seams.
- On long or wide slopes, or slopes subject to wind, all seams should be taped.
- Place plastic into a small (12-inch wide by 6-inch deep) slot trench at the top of the slope and backfill with soil to keep water from flowing underneath.
- Place sand filled burlap or geotextile bags every 3 to 6 feet along seams and pound a wooden stake through each to hold them in place. Alternative options for holding plastic in place exist and may be considered with COT approval.
- Inspect plastic for rips, tears, and open seams regularly and repair immediately. This prevents high velocity runoff from contacting bare soil, which causes extreme erosion;
- Plastic sheeting shall have a minimum thickness of 6 mil.

- If erosion at the toe of a slope is likely, a gravel berm, riprap, or other suitable protection shall be installed at the toe of the slope in order to reduce the velocity of runoff.

1.10.4 Maintenance Standards

- Torn sheets must be replaced and open seams repaired.
- If the plastic begins to deteriorate due to ultraviolet radiation, it must be completely removed and replaced.
- When the plastic is no longer needed, it shall be completely removed.
- Properly dispose of products used to weigh down covering.

1.17 BMP C140: Dust Control

1.17.1 Purpose

Dust control prevents wind transport of dust from disturbed soil surfaces.

1.17.2 Conditions of Use

Use dust control practices in areas (including roadways) subject to surface and air movement of dust where onsite and offsite impacts to streets, the stormwater system, or receiving waterbodies are likely.

1.17.3 Design and Installation Specifications

- Vegetate or mulch areas that will not receive vehicle traffic. In areas where planting, mulching, or paving is impractical, apply gravel or landscaping rock.
- Limit dust generation by clearing only to those areas where immediate activity will take place, leaving the remaining area(s) in the original condition, if stable. Maintain the original ground cover as long as practical.
- Construct natural or artificial windbreaks or windscreens. These may be designed as enclosures for small dust sources.
- Sprinkle the site with water until surface is wet. Repeat as needed. To prevent carryout of mud onto street, refer to Stabilized Construction Entrance (BMP C105: Stabilized Construction Entrance/Exit).
- Irrigation water can be used for dust control. Install irrigation systems as a first step on sites where dust control is a concern.
- Spray exposed soil areas with a dust palliative, following the manufacturer's instructions and cautions regarding handling and application. Used oil is prohibited from use as a dust suppressant.
- PAM (BMP C127: Polyacrylamide for Soil Erosion Protection) added to water at a rate of 2/3 pounds per 1,000 gallons of water per acre and applied from a water truck is more effective than water alone. This is due to the increased infiltration of water into the soil and reduced evaporation. In addition, small soil particles are bonded together and are not as easily transported by wind. Adding PAM may actually reduce the quantity of water needed for dust control. There are concerns with the proper use of PAM, refer to BMP C127: Polyacrylamide for Soil Erosion Protection for more information on PAM application. PAM use requires COT approval.
- Lower speed limits. High vehicle speed increases the amount of dust stirred up from unpaved roads and lots.
- Upgrade the road surface strength by improving particle size, shape, and mineral types that make up the surface and base materials.
- Add surface gravel to reduce the source of dust emission. Limit the amount of fine particles to 10 to 20 percent.
- Use geotextile fabrics to increase the strength of new roads or roads undergoing reconstruction.
- Encourage the use of alternate, paved routes, if available.
- Restrict use of paved roadways by tracked vehicles and heavy trucks to prevent damage to road surfaces and bases.

- Apply chemical dust suppressants using the admix method, blending the product with the top few inches of surface material. Suppressants may also be applied as surface treatments.
- Pave unpaved permanent roads and other trafficked areas.
- Use vacuum street sweepers.
- Remove mud and other dirt promptly so it does not dry and then turn into dust.
- Limit dust-causing work on windy days.
- Contact the Puget Sound Clean Air Agency for guidance and training on other dust control measures. Compliance with the Puget Sound Clean Air Agency's recommendations/requirements constitutes compliance with this BMP.

1.17.4 Maintenance Standards

Evaluate the potential for dust generation frequently during dry periods. Complete the actions outlined above as needed to limit the dust.

Any dust which leaves the site must be cleaned immediately.

1.18 BMP C150: Materials On Hand

1.18.1 Purpose

Quantities of erosion prevention and sediment control materials should be kept on the project site at all times to be used for regular maintenance and emergency situations such as unexpected heavy summer rains. Having these materials onsite reduces the time needed to implement BMPs when inspections indicate that existing BMPs are not meeting the Construction SWPPP requirements.

1.18.2 Conditions of Use

Construction projects of any size or type can benefit from having materials on hand. A small commercial development project could have a roll of plastic and some gravel available for immediate protection of bare soil and temporary berm construction. A large earthwork project, such as highway construction, might have several tons of straw, several rolls of plastic, flexible pipe, sandbags, geotextile fabric, and steel "T" posts.

- Materials are stockpiled and readily available before any site clearing, grubbing, or earthwork begins. A large contractor or developer could keep a stockpile of materials that are available to be used on several projects.
- If storage space at the project site is at a premium, the contractor could maintain the materials at a location less than one hour from the project site.

1.18.3 Design and Installation Specifications

Depending on project type, size, complexity, and length, materials and quantities will vary. Table 3 - 10: Materials on Hand, provides a good minimum that will cover numerous situations.

Table 3 - 10: Materials on Hand

Material	Measure	Quantity
Clear Plastic, 6 mil	100 foot roll	1-2
Drain Pipe, 6 or 8 inch diameter	25 foot section	4-6
Sandbags, filled	each	25-50
Quarry Spalls	ton	2-4
Washed Gravel	cubic yard	2-4
Geotextile Fabric	100 foot roll	1-2
Catch Basin Inserts	each	2-4
Steel "T" Posts	each	12-24

1.18.4 Maintenance Standards

- All materials with the exception of the quarry spalls, steel "T" posts, and gravel should be kept covered and out of both sun and rain.
- Re-stock materials used as needed.

1.20 BMP C152: Sawcutting and Surfacing Pollution Prevention

1.20.1 Purpose

Sawcutting and surfacing operations generate slurry and process water that contains fine particles and high pH (concrete cutting), both of which can violate water quality standards in the receiving water. This BMP is intended to minimize and eliminate process water and slurry from entering waters of the State

1.20.2 Conditions of Use

Anytime sawcutting or surfacing operations take place, use these management practices. Sawcutting and surfacing operations include, but are not limited to, the following:

- Sawing
- Coring
- Grinding
- Roughening
- Hydro-demolition
- Bridge and road surfacing

1.20.3 Design and Installation Specifications

- Vacuum slurry and cuttings during cutting and surfacing operations.
- Do not leave slurry and cuttings on permanent concrete or asphalt pavement overnight.
- Do not allow slurry and cuttings to enter any natural or constructed conveyance system.
- Dispose of collected slurry and cuttings in a manner that does not violate groundwater or surface water quality standards.
- Do not allow process water that is generated during hydro-demolition, surface roughening, or similar operations to enter any natural or constructed conveyance system. Dispose of process water in a manner that does not violate groundwater or surface water quality standards.
- Handle and dispose of cleaning waste material and demolition debris in a manner that does not cause contamination of water. If the area is swept with a pick-up sweeper, haul the material out of the area to an appropriate disposal site.

1.20.4 Maintenance Standards

Continually monitor operations to determine whether slurry, cuttings, or process water could enter waters of the state. If inspections show that a violation of water quality standards could occur, stop operations and immediately implement preventive measures such as berms, barriers, secondary containment, and vacuum trucks.

1.21 BMP C153: Material Delivery, Storage and Containment

1.21.1 Purpose

Prevent, reduce, or eliminate the discharge of pollutants from material delivery and storage to the stormwater system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, and installing secondary containment.

1.21.2 Conditions of Use

These procedures are suitable for use at all construction sites with delivery and storage of the following materials:

- Petroleum products such as fuel, oil, and grease
- Soil stabilizers and binders (e.g. Polyacrylamide)
- Fertilizers, pesticides, and herbicides
- Detergents
- Asphalt and concrete compounds
- Hazardous chemicals such as acids, lime, adhesives, paints, solvents, and curing compounds
- Any other material that may be detrimental if released to the environment

1.21.3 Design and Installation Specifications

The following steps should be taken to minimize risk:

- Locate temporary storage area away from vehicular traffic, near the construction entrance(s), and away from conveyance systems and receiving waterbodies.
- Supply Material Safety Data Sheets (MSDS) for all materials stored. Keep chemicals in their original labeled containers.
- Surrounding materials with earth berms is an option for temporary secondary containment.
- Minimize hazardous material storage onsite.
- Handle hazardous materials as infrequently as possible.
- During the wet weather season (October 1 through April 30), consider storing materials in a covered area.
- Store materials in secondary containment, such as an earthen dike, a horse trough, or a children's wading pool for non-reactive materials such as detergents, oil, grease, and paints. "Bus boy" trays or concrete mixing trays may be used as secondary containment for small amounts of material.
- Do not store chemicals, drums, or bagged materials directly on the ground. Place these items on a pallet and, when possible, in secondary containment.
- If drums cannot be stored under a roof, domed plastic covers are inexpensive and snap to the top of drums, preventing water from collecting.

1.21.4 Material Storage Areas and Secondary Containment Practices:

- Store liquids, petroleum products, and substances listed in 40 CFR Parts 110, 117, or 302 in approved containers and drums and do not overfill the containers or drums. Store containers and drums in temporary secondary containment facilities.
- Temporary secondary containment facilities shall provide for a spill containment volume able to contain precipitation from a 25 year, 24 hour storm event plus 10% of the total enclosed container volume of all containers, or 110% of the capacity of the largest container within its boundary, whichever is greater.
- Secondary containment facilities shall be impervious to the materials stored therein for a minimum contact time of 72 hours.
- Secondary containment facilities shall be maintained free of accumulated rainwater and spills. In the event of spills or leaks, collect accumulated rainwater and spills and place into drums. Handle these liquids as hazardous waste unless testing determines them to be non-hazardous. Dispose of all wastes properly.
- Provide sufficient separation between stored containers to allow for spill cleanup and emergency response access.
- During the wet weather season (October 1 through April 30), cover each secondary containment facility during non-working days, prior to and during rain events.
- Keep material storage areas clean, organized, and equipped with an ample supply of appropriate spill clean-up material.
- The spill kit should include, at a minimum:
  - 1 water resistant nylon bag
  - 3 oil absorbent socks (3-inches by 4-feet)
  - 2 oil absorbent socks (3-inches by 10-feet)
  - 12 oil absorbent pads (17-inches by 19-inches)
  - 1 pair splash resistant goggles
  - 3 pairs nitrile gloves
  - 10 disposable bags with ties
  - Instructions

1.21.5 Maintenance Standards

Any stormwater within the material storage area shall be pumped or otherwise discharged after each rain event. Before pumping, the stormwater must be evaluated to determine if it must go to treatment or can be discharged without treatment. If stormwater is contaminated, direct the discharge to appropriate treatment.

Restock spill kit materials as needed.

1.23 BMP C160: Erosion and Sediment Control Lead

1.23.1 Purpose

The project proponent must designate at least one person as the responsible representative in charge of erosion and sediment control (ESC) and water quality protection. The designated person shall be the erosion and sediment control (ESC) lead, who is responsible for ensuring compliance with all local, state, and federal erosion and sediment control and water quality requirements.

1.23.2 Conditions of Use

- An erosion and sediment control contact is required for all project sites.
- A certified erosion and sediment control lead (CESCL) or certified professional in erosion and sediment control (CPESC) is required on projects that include, but are not limited to:
  - Construction activity that disturbs one acre of land or more.
- Projects disturbing less than one acre must have an Erosion Sediment Control Lead (ESC) conduct inspections. The ESC Lead does not have to have CESCL or CPESC certification.
- The CESCL, CPESC, or ESC Lead shall be identified in the SWPPP and shall be onsite or on-call at all times.
- The CESCL, CPESC, or ESC Lead must be knowledgeable in the principles and practices of erosion and sediment control and have the skills to assess:
  - 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.

1.23.3 Specifications

- The CESCL lead shall:
  - Have a current certified erosion and sediment control lead (CESCL) certificate proving attendance in an erosion and sediment control training course that meets the minimum ESC training and certification requirements established by Ecology.
- For additional information concerning the Certified Professional in Erosion and Sediment Control program please go to https://envirocertintl.org/cpesc/.
- The ESC lead shall have authority to act on behalf of the contractor or developer and shall be available, on call, 24 hours per day throughout the period of construction.
- The Construction SWPPP shall include the name, telephone number, email, and address of the designated ESC lead.
- An ESC lead may provide inspection and compliance services for multiple construction projects in the same geographic region.
- Duties and responsibilities of the ESC lead shall include, but are not limited to, the following:
  - Inspecting all areas disturbed by construction activities, all BMPs and all locations where runoff leaves the site at least once every calendar week and within 24 hours of

any discharge from the site. The ESC lead may reduce the inspection frequency for temporary stabilized, inactive sites to monthly.

- Examining stormwater visually for the presence of suspended sediment, turbidity, discoloration, and oil sheen.
- Evaluating the effectiveness of BMPs.
- Maintaining a permit file onsite at all times which includes the SWPPP and any associated permits and plans.
- Directing BMP installation, inspection, maintenance, modification, and removal.
- Updating all project drawings and the Construction SWPPP with changes made.
- Keeping daily logs and inspection reports. Inspection reports should include:
  - Inspection date/time.
  - Weather information, general conditions during inspection, and approximate amount of precipitation since the last inspection.
  - A summary or list of all BMPs implemented, including observations of all erosion/sediment control structures or practices. The following shall be noted:
    - Locations of BMPs inspected,
    - Locations of BMPs that need maintenance,
    - Locations of BMPs that failed to operate as designed or intended, and
    - Locations where additional or different BMPs are required.
  - Visual monitoring results, including a description of discharged stormwater. The presence of suspended sediment, turbid water, discoloration, and oil sheen shall be noted, as applicable.
  - Any water quality monitoring performed during inspection.
  - General comments and notes, including a brief description of any BMP repairs, maintenance, or installations made as a result of the inspection.
- Facilitate, participate in, and take corrective actions resulting from inspections performed by outside agencies or the owner.
- Keep an inventory of equipment onsite.

1.24 BMP C162: Scheduling

1.24.1 Purpose

Sequencing a construction project reduces the amount and duration of soil exposed to erosion.

1.24.2 Conditions of Use

The construction sequence schedule is an orderly listing of all major land-disturbing activities together with the necessary erosion and sediment control measures planned for the project. This type of schedule guides the contractor on work to be done before other work is started so serious erosion and sedimentation problems can be avoided.

Following a specified work schedule that coordinates the timing of land-disturbing activities and the installation of control measures is perhaps the most cost-effective way of controlling erosion during construction. The removal of surface ground cover leaves a site vulnerable to accelerated erosion. Construction procedures that limit land clearing, provide timely installation of erosion and sedimentation controls, and restore protective cover quickly can significantly reduce the erosion potential of a site.

1.24.3 Design Considerations

- Minimize construction during rainy periods.
- Schedule projects to disturb only small portions of the site at any one time. Complete grading as soon as possible. Immediately stabilize the disturbed portion before grading the next portion. Practice staged seeding in order to revegetate cut and fill slopes as the work progresses.

1.35 BMP C220: Stormwater System Inlet Protection

1.35.1 Purpose

To prevent coarse sediment from entering stormwater systems prior to permanent stabilization of the disturbed area.

1.35.2 Conditions of Use

- Use where inlets are to be made operational before permanent stabilization of the disturbed area.
- Provide protection for all stormwater system inlets downslope and within 500 feet of a disturbed or construction area, unless those inlets are preceded by another sediment trapping device.
- Table 3 - 11: Stormwater System Inlet Protection lists several options for inlet protection. All of the methods for stormwater system inlet protection are prone to plugging and require a high frequency of maintenance. Contributing areas should be limited to 1 acre or less. Emergency overflows may be required where stormwater ponding would cause a hazard. If an emergency overflow is provided, additional end-of-pipe treatment may be required.

Table 3 - 11: Stormwater System Inlet Protection

Type of Inlet Protection	Emergency Overflow	Applicable for Paved/ Earthen Surfaces	Conditions of Use
Excavated drop inlet protection	Yes, temporary flooding will occur	Earthen	Applicable for heavy flows. Easy to maintain. Large area requirement: 30' x 30' per acre.
Block and gravel drop filter	Yes	Paved or earthen	Applicable for heavy concentrated flows. Will not pond.
Gravel and mesh filter	No	Paved	Applicable for heavy concentrated flows. Will pond. Can withstand traffic.
Catch basin filters	Yes	Paved or earthen	Frequent maintenance required.
Curb inlet protection with a wooden weir	Small capacity overflow	Paved	Used for sturdy, more compact installation.
Block and gravel curb inlet protection	Yes	Earthen	Sturdy, but limited filtration.
Culvert inlet sediment trap			18-month expected life.

1.35.3 Design and Installation Specifications

Excavated Drop Inlet Protection

- An excavated impoundment around the inlet. Sediment settles out of the stormwater prior to entering the stormwater conveyance system..

- Provide depth of 1 to 2 feet, as measured from the crest of the inlet structure.
- Slope sides of excavation no steeper than 2H:1V.
- Minimum volume of excavation 35 cubic yards.
- Shape excavation to fit site with longest dimension oriented toward the longest inflow area.
- Install provisions for collection and conveyance to prevent standing water problems.
- Clear the area of all debris.
- Grade the approach to the inlet uniformly.
- Drill weep holes into the side of the inlet.
- Protect weep holes with screen wire and washed aggregate.
- Seal weep holes when removing structure and stabilizing area.
- It may be necessary to build a temporary dike to the down slope side of the structure to prevent bypass flow.

Block and Gravel Filter

- A block and gravel filter is a barrier formed around the stormwater system inlet with standard concrete blocks and gravel. See Figure 3 - 17: Drop Inlet with Block and Gravel Filter.
- Provide a height 1 to 2 feet above inlet.
- Recess the first row 2 inches into the ground for stability.
- Support subsequent courses by placing a piece of 2x4 lumber through the block opening.
- Do not use mortar.
- Lay some blocks in the bottom row on their side for dewatering the pool.
- Place hardware cloth or comparable wire mesh with ½-inch openings over all block openings.
- Place gravel just below the top of blocks on slopes of 2H:1V or flatter.
- An alternative design is a gravel berm surrounding the inlet with the following characteristics:
  - Provide an inlet slope of 3H:1V.
  - Provide an outlet slope of 2H:1V.
  - Provide a 1-foot wide level stone area between the structure and the inlet.
  - Use inlet slope stones 3 inches in diameter or larger.
  - For outlet slope use gravel ½- to ¾-inch at a minimum thickness of 1-foot.

Gravel and Wire Mesh Filter

- A gravel and wire mesh filter is a gravel barrier placed over the top of the inlet (see). This structure does not provide an overflow.
- Use a hardware cloth or comparable wire mesh with 1/2-inch openings.

- Place wire mesh over the drop inlet so that the wire extends a minimum of 1-foot beyond each side of the inlet structure.
- Overlap the strips if more than one strip of mesh is necessary.

- Place coarse aggregate over the wire mesh.
  - Provide at least a 12-inch depth of aggregate over the entire inlet opening and extend at least 18-inches on all sides.

Catch Basin Filters

- Inserts (Figure 3 - 19: Catch Basin Filter) shall be designed by the manufacturer for use at construction sites. The limited sediment storage capacity increases the frequency of inspection and maintenance required, which may be daily for heavy sediment loads. The maintenance requirements can be reduced by combining a catch basin filter with another type of inlet protection. This type of inlet protection provides flow bypass without overflow and therefore may be a better method for inlets located along active rights-of-way.
- Provide a minimum of 5 cubic feet of storage.
- Requires dewatering provisions.
- Provide a high-flow bypass that will not clog under normal use at a construction site.
- The catch basin filter is inserted in the catch basin just below the grating.

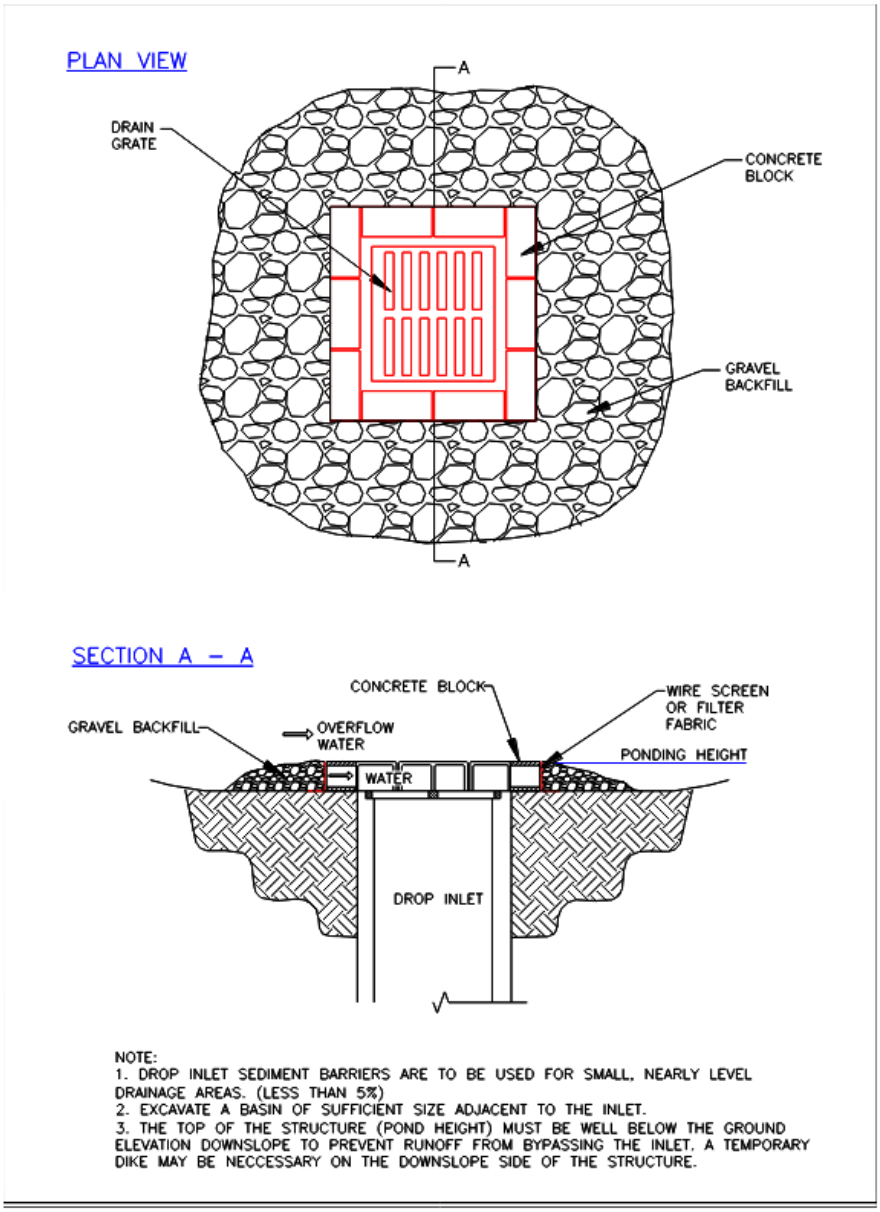


Figure 3 - 17: Drop Inlet with Block and Gravel Filter

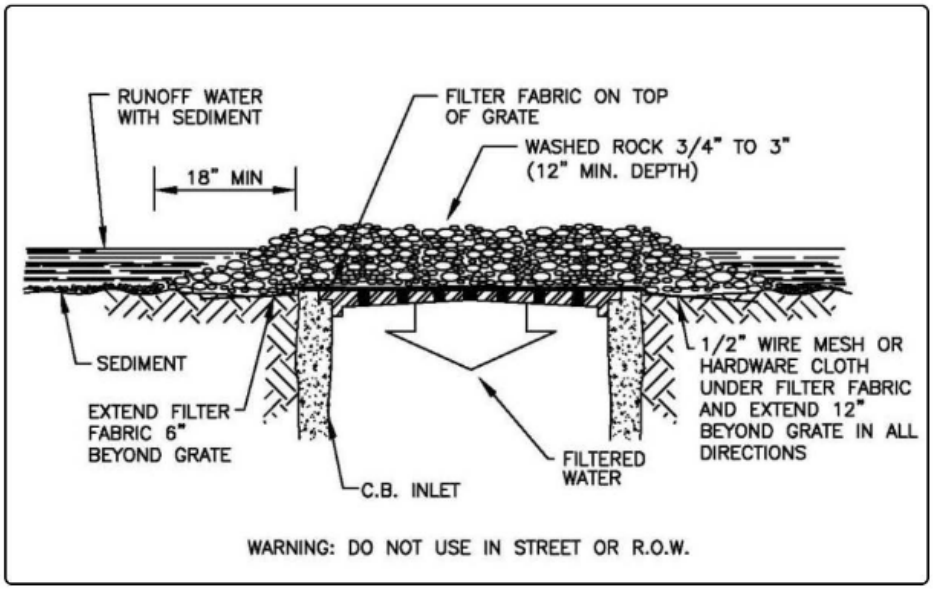


Figure 3 - 18: Gravel and Wire Mesh Filter

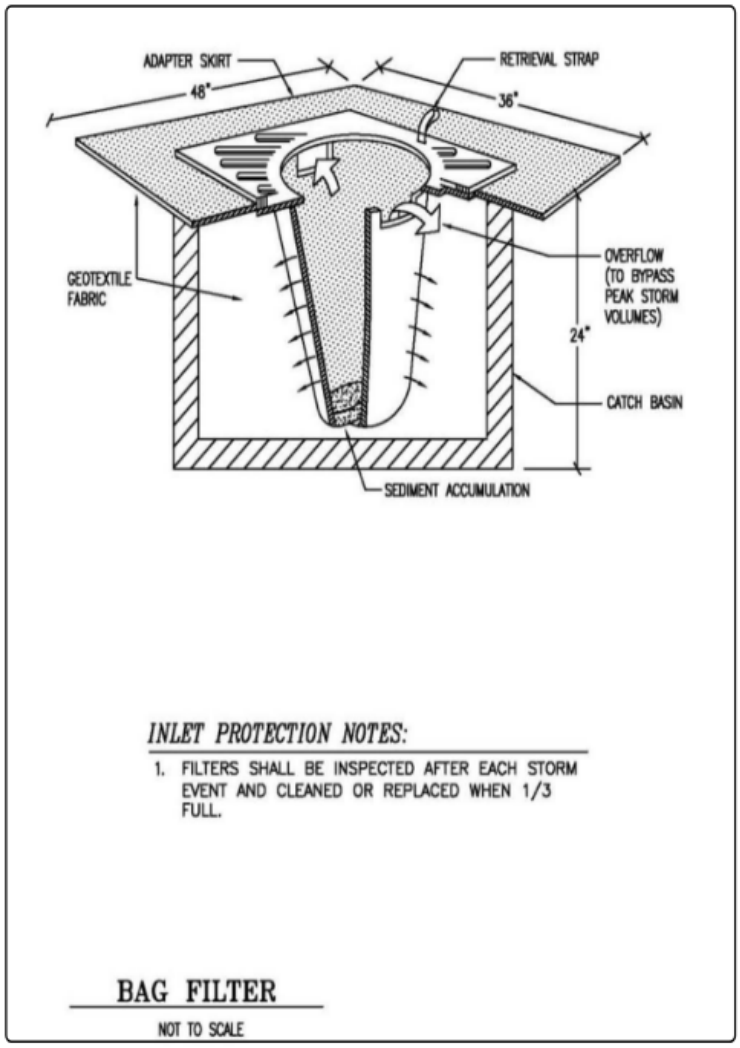


Figure 3 - 19: Catch Basin Filter

Curb Inlet Protection with Wooden Weir

Barrier formed around a curb inlet with a wooden frame and gravel.

- Use wire mesh with ½-inch openings.
- Use extra strength filter cloth.
- Construct a frame.
- Attach the wire and filter fabric to the frame.
- Pile coarse washed aggregate against the wire and fabric.
- Place weight on frame anchors.

Block and Gravel Curb Inlet Protection

Barrier formed around an inlet with concrete blocks and gravel. See Figure 3 - 20: Block and Gravel Curb Inlet Protection.

- Use wire mesh with ½-inch openings.
- Place two concrete blocks on their sides abutting the curb at either side of the inlet opening. These are spacer blocks.
- Place a 2x4 stud through the outer holes of each spacer block to align the front blocks.
- Place blocks on their sides across the front of the inlet and abutting the spacer blocks.
- Place wire mesh over the outside vertical face.
- Pile coarse aggregate against the wire to the top of the barrier.

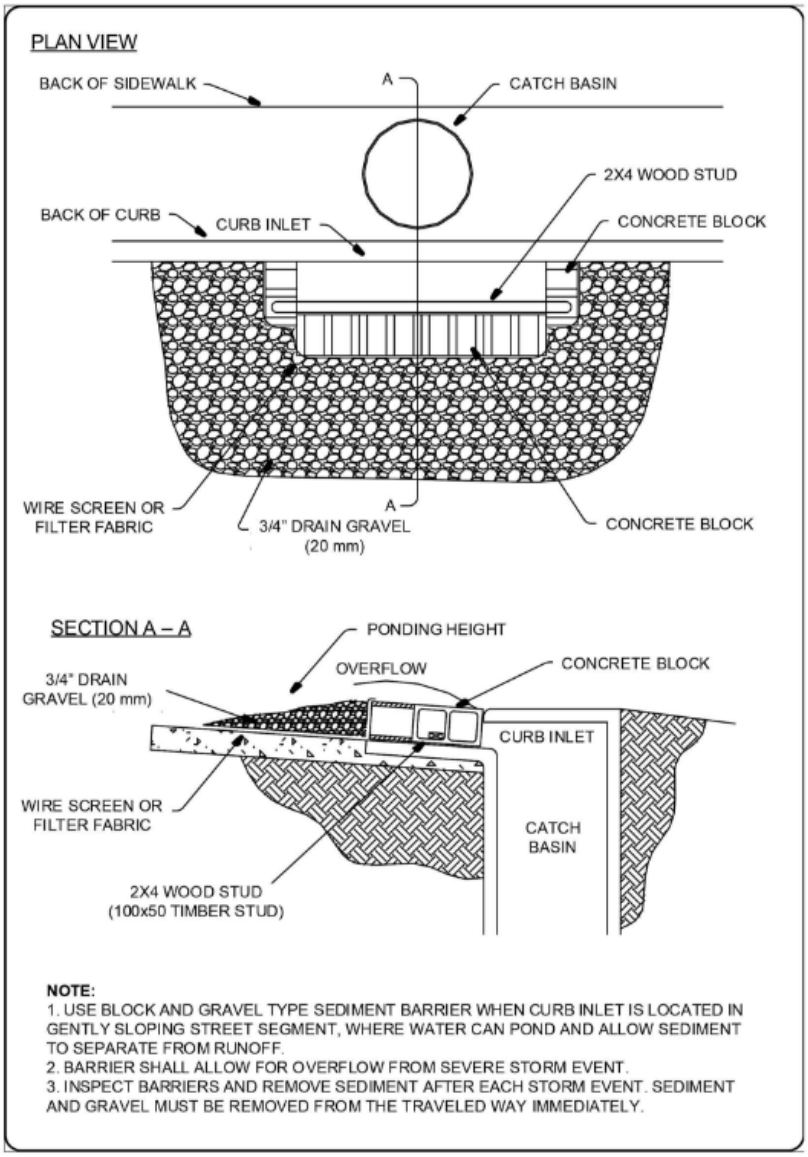


Figure 3 - 20: Block and Gravel Curb Inlet Protection

Curb and Gutter Sediment Barrier

Sandbag or rock berm (riprap and aggregate) 3 feet high and 3 feet wide in a horseshoe shape. See Figure 3 - 21: Curb and Gutter Sediment Barrier.

- Construct a horseshoe shaped berm, faced with coarse aggregate if using riprap, 3 feet high and 3 feet wide, at least 2 feet from the inlet.
- Construct a horseshoe shaped sedimentation trap on the outside of the berm sized to sediment trap standards for protecting a culvert inlet.

1.35.4 Maintenance Standards

- Inspect inlet protection frequently, especially after storm events. If the insert becomes clogged, clean or replace it.
- For systems using stone filters: If the stone filter becomes clogged with sediment, the stones must be pulled away from the inlet and cleaned or replaced. Since cleaning of gravel at a construction site may be difficult, an alternative approach would be to use the clogged stone as fill and put fresh stone around the inlet.
- Do not wash sediment into the stormwater system while cleaning. Spread all excavated material evenly over the surrounding land area or stockpile and stabilize as appropriate.
- Do not allow accumulated sediment to enter the stormwater system.
- Inlet protection shall be removed when area is fully stabilized and erosion and sediment controls are no longer needed.

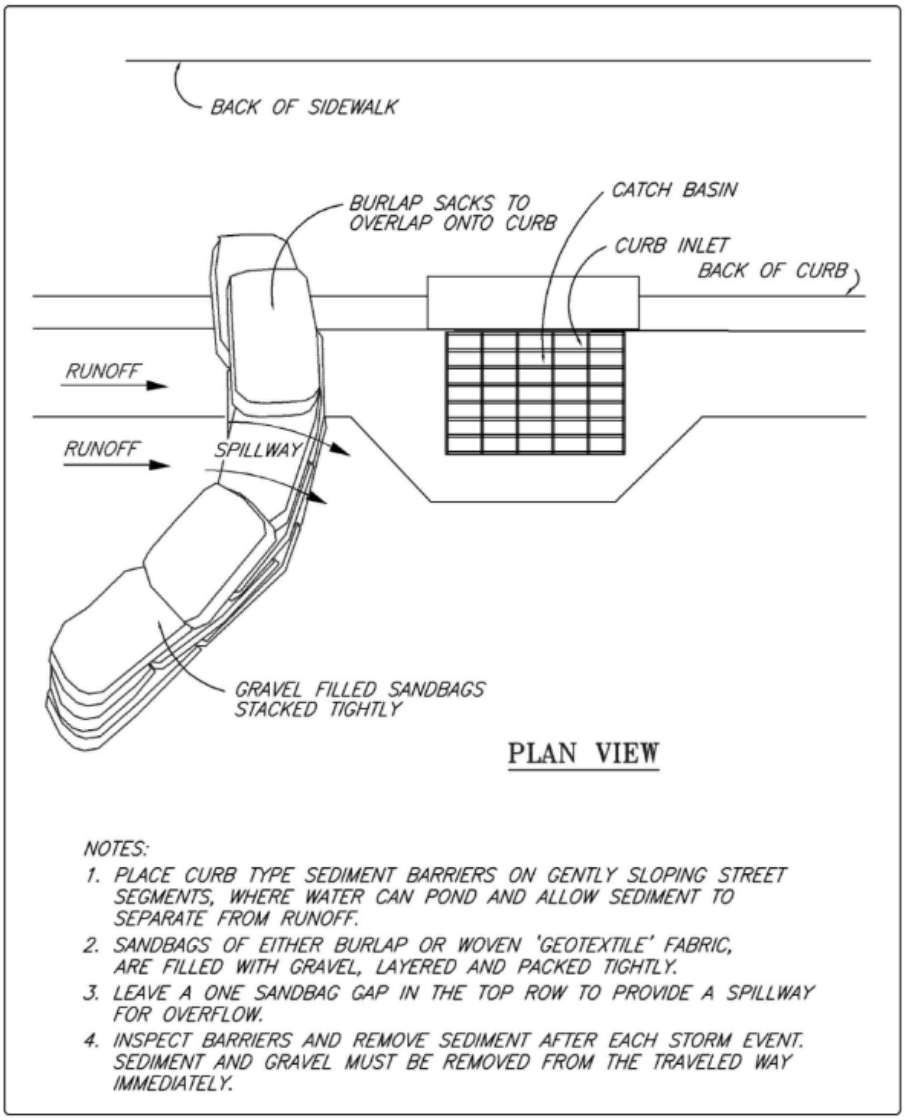


Figure 3 - 21: Curb and Gutter Sediment Barrier

1.38 BMP C233: Silt Fence

1.38.1 Purpose

Silt fence reduces the transport of coarse sediment from a construction site by providing a temporary physical barrier to sediment and reducing the runoff velocities of overland flow.

1.38.2 Conditions of Use

- Silt fence may be used downslope of all disturbed areas.
- Silt fence shall prevent sediment carried by runoff from going beneath, through, or over the top of the silt fence, but shall allow the water to pass through the fence.
- Silt fence is not intended to treat concentrated flows, nor is it intended to treat substantial amounts of overland flow. Convey concentrated flows to a sediment trapping BMP.
- Do not construct silt fences in streams or use them in V-shaped ditches. Silt fences do not provide an adequate method of silt control for anything deeper than sheet or overland flow.

1.38.3 Design and Installation Specifications

- Use in combination with other construction stormwater BMPs.
- Maximum slope steepness (perpendicular to the silt fence line) 1H:1V.
- Maximum sheet or overland flow path length to the silt fence of 100 feet.
- Do not allow flows greater than 0.5 cfs.
- Use geotextile fabric that meets the following standards or WSDOT Standard Specification 9-33.2(1) Table 6 - Geotextile for Temporary Silt Fence. All geotextile properties listed below are minimum average roll values (i.e., the test result for any sampled roll in a lot shall meet or exceed the values shown in Table 3 - 12: Geotextile Fabric Standards for Silt Fence):

Table 3 - 12: Geotextile Fabric Standards for Silt Fence

Standard	Description
Polymeric Mesh AOS (ASTM D4751)	0.60 mm maximum for silt film wovens (#30 sieve). 0.30 mm maximum for all other geotextile types (#50 sieve). 0.15 mm minimum for all fabric types (#100 sieve).
Water Permittivity (ASTM D4491)	0.02 sec^{-1} minimum
Grab Tensile Strength (ASTM D4632)	180 lbs. minimum for extra strength fabric. 100 lbs. minimum for standard strength fabric.
Grab Tensile Strength (ASTM D4632)	30% maximum
Ultraviolet Resistance (ASTM D4355)	70% minimum

- Support standard strength fabrics with wire mesh, chicken wire, 2-inch x 2-inch wire, safety fence, or jute mesh to increase the strength of the geotextile. Silt fence materials are available that have synthetic mesh backing attached.

- Silt fence material shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life at a temperature range of 0° F to 120° F.
- 100 percent biodegradable silt fence is available that is strong, long lasting, and can be left in place after the project is completed, if permitted by the local jurisdiction.
- Refer to Figure 3 - 23: Silt Fence for standard silt fence details. Include the following Standard Notes for silt fence on construction plans and specifications:
  - The Contractor shall install and maintain temporary silt fences at the locations shown in the Plans.
  - Construct silt fences in areas of clearing, grading, or where runoff will drain prior to starting those activities.
  - The silt fence shall have a 2-feet min. and a 2½-feet max. height above the original ground surface.
  - The geotextile fabric shall be sewn together at the point of manufacture to form fabric lengths as required. Locate all sewn seams at support posts. Alternatively, two sections of silt fence can be overlapped, provided that the overlap is long enough and that the adjacent silt fence sections are close enough together to prevent silt laden water from escaping through the fence at the overlap.
  - Attach the geotextile fabric on the up-slope side of the posts and secure with staples, wire, or in accordance with the manufacturer's recommendations. Attach the geotextile fabric to the posts in a manner that reduces the potential for tearing.
  - Support the geotextile fabric with wire or plastic mesh, dependent on the properties of the geotextile selected for use. If wire or plastic mesh is used, fasten the mesh securely to the up-slope side of the posts with the geotextile fabric up-slope of the mesh.
  - Mesh support, if used, shall consist of steel wire with a maximum mesh spacing of 2-inches, or a prefabricated polymeric mesh. The strength of the wire or polymeric mesh shall be equivalent to or greater than 180 lbs. grab tensile strength. The polymeric mesh must be as resistant to the same level of ultraviolet radiation as the geotextile fabric it supports.
  - Bury the bottom of the geotextile fabric 4-inches min. below the ground surface. Backfill and tamp soil in place over the buried portion of the geotextile fabric, so that no flow can pass beneath the silt fence and scouring cannot occur. When wire or polymeric back-up support mesh is used, the wire or polymeric mesh shall extend into the ground 3-inches min.
  - Drive or place the silt fence posts into the ground 18-inches min. A 12–inch min. depth is allowed if topsoil or other soft subgrade soil is not present and 18-inches cannot be reached. Increase fence post min. depths by 6 inches if the fence is located on slopes of 3H:1V or steeper and the slope is perpendicular to the fence. If required post depths cannot be obtained, the posts shall be adequately secured by bracing or guying to prevent overturning of the fence due to sediment loading.
  - Use wood, steel or equivalent posts. The spacing of the support posts shall be a maximum of 6-feet. Posts shall consist of either:

- Wood with minimum dimensions of 2 inches by 2 inches by 3 feet. Wood shall be free of defects such as knots, splits, or gouges.
- No. 6 steel rebar or larger.
- ASTM A 120 steel pipe with a minimum diameter of 1-inch.
- U, T, L, or C shape steel posts with a minimum weight of 1.35 lbs./ft.
- Other steel posts having equivalent strength and bending resistance to the post sizes listed above.

◦ Locate the silt fences on contour as much as possible, except at the ends of the fence, where the fence shall be turned uphill such that the silt fence captures the runoff water and prevents water from flowing around the end of the fence.

◦ If the fence must cross contours, with the exception of the ends of the fence, place check dams perpendicular to the back of the fence to minimize concentrated flow and erosion..The slope of the fence line where contours must be crossed shall not be steeper than 3H:1V.

- Check dams shall be approximately 1-foot deep at the back of the fence. Check dams shall be continued perpendicular to the fence at the same elevation until the top of the check dam intercepts the ground surface behind the fence.
- Check dams shall consist of crushed surfacing base course, gravel backfill for walls, or shoulder ballast. Check dams shall be located every 10 feet along the fence where the fence must cross contours.

- Refer to Figure 3 - 24: Silt Fence Installation by Slicing for slicing method details. The following are specifications for silt fence installation using the slicing method:

◦ The base of both end posts must be at least 2 to 4 inches above the top of the geotextile fabric on the middle posts for ditch checks to drain properly. Use a hand level or string level, if necessary, to mark base points before installation.

◦ Install posts 3 to 4 feet apart in critical retention areas and a maximum of 6 feet apart in standard applications.

◦ Install posts 24 inches deep on the downstream side of the silt fence, and as close as possible to the geotextile fabric, enabling posts to support the geotextile fabric from upstream water pressure.

◦ Install posts with the nipples facing away from the geotextile fabric.

◦ Attach the geotextile fabric to each post with three ties, all spaced within the top 8 inches of the fabric. Attach each tie diagonally 45 degrees through the fabric, with each puncture at least 1 inch vertically apart. Each tie should be positioned to hang on a post nipple when tightening to prevent sagging.

◦ Wrap approximately 6 inches of geotextile fabric around the end posts and secure with 3 ties.

◦ No more than 24 inches of a 36-inch geotextile fabric is allowed above ground level.

◦ Compact the soil immediately next to the geotextile fabric with the front wheel of a tractor, skid steer, or roller exerting at least 60 pounds per square inch. Compact the upstream side first and then each side twice for a total of four trips. Check and correct

the silt fence installation for any deviation before compaction. Use a flat-bladed shovel to tuck the fabric deeper into the ground if necessary.

1.38.4 Maintenance Standards

- Repair any damage immediately.
- Intercept and convey all evident concentrated flows uphill of the silt fence to a sediment trapping BMP.
- Check the uphill side of the fence for signs of the fence clogging and acting as a barrier to flow and then causing channelization of flows parallel to the fence. If this occurs, replace the fence and remove the trapped sediment.
- Remove sediment deposits when the deposit reaches approximately one-third the height of the silt fence, or install a second silt fence.
- Replace geotextile fabric that has deteriorated due to ultraviolet breakdown.

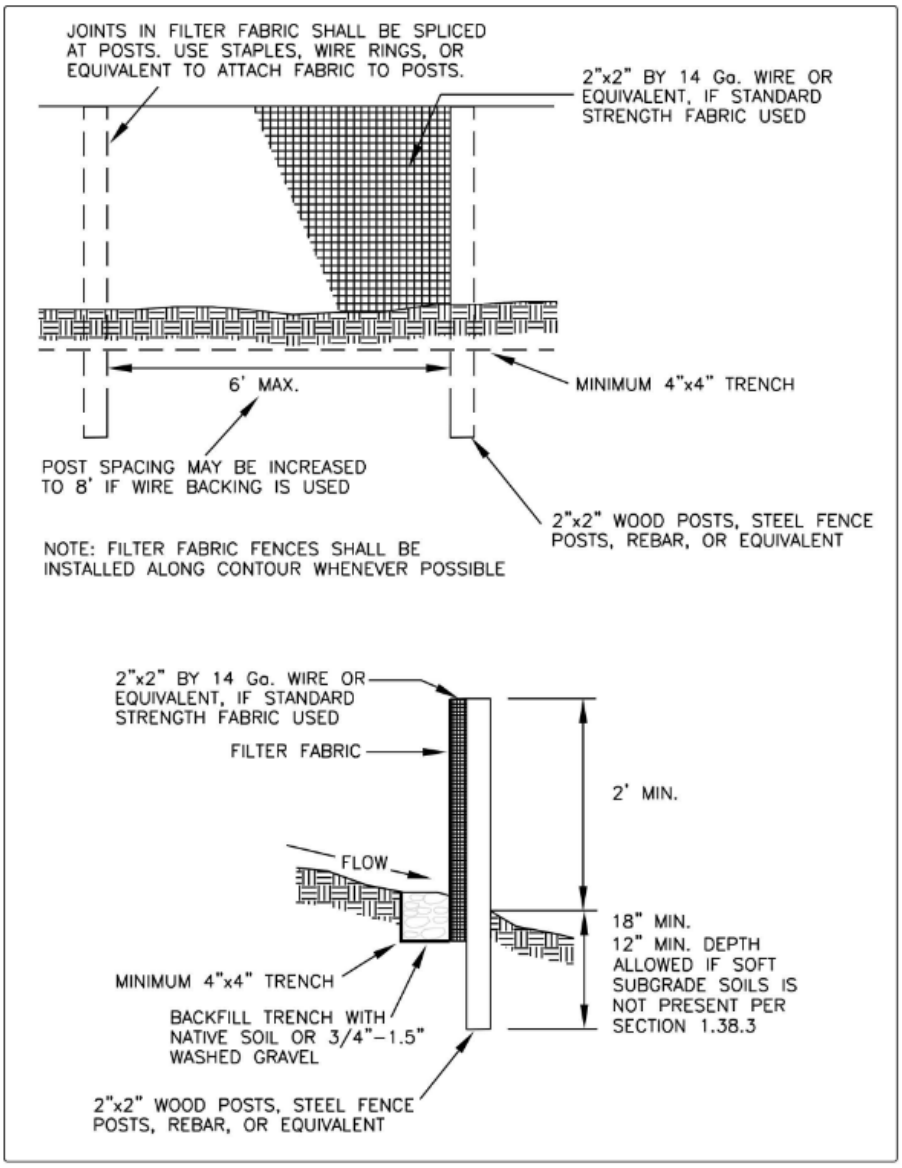


Figure 3 - 23: Silt Fence

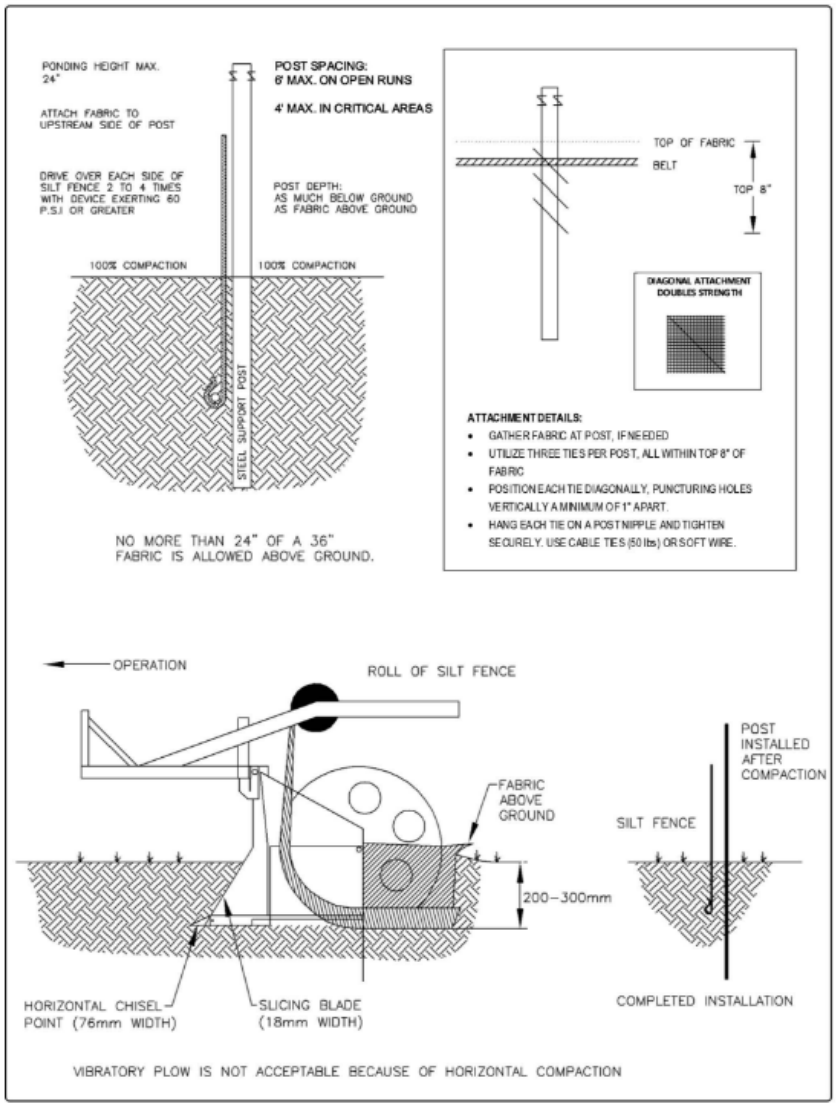


Figure 3 - 24: Silt Fence Installation by Slicing

Appendix E
Site Development Permit No. SDVE26-0069

BINDING EDGE

PORT OF TACOMA

6/12/2026 - Critical Areas and Critical Areas Flood Hazard Review (TMC 13.11) - APPROVED WITH COMMENTS

This permit should not be issued until the issuance of LU25-0176. The site has a Zone A (not coastal) SFHA onsite. The updated plans show the SFHA being avoided. Please be advised that in accordance with TMC 13.11.620, "Construction, grading, or other regulated activities which would reduce the flood water storage ability must be mitigated by creating compensatory storage on- or off-site. Compensatory storage provided off-site for purposes of providing flood water storage capacity shall be of similar elevation in the same floodplain as the development."

SITE REVIEW - 05/21/2026 - APPROVED W/COMMENTS
Comment 1: The Critical Areas permit (LU25-0176) shall be issued prior issuance of SDEV26-0069. Revisions to the SDEV civil plans shall be required if the outcome of the Critical Areas review includes additional site conditions, mitigation, or changes to the plans.

Comment 2: SDEV26-0069 may be issued to Port of Tacoma (POT) after final plan approval for use in the public bidding process. A Preconstruction Meeting will not be held and deferred to a later time, once the Port has awarded contract through the bid letting process.

Mobilization onsite shall not proceed until the Preconstruction Meeting has been held with the Port's selected Contractor. The permit shall be transferred to POT's selected contractor after the Precon Meeting is held, and prior to mobilization onsite. Permit transfer fee will apply. POT shall keep the Site Review Engineer advised of the construction scheduling process and timeline for contract award and notice to proceed.
Comment 3: A virtual Preconstruction Meeting will be required prior to transfer of SDEV26-0069 to POT's contractor. POT and their selected Contractor shall be required to attend. Contractor shall provide project-specific contact and subcontractor information and provide any required TCP, PWP, or Haul Route information prior to scheduling Preconstruction Meeting.

05/15/2026 - Critical Areas
Critical Areas Development Permit under LU25-0176 to Dr. Hold, CA review found no outstanding comments for this permit application during review. Closing out WF as the applicant team can receive and review comments from other reviewers.

TACOMA POWER - APPROVED W/ COMMENTS - 04/27/2026
Be sure not to change the existing grade of Tacoma Power's existing infrastructure (i.e. down guy and pole). If grade changes occur around Tacoma Power's existing facility, replacement of the facility will need to be approved by Tacoma Power, Tacoma. Should grade change be required around Tacoma Power's existing facility, and the request to replace this infrastructure is made, timeline of the facility is subject to change due to material lead times and TPU resource.

SITE DEVELOPMENT - OVERALL REVIEW - 05/21/2026 - Approved with Comments
Comment 1: Storm connection permit is required. For questions contact Site Development Inspector (253-591-5539). To apply for a permit go to: tacomapermits.org
Comment 2: Record Drawings provided to the City will have updated elevations matching City of Tacoma Datum NGVD29.

FLOOD HAZARD REVIEW: SITE - 06/17/2026 - APPROVED W/COMMENTS
Comment 1: A portion of a FEMA-identified Special Flood Hazard Area (SFHA), mapped as Zone A is located on a western corner of the project site. All work shown on the civil plans for SDEV26-0069 within the SFHA is proposed to maintain a pervious surfacing of the area and limit changes to elevations in this area. No further NFIP-related permitting is required at this time.
Comment 2: Any future (redevelopment of site must maintain elevations/cross sections through identified SFHA, which extends onto this project site from the adjacent western parcel. Any changes to existing elevations, construction of impervious surfaces, or general grading to this area shall require compliance with NFIP site development requirements and will require additional permitting.

SDEV26-0069

PORT PARCEL 117
SNAIL ERADICATION
PROJECT ID NO. 101690.01
PURCHASE AGREEMENT NO. POT-PA-000000411

PORT COMMISSIONERS:
RICHARD P. MARZANO
JT WILCOX
JOHN MCCARTHY
KRISTIN ANG
DEANNA KELLER

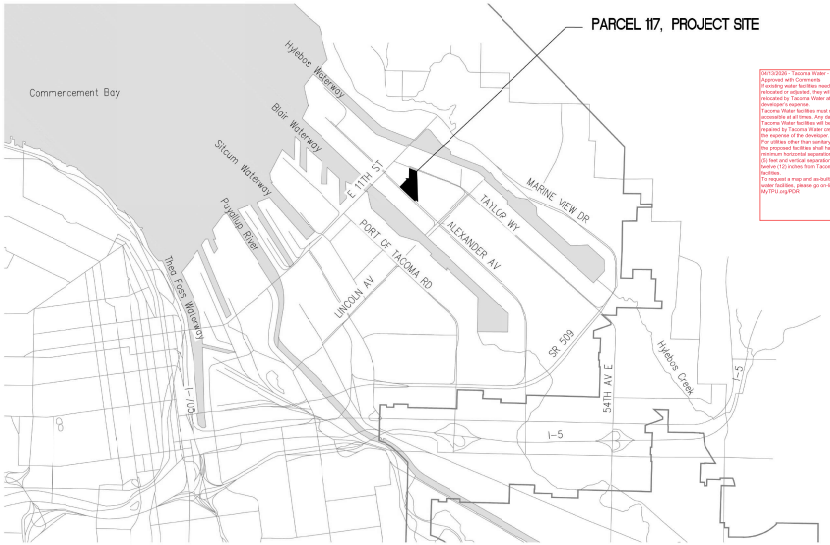
PORT STAFF:
ERIC JOHNSON
Port of Tacoma Executive Director

THAIS HOWARD, P.E.
Sr. Director of Engineering

ELLY BULEGA, P.E.
Project Manager

ASSOCIATED PERMITS

CITY OF TACOMA	SITE DEVELOPMENT PERMIT NO. SDEV26-0069 SEE APPENDIX E OF PROJECT SPECIFICATIONS
	WORK ORDER PERMIT NO. WO26-0040 SEE APPENDIX F OF PROJECT SPECIFICATIONS
	CRITCAL AREA DEVELOPMENT PERMIT NO. LU25-0176 SEE APPENDIX H OF PROJECT SPECIFICATIONS
	SPECIAL APPROVED DISCHARGE (SAD) PERMIT NO. TBD SEE APPENDIX O OF PROJECT SPECIFICATIONS
DEPARTMENT OF ECOLOGY:	STATE ENVIRONMENT POLICY ACT (SEPA) DETERMINATON OF NONSIGNIFICANCE (DNS) SEE APPENDIX G OF PROJECT SPECIFICATIONS
	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT NO. WAR315656 SEE APPENDIX J OF PROJECT SPECIFICATIONS



VICINITY MAP NO SCALE PORT OF TACOMA

04/13/2026 - Tacoma Water - Approved with Comments
If existing water facilities need to be relocated or adjusted, they will be relocated by Tacoma Water at the developer's expense.
Fire hydrant locations must remain accessible at all times. Any damage to Tacoma Water facilities will be repaired by Tacoma Water crews at the expense of the developer.
For utilities other than sanitary sewer, the proposed facilities shall have a minimum horizontal separation of five (5) feet and vertical separation of one (1) foot (inches from Tacoma Water facilities.
To request a map and as-builts of our water facilities, please go on-line at MyTPU.org/PDR

PROJECT INFORMATION:

ZONING:	PORT MARITIME INDUSTRIAL (PMI)
NEW IMPERVIOUS SURFACE: REPLACED IMPERVIOUS SURFACE:	695,970 SF (15.97 ACRES) 0 SF (0.00 ACRES)
SCOPE OF WORK:	INSTALL CRUSH SURFACING TOP COURSE (CSTC) THROUGHOUT THE ENTIRE SITE, ECOLOGY BLOCK WALL AND ASPHALT CAP AT AUTOFLUFF CONTAMINATION AREA, AND ASSOCIATED STORM IMPROVEMENTS. THE PURPOSE IS TO ERADICATE SNAILS ON THE SITE AND DISCHARGE ONSITE STORMWATER TO THE CITY STORMWATER SYSTEM.
SITE ADDRESS:	1228 E ALEXANDER AVE TACOMA, WA 98421
PARCEL NUMBERS:	032135-2064 (240,490 S.F., 5.52 ACRES) 032126-3045 (442,420 S.F., 10.16 ACRES)
TOTAL ONSITE PROJECT AREA:	682910 S.F., 15.69 ACRES
ESTIMATED EARTHWORK: (FOR PERMITTING PURPOSES ONLY)	CUT: 17,900 CY (NATIVE) FILL: 17,900 CY (NATIVE) FILL: 10,025 CY (IMPORTED) TOTAL: 45,825 CY (10,025 CY NET FILL)

INDEX OF DRAWINGS

SITE DEVELOPMENT (SDEV) PLANS: SDEV26-0069		
SHEET	DWG NO.	DRAWING TITLE
1 OF 9	T1.00	COVER SHEET
2 OF 9	G1.01	CIVIL LEGEND AND GENERAL NOTES
3 OF 9	G1.03	CIVIL GENERAL NOTES
4 OF 9	C1.00	DEMOLITION AND TESC PLAN
5 OF 9	C2.00	SUBGRADE PLAN
6 OF 9	C2.01	FINAL GRADING AND DRAINAGE PLAN AND PROFILE
7 OF 9	C2.02	SITE PROFILES
8 OF 9	C3.00	SURFACING AND LAYOUT PLAN
9 OF 9	C4.00	PROJECT DETAILS

WORK ORDER (WO) PLANS: WO26-0040		
SHEET	DWG NO.	DRAWING TITLE
1 OF 12	WO0.00	COVER SHEET
2 OF 12	WO0.01	CIVIL LEGEND AND GENERAL NOTES
3 OF 12	WO0.02	CIVIL GENERAL NOTES
4 OF 12	WO0.03	OVERALL SITE PLAN
5 OF 12	WO1.00	DEMOLITION AND TESC PLAN
6 OF 12	WO2.00	GRADING AND DRAINAGE PLAN AND PROFILE
7 OF 12	WO3.00	SURFACING AND LAYOUT PLAN
8 OF 12	WO4.00	PROJECT DETAILS
9 OF 12	WO4.01	PROJECT DETAILS
10 OF 12	WO4.02	PROJECT DETAILS
11 OF 12	WO4.03	COT RIGHT OF WAY GENERAL NOTES
12 OF 12	TTC1.00	TEMPORARY TRAFFIC CONTROL PLAN

sitts&hill
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http://www.sittshill.com/
Contact: Don Davis, P.E.
Email: dond@sittshill.com
Phone: (253) 474-9449

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JUNE 8, 2026

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DONALD C. DAVIS — 46448 — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — SIGN 06/08

APPROVED:		
DIRECTOR ENG:	11.18.2025	DATE
PROJ. ENGR	11.18.2025	DATE
CHECKED BY	11.18.2025	DATE

PRINTED BY: DonDavis Jun 08, 2026
PORT ADDRESS: 1229 ALEXANDER AVE
TACOMA, WA 98421

PARCEL 117 CRITICAL SITE REDEVELOPMENT
SNAIL ERADICATION
COVER SHEET

T1.00
SH #1 OF #9

CONT/CONS: PA000000411 | TOWNSHIP: 21 | RANGE: 03 | SECTION: 26
JOB NO.: 101690.01 | DAT-HRZ: WA83-SF | VERT: MLLW 19.39' @ Tide 22 1933
PARCEL: 117 | DRAWING SCALE: AS NOTED
PHASE: 100%

THIS DRAWING IS THE PROPERTY OF THE PORT OF TACOMA AND SHALL NOT BE USED ON OTHER WORK, DISCLOSED, COPIED, IN WHOLE OR IN PART, WITHOUT WRITTEN PERMISSION

PORT OF TACOMA FILE: N:\20600\20618\Drawings\20618-T1.00

Reviewed for Code Compliance

BINDING EDGE

GENERAL CIVIL NOTES

1. THE CONTRACTOR S RESPONSIBLE FOR FIELD VERIFCATION OF ALL EXISTING FEATURES, ELEVATIONS, AND PROPERTY LINES SHOWN. IF DISCREPANCIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
2. WHERE CONFLICTS OCCUR BETWEEN EXISTING FEATURES AND THE PLACEMENT OF NEW FACILITIES, THEY SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BY THE CONTRACTOR, AND WILL BE RESOLVED BY THE ENGINEER.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING SURVEY MONUMENTS AND OTHER SURVEY MARKERS DURING CONSTRUCTION. ALL SUCH MONUMENTS OR MARKERS DESTROYED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
4. THE CONTRACTOR FOR THIS PROJECT SHALL MAINTAIN A CLEAN, LEGIBLE SET OF THESE PLANS AND NOTE ALL DEVIATIONS THEREON. UPON COMPLETION OF CONSTRUCTION, THESE DRAWINGS SHALL BE DELIVERED TO THE OWNER FOR THE PREPARATION OF RECORD DRAWINGS. IF REQUIRED BY THE CITY OF TACOMA ENVIRONMENTAL SERVICES, THE ENGINEER SHALL SUBMIT RECORD DRAWINGS TO THE CITY OF TACOMA UPON COMPLETION OF THE PROJECT.
5. THE CONTRACTOR SHALL HAVE A CURRENT COPY OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STANDARD PLANS AND SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION (PUBLICATIONS M21-01 AND M41-10) AT THE JOB SITE AT ALL TIMES DURING CONSTRUCTION.
6. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY EQUIPMENT TO PREVENT UTILITY INTERRUPTION. NOTIFY PORT OF TACOMA ONE WEEK IN ADVANCE OF EACH UTILITY CONNECTION.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL ON-SITE AND OFF-SITE SHALL COORDINATE HIS ACTIVITIES WITH THE OWNER AND ENGINEER A MINIMUM OF TWO (2) WEEKS IN ADVANCE OF THE BEGINNING OF WORK. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL TRAFFIC CONTROL SIGNS, SAFE VEHICULAR AND PEDESTRIAN ACCESS SHALL BE PROVIDED AT ALL TIMES DURING CONSTRUCTION. SHUTDOWN OF OWNER OPERATION OR ACCESS WILL NOT BE PERMITTED. TRAFFIC CONTROL PLAN MUST BE APPROVED BY THE CITY.
8. PRIOR TO BIDDING, IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MAKE ALL NECESSARY SITE INSPECTIONS AND DETERMINATIONS OF ITEMS AND QUANTITIES OF WORK TO ENSURE THAT ALL ITEMS OF WORK NECESSARY TO PERFORM A COMPLETE AN ACCEPTABLE JOB HAVE BEEN TAKEN INTO CONSIDERATION.
9. DEWATERING AND PUMPING WILL BE REQUIRED AND SHALL BE CONSIDERED PART OF THE CONTRACTORS BID PRICE. CONTRACTOR SHALL ASSUME GROUNDWATER WILL BE ENCOUNTERED. CONTRACTOR IS RESPONSIBLE FOR PROVIDING NECESSARY EQUIPMENT AND COORDINATING WITH PORT OF TACOMA, CITY OF TACOMA, ENGINEER AND DEPARTMENT OF ECOLOGY TOXIC CLEANUP (TCP) AND WATER QUALITY (WQ) PROGRAM FOR DISCHARGE LOCATIONS.

PLASTIC COVERING NOTES

1. PLASTIC SHEETING SHALL HAVE A MINIMUM THICKNESS OF 3 MILS AND SHALL MEET THE REQUIREMENTS OF WSDOT STANDARD SPECIFICATIONS SECTION 9-14.5(3).
2. COVERING SHALL BE INSTALLED AND MAINTAINED TIGHTLY IN PLACE BY USING SANDBAGS OR TIRES ON ROPES WITH A MAXIMUM 10-FOOT GRID SPACING IN ALL DIRECTIONS. ALL SEAMS SHALL BE TAPED OR WEIGHTED DOWN FULL LENGTH AND THERE SHALL BE AT LEAST A 12-INCH OVERLAP OF ALL SEAMS.
3. CLEAR PLASTIC COVERING SHALL BE INSTALLED IMMEDIATELY ON AREAS SEEDED BETWEEN NOVEMBER 1 AND MARCH 31 AND REMAIN UNTIL VEGETATION IS FIRMLY ESTABLISHED.
4. WHEN THE COVERING IS USED ON UN-SEEDED SLOPES, IT SHALL BE KEPT IN PLACE UNTIL THE NEXT SEEDING PERIOD.
5. PLASTIC COVERING SHEETS SHALL BE BURIED TWO FEET AT THE TOP OF SLOPES IN ORDER TO PREVENT SURFACE WATER FLOW BENEATH SHEETS.
6. PROPER MAINTENANCE INCLUDES REGULAR CHECKS FOR RIPS AND DISLODGED ENDS.

STANDARD TESC NOTES (2021 CITY OF TACOMA SWMM)

1. THE IMPLEMENTATION OF THESE TESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF ESC FACILITIES IS THE RESPONSIBILITY OF THE APPLICANT/CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED, VEGETATION/LANDSCAPING IS ESTABLISHED AND THE ENTIRE SITE IS STABILIZED.
2. CONSTRUCTION STORMWATER POLLUTON PREVENTION PLAN (CSWPPP) HAS BEEN PREPARED BY THE PORT AS PART OF THE NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) STORMWATER PERMIT REQUIREMENTS FOR THE PROJECT SITE. REFER TO APPENDIX J OF THE PROJECT SPECIFICATIONS FOR THE CSWPPP.
3. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY MARKED IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE CLEARING LIMITS SHALL BE PERMITTED. THE MARKING SHALL BE MAINTAINED BY THE APPLICANT/CONTRACTOR FOR THE DURATION OF CONSTRUCTION.
4. THE TESC FACILITIES SHOWN ON THIS PLAN SHALL BE CONSTRUCTED PRIOR TO AND/OR IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT ENTER THE DRAINAGE SYSTEM OR ROADWAYS, OR VIOLATE APPLICABLE WATER STANDARDS.
5. THE TESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, TESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT LEAVE THE SITE.
6. THE CESCL, CPESC, OR ESC LEAD SHALL BE IDENTIFIED IN THE SWPPP AND SHALL BE ONSITE OR ON-CALL AT ALL TIMES.
7. THE CESCL, CPESC, OR ESC LEAD MUST BE KNOWLEDGEABLE IN THE PRINCIPLES AND PRACTICES OF EROSION AND SEDIMENT CONTROL AND HAVE THE SKILLS TO ASSESS:

   A SITE CONDITIONS AND CONSTRUCTION ACTIVITIES THAT COULD IMPACT THE QUALITY OF STORMWATER.
   B EFFECTIVENESS OF EROSION AND SEDIMENT CONTROL MEASURES USED TO CONTROL THE QUALITY OF STORMWATER DISCHARGES.
7. THE CESCL, CPESC, OR ESC LEAD MUST EXAMINE STORMWATER VISUALLY FOR THE PRESENCE OF SUSPENDED SEDIMENT, TURBIDITY, DISCOLORATION, AND OIL SHEEN AND EVALUATE THE EFFECTIVENESS OF BMPS TO DETERMINE IF IT IS NECESSARY TO INSTALL, MAINTAIN, OR REPAIR BMPS.
8. THE CESCL, CPESC, OR ESC LEAD 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. (INDIVIDUAL DISCHARGE EVENTS THAT LAST MORE THAN ONE DAY DO NOT REQUIRE DAILY INSPECTIONS). THE CESCL OR INSPECTOR MAY REDUCE THE INSPECTION FREQUENCY FOR TEMPORARY STABILIZED, INACTIVE SITES TO ONCE EVERY CALENDAR MONTH.
9. CONSTRUCTION SITE OPERATORS MUST CORRECT ANY PROBLEMS IDENTIFIED BY THE CESCL, CPESC, OR ESC LEAD BY:

   A REVIEWING THE SWPPP FOR COMPLIANCE WITH THE 13 CONSTRUCTION SWPPP ELEMENTS AND MAKING APPROPRIATE REVISIONS WITHIN 7 DAYS OF THE INSPECTION.
   B FULLY IMPLEMENT AND MAINTAIN APPROPRIATE SOURCE CONTROL AND/OR TREATMENT BMPS AS SOON AS POSSIBLE BUT CORRECTING THE PROBLEM WITHIN 10 DAYS.
   C DOCUMENTING BMP IMPLEMENTATION AND MAINTENANCE IN THE SITE LOG BOOK. (REQUIRED FOR SITES LARGER THAN 1 ACRE BUT RECOMMENDED FOR ALL SITES).

   SAMPLING AND ANALYSIS OF THE STORMWATER DISCHARGES FROM A CONSTRUCTION SITE MAY BE NECESSARY ON A CASE-BY-CASE BASIS TO ENSURE COMPLIANCE WITH STANDARDS. ECOLOGY OR THE CITY WILL ESTABLISH THESE MONITORING AND ASSOCIATED REPORTING REQUIRMENTS.
10. AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN SEDIMENT TRAP.
11. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT-LADEN WATER INTO THE DOWNSTREAM SYSTEM.
12. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

ANTICIPATED CIVIL CONSTRUCTION SEQUENCE

WORK ITEMS BELOW SHALL BE PERFORMED WITHIN THE IDENTIFIED PROJECT WORK LIMITS. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE, SCHEDULE, AND SEQUENCE WORK. ON-SITE CONSTRUCTION EFFORTS SHALL BE CLOSELY COORDINATED WITH OFF-SITE IMPROVEMENTS.

1. PRIOR TO STARTING ANY WORK, ARRANGE & ATTEND PRE-CONSTRUCTION CONFERENCE WITH THE CITY OF TACOMA, AN ESC SUPERVISOR WILL BE DESIGNATED AT THE MEETING.
2. POST A SIGN W/THE NAME AND PHONE NUMBER OF THE ESC SUPERVISOR.
3. FLAG OR OTHERWISE DELINEATE ALL CLEARING AND CONSTRUCTION LIMITS AS SHOWN ON THE PLANS.
4. INSTALL EROSION AND SEDIMENTATION CONTROL MEASURES AS IDENTIFIED ON THE APPROVED EROSION CONTROL PLANS AND CITY OF TACOMA REQUIREMENTS.
5. DEMOLISH/REMOVE EXISTING FEATURES IN ACCORDANCE WITH APPROVED EROSION CONTROL/DEMOLITION PLANS AND CITY OF TACOMA REQUIREMENTS.
6. CONTRACTOR SHALL DETERMINE WATER TABLE ELEVATION PRIOR TO EXCAVATION. IF WATER TABLE IS WITHIN PROPOSED EXCAVATION LIMITS, DEWATERING EFFORTS SHALL BE IN PLACE PRIOR TO GRADING. SEE PROJECT NOTES ON G1.01 FOR MORE INFORMATION ON DEWATERING.
7. BEGIN EXCAVATION AND MASS GRADING TO ESTABLISH SUBGRADE OF PROPOSED IMPROVEMENTS.
8. INSTALL ECOLOGY BLOCK WALL AROUND THE BOUNDARIES OF THE IDENTIFIED AUTOFLUFF CONTAMINATION AND STORMWATER UTILITIES.
9. COMPLETE SUBGRADE PREPARATION AND IMPORT CRUSHED SURFACING TOP COURSE.
10. INSTALL ASPHALT PAVEMENT.
11. MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH CITY OF TACOMA SURFACE WATER DESIGN MANUAL AND MANUFACTURER'S RECOMMENDATIONS.
12. COVER ALL AREAS THAT WILL BE UNWORKED FOR MORE THAN SEVEN DAYS DURING THE DRY SEASON OR TWO DAYS DURING THE WET SEASON WITH PLASTIC SHEETING OR EQUIVALENT.
13. REMOVE EROSION CONTROL AND POLLUTION PREVENTION MEASURES UPON APPROVAL FROM CITY INSPECTOR.
14. CLEANUP PROJECT SITE. CLEAN ALL CATCH BASINS AND PIPING WITH VACTOR TRUCK. PROVIDE INVOICE TO ENGINEER UPON COMPLETION.
15. REMOVE EROSION CONTROL, AND POLLUTION PREVENTION MEASURES UPON APPROVAL FROM CITY INSPECTOR.

LEGEND

EXISTING FEATURES-

- FOUND MONUMENT AS NOTED
- SANITARY SEWER MANHOLE
- SANITARY SEWER CLEANOUT
- STORM CATCH BASIN
- STORM MANHOLE
- ROOF DRAIN
- STORM CULVERT
- WATER VAULT
- WATER METER
- WATER VALVE
- IRRIGATION CONTROL VALVE
- WATER BLOW OFF VALVE
- FIRE HYDRANT
- FIRE DEPARTMENT CONNECTION
- POST INDICATOR VALVE
- WATER MANHOLE
- MONITORING WELL
- GUY ANCHOR
- UTILITY POLE
- TRANSMISSION LINE POWER POLE
- LIGHT POLE
- POWER VAULT
- JUNCTION BOX
- ELECTRIC METER OR PANEL
- POWER MANHOLE
- TRANSFORMER
- TELEPHONE VAULT
- TELEPHONE RISER
- GAS VALVE
- GAS METER
- UTILITY VAULT
- SIGN
- GATE POST
- BOLLARD
- MAIL BOX
- RAILROAD SWITCH
- COLUMN
- CLEANOUT

- ASPHALT SURFACE
- CONCRETE SURFACE
- GRAVEL SURFACE
- BOUNDARY LINE
- RIGHT OF WAY LINE
- EASEMENT LINE
- QUARTER SECTION LINE
- BURIED STORM LINE
- BURIED SANITARY SEWER LINE
- BURIED WATER LINE
- BURIED TELECOMMUNICATIONS LINE
- BURIED NATURAL GAS LINE
- BURIED PETROLEUM/OIL LINE
- BURIED POWER LINE
- RECORD CABLE LINE
- RECORD STORM LINE
- RECORD SANITARY SEWER LINE
- RECORD WATER LINE
- DITCH CENTERLINE
- OVERHEAD UTILITY LINE
- GUARD RAIL
- RAILROAD TRACK
- CHAIN LINK FENCE
- BARBED WIRE FENCE
- EDGE OF VEGETATION/LANDSCAPING
- EVERGREEN TREE
- DECIDUOUS TREE

PROPOSED FEATURES-

- PRIMARY VINEYARD SNAIL ERADICATION AREA (1ST VSEA)
- SECONDARY VINEYARD SNAIL ERADICATION AREA (2ND) VSEA
- VSEA STAGING AREA, WHEEL WASH, AND CONTROL EXITS
- ASPHALT DEMO/REMOVAL
- "CONTROLLED EXIT" TEMPORARY CONSTRUCTION ENTRANCE
- CRUSHED SURFACING TOP COURSE
- ONSITE ASPHALT PAVEMENT
- AUTOFLUFF CONTAMINATION

- DEMOLITION
- SAWCUT LINE
- SILT FENCE
- CLEARING LIMITS
- SD — STORM DRAIN PIPE
- 15 — MAJOR CONTOUR
- 14 — MINOR CONTOUR
- TOP OF SLOPE
- TOE OF SLOPE
- FLOW LINE
- GRADE BREAK
- 18.18 — PROPOSED ELEVATION
- 0.49% — SLOPE
- FL — FLOW LINE
- ECOLOGY BLOCK WALL
- DEMOLITION

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RE-ISSUED FOR PERMIT
JUNE 8, 2026

SDEV26-0069

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DONALD C. DAVIS — 46648 — REGISTERED PROFESSIONAL ENGINEER — STATE OF WASHINGTON — 6/8/26

	DATE
CHECKED BY	11.18.2025
PROJ. ENGR	11.18.2025
DIRECTOR ENG.	11.18.2025

APPROVED:

PRINTED BY: DonDavis Jun 08, 2026
PORT ADDRESS: 1229 ALEXANDER AVE
TACOMA, WA 98421

PARCEL 117 CRITICAL SITE REDEVELOPMENT
SNAIL ERADICATION
CIVIL LEGEND AND GENERAL NOTES

CONT/CONS: PA000000411	TOWNSHIP: 21	RANGE: 03	SECTION: 26
JOB NO: 101690.01	DAT-HRZ: WA83-SF	VERT: MLLW 19.38' @ Tide 22 1933	
PHASE: 1UUX	PAKUL: 117	DRAWING SCALE: AS NOTED	

6740

G1.01

SH #2 OF #9

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PORT OF TACOMA FILE: N:\20600\20618\Drawings\20618-g1.01

Construction Documents Reviewed for Code Compliance

BINDING EDGE

GENERAL STORMWATER NOTES

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH CITY STANDARDS AND THE MOST CURRENT COPY OF THE STATE OF WASHINGTON STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION (WSDOT/APWA) AND AS AMENDED BY THE CITY.

2. TEMPORARY EROSION/WATER POLLUTION PREVENTION MEASURES SHALL BE REQUIRED IN ACCORDANCE WITH SECTION 1-07.15, AS MODIFIED BY THE APWA SUPPLEMENT, OF THE CURRENT STATE OF WASHINGTON STANDARD SPECIFICATIONS AND THE CITY OF TACOMA STORMWATER MANAGEMENT MANUAL. SHOULD THE TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AS SHOWN ON THIS DRAWING NOT PROVE ADEQUATE TO CONTROL EROSION AND SEDIMENTATION, THE CONTRACTOR SHALL INSTALL ADDITIONAL FACILITIES AS NECESSARY TO PROTECT ADJACENT PROPERTIES, SENSITIVE AREAS, NATURAL WATER COURSES AND/OR STORM DRAINAGE SYSTEMS.

3. THE STORM DRAINAGE SYSTEM SHALL BE CONSTRUCTED ACCORDING TO APPROVED PLANS ON FILE WITH THE MUNICIPALITY. ANY SIGNIFICANT DEVIATION FROM THE APPROVED PLANS WILL REQUIRE WRITTEN APPROVAL FROM THE MUNICIPALITY.

4. A COPY OF THE APPROVED STORMWATER PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.

5. ALL EROSION CONTROL AND STORMWATER FACILITIES SHALL BE REGULARLY INSPECTED AND MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION.

6. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN STREET USE AND OTHER RELATED OR REQUIRED PERMITS PRIOR TO ANY CONSTRUCTION ACTIVITY IN THE MUNICIPALITY'S RIGHT-OF-WAY. IT SHALL ALSO BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL REQUIRED PERMITS APPROVED BY THE CITY PRIOR TO ANY CONSTRUCTION. THE CONTRACTOR SHALL ABIDE BY ALL REQUIREMENTS FOR TRAFFIC CONTROL AND SAFETY WHEN WORKING IN THE ROAD RIGHT-OF-WAY.

7. THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IN THE EVENT OF DISCOVERY OF POOR SOILS, STANDING GROUNDWATER OR SEVERE DISCREPANCIES FROM SOIL LOG DESCRIPTIONS AS NOTED ON THE PLANS.

8. FOR PUBLIC SYSTEMS, THE CONTRACTOR SHALL CALL FOR INSPECTION 48 HOURS PRIOR TO COVERING ANY DRAINAGE STRUCTURE.

9. BARE GALVANIZED METAL SHALL NOT BE USED FOR MATERIALS THAT CONVEY STORMWATER, SUCH AS ROOFS, CANOPIES, SIDING, GUTTERS, DOWNSPOUTS ROOF DRAINS, AND PIPES. ANY GALVANIZED MATERIALS SHALL HAVE AN INERT, NON-LEACHABLE FINISH, SUCH AS A BAKED ENAMEL, FLUOROCARBON PAINT (SUCH AS KYNAR® OR HYLAR®), FACTORY-APPLIED EPOXY, PURE ALUMINUM, OR ASPHALT COATING. ACRYLIC PAINT, POLYESTER PAINT, FIELD-APPLIED, AND PART ZINC (SUCH AS GALVALUME®)COATINGS ARE NOT ACCEPTABLE.

10. THE ENGINEER OF RECORD SHALL PROVIDE AN ENGINEER'S CERTIFICATION TO THE CITY OF TACOMA AFTER THE FACILITY INSTALLATION AND PRIOR TO PERMIT FINAL INSPECTION AND/OR CLOSEOUT. THE ENGINEER'S CERTIFICATION SHALL INCLUDE:

    A. THE PERMIT NUMBER
    B. STATEMENTS TO ATTEST:

    1.1. THAT ALL STORMWATER FACILITIES HAVE BEEN INSTALLED ACCORDING TO THE APPROVED PERMIT DOCUMENTS. CHANGES TO THE APPROVED PERMIT SET THAT ARE REQUIRED DURING CONSTRUCTION SHALL BE SUBMITTED TO CITY OF TACOMA B.L.U.S. FOR E.S.S.E. TO REVIEW AND APPROVE DURING THE CONSTRUCTION PHASE AND PRIOR TO THE CHANGE BEING CONSTRUCTED.

SURVEY INFORMATION (SEE APPENDIX J OF THE PROJECT SPECIFICATIONS FOR SURVEY DATA AND EXISTING ELEVATIONS)

CITY DATUMS

HORIZONTAL: NAD83-91
VERTICAL: NGVD 1929

HORIZONTAL DATUM

WASHINGTON PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD 83/2011
(PER PORT OF TACOMA SURVEY CONTROL MAP – 2016)

MEASURED NORTH 45°53'33" WEST BETWEEN TWO FOUND MONUMENTS ALONG ALEXANDER AVE AS SHOWN HEREON

VERTICAL DATUM

MLLW (PER PORT OF TACOMA 2016 SURVEY CONTROL MAP)

TIDE 22.1933 BENCHMARK LOCATED AT NE CORNER OF 11TH ST. BRIDGE AT THE INTERSECTION OF E. 11TH ST. AND MILWAUKEE WAY
ELEVATION = 19.18
(BASED ON 1983-2001 TIDAL EPOCH)

TO CONVERT TO NGVD29 VALUES, REDUCE ALL ELEVATIONS BY 5.96 FEET (-5.96)

PORT OF TACOMA MONUMENT NO. 121
T.B.M. ELEVATION: 17.22
3" BRASS DISK WITH RED "X" DOWN 0.7'± IN CASE
VISITED 07/30/2024

PORT OF TACOMA MONUMENT NO. 184
T.B.M. ELEVATION: 17.82
3" BRASS DISK WITH "X" DOWN 0.3'± IN CASE
VISITED 07/30/2024

NOTES

1. EQUIPMENT USED: CARLSON CR2+ ROBOTIC TOTAL STATION AND TOPCON GR3 RTK/GPS AND/OR TOPCON HIPER VR RTK/GPS AND/OR JAVAD TRIUMPH-3GR RTK/GPS.

2. THIS SURVEY WAS PERFORMED BY FIELD TRAVERSE WITH THE FINAL RESULTS MEETING OR EXCEEDING THE CURRENT TRAVERSE AND RELATIVE POSITIONAL ACCURACY STANDARDS CONTAINED IN W.A.C. 332-130-090. THE RELATIVE POSITIONAL ACCURACY OF THE POSITIONS LOCATED HEREON MEETS OR EXCEEDS 2 CM (0.07 FT.) PLUS 50 PARTS PER MILLION BETWEEN ANY TWO TESTED POSITIONS. ALL MEASUREMENTS WERE MADE IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S SPECIFICATIONS.

3. IN ACCORDANCE WITH THE REVISED CODE OF WASHINGTON (R.C.W.) 58.09 AND THE WASHINGTON ADMINISTRATIVE CODE (W.A.C.) 332-130, THIS SURVEY MAY DEPICT OCCUPATIONAL INDICATORS THAT DIFFER FROM THE DEEDED LOT LINES. THESE INDICATORS, IF AT ALL PRESENT, MAY REPRESENT A POTENTIAL FOR CLAIMS OF UNWRITTEN TITLE. THIS SURVEY DOES NOT PURPORT TO RESOLVE SUCH ITEMS.

4. FIELD WORK PERFORMED IN JULY THROUGH OCTOBER 2024, UNDER SITTS & HILL PROJECT NUMBER 2068.

5. THIS SURVEY COMPLIES WITH W.A.C. 332-130-145. THE CONTOURS DEPICTED HEREON ARE BASED ON DATA FROM DIRECT FIELD MEASUREMENTS. SPOT ELEVATIONS ARE BASED ON DIRECT FIELD MEASUREMENTS AND ARE DEPICTED FOR REFERENCE. THE PURPOSE OF THIS TOPOGRAPHIC MAP IS TO SERVE AS A BASE MAP FOR CONTEMPLATED SITE IMPROVEMENTS AND DESIGN. THIS TOPOGRAPHIC SURVEY MAP HAS BEEN DEVELOPED FROM A BODY OF FIELD COLLECTED DATA POINTS AND RECORD INFORMATION. NOT ALL UNDERLYING DATA POINTS EXISTING WITHIN THE CAD BASE DRAWING (AUTODESK CIVIL 3D FILE) ARE DEPICTED ON THE PDF DELIVERABLE. SEE THE DIGITAL CAD FILE FOR ALL FIELD COLLECTED DATA, AND CONTACT SITTS & HILL ENGINEERS IF THERE ARE ISSUES WITH MAKING THIS DATA VISIBLE.

6. UTILITIES AS SHOWN HEREON ARE BASED ON FIELD SURVEY OBSERVATION OF UTILITY LOCATE SERVICES PERFORMED BY MOUNTAIN VIEW LOCATING SERVICES, LLC IN SEPTEMBER, 2024 FOR THIS SURVEY. THIS HAS BEEN SUPPLEMENTED BY PUBLIC RECORDS INFORMATION PROVIDED BY THE CITY OF TACOMA, PUGET SOUND ENERGY AND PREVIOUS RECORDS RESEARCH CONDUCTED UNDER SITTS AND HILL PROJECT NUMBERS 17695 AND 16237. RECORD UTILITY LINES SHOWN HEREON ARE DEPICTED WITH THE STANDARD LINETYPE WITH A "- R" AS SHOWN IN THE LEGEND. UTILITIES OTHER THAN SHOWN MAY EXIST ON THE SITE. THE SURVEYOR DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. THE SURVEYOR DOES CERTIFY THAT THE ARE SHOWN AS ACCURATELY AS POSSIBLE FROM FIELD SURVEY AND PAINTED UTILITY LOCATE LINES. COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA IS CONSISTENT WITH QUALITY LEVEL B OF THE ASCE STANDARD GUIDELINES 38-02.

7. SITTS & HILL ENGINEERS, INC. HAS RELIED UPON TITLE INFORMATION NOTED IN COMMITMENT FOR TITLE INSURANCE PREPARED BY CHICAGO TITLE INSURANCE COMPANY OF WASHINGTON, COMMITMENT NUMBER 242599-TC AMENDED DATED JULY 25, 2024, IN PREPARATION OF THIS SURVEY. SITTS AND HILL ENGINEERS, INC. HAS CONDUCTED NO INDEPENDENT TITLE SEARCH NOR IS SITTS AND HILL ENGINEERS, INC. AWARE OF ANY TITLE ISSUES AFFECTING THE SURVEYED PROPERTY OTHER THAN THOSE SHOWN ON THE MAP AND/OR DISCLOSED BY SAID TITLE COMPANY'S ORDER. SITTS & HILL ENGINEERS, INC. HAS RELIED WHOLLY ON SAID TITLE COMPANY'S REPORT AND THEREFORE QUALIFIES THE MAP'S ACCURACY AND COMPLETENESS TO THAT EXTENT.

8. C.O.T. SANITATION PERMIT ISSUED FOR BUILDING AT 3302 EAST 11TH ST ON 10/18/88 TO CONNECT OIL/WATER SEPARATOR TO SANITARY SIDE SEWER TO SERVICE WASH PAD AT THE TIME. THE BUILDING WAS OWNED BY VANCE LIFT TRUCK.

9. THE WETLAND BOUNDARIES, DESIGNATIONS AND FLAG LOCATIONS SHOWN HEREON ARE BASED ON A DELINEATION COMPLETED BY CONFLUENCE ENVIRONMENTAL COMPANY FOR THE PORT OF TACOMA, AS EXHIBITED ON A MAP DATED MAY 2024. SITTS & HILL FIELD LOCATED VISIBLE WETLAND FLAGS AND USED EXISTING ELECTRONIC DATA PROVIDED BY THE PORT OF TACOMA TO SUPPLEMENT THE WETLAND LIMITS. NO WETLAND STAKING OR BUFFER ILLUSTRATION HAS BEEN COMPLETED BY SITTS & HILL. SEE PORT OF TACOMA RECORDS FOR MORE INFORMATION.

LEGAL DESCRIPTION

PER CHICAGO TITLE INSURANCE COMPANY OF WASHINGTON, COMMITMENT NUMBER 242599-TC AMENDED, DATED JULY 25, 2024.

PARCEL A (TAX PARCEL NO. 227520-026-0):

THAT PORTION OF BLOCK 7A, REPLAT OF BLOCKS 13 TO 48, TACOMA TIDELANDS, KING COUNTY ANNEX, KNOWN AS "ASHTON REPLAT", ACCORDING TO PLAT FILED FOR RECORD ON DECEMBER 23, 1918, IN THE OFFICE OF THE COUNTY AUDITOR, IN
SECTION 26, TOWNSHIP 21 NORTH, RANGE 3 EAST OF THE W.M., IN PIERCE COUNTY, WASHINGTON, LYING SOUTHERLY OF TAYLOR WAY
AS NOW LAID OUT AND ESTABLISHED.

PARCEL B (TAX PARCEL NO. 032126-301-6):

BEGINNING AT A POINT ON THE WEST LINE OF LOT 7, SECTION 26, TOWNSHIP 21 NORTH, RANGE 3 EAST OF THE W.M., IN PIERCE
COUNTY, WASHINGTON, WHERE THE SAME INTERSECTS THE SOUTH LINE OF TAYLOR WAY AS ESTABLISHED THROUGH SAID SUBDIVISION;
RUNNING THENCE SOUTH 69°22' EAST ALONG THE SOUTH LINE OF TAYLOR WAY 411.78 FEET, MORE OR LESS, TO A POINT WHICH IS
457.07 FEET WEST OF THE EAST LINE OF SAID SUBDIVISION;
THENCE SOUTH 01°01'14" EAST PARALLEL WITH THE EAST LINE OF SAID SUBDIVISION 460.96 FEET;
THENCE NORTH 81°48'30" WEST 759.62 FEET TO A POINT ON THE GOVERNMENT MEANDER LINE;
THENCE FOLLOWING SAID MEANDER LINE NORTH 19°17'27" EAST 330.932 FEET, NORTH 20°05'59" EAST 259.59 FEET, NORTH 5°20'13"
WEST 242.78 FEET TO THE POINT OF BEGINNING;

EXCEPT ANY PORTION WHICH MAY BE WITHIN THE SOUTH 11 ACRES OF GOVERNMENT LOT 7;

ALSO EXCEPT THAT PORTION LYING WITHIN THE FOLLOWING DESCRIBED TRACT X:

TRACT X

COMMENCING AT THE POINT OF INTERSECTION OF THE PROLONGATION OF THE SOUTHEASTERLY LINE OF EAST 11TH STREET AND THE
NORTHEASTERLY LINE OF ALEXANDER AVENUE;
THENCE SOUTHEASTERLY WITH THE NORTHEASTERLY LINE OF ALEXANDER AVENUE, 120 FEET TO THE SOUTHEASTERLY LINE OF LOT 30, BLOCK 9, AS THE SAME IS DESIGNATED ON THE REPLAT OF BLOCKS 13 TO 48, TACOMA TIDELANDS, KING COUNTY ANNEX,
KNOWN AS "ASHTON REPLAT", WHICH PLAT WAS FILED FOR RECORD ON DECEMBER 23, 1918, IN THE OFFICE OF THE COUNTY
AUDITOR, IN PIERCE COUNTY, WASHINGTON, SAID POINT BEING THE TRUE POINT OF BEGINNING;
THENCE SOUTHEASTERLY WITH THE NORTHEASTERLY LINE OF ALEXANDER AVENUE, 880 FEET TO A POINT;
THENCE NORTHEASTERLY PARALLEL TO THE SOUTHEASTERLY LINE OF EAST 11TH STREET, 400 FEET TO A POINT;
THENCE NORTHWESTERLY PARALLEL TO THE NORTHEASTERLY LINE OF ALEXANDER AVENUE 880 FEET TO THE MOST EASTERLY CORNER OF LOT 43, BLOCK 9, AS THE SAME IS DESIGNATED ON THE REPLAT OF BLOCKS 13 TO 48, TACOMA TIDELANDS, KING COUNTY
ANNEX, KNOWN AS "ASHTON REPLAT", WHICH PLAT WAS FILED FOR RECORD ON DECEMBER 23, 1918, IN THE OFFICE OF THE
COUNTY AUDITOR; THENCE SOUTHWESTERLY WITH THE SOUTHEASTERLY LINE OF LOTS 30 TO 43 OF SAID ADDITION, A DISTANCE OF 400 FEET TO THE POINT OF BEGINNING.

PARCEL C (TAX PARCEL NO. 032126-304-5):

REVISED PARCEL A OF CITY OF TACOMA BOUNDARY LINE ADJUSTMENT NUMBER MPC2001-00012, RECORDED UNDER PIERCE COUNTY
AUDITOR'S FILE NUMBER 200106201003, BEING A PORTION OF GOVERNMENT LOT 7, SECTION 26 AND THE NORTHWEST QUARTER OF THE
NORTHWEST QUARTER OF SECTION 35, ALL IN TOWNSHIP 21 NORTH, RANGE 3 EAST OF THE W.M., IN THE CITY OF TACOMA, PIERCE
COUNTY, WASHINGTON.

PARCEL D (TAX PARCEL NO. 032125-206-4):

REVISED PARCEL 3 OF CITY OF TACOMA BOUNDARY LINE ADJUSTMENT NUMBER MPC2001-00012, RECORDED UNDER PIERCE COUNTY
AUDITOR'S FILE NUMBER 200106201003, BEING A PORTION OF GOVERNMENT LOT 7, SECTION 26 AND THE NORTHWEST QUARTER OF THE
NORTHWEST QUARTER OF SECTION 35, ALL IN TOWNSHIP 21 NORTH, RANGE 3 EAST OF THE W.M., IN THE CITY OF TACOMA, PIERCE
COUNTY, WASHINGTON.

PARCEL E (TAX PARCEL NO. 227520-037-1):

THE NORTHEASTERLY 10 FEET OF LOT 30, ALL OF LOT 31, 32, 33 AND 34, BLOCK 9, STATE LAND COMMISSIONER'S REPLAT OFBLOCKS 13 TO 48, INCLUSIVE, TACOMA TIDELANDS, FORMERLY IN KING COUNTY, SOMETIMES KNOWN AS ASHTON REPLAT, ACCORDING TO THE MAP THEREOF RECORDED DECEMBER 23, 1918 RECORDS OF PIERCE COUNTY AUDITOR, IN
PIERCE COUNTY, WASHINGTON;

EXCEPT THAT PORTION OF SAID LOTS APPROPRIATED BY THE CITY OF TACOMA IN PIERCE COUNTY SUPERIOR COURT CAUSE NUMBER
50379 FOR STREETS.

PARCEL F (TAX PARCEL NO. 227520-040-0 AND 227520-041-0):

LOTS 35 TO 43, INCLUSIVE IN BLOCK 9 OF "STATE LAND COMMISSIONER'S REPLAT OF BLOCKS 13 TO 48, BOTH INCLUSIVE, TACOMA TIDELANDS, FORMERLY KING COUNTY, SOMETIMES KNOWN AS ASHTON REPLAT", AS PER MAP THEREOF FILED FOR RECORD DECEMBER 23, 1918, RECORDS OF PIERCE COUNTY AUDITOR, IN PIERCE COUNTY, WASHINGTON.

PARCEL G (TAX PARCEL NO. 227520-042-0):

LOTS 44 TO 47, INCLUSIVE IN BLOCK 9 OF "STATE LAND COMMISSIONER'S REPLAT OF BLOCKS 13 TO 48, BOTH INCLUSIVE, TACOMA TIDELANDS, FORMERLY KING COUNTY, SOMETIMES KNOWN AS ASHTON REPLAT", AS PER MAP THEREOF FILED FOR RECORD DECEMBER 23, 1918, RECORDS OF PIERCE COUNTY AUDITOR, IN PIERCE COUNTY, WASHINGTON.

PARCEL H (TAX PARCEL NO. 500005-006-1):

COMMENCING AT A POINT OF INTERSECTION OF THE PROLONGATION OF THE SOUTHEASTERLY LINE OF EAST ELEVENTH STREET, AND THE
NORTHEASTERLY LINE OF ALEXANDER AVENUE;
THENCE SOUTHEASTERLY WITH THE NORTHEASTERLY LINE OF ALEXANDER AVENUE, 120 FEET TO THE SOUTHEASTERLY LINE OF LOT 30, BLOCK 9, OF STATE LAND COMMISSIONER'S REPLAT OF BLOCKS 13 TO 48, BOTH INCLUSIVE, TACOMA TIDELANDS
(FORMERLY IN KING COUNTY) COMMONLY KNOWN AS ASHTON'S REPLAT, AS PER MAP THEREOF FILED FOR RECORD DECEMBER 23, 1918, SITUATE IN THE CITY OF TACOMA, COUNTY OF PIERCE, WASHINGTON, SAID POINT BEING THE POINT OF BEGINNING;
THENCE SOUTHEASTERLY WITH THE NORTHEASTERLY LINE OF ALEXANDER AVENUE, 880 FEET TO A POINT;
THENCE NORTHEASTERLY PARALLEL TO THE SOUTHEASTERLY LINE OF EAST ELEVENTH STREET, 400 FEET TO A POINT;
THENCE NORTHWESTERLY PARALLEL TO THE NORTHEASTERLY LINE OF ALEXANDER AVENUE, 880 FEET TO THE MOST EASTERLY CORNER OF LOT 43 OF SAID BLOCK 9
THENCE SOUTHWESTERLY WITH THE SOUTHEASTERLY LINES OF LOT 43, 42, 41, 40, 39, 38, 37, 36, 35, 34, 33, 32, 31 AND 30,
INCLUSIVE, IN SAID BLOCK 9, A DISTANCE OF 400 FEET, TO THE POINT OF BEGINNING;

EXCEPT THE MOST SOUTHEASTERLY 60 FEET THEREOF.

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MARK:	REVISION:	BY:	APPR:	DATE:

DONALD C. DAVIS — STATE OF WASHINGTON — 22648 — REGISTERED PROFESSIONAL ENGINEER — SITE PLAN

APPROVED:		
	11.18.2025	
	CHECKED BY	DATE
11.18.2025		
DIRECTOR ENG.	PROJ. ENGR	DATE
PRINTED BY: DanDavis Jun 08, 2026		
PORT ADDRESS: 1229 ALEXANDER AVE		
TACOMA, WA 98421		

PARCEL 117 CRITICAL SITE REDEVELOPMENT
SNAIL ERADICATION
CIVIL GENERAL NOTES

G1.02
SH #3 OF #9

CONT/CONS: PA000000411	TOWNSHIP: 21	RANGE: 03	SECTION: 26
JOB NO.: 101690.01	DAT-HRZ: WA83-SF	VERT: MLLW 19.38' @ Tide 22.1933	
PHASE: 117	PARCEL: 117	DRAWING SCALE: AS NOTED	

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JUNE 8, 2026

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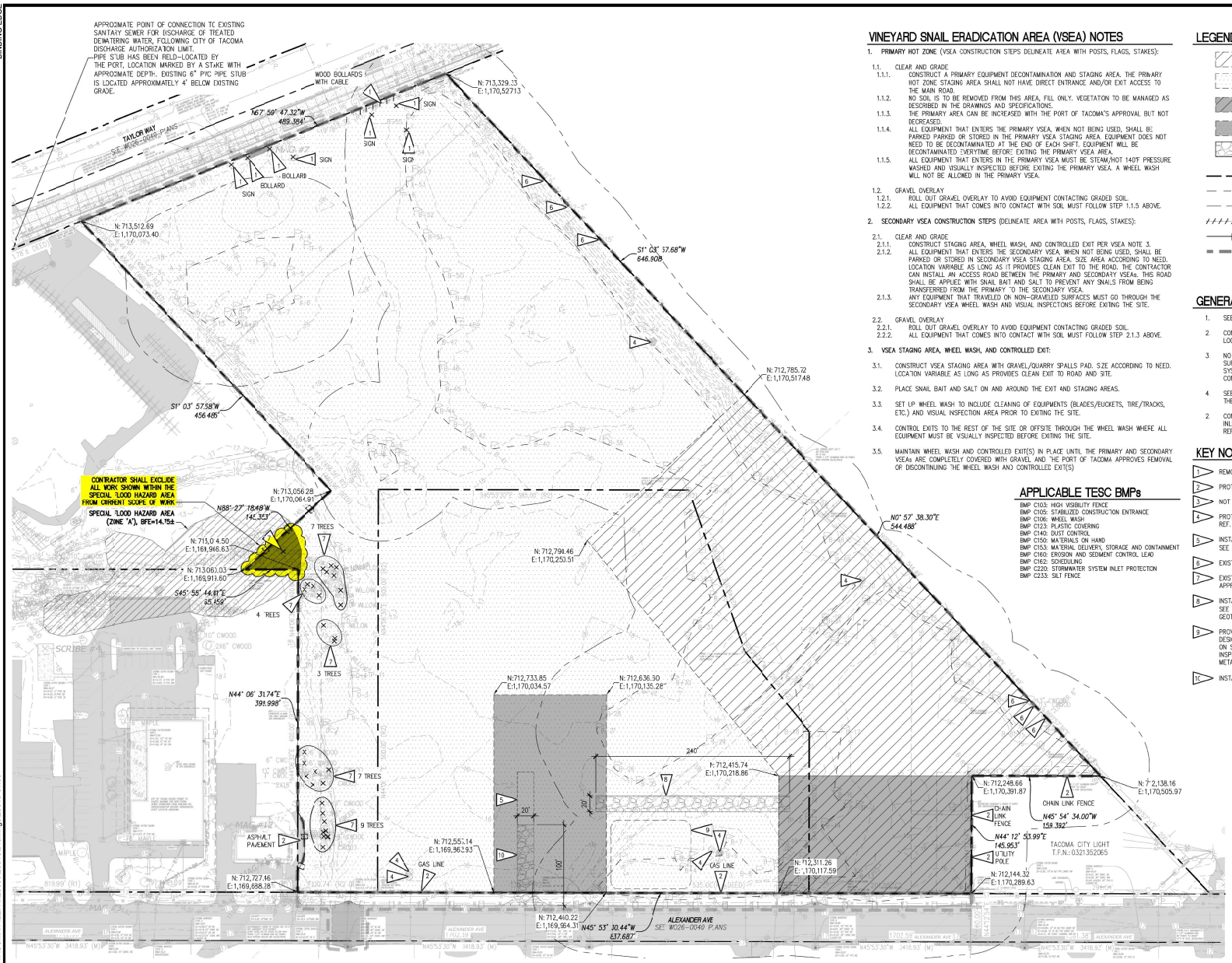

DEMOLITION AND TESC PLAN

SCALE: 1"=60'

VINEYARD SNAIL ERADICATION AREA (VSEA) NOTES

1. PRIMARY HOT ZONE (VSEA CONSTRUCTION STEPS DELINEATE AREA WITH POSTS, FLAGS, STAKES):

1.1. CLEAR AND GRADE
- 1.1.1. CONSTRUCT A PRIMARY EQUIPMENT DECONTAMINATION AND STAGING AREA. THE PRIMARY HOT ZONE STAGING AREA SHALL NOT HAVE DIRECT ENTRANCE AND/OR EXIT ACCESS TO THE MAIN ROAD.
- 1.1.2. NO SOIL IS TO BE REMOVED FROM THIS AREA, FILL ONLY. VEGETATION TO BE MANAGED AS DESCRIBED IN THE DRAWINGS AND SPECIFICATIONS.
- 1.1.3. THE PRIMARY AREA CAN BE INCREASED WITH THE PORT OF TACOMA'S APPROVAL BUT NOT DECREASED.
- 1.1.4. ALL EQUIPMENT THAT ENTERS THE PRIMARY VSEA, WHEN NOT BEING USED, SHALL BE PARKED PARKED OR STORED IN THE PRIMARRY VSEA STAGING AREA. EQUIPMENT DOES NOT NEED TO BE DECONTAMINATED AT THE END OF EACH SHIFT. EQUIPMENT WILL BE DECONTAMINATED EVERYTIME BEFORE EXITING THE PRIMARY VSEA AREA.
- 1.1.5. ALL EQUIPMENT THAT ENTERS IN THE PRIMARY VSEA MUST BE STEAM/HOT 140°F PRESSURE WASHED AND VISUALLY INSPECTED BEFORE EXITING THE PRIMARY VSEA. A WHEEL WASH WILL NOT BE ALLOWED IN THE PRIMARY VSEA.

1.2. GRAVEL OVERLAY
- 1.2.1. ROLL OUT GRAVEL OVERLAY TO AVOID EQUIPMENT CONTACTING GRADED SOIL.
- 1.2.2. ALL EQUIPMENT THAT COMES INTO CONTACT WITH SOIL MUST FOLLOW STEP 1.1.5 ABOVE.

2. SECONDARY VSEA CONSTRUCTION STEPS (DELINEATE AREA WITH POSTS, FLAGS, STAKES):

2.1. CLEAR AND GRADE
- 2.1.1. CONSTRUCT STAGING AREA, WHEEL WASH, AND CONTROLLED EXIT PER VSEA NOTE 3.
- 2.1.2. ALL EQUIPMENT THAT ENTERS THE SECONDARY VSEA, WHEN NOT BEING USED, SHALL BE PARKED OR STORED IN SECONDARY VSEA STAGING AREA. SIZE AREA ACCORDING TO NEED. LOCATION VARIABLE AS LONG AS IT PROVIDES CLEAN EXIT TO THE ROAD. THE CONTRACTOR CAN INSTALL AN ACCESS ROAD BETWEEN THE PRIMARY AND SECONDARY VSEAs. THIS ROAD SHALL BE APPLIED WITH SNAIL BAIT AND SALT TO PREVENT ANY SNAILS FROM BEING TRANSFERRED FROM THE PRIMARY TO THE SECONDARY VSEA.
- 2.1.3. ANY EQUIPMENT THAT TRAVELED ON NON-GRAVELED SURFACES MUST GO THROUGH THE SECONDARY VSEA WHEEL WASH AND VISUAL INSPECTIONS BEFORE EXITING THE SITE.

2.2. GRAVEL OVERLAY
- 2.2.1. ROLL OUT GRAVEL OVERLAY TO AVOID EQUIPMENT CONTACTING GRADED SOIL.
- 2.2.2. ALL EQUIPMENT THAT COMES INTO CONTACT WITH SOIL MUST FOLLOW STEP 2.1.3 ABOVE.

3. VSEA STAGING AREA, WHEEL WASH, AND CONTROLLED EXIT:

- 3.1. CONSTRUCT VSEA STAGING AREA WITH GRAVEL/QUARRY SPALLS PAD. SIZE ACCORDING TO NEED. LOCATION VARIABLE AS LONG AS PROVIDES CLEAN EXIT TO ROAD AND SITE.
- 3.2. PLACE SNAIL BAIT AND SALT ON AND AROUND THE EXIT AND STAGING AREAS.
- 3.3. SET UP WHEEL WASH TO INCLUDE CLEANING OF EQUIPMENTS (BLADES/BUCKETS, TIRE/TRACKS, ETC.) AND VISUAL INSPECTION AREA PRIOR TO EXITING THE SITE.
- 3.4. CONTROL EXITS TO THE REST OF THE SITE OR OFFSITE THROUGH THE WHEEL WASH WHERE ALL EQUIPMENT MUST BE VISUALLY INSPECTED BEFORE EXITING THE SITE.
- 3.5. MAINTAIN WHEEL WASH AND CONTROLLED EXIT(S) IN PLACE UNTIL THE PRIMARY AND SECONDARY VSEAs ARE COMPLETELY COVERED WITH GRAVEL AND THE PORT OF TACOMA APPROVES REMOVAL OR DISCONTINUING THE WHEEL WASH AND CONTROLLED EXIT(S)

APPLICABLE TESC BMPs

BMP C103: HIGH VISIBILITY FENCE
BMP C105: STABILIZED CONSTRUCTION ENTRANCE
BMP C106: WHEEL WASH
BMP C123: PLASTIC COVERING
BMP C140: DUST CONTROL
BMP C150: MATERIALS ON HAND
BMP C153: MATERIAL DELIVERY, STORAGE AND CONTAINMENT
BMP C160: EROSION AND SEDIMENT CONTROL LEAD
BMP C162: SCHEDULING
BMP C220: STORMWATER SYSTEM INLET PROTECTION
BMP C233: SILT FENCE

LEGEND

- PRIMARY VINEYARD SNAIL ERADICATION AREA "PRIMARY HOT ZONE" SEE VSEA NOTES.
- SECONDARY VINEYARD SNAIL ERADICATION AREA SEE VSEA NOTES.
- PRIMARY VSEA STAGING AREA. SEE VSEA NOTES.
- SECONDARY VSEA STAGING AREA. SEE VSEA NOTES.
- "CONTROLLED EXIT" STABILIZED CONSTRUCTION ENTRANCE (02/C4.00)
- PROPERTY LINE
- WETLAND
- WETLAND BUFFER
- DEMOLITION
- SILT FENCE (01/C4.00)
- CLEARING LIMITS
- TREE REMOVAL

GENERAL NOTES

1. SEE APPLICABLE PROJECT NOTES ON SHEETS G1.01 AND G1.02.
2. CONTRACTOR TO COORDINATE AND CONFIRM FINAL VSEA BOUNDARY LOCATIONS WITH PORT OF TACOMA.
3. NO CONSTRUCTION STORMWATER SHALL BE DISCHARGED OFFSITE VIA SURFACE FLOW OR TO THE CITY OF TACOMA PUBLIC STORMWATER SYSTEM. CONTRACTOR SHALL COLLECT, TREAT, AND INFILTRATION CONSTRUCTION STORMWATER ONSITE.
4. SEE SURVEY DRAWINGS OF EXISTING CONDITIONS IN APPENDIX L OF THE PROJECT SPECIFICATIONS.
2. CONTRACTOR TO PROVIDE CATCH BASIN PROTECTION AT ALL PUBLIC INLETS WITHIN 500 FEET DOWN STREAM OF THE PROJECT SITE. REF. W026-6040 PLANS.

KEY NOTES

1. REMOVE EXISTING FEATURE AS NOTED.
2. PROTECT EXISTING FEATURE AS NOTED.
3. NOT USED
4. PROTECT EXISTING MONITORING WELL AND RAISE RIM TO FINISH GRADE REF. SHEE" C3.01.
5. INSTALL WHEEL WASH AND INSPECTION FACILITY. SEE PER DETAIL 05/C4.00.
6. EXISTING TREE TO BE REMOVED AND INCINERATED ON SITE.
7. EXISTING TREE TO BE CLEARED, GRUBBED, AND HAULED TO AN APPROVED LANDFILL FOR DISPOSAL.
8. INSTALL STABILIZED ACCESS ROAD BETWEEN THE VSEA AREAS. SEE VSEA NOTE 2.1.2. REF. DETAIL 02/C4.00 FOR AGGREGATE AND GEOTEXTILE REQUIREMENTS.
9. PROVIDE A SALT-COVERED DEBRIS PAD FOR STOCKPILE AREA DESIGNATED FOR TEMPORARY STORAGE OF ALL DEMOLISHED MATERIALS ON SITE. AT THE COMPLETION OF THE PROJECT, CONTRACTOR SHALL INSPECT THE STOCKPILED MATERIALS AND SATURATED WITH 25% METALDEHYDE SOLUTION PRIOR TO BEING EXPORTED TO THE LANDFILL.
10. INSTALL STABILIZED CONSTRUCTION ENTRANCE PER DETAIL 02/C4.00.

NORTH
HORIZONTAL SCALE: 1"=40'
40 0 40 80

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DIRECTOR ENG:	11.18.2025 DATE	
PROJ. ENGR	11.18.2025 DATE	
CHECKED BY	11.18.2025 DATE	
PRINTED BY:	DonDavis Jun 08, 2026	
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PARCEL 117 CRITICAL SITE REDEVELOPMENT
SNAIL ERADICATION
DEMOLITION AND TESC PLAN

CONT/CONS: PA000000411	TOWNSHIP: 21	RANGE: 03	SECTION: 26
JOB NO.: 101690.01	DAT-HRZ: WA83-SF	VERT: MLLW 19.38' @ Tide 22 1933	
PHASE: 1UUX	PAKUL: 117	DRAWING SCALE: AS NOTED	

6740
C1.00
SH #4 OF #9

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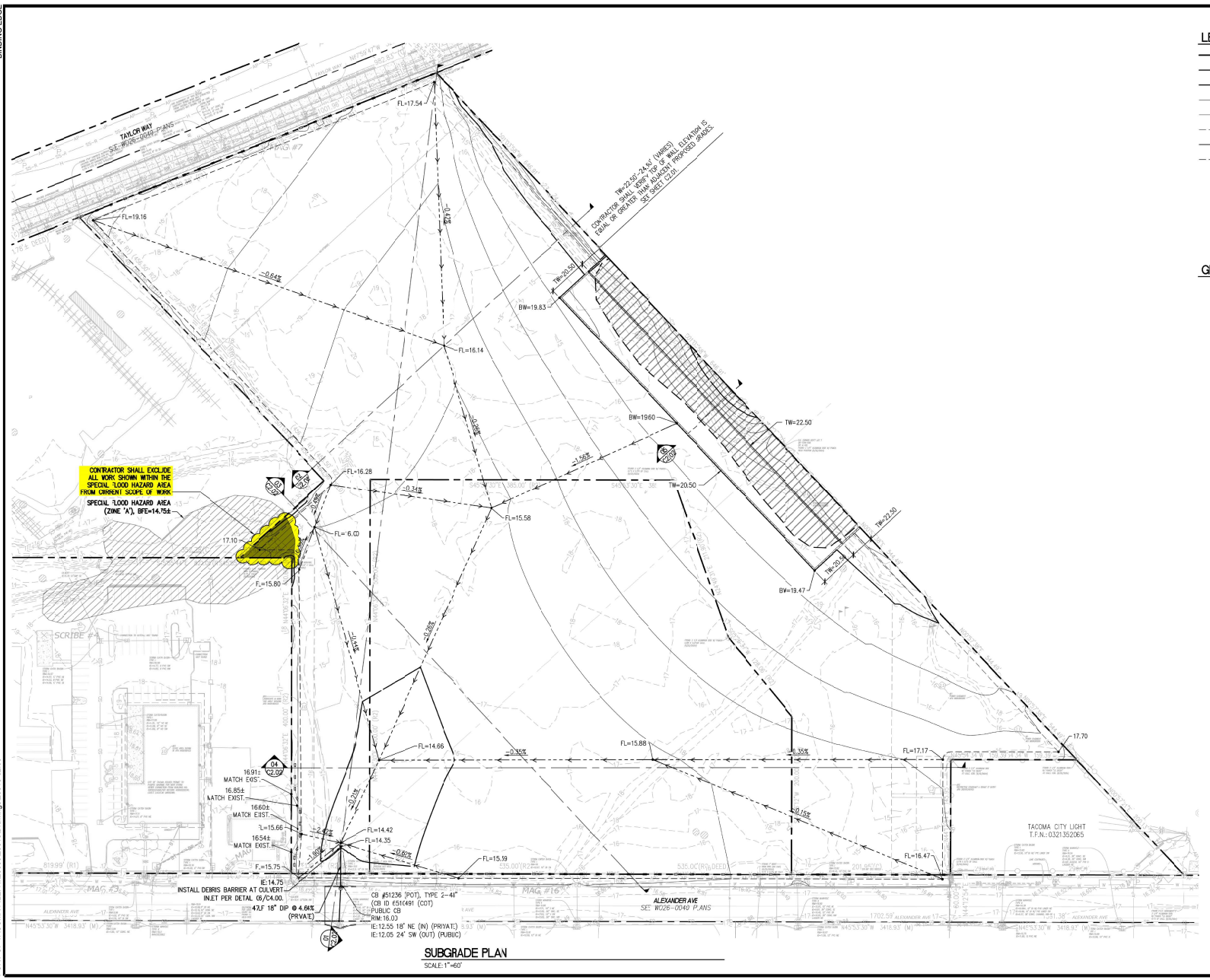

LEGEND

- PROPERTY LINE
- SD — STORM DRAIN PIPE
- '5 — SUBGRADE MAJOR CONTOUR
- '4 — SUBGRADE MINOR CONTOUR
- SUBGRADE TOP OF SLOPE
- SUBGRADE TOE OF SLOPE
- FLOW LINE
- GRADE BREAK
- 18.18 — PROPOSED ELEVATION
- -0.49% — SLOPE
- FL — FLOW LINE
- TW — TOP OF WALL
- BW — BOTTOM OF WALL
- AUTOFLUFF CONTAMINATION

GENERAL NOTES

1. SEE APPLICABLE PROJECT NOTES ON SHEETS G1.01 AND G1.02.
2. PERMANENT BACKFILL SLOPES SHALL NOT EXCEED 2H:1V.
3. SEE SURVEY DRAWINGS OF EXISTNG CONDITIONS IN APPENDIX L OF THE PROJECT SPECIFICATIONS.

NORTH

HORIZONTAL SCALE: 1"=60'

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DONALD C. DAVIS — STATE OF WASHINGTON — 45448 — REGISTERED PROFESSIONAL ENGINEER — 12-31-26

	DATE
CHECKED BY	11.18.2025
PROJ. ENGR	11.18.2025
DIRECTOR ENG.	11.18.2025

APPROVED:

PRINTED BY: DonDavis Jun 08, 2026
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TACOMA, WA 98421

PARCEL 117 CRITICAL SITE REDEVELOPMENT
SNAIL ERADICATION
SUBGRADE PLAN

CONT/CONS: PA000000411	TOWNSHIP: 21	RANGE: 03	SECTION: 26
JOB NO.: 101690.01	DAT-HRZ: WA83-SF	VERT: MLLW 19.38' @ Tide 22 1933	
PHASE: 117	PAPLOT: 117	DRAWING SCALE: AS NOTED	

6740

C2.00

SH #5 OF #9

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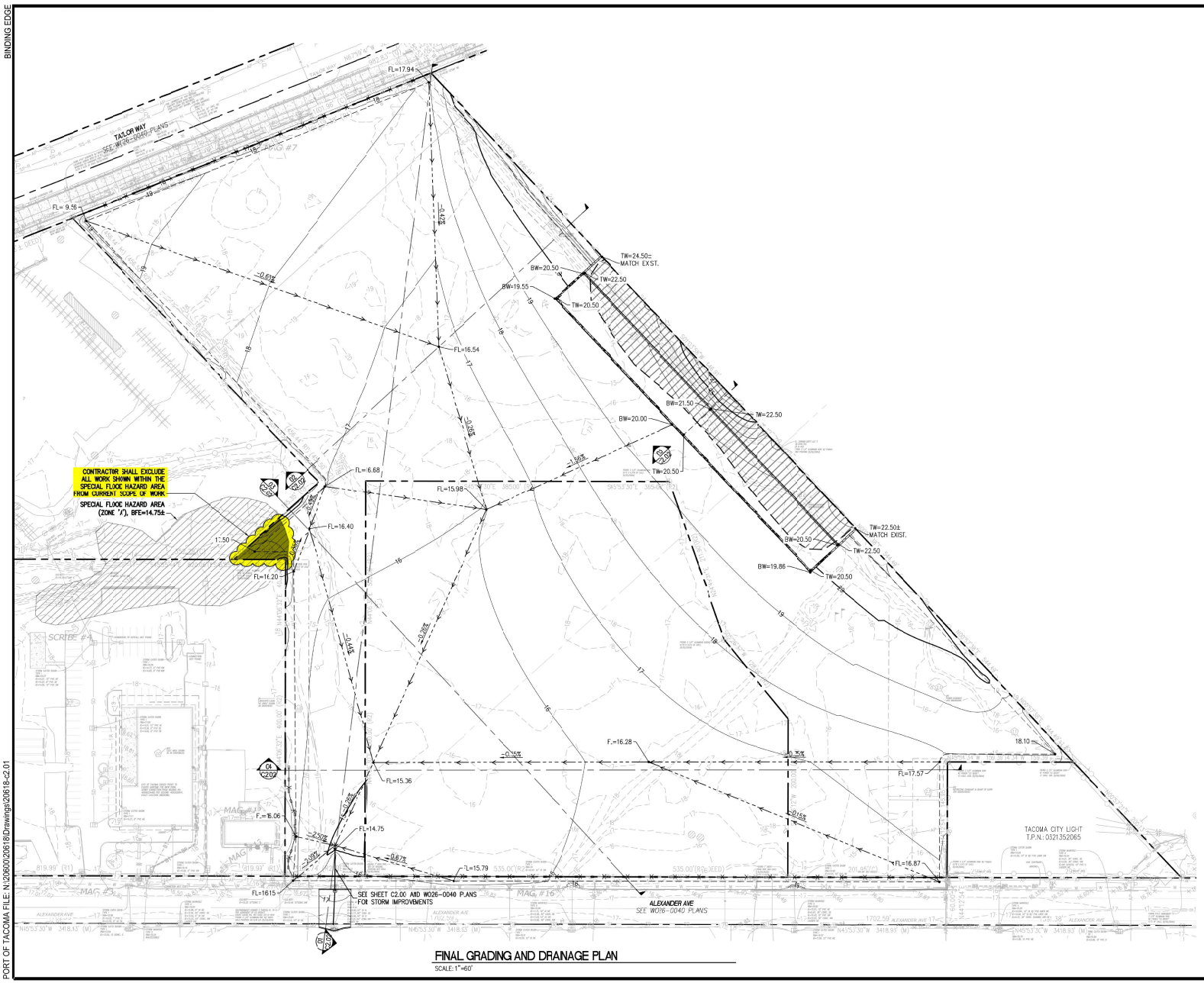

FINAL GRADING AND DRAINAGE PLAN

SCALE: 1"=60'

LEGEND

- PROPERTY LINE
- SD — STORM DRAIN PIPE
- '5 — PROPOSED MAJOR CONTOUR
- '4 — PROPOSED MINOR CONTOUR
- PROPOSED TOP OF SLOPE
- PROPOSED TOE OF SLOPE
- FLOW LINE
- GRADE BREAK
- 18.18 — PROPOSED ELEVATION
- -0.49% — SLOPE
- FL — FLOW LINE
- TW — TOP OF WALL
- BW — BOTTOM OF WALL
- AUTOFLUFF CONTAMINATION

GENERAL NOTES

1. SEE APPLICABLE PROJECT NOTES ON SHEETS G1.01 AND G1.02.
2. PERMANENT BACKFILL SLOPES SHALL NOT EXCEED 2H:1V.
3. STORMWATER SHALL NOT BE PONDED BEHIND THE ECOLOGY BLOCK WALL. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE BEHIND THE WALL AND ENSURE ANY ACCUMULATED STORMWATER IS DISCHARGED.
4. SEE SURVEY DRAWINGS OF EXISTNG CONDITIONS IN APPENDIX L OF THE PROJECT SPECIFICATIONS.

NORTH

HORIZONTAL SCALE: 1"=60'

60 0 60 120

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DONALD C. DAVIS
STATE OF WASHINGTON
22448
REGISTERED PROFESSIONAL ENGINEER
11.18.2025

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		CHECKED BY	DATE
11.18.2025			
DIRECTOR ENG.	DATE	PROJ. ENGR	11.18.2025 DATE
PRINTED BY: DonDavis Jun 08, 2026			
PORT ADDRESS: 1229 ALEXANDER AVE			
TACOMA, WA 98421			

PARCEL 117 CRITICAL SITE REDEVELOPMENT
SNAIL ERADICATION
FINAL GRADING AND DRAINAGE PLAN

CONT/CONS: PA000000411	TOWNSHIP: 21	RANGE: 03	SECTION: 26
JOB NO.: 101690.01	DAT-HRZ: WA83-SF	VERT: MLLW 19.38' @ Tide 22 1933	
PHASE: 117	PAR.LL: 117	DRAWING SCALE: AS NOTED	

6740

C2.01

SH #6 OF #9

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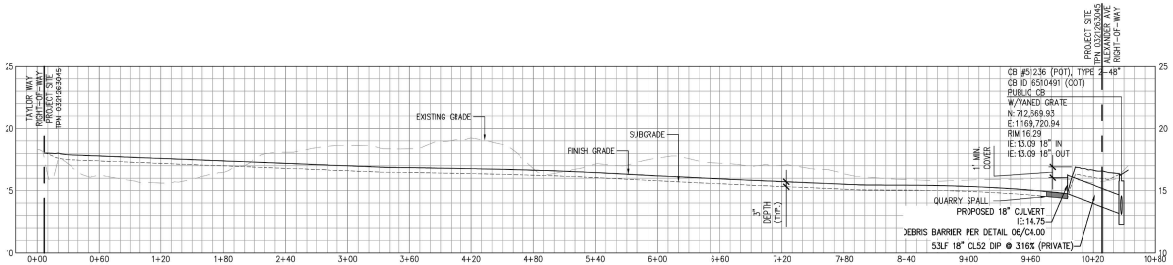
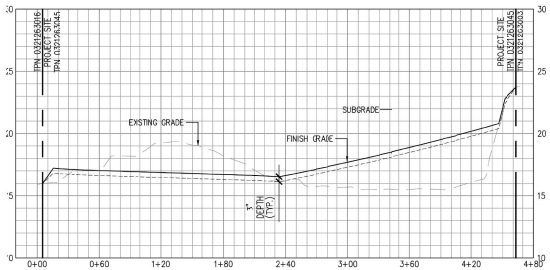
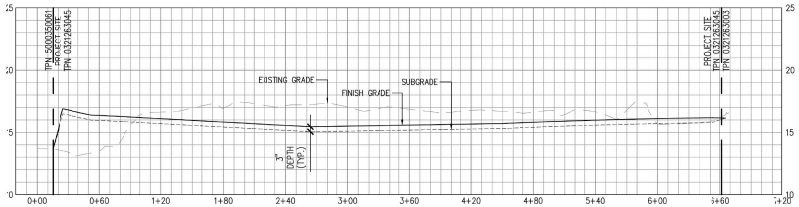
BINDING EDGE



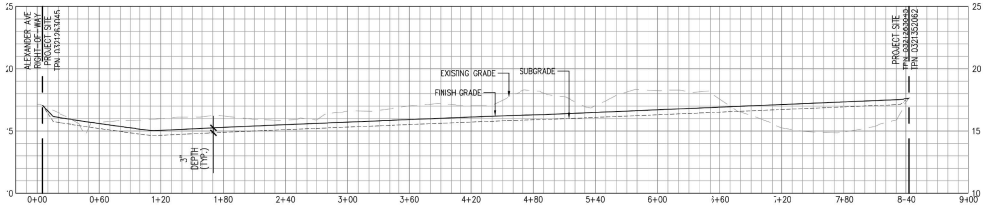
01 SITE PROFILE
SCALE: HORZ: 1"=60' VERT: 1"=5'



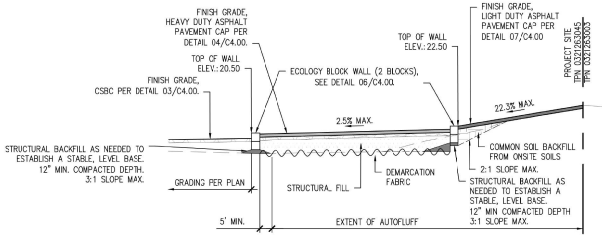
02 SITE PROFILE
SCALE: HORZ: 1"=60' VERT: 1"=5'



03 SITE PROFILE
SCALE: HORZ: 1"=60' VERT: 1"=5'



04 SITE PROFILE
SCALE: HORZ: 1"=60' VERT: 1"=5'



05 ECOLOGY BLOCK WALL CROSS SECTION
SCALE: N.T.S.

SDEV26-0069

HORIZONTAL SCALE: 1"=60'
60 0 60 120
VERTICAL SCALE: 1"=5'
5 0 5 10

811 Call 811
two business days
before you dig

RE-ISSUED FOR PERMIT
JUNE 8, 2026

Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

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1411 EVERETT STREET | TACOMA, WA 98403
(253) 627-2486 | WWW.SITTSHILL.COM

MARK:	REVISION:	BY:	APPR:	DATE:

DONALD C. DAVIS — STATE OF WASHINGTON — 45448 — REGISTERED PROFESSIONAL ENGINEER — 07.24.26

APPROVED:
DIRECTOR ENG: DATE 11.18.2025
PRINTED BY: DonDavis Jun 08, 2026
PORT ADDRESS: 1229 ALEXANDER AVE
TACOMA, WA 98421

CHECKED BY DATE 11.18.2025
PROJ. ENGR DATE

PARCEL 117 CRITICAL SITE REDEVELOPMENT
SNAIL ERADICATION
SITE PROFILES

CONT/CONS: PA000000411 | TOWNSHIP: 21 | RANGE: 03 | SECTION: 26
JN: ID: 101690.01 | DAT-HRZ: WA83-SF | VERT: MLLW 19.38' @ Tide 22 1933
PARCEL: 117 | PHASE: 100% | DRAWING SCALE: AS NOTED

SH #7 OF #9
C2.02
6740

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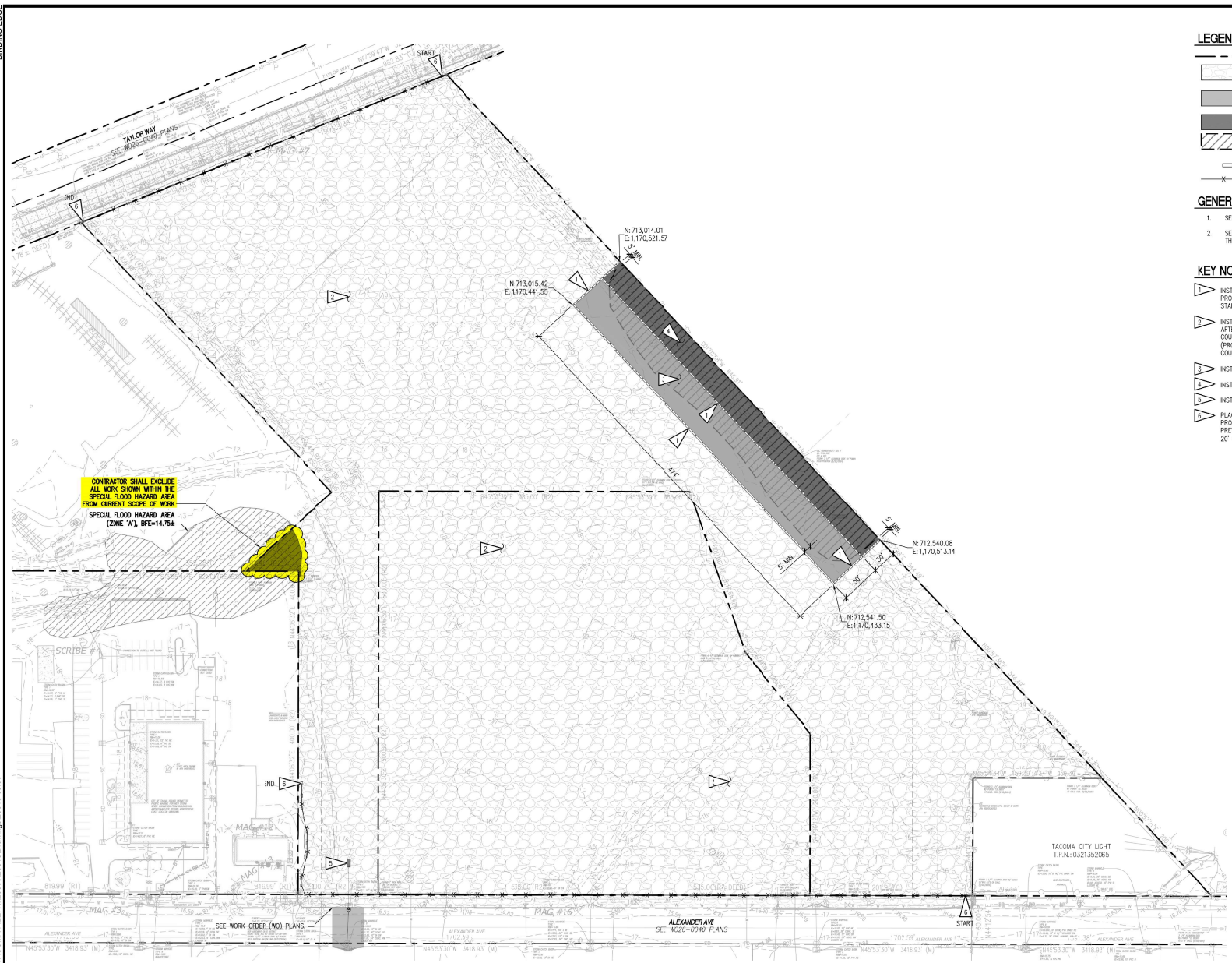
PORT OF TACOMA FILE: N:\20600\20618\Drawings\20618-c2.02

Reviewed for Code Compliance



SURFACING AND LAYOUT PLAN

SCALE: 1"=60'

LEGEND

- PROPERTY LINE
- CRUSHED SURFACING TOP COURSE (03/C4.00)
- HEAVY DUTY ASPHALT PAVEMENT CAP (CONTAINMENT CELL) (04/C4.00)
- LIGHT DUTY ASPHALT PAVEMENT CAP (CONTAINMENT CELL) (07/C4.00)
- AUTOFLUFF CONTAMINATION
- ECOLOGY BLOCK (06/C4.00)
- STEEL WIRE

GENERAL NOTES

1. SEE APPLICABLE PROJECT NOTES ON SHEETS G1.01 AND G1.02.
2. SEE SURVEY DRAWINGS OF EXISTING CONDITIONS IN APPENDIX L OF THE PROJECT SPECIFICATIONS.

KEY NOTES

1. INSTALL ECOLOGY BLOCK WALL PER DETAIL 03/C3.02. PROVIDE PROPER BASE PREPARATION AND LEVELING AS REQUIRED FOR STABILITY.
2. INSTALL CRUSHED SURFACING TOP COURSE PER DETAIL 03/C4.00. AFTER GRADING AND INSTALLATION OF THE CRUSHED SURFACING TOP COURSE, CONTRACTOR SHALL APPLY DEADLINE BULLETS SNAIL BAIT (PROVIDED BY THE PORT) AND REMAINING SALT OVER THE ENTIRE TOP COURSE SURFACE.
3. INSTALL HEAVY DUTY ASPHALT PAVEMENT CAP PER DETAIL 04/C4.00.
4. INSTALL LIGHT DUTY ASPHALT PAVEMENT CAP PER DETAIL 07/C4.30.
5. INSTALL QUARRY SPALL PAD AT CULVERT INLET.
6. PLACE NEW AND RELOCATED ECOLOGY BLOCK AT OR ALONG THE PROPERTY LINE. CONNECT THE ECOLOGY BLOCKS WITH A STEEL WIRE TO PREVENT VEHICULAR ACCESS TO THE SITE. SPACE ECOLOGY BLOCK AT 20' ON CENTER.

NORTH

HORIZONTAL SCALE: 1"=60'

811 Call 811 Two business days before you dig

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SDEV26-0069

Port of Tacoma

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MARK:	REVISION:	BY:	APPR:	DATE:

DONALD C. DAVIS — STATE OF WASHINGTON — 24648 — REGISTERED PROFESSIONAL ENGINEER

	DATE
APPROVED:	11.18.2025
CHECKED BY	DATE
DIRECTOR ENG: DATE	11.18.2025
PROJ. ENGR	DATE

PRINTED BY: DonDavis Jun 08, 2026

PORT ADDRESS: 1229 ALEXANDER AVE
TACOMA, WA 98421

PARCEL 117 CRITICAL SITE REDEVELOPMENT
SNAIL ERADICATION
SURFACING AND LAYOUT PLAN

CONT/CONS: PA000000411	TOWNSHIP: 21	RANGE: 03	SECTION: 26
JOB NO: 101690.01	DAT-HRZ: WA83-SF	VERT: MLLW 19.38' @ Tide 22 1933	
PHASE: 117	PARCEL: 117	DRAWING SCALE: AS NOTED	

SH #8 OF #9

C3.00

6740

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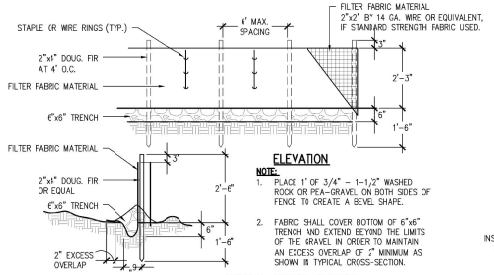
BINDING EDGE

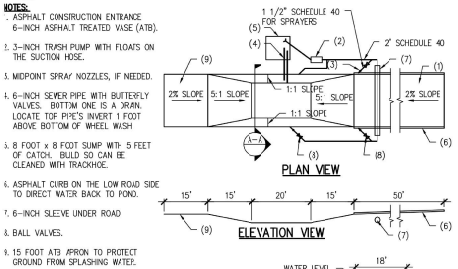
PORT OF TACOMA FILE: N:\20600\20618\Drawings\20618-c3.00

Reviewed for Code Compliance



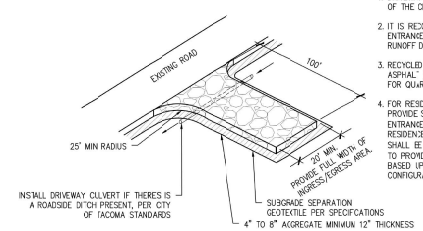
01 BMP C233: SILT FENCE

SCALE: N.T.S.



02 BMP C105: STABILIZED CONSTRUCTION ENTRANCE

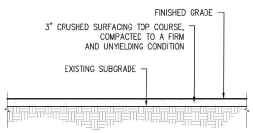
SCALE: N.T.S.

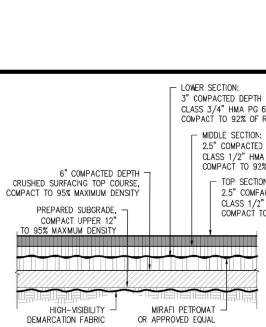


NOTES:
1. DRIVEWAY SHALL MEET REQUIREMENTS OF THE CITY OF TACOMA.
2. IT IS RECOMMENDED THAT THE ENTRANCE BE CROWNED SO THAT RUNOFF DRAINS OFF THE PAD.
3. RECYCLED CONCRETE, CEMENT OR ASPHALT RUBBLE CANNOT BE USED FOR QUARRY SPALLS.
4. FOR RESIDENTIAL CONSTRUCTION PROVIDE STABILIZED CONSTRUCTION ENTRANCES/EXITS FOR EACH RESIDENCE. STABILIZED SURFACES SHALL BE OF SUFFICIENT LENGTH/WIDTH TO PROVIDE VEHICLE ACCESS/PARKING BASED UPON LOT SIZE AND CONFIGURATION.

03 CRUSHED SURFACING TOP COURSE

SCALE: N.T.S.





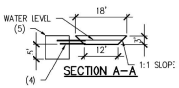
NOTE:
1. NO TACK COAT IS REQUIRED BETWEEN THE MIDDLE AND TOP COURSE OF HMA IF THE TOP COURSE IS PLACED BEFORE THE MIDDLE COURSE COOLS BELOW 125°F. IF THE TEMPERATURE DROPS BELOW 125°F, APPLY TACK COAT PRIOR TO PLACEMENT.
2. IF A POTHOLE DEVELOPS IN THE TOP COURSE, IT SHALL BE REPAIRED BY MILLING AND REPLACING THE AFFECTED AREA. POTHOLES SHALL NOT BE PERMITTED TO EXTEND BELOW THE MIDDLE LIFT OF ASPHALT UNDER ANY CIRCUMSTANCES.

04 HEAVY DUTY ASPHALT PAVEMENT CAP

SCALE: N.T.S.

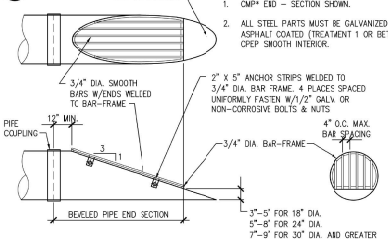
05 BMP C106: WHEEL WASH

SCALE: N.T.S.



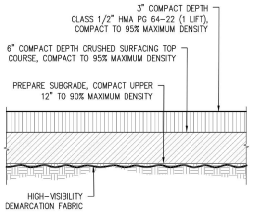
06 BMP C105: DEBRIS BARRIER

SCALE: N.T.S.

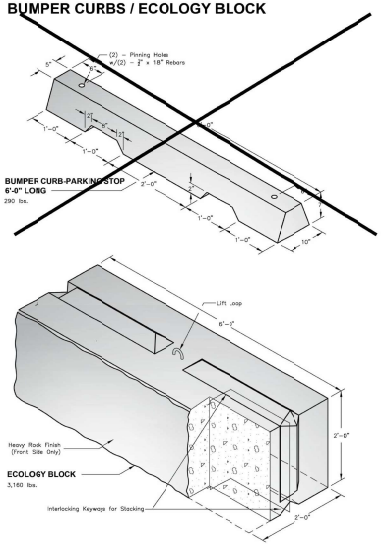


07 LIGHT DUTY ASPHALT PAVEMENT CAP

SCALE: N.T.S.



BUMPER CURBS / ECOLOGY BLOCK



Oldcastle Precast	B. CURB / E. BLOCK	BUMPER CURBS ECOLOGY BLOCK
PO Box 323, Wilsonville, Oregon 97070-0323 Tel: (503) 682-2844 Fax: (503) 682-2857	File Name: 020-CRBBIK Issue Date: 2018 cldcastleprecast.com/wilsonville	

6.0

06 OLDCASTLE PRECAST ECOLOGY BLOCK

SCALE: S

SILT FENCE NOTES (AS REQUIRED)

1. FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL AND CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY FASTENED AT BOTH ENDS TO POSTS.
2. POSTS SHALL BE SPACED A MAXIMUM OF 6 FEET APART AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 30 INCHES).
3. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 8 INCHES WIDE AND 12 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER. THIS TRENCH SHALL BE BACKFILLED WITH WASHED GRAVEL.
4. WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY-DUTY WIRE STAPLES AT LEAST 1 INCH LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 4 INCHES AND SHALL NOT EXTEND MORE THAN 24 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
5. THE STANDARD STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 20 INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 24 INCHES ABOVE THE ORIGINAL SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
6. WHEN EXTRA-STRENGTH FILTER FABRIC AND CLOSER POST SPACING IS USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISION OF ABOVE NOTES APPLYING.
7. FILTER FABRIC FENCES SHALL NOT BE REMOVED BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
8. FILTER FABRIC FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
9. SILT FENCES WILL BE INSTALLED PARALLEL TO ANY SLOPE CONTOURS.
10. CONTRIBUTING LENGTH TO FENCE WILL NOT BE GREATER THAN 100 FEET.
11. DO NOT INSTALL BELOW AN OUTLET PIPE OR WEIR.
12. INSTALL DOWNSLOPE OF EXPOSED AREAS.
13. DO NOT DRIVE OVER OR FILL OVER SILT FENCES.
14. PLACE 1' OF 3/4" – 1-1/2" WASHED ROCK OR PEA-GRAVEL ON BOTH SIDES OF FENCE TO CREATE A BEVEL SHAPE.
15. FABRIC SHALL COVER BOTTOM OF 6"x6" TRENCH AND EXTEND BEYOND THE LIMITS OF THE GRAVEL IN ORDER TO MAINTAIN AN EXCESS OVERLAP OF 2" MINIMUM AS SHOWN IN TYPICAL CROSS-SECTION.

811 Call 811 two business days before you dig

RE-ISSUED FOR PERMIT
JUNE 8, 2026

SDEV26-0069

Port of Tacoma
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PHONE: (253) 627-4367
www.sittsandhill.com

DONALD C. DAVIS — STATE OF WASHINGTON — 45648 — REGISTERED PROFESSIONAL ENGINEER — 07/31/26

MARK:	REVISION:	BY:	APPR:	DATE:

APPROVED: 11.18.2025 DATE
CHECKED BY: 11.18.2025 DATE
DIRECTOR ENG: 11.18.2025 DATE
PROJ. ENGR
PRINTED BY: DonDavis Jun 08, 2026
PORT ADDRESS: 1229 ALEXANDER AVE
TACOMA, WA 98421

PARCEL 117 CRITICAL SITE REDEVELOPMENT
SNAIL ERADICATION
PROJECT DETAILS

CONT/CONS: PA000000411 | TOWNSHIP: 21 | RANGE: 03 | SECTION: 26
DAT-HRZ: WA83-SF | VERT: MLLW 19.39' @ Tide 22 1933
PARCEL: 117 | DRAWING SCALE: AS NOTED
JOB NO: 101690.01 | PHASE: 100%

SH #9 OF #9
C4.00
6740

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Reviewed for Code Compliance

BINDING EDGE

PORT OF TACOMA FILE: N:\20600\20618\Drawings\20618-c4.00

Appendix F
Work Order Permit
No. WO26-0040

TRAFFIC REVIEW – 4/23/26 – APPROVED WITH COMMENTS – Dan Hansen
A traffic control plan (TCP) is required for work in the right-of-way. The TCP must be submitted to Traffic Engineering and approved prior to the pre-construction meeting. Please see the City of Tacoma Traffic Control Handbook for guidance and example plans.

6/1/26 - Tacoma Water - Approved with comments
Suggest potholing water main at utility crossing. Maintain utility clearances as noted below.
**For utilities other than sanitary sewer, the proposed facilities shall have a minimum horizontal separation of five (5) feet and vertical separation of twelve (12) inches from Tacoma Water facilities. If existing water facilities need to be relocated or adjusted, they will be relocated by Tacoma Water at the developer's expense.
Tacoma Water facilities must remain accessible at all times. Any damage to Tacoma Water facilities will be repaired by Tacoma Water crews at the expense of the developer.

SIGNAL/STREETLIGHT - 4/1/2026 - APPROVED W/ COMMENT
Care shall be taken along Taylor Way. There is underground signal communication and streetlight infrastructure under the sidewalk area. If there is any damage to the sidewalk or signal/streetlight infrastructure please contact Public Works Traffic Signal/ Streetlight Inspector (253) 255-2443.

PORT OF TACOMA

PARCEL 117 SNAIL ERADICATION

1229 ALEXANDER AVE

TACOMA, WA 98421

TACOMA POWER - APPROVED W/ COMMENTS - 04/27/26
Be sure not to change the existing grade of Tacoma Power's existing infrastructure (i.e. down guy and pole). If grade changes occur around Tacoma Power's existing facility, replacement of the facility will need to take place at the cost of the Port of Tacoma. Should grade change be required around Tacoma Power's existing facility, and the request to replace this infrastructure is made, timeline of the facility is subject to change due to material lead times and TPU resource.

Site: Storm/Sanitary Review - 5/21/26 - Approved with comments.
Comment 2: Record Drawings provided to the City will have elevations matching City of Tacoma Datum NGVD29.

PROJECT INFORMATION:

SITE DATA:

ZONING:	PORT MARITIME INDUSTRIAL (PM)
NEW IMPERVIOUS SURFACE:	695,970 SF (15.97 ACRES)
REPLACED IMPERVIOUS SURFACE:	0 SF (0.00 ACRES)
SCOPE OF WORK:	INSTALL CRUSH SURFACING TOP COURSE (CSTC) THROUGHOUT THE ENTIRE SITE, ECOLOGY BLOCK WALL AND ASPHALT CAP AT AUTOFLUFF CONTAMINATION AREA, AND ASSOCIATED STORM IMPROVEMENTS. THE PURPOSE IS TO ERADICATE SNAILS ON THE SITE AND DISCHARGE ONSITE STORMWATER TO THE CITY STORMWATER SYSTEM.
SITE ADDRESS:	1229 E ALEXANDER AVE TACOMA, WA 98421
PARCEL NUMBERS:	5321350-2064 (5.32 ACRES) 5321260-3045 (1016 ACRES)
ESTIMATED EARTHWORK: (FOR PERMITTING PURPOSES ONLY)	CUT: 17,900 CY (NATIVE) FILL: 17,900 CY (NATIVE) FILL: 10,025 CY (IMPORTED) TOTAL: 45,825 CY (10,025 CY NET FILL)

SPECIAL TRAFFIC CONTROL REQUIREMENTS

LOCATION: PROJECT VICINITY (W026-XXXX) 1229 E ALEXANDER AVE

THE FOLLOWING SPECIAL TRAFFIC CONTROLS SHALL SUPPLEMENT SECTION 1-07.11 OF THE STANDARD SPECIFICATIONS.

THE CONTRACTOR MAY CLOSE NON-ARTERIAL STREETS TO THROUGH TRAFFIC, PROVIDED THAT LOCAL ACCESS IS MAINTAINED AT ALL TIMES WITH A MINIMUM OF A 20-FOOT WIDE ACCESS LANE. THE CONTRACTOR SHALL COORDINATE ANY CLOSURES AND COOPERATE WITH THE VARIOUS BUSINESSES AND/OR RESIDENCES ADJACENT TO THE PROJECT SITE. A MINIMUM OF ONE ACCESS SHALL BE MAINTAINED TO ALL PROPERTIES AT ALL TIMES.

THREE (3) WORKING DAYS PRIOR TO ANY STREET CLOSURE, THE CONTRACTOR SHALL NOTIFY:

TACOMA PUBLIC WORKS ENGINEERING DIVISION	(253) 591-5508
TACOMA PUBLIC WORKS STREETS AND GROUNDS	(253) 591-5495
TACOMA REFUSE	(253) 591-5544
TACOMA FIRE DEPARTMENT	(253) 591-5733
TACOMA POLICE DEPARTMENT	(253) 591-5951
OFF-DUTY POLICE OFFICER	(253) 591-5932
LESA COMMUNICATION CENTER	(253) 798-4721 – OPTION 3
TACOMA PUBLIC SCHOOLS TRANSPORTATION OFFICE	(253) 571-1855
PIERCE TRANSIT	(253) 581-8105
PIERCE TRANSIT EVENTS COORDINATOR	(253) 581-8007
DURHAM SCHOOL SERVICES	FAX 475-0422
FIRST STUDENTS	FAX 272-7799
UW FACILITIES SERVICES	FAX 692-5705

SURVEY INFORMATION:

CITY DATUMS

HORIZONTAL: NAD83-91
VERTICAL: NGVD 1929

HORIZONTAL DATUM

WASHINGTON PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD 83/2011
(PER PORT OF TACOMA SURVEY CONTROL MAP – 2016)

MEASURED NORTH 45°53'33" WEST BETWEEN TWO FOUND MONUMENTS ALONG ALEXANDER AVE AS SHOWN HEREON

VERTICAL DATUM

MLLW (PER PORT OF TACOMA 2016 SURVEY CONTROL MAP)

TIDE 12,933 BENCHMARK: LOCATED AT NE CORNER OF 11TH ST. BRIDGE AT THE INTERSECTION OF E. 11TH ST. AND MILWAUKEE WAY
ELEVATION = 19.18
(BASED ON 1983-2001 TIDAL EPOCH)

TO CONVERT TO NGVD29 VALUES, REDUCE ALL ELEVATIONS BY 5.96 FEET (-5.96)

PORT OF TACOMA MONUMENT NO. 121
T.B.M. ELEVATION: 17.22
3" BRASS DISK WITH RED "X" DOWN 0.7'± IN CASE
VISITED 07/30/2024

PORT OF TACOMA MONUMENT NO. 184
T.B.M. ELEVATION: 17.82
3" BRASS DISK WITH "X" DOWN 0.3'± IN CASE
VISITED 07/30/2024

REFER TO SHEET G1.02 OF SDEV26-0069 PLANS FOR SURVEY NOTES AND LEGAL DESCRIPTION

PREPARED FOR:

PORT OF TACOMA

ONE SITCUM PLAZA
TACOMA, WA 98421
CONTACT: ELLY BULEGA
EMIAL: EBULEGA@PORTOFTACOMA.COM

PREPARED BY:

sitts&hill
CIVIL | STRUCTURAL | SURVEY
4815 CENTER STREET | TACOMA, WA. 98409
PHONE: (253) 474-9449 | FAX: (253) 474-0153
http://www.sittshill.com/
CONTACT: DON DAVIS, PROJECT MANAGER
EMAIL: DOND@SITTSHILL.COM

INDEX OF DRAWINGS:

SHEET	DWG NO.	DRAWING TITLE
1 OF 12	W00.00	COVER SHEET
2 OF 12	W00.01	CIVIL LEGEND AND GENERAL NOTES
3 OF 12	W00.02	CIVIL GENERAL NOTES
4 OF 12	W00.03	OVERALL SITE PLAN
5 OF 12	W01.00	DEMOLITION AND TESC PLAN
6 OF 12	W02.00	GRADING AND DRAINAGE PLAN AND FROFILE
7 OF 12	W03.00	SURFACING AND LAYOUT PLAN
8 OF 12	W04.00	PROJECT DETAILS
9 OF 12	W04.01	PROJECT DETAILS
10 OF 12	W04.02	PROJECT DETAILS
11 OF 12	W04.03	COT RIGHT OF WAY GENERAL NOTES
12 OF 12	TTC1.00	TEMPORARY TRAFFIC CONTROL PLAN

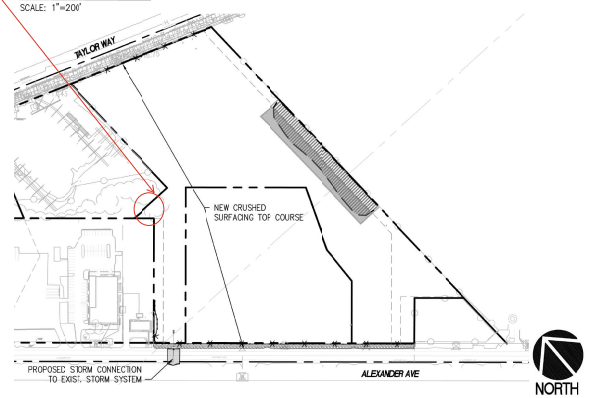
6/17/2026 - Critical Areas and Critical Areas Flood Hazard Review (TMC 13.11) - APPROVED WITH COMMENTS

This permit should not be issued until the issuance of LU25-0176.

The site has a Zone A (not coastal) SFHA onsite. These plans do not show work within the SFHA. Please be advised that in accordance with TMC 13.11.620, "Construction, grading, or other regulated activities which would reduce the flood water storage ability must be mitigated by creating compensatory storage on- or off-site. Compensatory storage provided off-site for purposes of providing flood water storage capacity shall be of similar elevation in the same floodplain as the development." If any work in this area is proposed, an FRC to any affected permits, a modification of the Land Use permit (LU25-0176), and flood storage compensation are required.

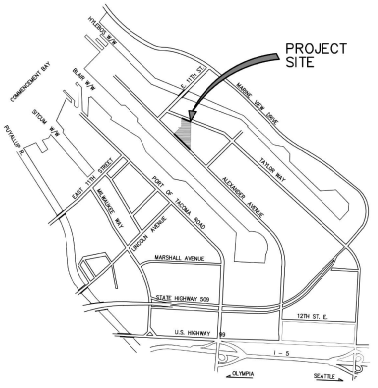
OVERALL SITE PLAN:

SCALE: 1"=200'



VICINITY MAP:

SW QUARTER, SECTION 26, TOWNSHIP 21N, RANGE 03E, W.M.



RE-ISSUED FOR PERMIT

PREPARED BY: sitts&hill CIVIL | STRUCTURAL | SURVEY, 4815 CENTER STREET | TACOMA, WA. 98409, PHONE: (253) 474-9449 | FAX: (253) 474-0153, http://www.sittshill.com/	PREPARED FOR: Port of Tacoma, P.O. BOX 1837 TACOMA WA 98401 (253)383-5841	Tacoma	NO	REVISION	DATE	APPD	FINAL CONSTRUCTION CHECKED BY / DATE / FIELD BOOKS	DATE 11/18/25; DESIGNED DCD; DRAWN KNL; SCALE AS NOTED; CHECKED DCD; FILE NAME W01.00

Licensed to practice Professional Engineering in the State of Washington, David C. Dutton, 44440, Registered Professional Engineer

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL SERVICES SCIENCE & ENGINEERING

PORT OF TACOMA
PARCEL 117 SNAIL ERADICATION
COVER SHEET

W026-0040
20618
SHEET NO. W01.00
SHEET 1 OF 12

Reviewed for 6/17/2026 Revised Permit W026-0040 Permit 20618
CITY of Tacoma
Reviewed for Code Compliance

GENERAL CIVIL NOTES

1. THE CONTRACTOR S RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING FEATURES, ELEVATIONS, AND PROPERTY LINES SHOWN. IF DISCREPANCIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
2. WHERE CONFLICTS OCCUR BETWEEN EXISTING FEATURES AND THE PLACEMENT OF NEW FACILITIES, THEY SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BY THE CONTRACTOR, AND WILL BE RESOLVED BY THE ENGINEER.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING SURVEY MONUMENTS AND OTHER SURVEY MARKERS DURING CONSTRUCTION. ALL SUCH MONUMENTS OR MARKERS DESTROYED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
4. THE CONTRACTOR "OR THIS PROJECT SHALL MAINTAIN A CLEAN, LEGIBLE SET OF THESE PLANS AND NOTE ALL DEVIATIONS THEREON. UPON COMPLETION OF CONSTRUCTION, THESE DRAWINGS SHALL BE DELIVERED TO THE OWNER FOR THE PREPARATION OF RECORD DRAWINGS. IF REQUIRED BY THE CITY OF TACOMA ENVIRONMENTAL SERVICES, THE ENGINEER SHALL SUBMIT RECORD DRAWINGS TO THE CITY OF TACOMA UPON COMPLETION OF THE PROJECT.
5. THE CONTRACTOR SHALL HAVE A CURRENT COPY OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STANDARD PLANS AND SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION [PUBLICATIONS M21-01 AND M41-10) AT THE JOB SITE AT ALL TIMES DURING CONSTRUCTION.
6. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY EQUIPMENT TO PREVENT UTILITY INTERRUPTION. NOTIFY PORT OF TACOMA ONE WEEK IN ADVANCE OF EACH UTILITY CONNECTION.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL ON-SITE AND OFF-SITE SHALL COORDINATE HIS ACTIVITIES WITH THE OWNER AND ENGINEER A MINIMUM OF TWO (2) WEEKS IN ADVANCE OF THE BEGINNING OF WORK. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL TRAFFIC CONTROL SIGNS, SAFE VEHICULAR AND PEDESTRIAN ACCESS SHALL BE PROVIDED AT ALL TIMES DURING CONSTRUCTION. SHUTDOWN OF OWNER OPERATION OR ACCESS WILL NOT BE PERMITTED.
8. PRIOR TO BIDDING, IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MAKE ALL NECESSARY SITE INSPECTIONS AND DETERMINATIONS OF ITEMS AND QUANTITIES OF WORK TO ENSURE THAT ALL ITEMS OF WORK NECESSARY TO PERFORM A COMPLETE AN ACCEPTABLE JOB HAVE BEEN TAKEN INTO CONSIDERATION.
9. DEWATERING AND PUMPING MAY BE REQUIRED AND SHALL BE CONSIDERED PART OF THE CONTRACTORS BID PRICE. CONTRACTOR SHALL ASSUME GROUNDWATER WILL BE ENCOUNTERED. CONTRACTOR IS RESPONSIBLE FOR PROVIDING NECESSARY EQUIPMENT AND COORDINATING WITH PORT OF TACOMA, CITY OF TACOMA, ENGINEER AND DEPARTMENT OF ECOLOGY TOXIC CLEANUP (TCP) AND WATER QUALITY (WQ) PROGRAM FOR DISCHARGE LOCATIONS.

PLASTIC COVERING NOTES

1. PLASTIC SHEETING SHALL HAVE A MINIMUM THICKNESS OF 3 MILS AND SHALL MEET THE REQUIREMENTS OF WSDOT STANDARD SPECIFICATIONS SECTION 9-14.5(3).
2. COVERING SHALL BE INSTALLED AND MAINTAINED TIGHTLY IN PLACE BY USING SANDBAGS OR TIRES ON ROPES WITH A MAXIMUM 10-FOOT GRID SPACING IN ALL DIRECTIONS. ALL SEAMS SHALL BE TAPED OR WEIGHTED DOWN FULL LENGTH AND THERE SHALL BE AT LEAST A 12-INCH OVERLAP OF ALL SEAMS.
3. CLEAR PLASTIC COVERING SHALL BE INSTALLED IMMEDIATELY ON AREAS SEEDED BETWEEN NOVEMBER 1 AND MARCH 31 AND REMAIN UNTIL VEGETATION IS FIRMLY ESTABLISHED.
4. WHEN THE COVERING IS USED ON UN-SEEDED SLOPES, IT SHALL BE KEPT IN PLACE UNTIL THE NEXT SEEDING PERIOD.
5. PLASTIC COVERING SHEETS SHALL BE BURIED TWO FEET AT THE TOP OF SLOPES IN ORDER TO PREVENT SURFACE WATER FLOW BENEATH SHEETS.
6. PROPER MAINTENANCE INCLUDES REGULAR CHECKS FOR RIPS AND DISLODGED ENDS.

STANDARD TESC NOTES (2021 CITY OF TACOMA SWMM)

1. THE IMPLEMENTATION OF THESE TESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF TESC FACILITIES IS THE RESPONSIBILITY OF THE APPLICANT/CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED, VEGETATION/LANDSCAPING IS ESTABLISHED AND THE ENTIRE SITE IS STABILIZED.
2. CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN (CSWPPP) HAS BEEN PREPARED BY THE PORT AS PART OF THE NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) STORMWATER PERMIT REQUIREMENTS FOR THE PROJECT SITE. REFER TO APPENDIX J OF THE PROJECT SPECIFICATIONS FOR THE CSWPPP.
3. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY MARKED IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE CLEARING LIMITS SHALL BE PERMITTED. THE MARKING SHALL BE MAINTAINED BY THE APPLICANT/CONTRACTOR FOR THE DURATION OF CONSTRUCTION.
4. THE TESC FACILITIES SHOWN ON THIS PLAN SHALL BE CONSTRUCTED PRIOR TO AND/OR IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT ENTER THE DRAINAGE SYSTEM OR ROADWAYS, OR VIOLATE APPLICABLE WATER STANDARDS.
5. THE TESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, TESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT LEAVE THE SITE.
6. THE CESCL, CPESC, OR ESC LEAD SHALL BE IDENTIFIED IN THE SWPPP AND SHALL BE ONSITE OR ON-CALL AT ALL TIMES.
7. THE CESCL, CPESC, OR ESC LEAD MUST BE KNOWLEDGEABLE IN THE PRINCIPLES AND PRACTICES OF EROSION AND SEDIMENT CONTROL AND HAVE THE SKILLS TO ASSESS:

   A. SITE CONDITIONS AND CONSTRUCTION ACTIVITIES THAT COULD IMPACT THE QUALITY OF STORMWATER
   B. EFFECTIVENESS OF EROSION AND SEDIMENT CONTROL MEASURES USED TO CONTROL THE QUALITY OF STORMWATER DISCHARGES.
7. THE CESCL, CPESC, OR ESC LEAD MUST EXAMINE STORMWATER VISUALLY FOR THE PRESENCE OF SUSPENDED SEDIMENT, TURBIDITY, DISCOLORATION, AND OIL SHEEN AND EVALUATE THE EFFECTIVENESS OF BMPS TO DETERMINE IF IT IS NECESSARY TO INSTALL, MAINTAIN, OR REPAIR BMPS.
8. THE CESCL, CPESC, OR ESC LEAD 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. (INDIVIDUAL DISCHARGE EVENTS THAT LAST MORE THAN ONE DAY DO NOT REQUIRE DAILY INSPECTIONS). THE CESCL OR INSPECTOR MAY REDUCE THE INSPECTION FREQUENCY FOR TEMPORARY STABILIZED, INACTIVE SITES TO ONCE EVERY CALENDAR MONTH.
9. CONSTRUCTION SITE OPERATORS MUST CORRECT ANY PROBLEMS IDENTIFIED BY THE CESCL, CPESC, OR ESC LEAD BY:

   A. REVIEWING THE SWPPP FOR COMPLIANCE WITH THE 13 CONSTRUCTION SWPPP ELEMENTS AND MAKING APPROPRIATE REVISIONS WITHIN 7 DAYS OF THE INSPECTION.
   B. FULLY IMPLEMENT AND MAINTAIN APPROPRIATE SOURCE CONTROL AND/OR TREATMENT BMPS AS SOON AS POSSIBLE BUT CORRECTING THE PROBLEM WITHIN 10 DAYS.
   C. DOCUMENTING BMP IMPLEMENTATION AND MAINTENANCE IN THE SITE LOG BOOK. (REQUIRED FOR SITES LARGER THAN 1 ACRE BUT RECOMMENDED FOR ALL SITES).

   SAMPLING AND ANALYSIS OF THE STORMWATER DISCHARGES FROM A CONSTRUCTION SITE MAY BE NECESSARY ON A CASE-BY-CASE BASIS TO ENSURE COMPLIANCE WITH STANDARDS. ECOLOGY OR THE CITY WILL ESTABLISH THESE MONITORING AND ASSOCIATED REPORTING REQUIREMENTS.
10. A NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN SEDIMENT TRAP.
11. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT-LADEN WATER INTO THE DOWNSTREAM SYSTEM.
12. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

LEGEND

EXISTING FEATURES-

- FOUND MONUMENT AS NOTED
- SANITARY SEWER MANHOLE
- SANITARY SEWER CLEANOUT
- STORM CATCH BASIN
- STORM MANHOLE
- ROOF DRAIN
- STORM CULVERT
- WATER VAULT
- WATER METER
- WATER VALVE
- IRRIGATION CONTROL VALVE
- WATER BLOW OFF VALVE
- FIRE HYDRANT
- FIRE DEPARTMENT CONNECTION
- POST INDICATOR VALVE
- WATER MANHOLE
- MONITORING WELL
- GUY ANCHOR
- UTILITY POLE
- TRANSMISSION LINE POWER POLE
- LIGHT POLE
- POWER VAULT
- JUNCTION BOX
- ELECTRIC METER OR PANEL
- POWER MANHOLE
- TRANSFORMER
- TELEPHONE VAULT
- TELEPHONE RISER
- GAS VALVE
- GAS METER
- UTILITY VAULT
- SIGN
- GATE POST
- BOLLARD
- MAIL BOX
- RAILROAD SWITCH
- COLUMN
- CLEANOUT

- ASPHALT SURFACE
- CONCRETE SURFACE
- GRAVEL SURFACE
- BOUNDARY LINE
- RIGHT OF WAY LINE
- EASEMENT LINE
- QUARTER SECTION LINE
- BURIED STORM LINE
- BURIED SANITARY SEWER LINE
- BURIED WATER LINE
- BURIED TELECOMMUNICATIONS LINE
- BURIED NATURAL GAS LINE
- BURIED PETROLEUM/OIL LINE
- BURIED POWER LINE
- RECORD CABLE LINE
- RECORD STORM LINE
- RECORD SANITARY SEWER LINE
- RECORD WATER LINE
- DITCH CENTERLINE
- OVERHEAD UTILITY LINE
- GUARD RAIL
- RAILROAD TRACK
- CHAIN LINK FENCE
- BARBED WIRE FENCE
- EDGE OF VEGETATION/LANDSCAPING
- EVERGREEN TREE
- DECIDUOUS TREE

PROPOSED FEATURES-

- ASPHALT DEMO/REMOVAL
- TEMPORARY CONSTRUCTION ENTRANCE
- CRUSHED SURFACING TOP COURSE
- R.O.W. ASPHALT PAVEMENT RESTORATION

- DEMOLITION
- SAWCUT LINE
- SILT FENCE
- CLEARING LIMITS
- STORM DRAIN PIPE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- FLOW LINE
- GRADE BREAK
- CATCH BASIN, TYPE 2
- PROPOSED ELEVATION
- FLOW LINE
- INVERT ELEVATION
- CATCH BASIN PROTECTION

RE-ISSUED FOR PERMIT

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Tacoma

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED BY
DATE
FIELD BOOKS

DATE 11/18/25 | SCALE AS NOTED
DESIGNED DCD | CHECKED DCD
DRAWN KNL | FILE NAME WO0.01

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL SERVICES SCIENCE & ENGINEERING

PORT OF TACOMA
PARCEL 117 SNAIL ERADICATION
CIVIL LEGEND AND GENERAL NOTES

WO26-0040
20618
SHEET NO. WO0.01
SHEET 2 OF 12

Reviewed by 12/22/25
Revised Permit
WO26-0040
CITY of Tacoma
Reviewed for Code Compliance

GENERAL STORMWATER NOTES

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH CITY STANDARDS AND THE MOST CURRENT COPY OF THE STATE OF WASHINGTON STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION (WSDOT/APWA) AND AS AMENDED BY THE CITY.

2. TEMPORARY EROSION/WATER POLLUTION PREVENTION MEASURES SHALL BE REQUIRED IN ACCORDANCE WITH SECTION 1-07.15, AS MODIFIED BY THE APWA SUPPLEMENT, OF THE CURRENT STATE OF WASHINGTON STANDARD SPECIFICATIONS AND THE CITY OF TACOMA STORMWATER MANAGEMENT MANUAL. SHOULD THE TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AS SHOWN ON THIS DRAWING NOT PROVE ADEQUATE TO CONTROL EROSION AND SEDIMENTATION, THE CONTRACTOR SHALL INSTALL ADDITIONAL FACILITIES AS NECESSARY TO PROTECT ADJACENT PROPERTIES, SENSITIVE AREAS, NATURAL WATER COURSES AND/OR STORM DRAINAGE SYSTEMS.

3. THE STORM DRAINAGE SYSTEM SHALL BE CONSTRUCTED ACCORDING TO APPROVED PLANS ON FILE WITH THE MUNICIPALITY. ANY SIGNIFICANT DEVIATION FROM THE APPROVED PLANS WILL REQUIRE WRITTEN APPROVAL FROM THE MUNICIPALITY.

4. A COPY OF THE APPROVED STORMWATER PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.

5. ALL EROSION CONTROL AND STORMWATER FACILITIES SHALL BE REGULARLY INSPECTED AND MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION.

6. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN STREET USE AND OTHER RELATED OR REQUIRED PERMITS PRIOR TO ANY CONSTRUCTION ACTIVITY IN THE MUNICIPALITY'S RIGHT-OF-WAY. IT SHALL ALSO BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL REQUIRED PERMITS APPROVED BY THE CITY PRIOR TO ANY CONSTRUCTION. THE CONTRACTOR SHALL ABIDE BY ALL REQUIREMENTS FOR TRAFFIC CONTROL AND SAFETY WHEN WORKING IN THE ROAD RIGHT-OF-WAY.

7. THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IN THE EVENT OF DISCOVERY OF POOR SOILS, STANDING GROUNDWATER OR SEVERE DISCREPANCIES FROM SOIL LOG DESCRIPTIONS AS NOTED ON THE PLANS.

8. FOR PUBLIC SYSTEMS, THE CONTRACTOR SHALL CALL FOR INSPECTION 48 HOURS PRIOR TO COVERING ANY DRAINAGE STRUCTURE.

9. BARE GALVANIZED METAL SHALL NOT BE USED FOR MATERIALS THAT CONVEY STORMWATER, SUCH AS ROOFS, CANOPIES, SIDING, GUTTERS, DOWNSPOUTS, ROOF DRAINS, AND PIPES. ANY GALVANIZED MATERIALS SHALL HAVE AN INERT, NON-LEACHABLE FINISH, SUCH AS A BAKED ENAMEL, FLUOROCARBON PAINT (SUCH AS KYNAR® OR HYLAR®), FACTORY-APPLIED EPOXY, PURE ALUMINUM, OR ASPHALT COATING. ACRYLIC PAINT, POLYESTER PAINT, FIELD-APPLIED, AND PART ZINC (SUCH AS GALVALUME®) COATINGS ARE NOT ACCEPTABLE.

10. THE ENGINEER OF RECORD SHALL PROVIDE AN ENGINEER'S CERTIFICATION TO THE CITY OF TACOMA AFTER THE FACILITY INSTALLATION AND PRIOR TO PERMIT FINAL INSPECTION AND/OR CLOSEOUT. THE ENGINEER'S CERTIFICATION SHALL INCLUDE:

    A. THE PERMIT NUMBER
    B. STATEMENTS TO ATTEST:

    1.1. THAT ALL STORMWATER FACILITIES HAVE BEEN INSTALLED ACCORDING TO THE APPROVED PERMIT DOCUMENTS. CHANGES TO THE APPROVED PERMIT SET THAT ARE REQUIRED DURING CONSTRUCTION SHALL BE SUBMITTED TO CITY OF TACOMA B.L.U.S. FOR E.S.S.E. TO REVIEW AND APPROVE DURING THE CONSTRUCTION PHASE AND PRIOR TO THE CHANGE BEING CONSTRUCTED.

CATCH BASIN NOTES

1. TYPE 2 CATCH BASINS SHALL COMPLY WITH WSDOT STANDARD PLAN B-16.20-03.

2. TYPE 2 CATCH BASINS SHALL BE EQUIPPED WITH RECTANGULAR FRAMES PER WSDOT STANDARD PLAN B-30.10-01. TYPE 1 CATCH BASINS SHALL BE COVERED WITH BOLT-DOWN CAST IRON GRATES PER WSDOT STANDARD PLANS OR OTHER NOTED ON PLANS.

A. RECTANGULAR VANED GRATE PER WSDOT # 30.30-01.
B. RECTANGULAR BI-DIRECTIONAL VANED GRATE PER # 30.40-01.

3. STORM STRUCTURES SHALL BE INSTALLED PER WSDOT STANDARD SPECIFICATION 7-05.

4. ALL CATCH BASINS SHALL BE MARKED AS FOLLOWS: "DUMP NO WASTE. DRAINS TO SOUND." THE CONTRACTOR SHALL INSTALL STICKER PROVIDED BY THE CITY ON EACH REPLACED CATCH BASINS (TYP.).

RE-ISSUED FOR PERMIT

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Tacoma

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED
BY
DATE
FIELD BOOKS

DATE 11/18/25 | SCALE AS NOTED
DESIGNED DCD | CHECKED DCD
DRAWN KNL | FILE NAME WO0.02

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL SERVICES SCIENCE & ENGINEERING

PORT OF TACOMA
PARCEL 117 SNAIL ERADICATION
CIVIL GENERAL NOTES

W026-0040
20618
SHEET NO. WO0.02
SHEET 03 of 12

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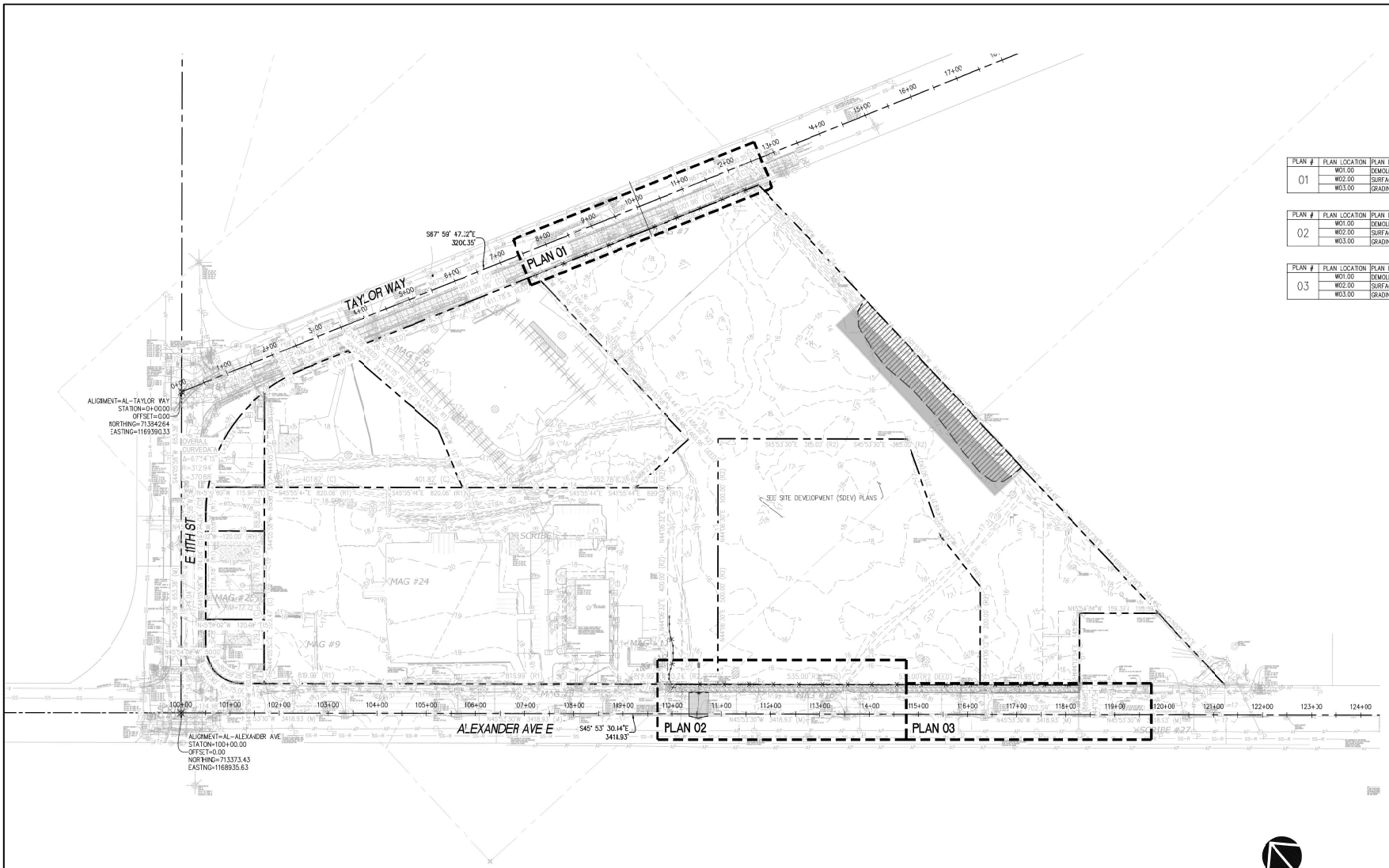

PLAN #	PLAN LOCATION	PLAN DESCRIPTION
01	W01.00	DEMOLITION AND TESC PLAN – TAYLOR WAY
	W02.00	SURFACING AND LAYOUT PLAN – TAYLOR WAY
	W03.00	GRADING AND DRAINAGE PLAN – TAYLOR WAY

PLAN #	PLAN LOCATION	PLAN DESCRIPTION
02	W01.00	DEMOLITION AND TESC PLAN – ALEXANDER AVE
	W02.00	SURFACING AND LAYOUT PLAN – ALEXANDER AVE
	W03.00	GRADING AND DRAINAGE PLAN – ALEXANDER AVE

PLAN #	PLAN LOCATION	PLAN DESCRIPTION
03	W01.00	DEMOLITION AND TESC PLAN – ALEXANDER AVE
	W02.00	SURFACING AND LAYOUT PLAN – ALEXANDER AVE
	W03.00	GRADING AND DRAINAGE PLAN – ALEXANDER AVE

NORTH

HORIZONTAL SCALE: 1"=100'

100 0 100 200

OVERALL SITE PLAN

SCALE: 1"=100'

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DESIGNED	CHECKED
DCD	DCD
DRAWN	FILE NAME
KNL	W00.03

CITY OF TACOMA

DEPARTMENT OF PUBLIC WORKS

ENVIRONMENTAL SERVICES SCIENCE & ENGINEERING

PORT OF TACOMA

PARCEL 117 SNAIL ERADICATION

OVERALL SITE PLAN

W026-0040

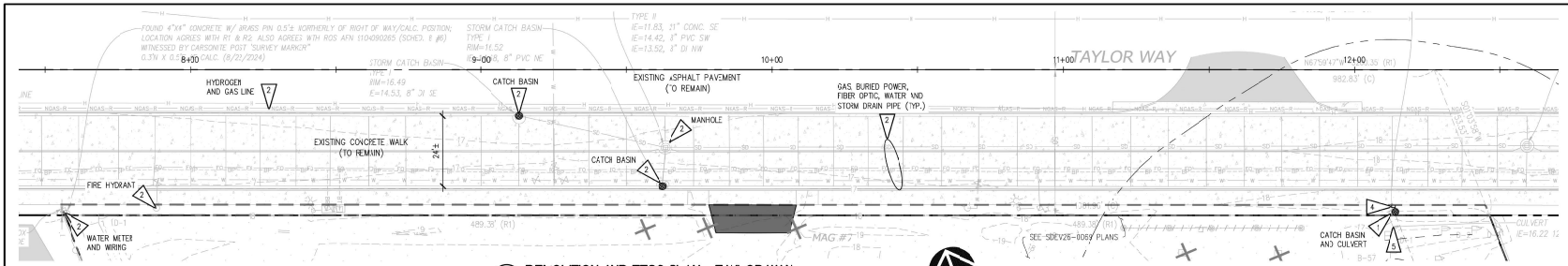
20618

SHEET NO. W00.03

SHEET 4 of 12

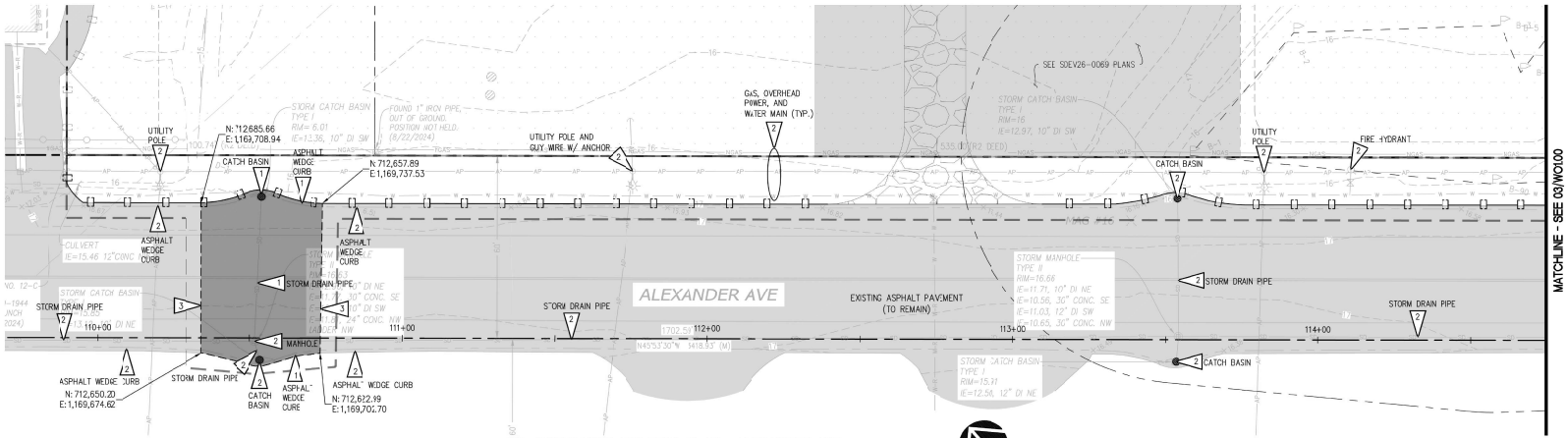
Reviewed for 30/120 Day Review Requirement WO26-0040

CITY of Tacoma Reviewed for Code Compliance



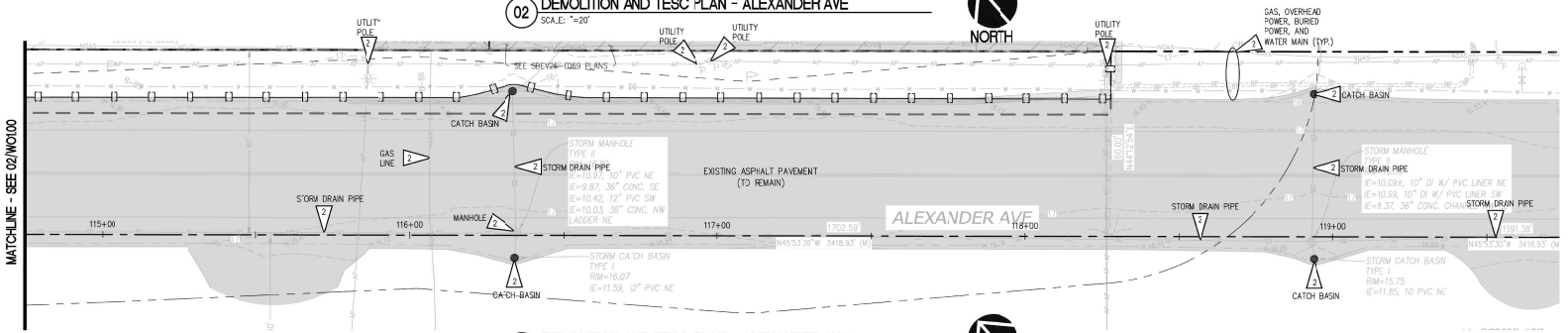
01 DEMOLITION AND TESC PLAN - TAYLOR WAY
SCALE: 1"=20'

NORTH



02 DEMOLITION AND TESC PLAN - ALEXANDER AVE
SCALE: 1"=20'

NORTH



03 DEMOLITION AND TESC PLAN - ALEXANDER AVE
SCALE: 1"=20'

NORTH

LEGEND

- ASPHALT DEMO/REMOVAL
- TEMPORARY CONSTRUCTION ENTRANCE
- PROPERTY LINE
- WETLAND
- WETLAND BUFFER
- DEMOLITION
- SAWCUT LINE
- SILT FENCE (01/WD4.00)
- CLEARING LIMITS
- CATCH BASIN PROTECTION (02/WD4.00)

GENERAL NOTES

1. SEE APPLICABLE PROJECT NOTES ON SHEETS WO0.01, WO0.02, AND WO0.03.
2. CONTRACTOR TO PROVDE CATCH BASIN PROTECTION AT ALL PUBLIC INLETS WITHIN 500 FEET DOWN STREAM OF THE PROJECT SITE.

KEY NOTES

1. REMOVE EXISTING FEATURE AS NOTED.
2. PROTECT EXISTING FEATURE AS NOTED
3. SAWCUT ASPHALT PAVEMENT TO FULL DEPTH, UNEVEN EDGE.
4. PROVIDE PLUG AND/OR CAP THE EXISTING STORM DRAIN UTILITY
5. ABANDON EXISTING UTILITY

HORIZONTAL SCALE: 1"=20'
20 0 20 40

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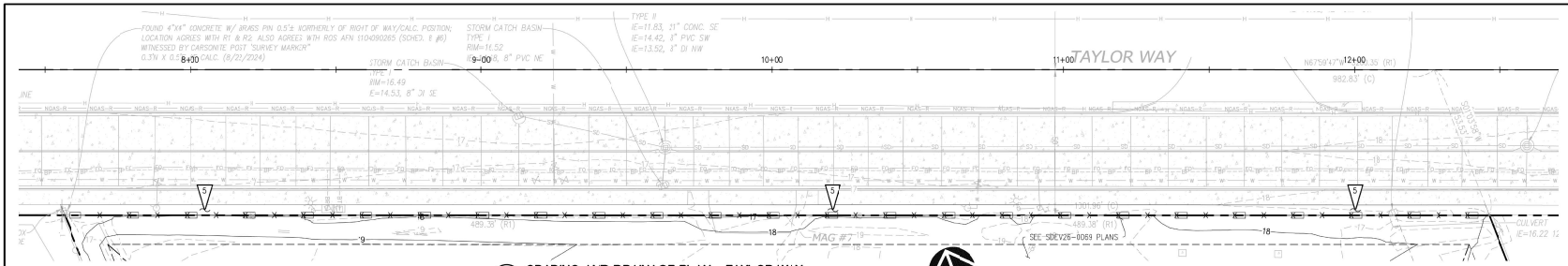
CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL SERVICES SCIENCE & ENGINEERING

PORT OF TACOMA
PARCEL 117 SNAIL ERADICATION
DEMOLITION AND TESC PLAN

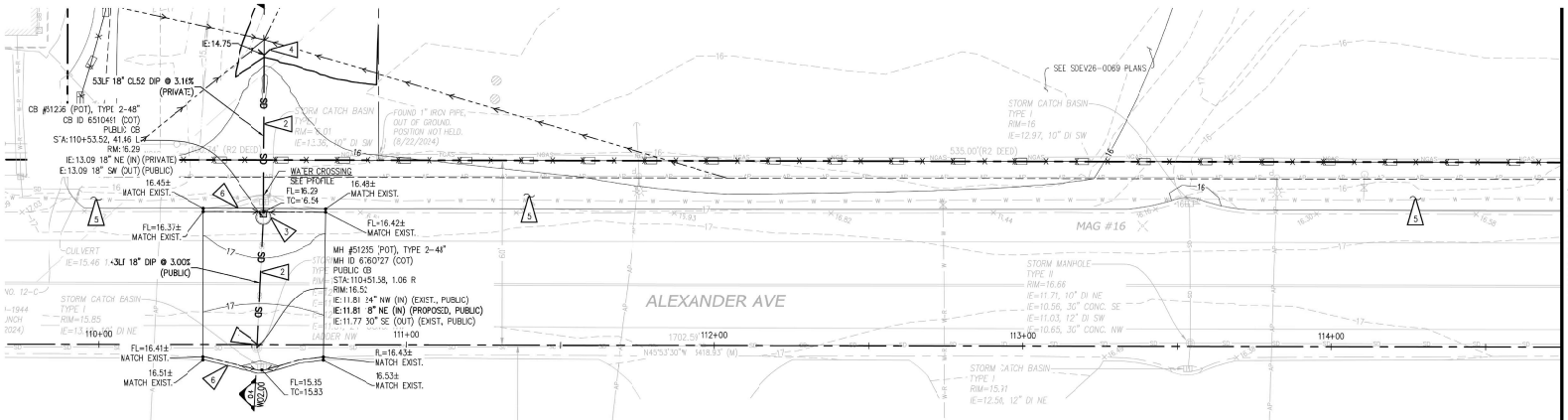
WO26-0040
20618
SHEET NO. WO1.00
SHEET 5 of 12

Reviewed by CITY of Tacoma 1/7/2026
Reviewed for Code Compliance
WO4/5.00 Comment
CITY of Tacoma
Reviewed for Code Compliance



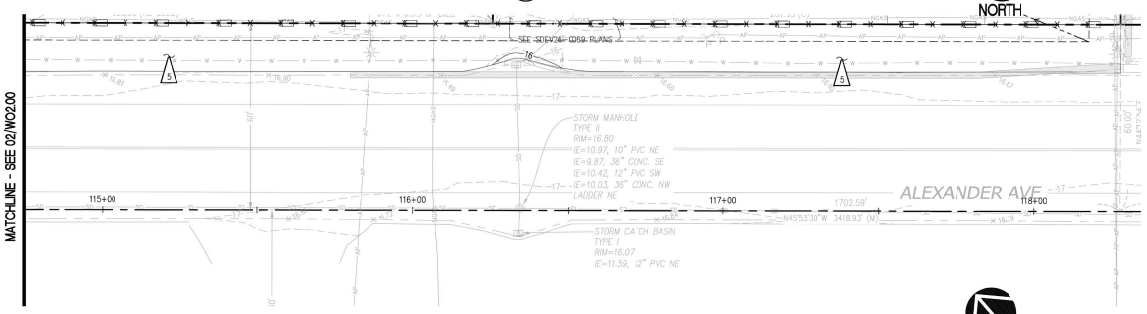
01 GRADING AND DRAINAGE PLAN - TAYLOR WAY
SCALE: 1"=20'

NORTH



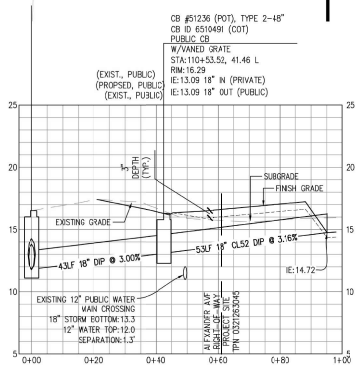
02 GRADING AND DRAINAGE PLAN - ALEXANDER AVE
SCALE: 1"=20'

NORTH



03 GRADING AND DRAINAGE PLAN - ALEXANDER AVE
SCALE: 1"=20'

NORTH



04 STORM PROFILE
SCALE: HORZ: 1"=20' VERT: 1"=5'

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=5'

LEGEND

- PROPERTY LINE
- SD — STORM DRAIN PIPE
- 15 — PROPOSED MAJOR CONTOUR
- 14 — PROPOSED MINOR CONTOUR
- FLOW LINE
- GRADE BREAK
- CB — CATCH BASIN, TYPE 2 SEE WSDOT STD PLAN B-10.20-03/WO4.00
- 18.18 — PROPOSED ELEVATION
- FL — FLOW LINE
- E — INVERT ELEVATION
- TC — TOP OF CURB

GENERAL NOTES

1. SEE APPLICABLE PROJECT NOTES ON SHEETS WO0.01, WO0.02, AND WO0.03.
2. BI-DIRECTIONAL VANEC GRATE SHALL BE PER DETAIL 06/WO4.00.
3. PIPE ZONE AND BEDDING FOR STORM DRAIN PIPE PER COT DETAIL SU-16/WO4.02.

KEY NOTES

1. CONNECT PROPOSED 18" DI PIPE TO EXIST. MANHOLE. I.E. PER PLAN.
2. INSTALL STORM DRAIN PIPE PER COT DETAIL SU-16/WC4.02.
3. INSTALL CATCH BASIN, TYPE 2 PER WSDOT STD PLAN B-10.20-03/WO4.00
4. DEBRIS BARRIER AT PROPOSED PRIVATE CULVERT. SEE SDEV26-0069 PLANS.
5. THE PROPOSED OFFSITE GRAVEL IS A CONTINUATION OF THE ONSITE GRADING AND GRAVEL REPLACEMENT. CONTRACTOR TO COORDINATE WITH SITE DEVELOPMENT (SDEV) PLANS.
6. INSTALL NEW ASPHALT WEDGE CURB PER SU-03A/WO4.31. WEDGE CURB SHALL MATCH HEIGHT OF EXISTING WEDGE CURB AT POINT OF CONNECTION, AND TRANSITION TO FULL 3" HEIGHT OVER AT DISTANCE OF 3 FT.

RE-ISSUED FOR PERMIT

PREPARED BY
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PREPARED FOR
Port of Tacoma
P.O. BOX 1837 TACOMA WA 98401 (253)383-5841

Tacoma

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED BY DATE FIELD BOOKS

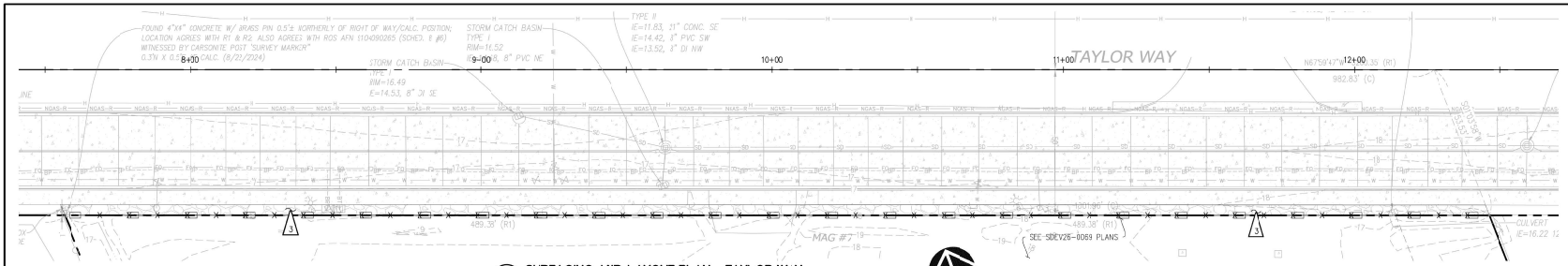
DATE	SCALE
11/18/25	AS NOTED
DESIGNED	CHECKED
DCD	DCD
DRAWN	FILE NAME
KNL	WO2.00

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL SERVICES SCIENCE & ENGINEERING

PORT OF TACOMA
PARCEL 117 SNAIL ERADICATION
GRADING AND DRAINAGE PLAN AND PROFILE

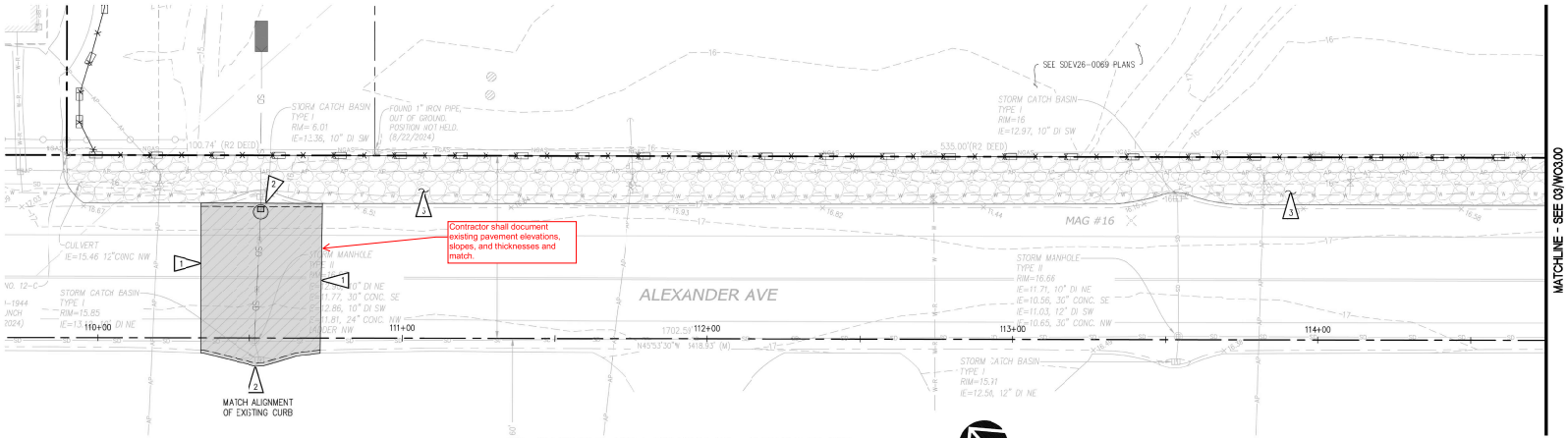
WO26-0040
20618
SHEET NO. WO2.00
SHEET 6 of 12

Reviewed for Code Compliance 11/17/2025 WO4/5.00 Permit
CITY of Tacoma
Reviewed for Code Compliance



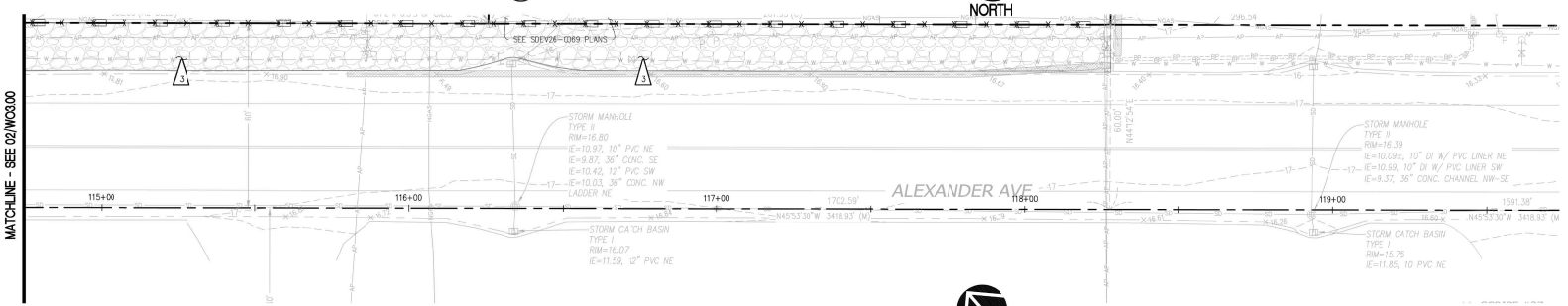
01 SURFACING AND LAYOUT PLAN - TAYLOR WAY
SCALE: 1"=20'

NORTH



02 SURFACING AND LAYOUT PLAN - ALEXANDER AVE
SCALE: 1"=20'

NORTH



03 SURFACING AND LAYOUT PLAN - ALEXANDER AVE
SCALE: 1"=20'

NORTH

LEGEND

- PROPERTY LINE
- CRUSHED SURFACING TOP COURSE (05/WO4.00)
- R.C.W. ASPHALT PAVEMENT RESTORATION

GENERAL NOTES

1. SEE APPLICABLE PROJECT NOTES ON SHEETS WO0.01, WO0.02, AND WO0.03.
2. PAVEMENT DESIGN STANDARDS PER COT DETAIL PD-01/C4.01.
3. TRENCH BACKFILL COMPACTION REQUIREMENTS PER COT DETAIL SU-28/C4.02.

KEY NOTES

1. ASPHALT PAVEMENT RESTORATION PER DETAIL COT DETAIL SU-14A/WO4.01.
2. INSTALL NEW ASPHALT WEDGE CURB PER COT DETAIL SU-03A/WO4.01. WEDGE CURB SHALL MATCH HEIGHT OF EXISTING WEDGE CURB AT POINT OF CONNECTION, AND TRANSITION TO FULL 3" HEIGHT OVER AT DISTANCE OF 3 FT.
3. INSTALL CRUSHED SURFACING TOP COURSE PER DETAIL 05/WO4.00. THE PROPOSED OFFSITE GRAVEL IS A CONTINUATION OF THE ONSITE GRADING AND GRAVEL REPLACEMENT. CONTRACTOR TO COORDINATE WITH SITE DEVELOPMENT (SDEV) PLANS.

ROW Pavement restoration shall be per the Standard Plan that applies to the existing pavement type & cross section. See SU14a-15b.

HORIZONTAL SCALE: 1"=20'
20 0 20 40

RE-ISSUED FOR PERMIT

PREPARED BY
sitts&hill
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P.O. BOX 1837 TACOMA WA 98401 (253)383-5841

Tacoma

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED BY
DATE
FIELD BOOKS

DATE	SCALE
11/18/25	AS NOTED
DESIGNED	CHECKED
DCD	DCD
DRAWN	FILE NAME
KNL	WO3.00

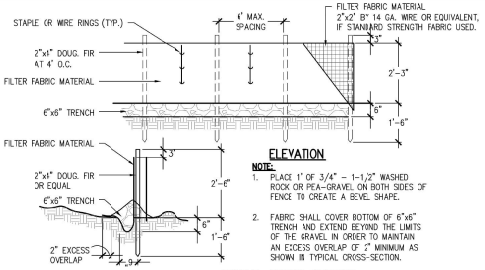
DONALD C. DAVIS — STATE OF WASHINGTON — 46448 — REGISTERED PROFESSIONAL ENGINEER

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL SERVICES SCIENCE & ENGINEERING

PORT OF TACOMA
PARCEL 117 SNAIL ERADICATION
SURFACING AND LAYOUT PLAN

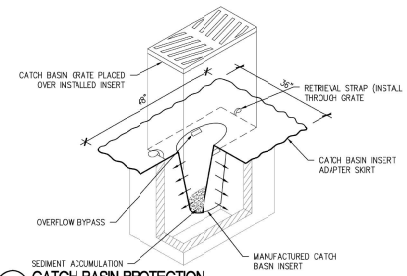
WO26-0040
20618
SHEET NO. WO3.00
SHEET 7 of 12

Reviewed for 1/7/2026 Revised Permit WO26-0040
CITY of Tacoma
Reviewed for Code Compliance



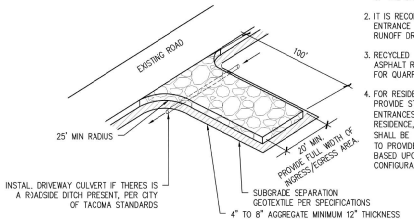
01 BMP C233: SILT FENCE

SCALE: N.T.S.



C2 CATCH BASIN PROTECTION

SCALE: N.T.S

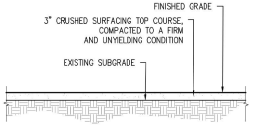


NOTES:

1. DRIVEWAY SHALL MEET REQUIREMENTS OF THE CITY OF TACOMA.
2. IT IS RECOMMENDED THAT THE ENTRANCE BE CROWNED SO THAT RUNOFF DRAINS OFF THE PAD.
3. RECYCLED CONCRETE, CEMENT OR ASPHALT RUBBLE CANNOT BE USED FOR QUARRY SPALLS.
4. FOR RESIDENTIAL CONSTRUCTION PROVIDE STABILIZED CONSTRUCTION ENTRANCES/EXITS FOR EACH RESIDENCE. STABILIZED SURFACES SHALL BE OF SUFFICIENT LENGTH/WIDTH TO PROVIDE VEHICLE ACCESS/PARKING BASED UPON LOT SIZE AND CONFIGURATION.

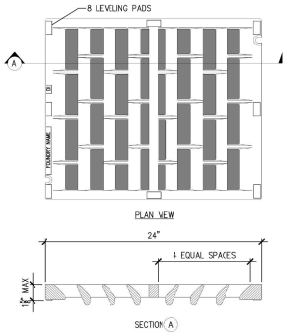
03 BMP C105: STABILIZED CONSTRUCTION ENTRANCE

SCALE: N.T.S.



04 CRUSHED SURFACING BASE COURSE

SCALE: N.T.S.



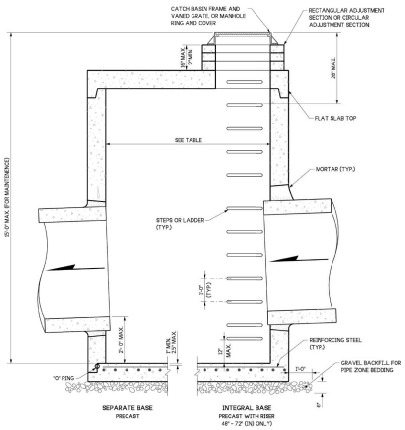
06 BI-DIRECTIONAL VANED GRATE

SCALE: N.T.S.

SILT FENCE NOTES

(AS REQUIRED)

1. FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL AND CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY FASTENED AT BOTH ENDS TO POSTS.
2. POSTS SHALL BE SPACED A MAXIMUM OF 6 FEET APART AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 30 INCHES).
3. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 8 INCHES WIDE AND 12 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER. THIS TRENCH SHALL BE BACKFILLED WITH WASHED GRAVEL.
4. WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY-DUTY WIRE STAPLES AT LEAST 1 INCH LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 4 INCHES AND SHALL NOT EXTEND MORE THAN 24 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
5. THE STANDARD STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 20 INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 24 INCHES ABOVE THE ORIGINAL SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
6. WHEN EXTRA-STRENGTH FILTER FABRIC AND CLOSER POST SPACING IS USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISION OF ABOVE NOTES APPLYING.
7. FILTER FABRIC FENCES SHALL NOT BE REMOVED BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
8. FILTER FABRIC FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
9. SILT FENCES WILL BE INSTALLED PARALLEL TO ANY SLOPE CONTOURS.
10. CONTRIBUTING LENGTH TO FENCE WILL NOT BE GREATER THAN 100 FEET.
11. DO NOT INSTALL BELOW AN OUTLET PIPE OR WEIR.
12. INSTALL DOWNSLOPE OF EXPOSED AREAS.
13. DO NOT DRIVE OVER OR ALL OVER SILT FENCES.
14. PLACE 1 OF 3/4" - 1-1/2" WASHED ROCK OR PEA-GRAVEL ON BOTH SIDES OF FENCE TO CREATE A BEVEL SHAPE.
15. FABRIC SHALL COVER BOTTOM OF 6"x6" TRENCH AND EXTEND BEYOND THE LIMITS OF THE GRAVEL IN ORDER TO MAINTAIN AN EXCESS OVERLAP OF 2" MINIMUM AS SHOWN IN TYPICAL CROSS-SECTION.



NOTES:

1. No steps are required when height is 4' or less.
2. The bottom of the precast catch basin may be sloped to facilitate cleaning.
3. The rectangular frame and grate may be installed with the flange up or down. The frame may be cast into the adjustment section.
4. Knockouts shall have a wall thickness of 2" (in) minimum to 2.5" (in) maximum. Provide a 1.5" (in) minimum gap between the knockout wall and the outside of the pipe. After the pipe is installed, fill the gap with joint mortar in accordance with **Standard Specification Section 9-04.3.**
5. Pipe allowances will vary depending on the pipe material used. Contact the Region Hydraulics Engineer for assistance.

CATCH BASIN DIMENSIONS

CATCH BASIN DIAMETER	MIN. WALL THICKNESS	MIN. BASE THICKNESS	MAXIMUM KNOCKOUT SIZE	MINIMUM DISTANCE BETWEEN KNOCKOUTS
48"	4"	6"	36"	8"
54"	4.5"	8"	42"	8"
60"	5"	8"	48"	8"
72"	6"	8"	60"	12"
84"	8"	12"	72"	12"
96"	8"	12"	84"	12"
120"	10"	12"	96"	12"
144"	12"	12"	108"	12"

PIPE ALLOWANCES

CATCH BASIN DIAMETER	PIPE MATERIAL WITH MAXIMUM INSIDE DIAMETER				
	CONCRETE	ALL METAL	CPSSP ① PP ④	SOLID WALL PVC ②	PROFILE WALL PVC ③
48"	14"	30"	14"	30"	30"
54"	30"	36"	10"	36"	36"
60"	36"	42"	16"	42"	42"
72"	42"	54"	12"	48"	48"
84"	54"	60"	14"	48"	48"
96"	60"	72"	60"	48"	48"
120"	66"	84"	60"	48"	48"
144"	78"	96"	60"	48"	48"

① Corrugated Polyethylene Storm Sewer Pipe (See Standard Specification Section 9-05.20)
② (See Standard Specification Section 9-05.12(1))
③ (See Standard Specification Section 9-05.12(2))
④ Polypropolyne Pipe (See Standard Specification Section 9-05.24)

STATE OF WASHINGTON — 41810 — REGISTERED PROFESSIONAL ENGINEER

Aug 23, 2023

CATCH BASIN TYPE 2

STANDARD PLAN 8-10.20-03

SHEET 1 OF SHEET

APPROVED FOR PUBLICATION

Aug 23, 2023

STATE DESIGN ENGINEER

Washington State Department of Transportation

RE-ISSUED FOR PERMIT

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PREPARED FOR: Port of Tacoma — P.O. BOX 1837 TACOMA WA 98401 (253)383-5841

Tacoma

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED BY / DATE / FIELD BOOKS

DATE 11/18/25 — SCALE AS NOTED — DESIGNED DCD — CHECKED DCD — DRAWN KNL — FILE NAME WO4.00

DONALD C. DAVIS — STATE OF WASHINGTON — 44448 — REGISTERED PROFESSIONAL ENGINEER

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL SERVICES SCIENCE & ENGINEERING

PORT OF TACOMA
PARCEL 117 SNAIL ERADICATION
PROJECT DETAILS

WO26-0040
20618
SHEET NO. WO4.00
SHEET 8 of 12

Reviewed 8/17/2023 Revised Permit WO26-0040
CITY of Tacoma Reviewed for Code Compliance

TYPE		Heavy Haul Industrial Corridors	Port Area Arterials	Non-classified Port Area Roadways	Primary Transit Streets	Principal Arterials	Minor Arterials	Collector Arterials	Nonclassified Arterials and Commercial Alleys	Residential	Residential Alleys	Shared use Paths and Trails
AASHTO Flexible Pavement Design Standards	Tacoma Municipal Code Ref.	11.55.020.C	11.05.490, 13.10	13.10	11.05.492	11.05.490	11.05.490	11.05.490	11.05.490			
	Initial ADT	30,000	20,000	10,000	30,000	30,000	20,000	15000	10,000	2,000	500	100
	% ADT, Truck	30	30	30	8	8	8	5	5	5	5	1
	% ADT, Bus	0	0	0	5	1	1	1	1	0	0	0
	GROWTH RATE (compound)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	Assumed CBR	3	3	3	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
	Assumed Mr	2,555	2,555	2,555	6,690	6,690	6,690	6,690	6,690	6,690	5,690	6,690
	Lanes in Design Direction	2	1	1	2	2	1	1	1	1	1	1
	Percent Trucks, Design Direction	50	50	50	50	50	50	50	50	100	100	100
	Percent Trucks, Design Lane	80	100	100	80	80	100	100	100	100	100	100
	DESIGN EAL	26,367,136	21,972,588	18,986,294	8,430,756	5,878,017	4,898,348	2,445,675	1,364,540	994,831	48,365	4,087
	Reliability, R%	95%	95%	90%	55%	95%	90%	80%	80%	80%	80%	80%
	Deviation, S_o	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
	Initial Serviceability, P_i	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20
	Terminal Serviceability, P_t	2.5	2.5	2.4	3	3	2.7	2.5	2.4	2.3	2.2	2.2
	Δ PSI	1.70	1.70	1.80	1.20	1.20	1.50	1.70	1.80	1.90	2.00	2.00
	Design SN	8.19	8.12	6.89	5.89	5.5	4.81	4.18	3.58	3.41	2.03	1.3

Refer to PD-01 Sheet 2 for pavement design sections and notes.

REVIEWED BY: PUBLIC WORKS DCS; ENVIRONMENTAL SERVICES GMS; TACOMA POWER NA; TACOMA WATER NA

APPROVED FOR PUBLICATION — CITY ENGINEER — DATE 4/7/16

CITY OF TACOMA PAVEMENT DESIGN STANDARDS

STANDARD PLAN NO. PD-01

SHEET 1 OF 2

TYPE		Heavy Haul Industrial Corridors	Port Area Arterials	Non-classified Port Area Roadways	Primary Transit Streets	Principal Arterials	Minor Arterials	Collector Arterials	Nonclassified Arterials and Commercial Alleys	Residential	Residential Alleys	Shared use Paths and Trails
Standard Asphalt Pavement Section	HMA	10	10	8	8	8	6	6	5	4	2	2
	CSTC	2	2	2	2	2	2	2	2	2	2	2
	CSBC	26	24	22	16	14	14	9	8	10	6	2
Minimum Asphalt Pavement Section with Approved Design	HMA	8	8	6	6	6	6	4	4	3	2	2
	CSTC	2	2	2	2	2	2	2	2	2	2	2
	CSBC	10	10	10	10	8	6	6	6	5	4	
Minimum Concrete Pavement Section with Approved Design		Concrete Streets are allowed with approved supporting design										
	PCC	10	10	8	10	10	10	8	8	8	8	4
	CSBC	2	2	2	2	2	2	2	2	2	2	2
Standard Porous Asphalt Pavement Section	HMA	NA	NA	Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	4	2	3
	ATB			Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	4	3	0
	Permeable Base			Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	6 (Note 7)	4 (Note 7)	4 (Note 7)
Minimum Porous Asphalt Pavement Section with Approved Design	HMA	NA	NA	Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	2	2	3
	ATB			Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	3	3	0
	Permeable Base			Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	6 (Note 7)	5 (Note 7)	4 (Note 7)
Minimum Pervious Concrete Section	PCC	NA	NA	Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	8	7	7
	Permeable Base			Note 6	Note 6	Note 6	Note 6	Note 6	Note 6	4 (Note 7)	4 (Note 7)	4 (Note 7)

NOTES:

1 Standard Pavement Section shall be used when no custom design is provided

2 Minimum Pavement Sections are the minimum acceptable pavement sections for custom designs

3 Refer to the City of Tacoma Design Manual for additional road design information.

4 Pavement sections for other facilities, such as parking lots, shall be substantiated by geotechnical analyses and design documentation.

5 Pavement design for State routes shall be determined by the Washington State Department of Transportation.

6 Contact Public Works Engineering to discuss acceptability and requirements for specific projects. Design required if acceptable.

7 Minimum Structural Values. Hydrological Properties may require a thicker base.

8 Permeable pavement shall be designed or reviewed by a geotechnical professional. All custom designs shall be stamped by a Washington State licensed professional engineer. Calculations showing the required permeable ballast thickness necessary for stormwater control is required for all permeable pavement projects. Refer to the City of Tacoma Stormwater Management Manual.

NA = Not Allowed

REVIEWED BY: PUBLIC WORKS DCS; ENVIRONMENTAL SERVICES GMS; TACOMA POWER NA; TACOMA WATER NA

APPROVED FOR PUBLICATION — CITY ENGINEER — DATE 4/4/16

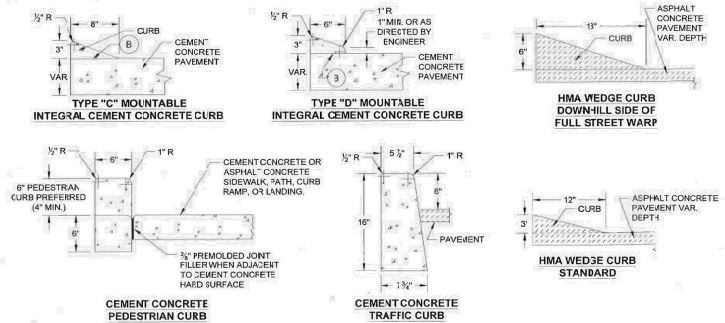
CITY OF TACOMA PAVEMENT DESIGN STANDARDS

STANDARD PLAN NO. PD-01

SHEET 2 OF 2

NOTE:

(B) Flush with gutter pan at curb ramp entrance or ¾" vertical lip at driveway entrance.



NOTES:

1. For trench crossings, curb and gutter shall be removed to a minimum 2' cut back over undisturbed soil.
2. In all projects any remaining sections of curb and gutter less than 5' in length between the project area and the nearest control joint shall also be removed and replaced.
3. All joints shall be saw cut full depth prior to restoration and ¾" expansion joint installed.
4. Concrete finish shall match existing.
5. Cutting wheel run-out beyond the limits of the opening shall be filled in accordance with WSDOT Standard Specification 5-05.3(8)B for cement concrete surfaces and 5-04.3(5)C for asphalt concrete surfaces.
6. Foundations shall be fully compacted prior to form placement.
7. Unsuitable foundation shall be replaced with ⅝" crushed surfacing top course.

REVIEWED BY: PUBLIC WORKS DCS; ENVIRONMENTAL SERVICES GMS; TACOMA POWER NA; TACOMA WATER NA

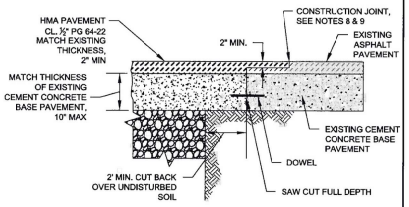
APPROVED FOR PUBLICATION — CITY ENGINEER — DATE 8/16/16

CITY OF TACOMA CEMENT CONCRETE CURB AND GUTTER AND ASPHALT WEDGE CURB

STANDARD PLAN NO. SU-03A

NOTES:

1. **All pavement restoration work shall also meet the requirements of the City of Tacoma's Right of Way Restoration Policy. See Standard Plan SU-14D for any streets exempt from this policy.**
2. Temporary Surface Restoration:
   Arterials, industrial areas and/or roads with bus traffic: Temporary patches shall be compacted and leveled to a minimum of 3-inches of hot-mix asphalt (HMA).
   Residentials and alleys: Temporary patches shall be compacted and leveled to a minimum of 2-inches of either HMA or cold-mix asphalt. Temporary patches between October 1st and March 31st shall be made with HMA unless otherwise approved.
3. All permanent final patches shall be rectangular in shape and constructed parallel and perpendicular to the road centerline.
4. Where existing pavement defects are in close proximity to the new cut, the inspector may require additional pavement removal to eliminate the pavement defect.
5. The final cut edge of paved surfaces shall be smooth and straight, consistent with grinding or saw cutting devices. No jagged, broken or undermined edges are allowed. Cutting wheel run-out beyond the limits of the opening shall be filled in accordance with WSDOT Standard Specification 5-05.3(8)B for cement concrete surfaces and 5-04.3(5)C for asphalt concrete surfaces.
6. Final compaction of HMA shall be 91% of maximum density.
   Isolated patches: Minimum 1 test per patch up to 150 square feet, and 1 test required every additional 300 square feet, thereafter.
   Trench patches: 1 test every 150 linear feet of trench with a minimum of 2 tests per trench.
   Testing shall be performed by a certified independent testing laboratory or certified tester, as approved by the City's Construction Division. Tests shall be completed and reports identifying the project number submitted to the City Construction Division within 48 hours of test.
7. All joints between the new and original asphalt pavement shall be sealed with hot asphalt or asphalt emulsion and covered with dry paving sand before the asphalt solidifies. Existing surfaces shall be prepared in accordance with WSDOT Standard Specification 5-04.3(5)A prior to placing any new pavement surfaces.
8. Longitudinal construction joints shall only be located at the center or edge of affected lanes.
   Streets and courts 20 feet or less in width and all alleys are considered one-lane streets.
   Non-arterial streets and courts greater than 20 feet in width with no traffic channelization are considered two-lane streets with one-lane either side of the centerline of the street.
   Non-arterial streets greater than 32 feet in width with no traffic channelization may be considered three lane streets upon prior approval from the City Engineer on a case by case basis.
9. Transverse construction joints terminate at the edge of the 2' cut back.
10. For municipal capital improvement projects, cement concrete base pavement shall be in accordance with WSDOT Standard Specification 5-05 for cement concrete pavement. For non-municipal capital improvement projects, concrete shall be a minimum compressive strength of 4,000 PSI.
11. Dowel in accordance with WSDOT Standard Plan A-60.10-00 for arterials, industrial areas, and/or roads with bus traffic. For residential streets the dowel bars may be reduced to 1-inch in diameter. In lieu of dowels, full panel replacement is acceptable.



CITY OF TACOMA DEPARTMENT OF PUBLIC WORKS

APPROVED FOR PUBLICATION — CITY ENGINEER — DATE 11/30/16

TYPICAL PAVEMENT RESTORATION FOR ASPHALT OVER CEMENT CONCRETE BASE PAVEMENT

STANDARD PLAN NO. SU-14A

RE-ISSUED FOR PERMIT

PREPARED BY: sitts & hill — CIVIL | STRUCTURAL | SURVEY — 485 CENTER STREET | TACOMA, WA. 98406 — PHONE: (253) 474-9449 | FAX: (253) 474-0153 — http://www.sittshill.com/

PREPARED FOR: Port of Tacoma — P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

Tacoma

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED BY / DATE / FIELD BOOKS

DATE 11/18/25 — SCALE AS NOTED — DESIGNED DCD — CHECKED DCD — DRAWN KNL — FILE NAME WO4.01

CITY OF TACOMA DEPARTMENT OF PUBLIC WORKS

ENVIRONMENTAL SERVICES SCIENCE & ENGINEERING

PORT OF TACOMA

PARCEL 117 SNAIL ERADICATION

PROJECT DETAILS

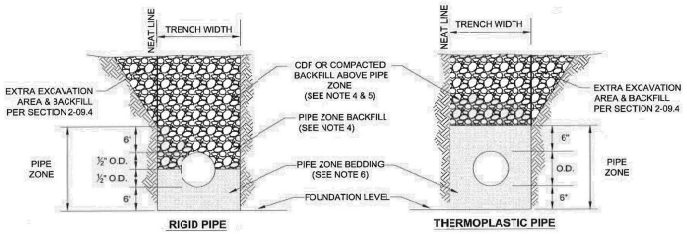
W026-0040

20618

SHEET NO. WO4.01

SHEET 9 OF 12

Reviewed by CITY of Tacoma 12/2/2025 Revised WO4.01 Permit WO26-0040 Reviewed for Code Compliance



NOTES:

1. Provide uniform support under barrel and provide pockets in bedding for pipe bells.
2. Hand tamp under haunches.
3. Trench width shall be as specified in Section 2-09.4 of the WSDOT Standard Specifications.
4. Pipe zone backfill and backfill above pipe zone shall meet the material requirements of WSDOT Standard Specification Section 9-03.12(2) for gravel backfill for walls.
5. All trenches shall be compacted in accordance with SU-28.
6. Pipe zone bedding shall meet the material requirements of WSDOT Standard Specification Section 9-03.9(3) for crushed surfacing top course.

REVIEWED BY		APPROVED FOR PUBLICATION	CITY OF TACOMA PIPE ZONE BEDDING AND BACKFILL FOR SANITARY AND STORM SEWERS
DCS PUBLIC WORKS	GMS ENVIRONMENTAL SERVICES	8/16/16 CITY ENGINEER — DATE	STANDARD PLAN NO. SU-16
NA TACOMA POWER	NA TACOMA WATER		

COMPACTION TESTING REQUIREMENTS [A]		
DEPTH	TESTING FREQUENCY [C]	
	VERTICAL	HORIZONTAL
SURFACE (BELOW HMA)	N/A	1 TEST EVERY 150 LINEAR FEET OF TRENCH OR MINIMUM 2 PER TRENCH
		1 TEST FOR 150 SQUARE FEET FOR ISOLATED PATCHES [B]
1 TO 4 FEET (OR MIN 18 IN. ABOVE PIPE)	1 EVERY 12 INCHES	SAME AS FOR SURFACE
> 4 FEET TO BOTTOM OF TRENCH	NO SPECIFIC REQUIREMENT - MAY BE REQUIRED BY COT INSPECTOR FOR VERIFICATION OF COMPACTION	

A. TESTING SHALL BE PERFORMED BY A CERTIFIED INDEPENDENT TESTING LABORATORY OR A CERTIFIED TESTOR AS APPROVED BY THE CITY'S CONSTRUCTION DIVISION. THE COST OF TESTING IS THE RESPONSIBILITY OF THE PERMITTEE. TESTS SHALL BE COMPLETED AND REPORTS IDENTIFYING THE PROJECT NUMBER SUBMITTED TO THE CONSTRUCTION DIVISION WITHIN 48 HOURS OF TESTS.
B. ONLY ONE COMPACTION TEST WILL BE REQUIRED FOR MULTIPLE TRENCHES WITHIN A 150 SF AREA PROVIDED COMPACTION PROCEDURES ARE THE SAME.
C. EACH LIFT SHALL BE COMPACTED TO 95% MODIFIED PROCTOR DENSITY, AS VERIFIED BY COMPACTION TESTING, BEFORE PROCEEDING TO THE NEXT LIFT. COT INSPECTOR MAY REQUIRE EXCAVATION AND REMOVAL OF SOIL WHERE COMPACTION IS IN QUESTION.

NOTES:

1. Compact backfill material in max. 12 in. lifts. Compact backfill material to 95% max. modified proctor density (ASTM 1557) except directly over pipe, hand tamp only.
2. Native backfill will require laboratory testing to determine max. modified proctor density. Imported backfill will require submittal of proctor test results from supplier.
3. See WSDOT Standard Specification Secton 2-09.3(1)E for material requirements on "Controlled Density Fill" (CDF). CDF may be used for trenches less than 24 in. wide or as approved by the City Engineer. CDF shall be vibrated/compacted.

CITY OF TACOMA DEPARTMENT OF PUBLIC WORKS	APPROVED FOR PUBLICATION	TRENCH BACKFILL COMPACTION REQUIREMENTS
	11/3/16 CITY ENGINEER — DATE	STANDARD PLAN NO. SU-28

RE-ISSUED FOR PERMIT

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NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED BY / DATE / FIELD BOOKS

DATE	SCALE
11/18/25	AS NOTED
DESIGNED: DCD	CHECKED: DCD
DRAWN: KNL	FILE NAME: WO4.02

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL SERVICES SCIENCE & ENGINEERING

PORT OF TACOMA
PARCEL 117 SNAIL ERADICATION
PROJECT DETAILS

WO26-0040
20618
SHEET NO. WO4.02
SHEET 10 OF 12

Reviewed 12/17/2025 WO26-0040 Permit
CITY of Tacoma
Reviewed for Code Compliance

CITY OF TACOMA RIGHT OF WAY GENERAL NOTES

GENERAL

A.The following special provisions are to be used in conjunction with the City of Tacoma Special Provisions, City of Tacoma Standard Plans and City of Tacoma Right-of-Way Design Manual," 2022 Standard Specifications for Road, Bridge and Municipal Construction" and "Standard Plans for Road, Bridge and Municipal Construction" as prepared by the Washington State Department of Transportation (WSDOT).
B.Any inconsistency between these work order drawings and the 2022 Standard Specifications or the WSDOT Standard Plans shall be resolved by the following order of precedence (e.g., 1 presiding over 2, 3, and so forth):

1. Approved Work Order Drawings
2. City of Tacoma Special Provisions, including APWA General Special Provisions, as applicable
3. City of Tacoma Right-of-Way Design Manual
4. Amendments to WSDOT Standard Specifications
5. 2020 WSDOT Standard Specifications
6. City of Tacoma Standard Plans
7. WSDOT Standard Plans

C.Any revisions to these plans must be submitted as a Field Revision through Planning Development Services, reviewed and approved by the City of Tacoma prior to any implementation in the field.
D.Contractors shall familiarize themselves with the site and shall bring any discrepancies to the attention of the Engineer of Record prior to undertaking the affected work.
E.Any discrepancy in these drawings, specifications, these notes, and the site conditions shall be reported to the Engineer of Record, who shall correct such discrepancy in writing after reviewing any changes. Any work done by the Contractor after the discovery of such discrepancy shall be done at the Contractor's risk. The Contractor shall verify and coordinate the dimensions among all drawings with their field survey and measurements prior to proceeding with any work.
F.A pre-construction meeting if required shall be held between the City of Tacoma, the applicant, contractor, and City inspectors prior to issuance of a Work Order permit.
G.No traffic shall be allowed on any newly placed pavement without the approval of the City Inspector.
H.Cold Weather Concrete Work. The following requirements for placing concrete shall be in effect from November 1 to April 1

1. The Inspector shall be notified at least 24 hours prior to any concrete placement.
2. Weather permitting, all concrete placement shall be completed no later than 2:00 p.m. each day.
3. Where forms have been placed and the subgrade has been subjected to severe frost, no concrete shall be placed until the ground is completely thawed. At that time, the forms shall be adjusted and subgrade repaired as determined by the Engineer.

ADDITIONAL PERMITS

A.Separate site development and building permits are required for on-site work including all retaining walls, grading, and erosion control. Adherence to all conditions of these permits is required as a part of this plan.
B.Separate right-of-way construction permits are required for sidewalk installation, as well as, curb and gutter removal and driveway construction when constructed under a site development permit and not a work order.
C.Separate storm and sanitary sewer connection permits are required for each individual connections to the stormwater or wastewater systems and/or each individual treatment device, whichever total is greater. These are over the counter permits.
D.New franchise site services require separate right-of-way utility permits to serve the site. Final restoration shall be coordinated by the project.

SAFETY/EXCAVATION

A.The existing underground utilities shown hereon are based upon available existing record drawings and are not guaranteed to be accurate, nor all-inclusive.
B. All utilities must be verified prior to construction. If the project requires any excavation, the developer/contractor is required to call the Utility Underground Location Center at (800) 424-1555 at least two business days before starting such excavation in accordance with RCW 19.122.
C.It shall be the Contractor's responsibility to protect, in place, all utilities and/or structures whether shown or not shown on this plan. Damage due to the Contractor's operations shall be repaired at the Contractor's expense. A preliminary walk through with photos shared with the inspector prior to the start of work is advised.
D.If workers enter any trench or other excavation four feet or more in depth that does not meet the open pit requirements of Section 2-09.3(3)B, it shall be shored and cribbed. All trench safety systems shall meet the requirements of the Washington Industrial Safety and Health Act, Chapter 49.17 RCW. The Contractor alone shall be responsible for all worker safety, and neither the City of Tacoma nor the Engineer of Record assumes any responsibility.

PAVEMENT PREPARATION / RESTORATION

A. Additional removal and replacement of pavement may be required to provide proper transition/crown as directed by the City of Tacoma Inspector in the field. Final restoration limits shall be determined in the field by the City of Tacoma Inspector.
B. The street sections shown on this plan are designed to be placed upon a firm and unyielding base.
C. Subgrade compaction shall be tested by a testing professional prior to placing base material.
D.Pavement Preparation shall meet all applicable requirements of City of Tacoma Right-of-Way Design Manual Chapter 4 Sections 5.4 and 5.5.
E. Mix design shall be based on Standard Plan P0-01-Pavement Design Standards and PD-02 Pavement Design Worksheet.
F.Pavement restoration shall be constructed in accordance with the City of Tacoma Restoration Policy and applicable Standard Plans.
G. Unsuitable material to be removed and replaced.
H.All permanent traffic channelization, such as but not limited to legends, raised pavement markings, paint, and signage, shall be restored to current Tacoma Standards. Temporary striping shall be maintained as indicated on the plans or as directed by the City of Tacoma Inspector.

HOT MIX ASPHALT

A. All standard hot mix asphalt shall be compacted to a minimum of 92 percent of the maximum density as determined by AASHTO T209. All standard hot mix asphalt utilized shall be considered compactable. The level of compaction attained will be determined as the average of not less than 5 nuclear density gauge tests taken on the day the mix is placed (after completion of the finish rolling) at randomly selected locations within each lot. The quantity represented by each lot will be no greater than a single day's production or approximately 400 tons, whichever is less.
B. All testing results shall be provided to the City Inspector within 48 hours of the test.
C. Control lots not meeting the minimum density standard shall be removed and replaced with satisfactory material.
D. In addition to the randomly selected locations for test of the control lot, the City Inspector reserves the right to test any area which appears defective and to require further compaction or areas that fall below acceptable density readings. These additional tests shall not impact the compaction evaluation of the entire control lot.
E. Hot mix asphalt pavement shall not be placed on any traveled way between October 1 and April 1, without written approval from a Planning and Development Services Review Engineer.

CONCRETE

A.Curing of concrete shall be in accordance with Section 5-05.3(13) of the Standard Specifications.
B.The slump for standard concrete used for sidewalks shall not exceed four inches +/- one inch.
C.Sidewalks and curb ramps shall be constructed in accordance with ADA Standards for Accessible Design, 28 CFR, Part 35 and as supplemented by the Public Works Right of Way Accessibility Guidelines (PROWAG).

SANITARY AND STORM SEWERS

A. 7-08.3(2)" Plugs and Connections:
Rigid Couplings, manufactured by Romac Industries, Inc., or City of Tacoma approved equal, shall be used at any pipe joint in which bell and spigot or fused joints are not used. Flexible couplings are not permitted.
B. 7-08.3(2)" Jointing of Dissimilar Pipe:
Dissimilar pipes shall be joined by use of rigid couplings manufactured by Fomac Industries, Inc., or City of Tacoma approved equal, except for side sewer installation.
C.Sewers and appurtenances shall be cleaned and tested after backfilling by either exfiltration or low-pressure air method at the option of the Contractor, except where the ground water table is such that the Engineer may require the infiltration test.
D. All abandoned pipes encountered during construction and new stormwater and wastewater stub outs shall be sealed with a watertight pipe plug.
E. All frames and grates for standard catch basin inlets on this project shall be "vaned" type and shall conform to that shown on WSDOT Standard Plan No. B-30.10-03, B-30.30-03, and B-30.40-03.
F. Where existing catch basins are modified, grates may be required to be replaced with vaned grates. The City will make the final determination based on the condition of the existing grate and structure.
G. Recycled concrete aggregate shall not be used as gravel backfill where stormwater or groundwater may come into contact with the concrete aggregate, be collected and discharged to the stormwater system or receiving waterbody (such as underdrain systems.). Recycled materials used shall meet the requirements of all applicable local, state, and federal regulations including the City's SWMM, Right-of-Way Design Manual, and Tacoma Municipal Code as applicable to the give application.
H. New connections to brick manholes may be allowed on a case-by-case basis and will be assessed by City staff if it can be structurally cored. Manhole replacement may be required by the Environmental Services Department based upon the condition of the existing manhole.
I. The property side ends of the side sewers shall be marked in the field by means of a 2-inch by 4-inch board and locate wire that extends from the flow line of the side sewer to at least 1 foot above the finished lot grade.
J. After any new stormwater and/or wastewater pipes have been cleaned and the manholes channeled, the main(s) shall be televised for video inspection to provide a record of the constructed conditions and for the wastewater system to verify side sewer connection locations. The City of Tacoma will coordinate this inspection.

MISCELLANEOUS

A.Fences and structures replaced and/or relocated shall be maintained and remain functional.
B.Independent quality assurance sampling and testing will be provided by a certified independent laboratory for all improvements within the right-of-way. All special inspection reports shall be forwarded to the Site Development Group on a monthly basis consistent with the directions given in the preconstruction meeting, and/or as requested by the City of Tacoma inspector.
C. If hydrant water is needed the contractor is required to contact Tacoma Public Utilities, Water department, at (253) 502-8247, to obtain a permit. TPU may impose a fine for use of a non-registered water meter and/or backflow device.

EARTHWORKS, GRADING, EXCAVATION, AND EROSION CONTROL NOTES

A.All work is to be done in accordance with the approved grading plan, soils report, the most current WSDOT Standard Specifications For Road, Bridge And Municipal Construction, the 2021 City of Tacoma Stormwater Management Manual, City of Tacoma Standard Plans, and TMC 2.0.
B.When construction operations are such that debris from the work is deposited on the streets, the Contractor shall immediately remove any deposits or debris which may accumulate on the roadway surface. If the Contractor fails to keep the streets free from deposits and debris resulting from the work, the Contractor shall, upon order of the City of Tacoma Inspector, clean the streets and provide facilities for the removal of all rock and sediment from the tires and between wheels before trucks or other equipment will be allowed to travel over paved streets. Should the Contractor fail or refuse to clean the streets in question, or the trucks or equipment in question, the City of Tacoma Inspector may order the work suspended at the Contractor's risk until compliance with the Contractor's obligations is assured, or the City of Tacoma Inspector may order the streets in question cleaned by others and such costs incurred by the City in achieving compliance with these requirements, including cleaning of the streets, shall be charged to the work order account.
C.The Contractor shall protect existing drainage structures using acceptable methods and materials as shown on this plan. If the methods and materials as shown on this plan are not adequate, the City of Tacoma Inspector may require additional/alternative methods for erosion control and/or protection of existing drainage structures. Additional or alternative methods shall be submitted by the design engineer and accepted by the City of Tacoma Inspector. Any damage caused to the City of Tacoma stormwater system as a result of the work outlined on this plan shall be the sole responsibility of the Contractor. Resolving said damage may include, but not be limited to, the cleaning of the drainage system in question by the Contractor.
D.Watering provisions when applicable must be in place to prevent dust from becoming air borne. Violation of this condition will result in a stop work order until corrected.
E.Fill that will support a street section or other structures shall be placed under the inspection of a Washington State licensed Professional Engineer. Soil to be placed shall be tested and compacted to 95 percent of its maximum density. Engineer shall document existing site conditions, soil and its placement and allowable bearing capacity submitted. Standard requirements for cuts and fill are contained in the WSDOT Standard Specifications For Road, Bridges, and Municipal Construction.
F. A Construction Stormwater Pollution Prevention Plan (SWPPP) in accordance with the 2021 City of Tacoma Stormwater Management Manual is required for all projects with over 2,000 square feet of impervious surface.
G. Soil shall not remain unworked or exposed for more than 2 days.
H. Per TMC 10.22.140.C, no construction shall be performed nor shall any traffic lane be closed to traffic between Thanksgiving day and New Year's day within the downtown core and outlying business districts unless otherwise approved by the Director. View maps of these areas online:
https://www.cityoftacoma.org/government/city_departments/community_and_economic_development/neighborhood_business_districts

INSPECTIONS

A.All erosion control shall be in place prior to clearing except for that clearing necessary to install said erosion control measures. The contractor shall schedule an inspection for the City of Tacoma Inspector for initial erosion control inspection prior to start of work, per item E. below.
B.Erosion control measures shall be maintained at all times to the approval of the City of Tacoma Inspector.
C.Should temporary erosion and sedimentation control measures, as shown on plans become inadequate, the contractor shall install facilities as necessary to protect adjacent properties and the City of Tacoma drainage system, meeting approval of the City of Tacoma Inspector.
D.Not considered a complete list of inspections required. Call for inspection of the City of Tacoma Inspector upon completion of:
Erosion control measures and ongoing regular maintenance
Compaction reports on trenches prior to placement of crushed rock/backfill
Channeling of manholes
Air-testing of sewer mains
Compaction reports for crushed rock prior to placing asphalt
Any concrete work: inspection is required for subgrade, forms, and finish
Adjustments of Utilities
Monumentation
Stand Alone Permits: such as driveways, sidewalk, SEWER, STORM, RUT, street lighting
WATER permits – these cover the connection from the meter to the house
Hydroseeding of cuts/fills and slope stabilization
Final clean-up and project completion
Construction Deficiency list (Punchlist)
E. All material removed from site shall be paced only at a permitted site. Verify location of destination of material prior to exportation. Material excavated from the site shall be discarded at an approved facility per Pierce County Health, Ecology.
F. All wastewater and stormwater pipes shall be video inspected by City Forces prior to paving where paving occurs over sewers. All other sewers will be video inspected prior to final acceptance of new mains.
G. If contaminated soils are suspected and/or encountered within the project contact your inspector. For more information contact the Department of Ecology.
H. All work performed by contractor shall comply with the procedures required WAC 296-62 and WAC 296-65. Contractor shall contact the Puget Sound Air Pollution Control Authority in Seattle at 206-344-7330 for information regarding removal and packaging and Pierce County Environmental Health Department in Tacoma, WA at 253-591-6571 for information regarding transportation and disposal.
I. Contractor shall conform to Department of Ecology's guidelines for contamination cleanup for projects within the Tacoma Smelter Plume Project Area. For more information contact the Department of Ecology at 360-407-7096.

TREE REMOVAL/PROTECTION

A. All areas that are cleared and grubbed, graded, excavated or filled are subject to stabilization. Any of these areas that are left unpaved or lack landscaping shall be hydroseeded or otherwise fully stabilized under the direction and approval of the Construction Inspector.
B. Hydroseeding may occur only during the periods of April 1 though May 31 or September 1 though October 15. Hydroseeding may be allowed during the months of June through August if irrigation is provided.
C. Monitor and maintain hydroseeded areas throughout the winter wet season to ensure that no erosion occurs.
D. Trees to be removed shall be clearly marked for removal. Trees to be saved shall be fenced with barricade fence at the drip line (outer edge of tree branches) to keep construction vehicles from compacting root zone and killing trees. This fencing shall be maintained until construction ends.
E . Tree protection measures to be installed with initial TESC measures and shall be maintained throughout the duration of site work. Refer to City of Tacoma Std. Plans L5-08 through L5-11.

TRAFFIC CONTROL

A. Per TMC 10..22.140.C, no construction shall be performed nor shall any traffic lane be closed to traffic between "thanksgiving day and New Year's day within the downtown core and outlying business districts unless otherwise approved by the Director. View maps of these areas online:
https://www.cityoftacoma.org/government/city_departments/community_and_economic_development/neighborhood_business_districts
B.Prior to the start of any work within the City of Tacoma ROW a complete TCP set shall be on site in addition to a complete set of approve drawing.

MONUMENT REMOVAL PERMIT PROCESS

A. "No survey monument shall be removed or destroyed (the physical disturbance or covering of a monument such that the survey point is no longer visible or readily accessible) before a permit is obtained from the Department of Natural Resources (DNR)." WAC 332-120-030(2) states "It shall be the responsibility of those performing construction work or other activity (including road and street resurfacing projects) to adequately search the records and the physical area of the proposed construction work or other activity for the purpose of locating and referencing any known or existing survey monuments." Construction shall not commence until WAC outlined in Chapter 332-120 is complied with.
B. Monuments on the plans shall be protected in place or the plans will call out the identified DNR permit for removal and replacement.

HORIZONTAL CONTROL AND VERTICAL CONTROL

Work in the right-of-way will be performed using construction staking established from two (2) City monuments for establishing control and basis of bearing. A list of survey monuments can be found at https://cms.cityoftacoma.org/PublicWorks/Engineering/LandSurvey/SurveyMons.pdf

HORIZONTAL AND VERTICAL CURVES

For all infrastructure constructed using horizontal and/or vertical curves, grade stakes must be set every 25 feet and at grade breaks with a minimum of 3 stakes for each curve. Stakes shall be placed at radius points on street returns.

STAKING REQUIREMENTS

A. Construction staking shall be per Standard Plan SU-26.
B. SANITARY SEWER AND STORMWATER
1. Clearing stakes if needed.
2.Stakes every 50 feet plus grade breaks. Try to maintain 12 foot offsets in streets and 8 foot offsets in alleys
3.Double offsets at manholes and catch basins (ahead and back stakes at angle points).
4.Catch basin station shall be to the centerline of the basin. Catch basin offsets shall be to the face of the curb.
C. RESIDENTIAL STREETS AND PRIVATE ACCESSWAYS
1.Clearing stakes as needed.
2. Slope stakes every 50 feet and grade breaks if cuts or fills exceed 2 feet.
3.Curb stakes every 50 feet and grade breaks, on 4 foot offset to the face of curb. Curb stakes are set to the top of curb grade (Blue Tops).
4. Also stake the beginning and end of all approaches.
5. No centerline of street grades unless the street grade is warped. If street grades are needed, set blue tops for each course.
D. ARTERIAL STREETS
1.Clearing stakes as needed.
2.Slope stakes every 50 feet and grade breaks if cuts or fills exceed 2 feet.
3.Curb stakes every 50 feet and grade breaks, on 4 foot offset to the face of curb.
4.Curb stakes are set to the top of curb grade (Blue Tops). Also stake the beginning and end of all approaches.
5. Stake centerline and quarterline grade every 50 feet and grade breaks at grade for each course.
E. ALLEYS
1.Stake both sides every 50 feet and grade breaks, on a 2 foot offset to the edge of paving, with a cut or fill to edge of paving on high side and flow line on low side.
F. SIDEWALKS
1.Offsets for walks are set on 50' intervals and grade breaks normally at 2 foot to edge of walk and at edge of walk grade (Blue Tops).
2.Sidewalk alignment is normally at 5 feet from the face of curb. No walk graces are needed if curbs are built but running slope and cross slope per American with Disabilities must be met for all new walk meeting the design.

RECORD DRAWINGS CRITERIA FOR ACCEPTANCE OF ALL PRIVATE WORK ORDERS

A. Record drawings shall be received and accepted prior to issuing utility connection permits or release of performance bonds.
B. All revisions to the approved plans must be approved by the City of Tacoma prior to implementation of the changes.
C. A determination at the time of proposal to the Site Review Engineer shall be made whether the revision can be addressed with red line drawings submitted as a part of the record drawings or if it will require formal submission for approval.
D. Record drawings shall show the station, offset, centerline and gutter flowline elevations, to nearest 0.01 foot; for all horizontal and vertical roadway alignment changes, at the intersection end of radius points and at the beginning and end of new paving.
E. Record drawings shall show the station, offset, invert, and rim elevations to the nearest 0.01 foot for all stormwater and wastewater structures. (i.e.: manholes, catch basins, etc.)
F. Record drawings shall show all side sewers and shall locate them by measurements from permanent objects. i.e.: curb, property corner, etc.) In addition, the depth of all side sewers shall be noted on the record drawings and locate board.
G. Record drawings shall show vertical and horizontal datum for survey monuments (existing or new construction) within the limits of the project.
H. Record drawings shall consist of a clean set of approved work order drawings with all changes noted above shown in red.
I. Record drawings, including the Engineer's Certification, as applicable, must be submitted within 30 days of substantial completion and prior to release of the performance bond or assignment of funds or City survey crews will collect the necessary data and bill against the work order

BOND RELEASE

The following are required to be collected for the performance bond to be release to the owner:
Punchlist Completion.
Record Drawings
Engineer Certification for Stormwater Facilities

Revised: January 26, 2023

RE-ISSUED FOR PERMIT

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Tacoma

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED BY / DATE / FIELD BOOKS

DATE	SCALE
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CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL SERVICES SCIENCE & ENGINEERING

PORT OF TACOMA
PARCEL 117 SNAIL ERADICATION
COT RIGHT OF WAY GENERAL NOTES

WO26-0040
20618
SHEET NO. WO4.03
SHEET 11 of 12

Reviewed by 17202
Revised Permit
WO26-0040
CITY of Tacoma
Reviewed for Code Compliance

LEGEND

PROPOSED FEATURES-

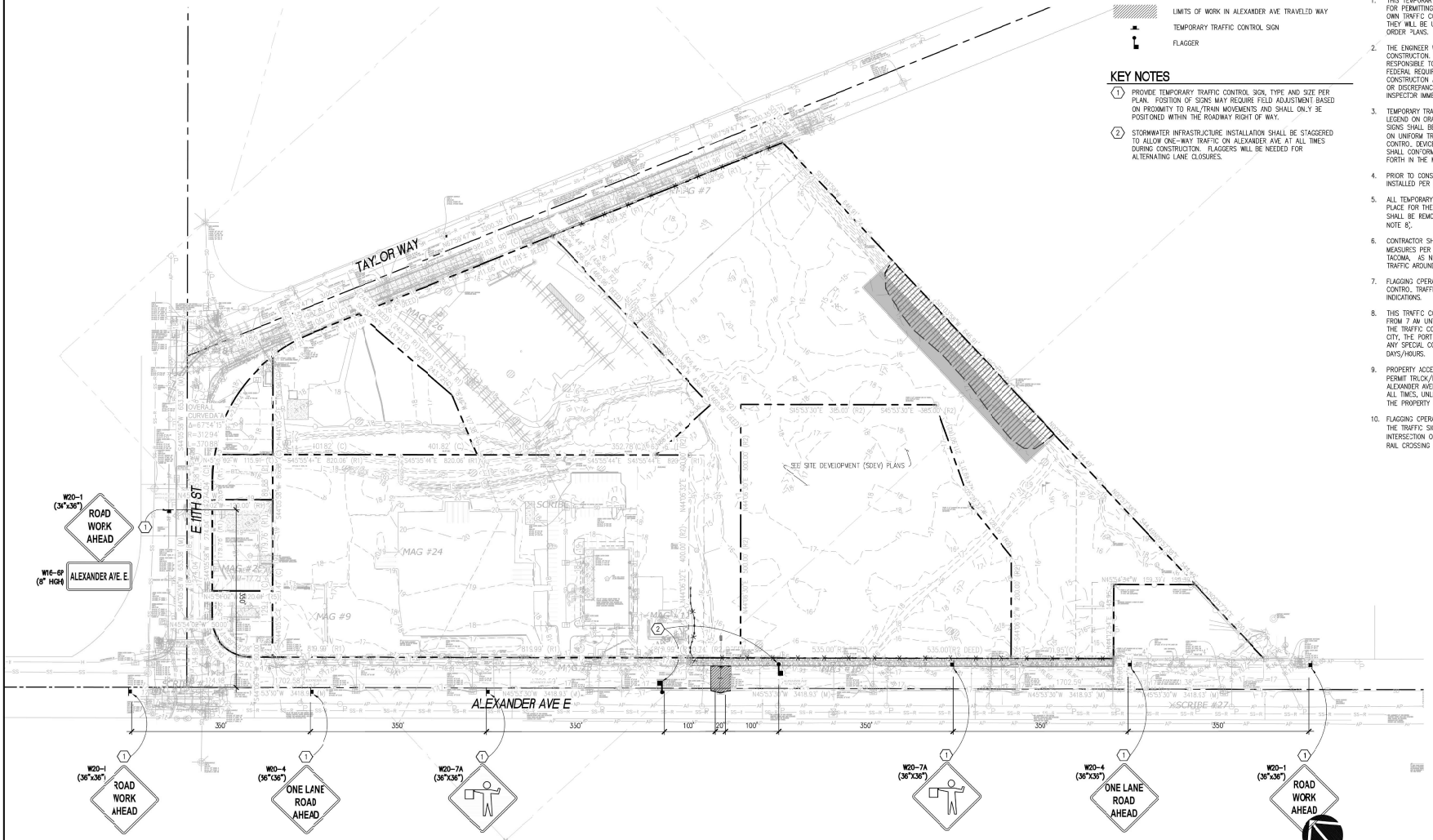
- LIMITS OF WORK IN ALEXANDER AVE TRAVELED WAY
- TEMPORARY TRAFFIC CONTROL SIGN
- FLAGGER

KEY NOTES

1. PROVIDE TEMPORARY TRAFFIC CONTROL SIGN, TYPE AND SIZE PER PLAN. POSITION OF SIGNS MAY REQUIRE FIELD ADJUSTMENT BASED ON PROXIMITY TO RAIL/TRAIN MOVEMENTS AND SHALL ONLY BE POSITIONED WITHIN THE ROADWAY RIGHT OF WAY.
2. STORMWATER INFRASTRUCTURE INSTALLATION SHALL BE STAGGERED TO ALLOW ONE-WAY TRAFFIC ON ALEXANDER AVE AT ALL TIMES DURING CONSTRUCTION. FLAGGERS WILL BE NEEDED FOR ALTERNATING LANE CLOSURES.

GENERAL NOTES

1. THIS TEMPORARY TRAFFIC CONTROL (TTC) PLAN HAS BEEN PREPARED FOR PERMITTING PURPOSES ONLY. CONTRACTOR SHALL SUBMIT THEIR OWN TRAFFIC CONTROL PLAN OR PROVIDE ACKNOWLEDGEMENT THAT THEY WILL BE USING TRAFFIC CONTROL PLAN FROM APPROVED WORK ORDER PLANS.
2. THE ENGINEER WILL NOT BE ONSITE AT ALL TIMES DURING CONSTRUCTION. THEREFORE, THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE TO ENSURE THAT ALL CITY, COUNTY, STATE, AND FEDERAL REQUIREMENTS ARE MET AS RELATING TO THE PROPOSED CONSTRUCTION AND TEMPORARY TRAFFIC CONTROL. IF QUESTIONS OR DISCREPANCIES ARISE, CONTACT THE ENGINEER OR CITY INSPECTOR IMMEDIATELY.
3. TEMPORARY TRAFFIC CONTROL SIGNAGE SHALL CONSIST OF BLACK LEGEND ON ORANGE BACKGROUND, UNLESS OTHERWISE NOTED. SIGNS SHALL BE MOUNTED PER THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL TRAFFIC CONTROL DEVICES ON THIS TEMPORARY TRAFFIC CONTROL PLAN SHALL CONFORM TO TEMPORARY TRAFFIC CONTROL STANDARDS SET FORTH IN THE MUTCD.
4. PRIOR TO CONSTRUCTION, EROSION CONTROL MEASURES SHALL BE INSTALLED PER SHEETS W00.01, W00.02, AND W01.00.
5. ALL TEMPORARY TRAFFIC CONTROL MEASURES SHALL REMAIN IN PLACE FOR THE DURATION OF CONSTRUCTION ACTIVITY. TTC DEVICES SHALL BE REMOVED DURING CONSTRUCTION INACTIVITY (ALSO SEE NOTE 8).
6. CONTRACTOR SHALL APPLY ADDITIONAL TEMPORARY TRAFFIC CONTROL MEASURES PER THE MUTCD AND/OR AS DIRECTED BY THE CITY OF TACOMA, AS NECESSARY TO SAFELY AND EFFECTIVELY REROUTE TRAFFIC AROUND THE WORK ZONE.
7. FLAGGING OPERATIONS WITHIN SIGNALIZED INTERSECTIONS SHALL NOT CONTROL TRAFFIC CONTRARY TO THE CORRESPONDING SIGNAL INDICATIONS.
8. THIS TRAFFIC CONTROL PLAN CAN ONLY BE UTILIZED WEEKDAYS FROM 7 AM UNTIL 4 PM OR WEEKENDS FROM 9 AM UNTIL 5 PM. THE TRAFFIC CONTROL SCHEDULE SHALL BE COORDINATED WITH THE CITY, THE PORT OF TACOMA, AND TACOMA FIRE TO ACCOUNT FOR ANY SPECIAL CONDITIONS WHICH MAY FURTHER RESTRICT WORK DAYS/HOURS.
9. PROPERTY ACCESS, INCLUDING SPECIAL PROVISIONS AS NEEDED TO PERMIT TRUCK/DELIVERY ACCESS GIVEN THE LIMITED WIDTH OF THE ALEXANDER AVENUE ROADWAY AVAILABLE, SHALL BE MAINTAINED AT ALL TIMES, UNLESS SPECIFIC ARRANGEMENTS HAVE BEEN MADE WITH THE PROPERTY OWNER/OPERATOR.
10. FLAGGING OPERATIONS CANNOT IMPEDE, IMPACT, OR COUNTERMAND THE TRAFFIC SIGNAL OPERATIONS AND/OR INDICATIONS AT THE INTERSECTION OF E 11TH STREET/ALEXANDER AVE NOR IMPACT ANY RAIL CROSSING ACTIVITY WITHIN PROXIMITY TO THE SITE/WORK AREA.



TEMPORARY TRAFFIC CONTROL PLAN

SCALE: 1"=100'

NORTH

HORIZONTAL SCALE: 1"=100'

100 0 100 200

RE-ISSUED FOR PERMIT

PREPARED BY

sitts&hill
CIVIL | STRUCTURAL | SURVEY
485 CENTER STREET | TACOMA, WA. 98409
PHONE: (253) 474-9449 | FAX: (253) 474-0153
http://www.sitshill.com/

PREPARED FOR

Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

Tacoma

NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED BY

DATE

FIELD BOOKS

DATE 11/18/25 | SCALE AS NOTED
DESIGNED DCD | CHECKED DCD
DRAWN KNL | FILE NAME WO TTC1.01

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
ENVIRONMENTAL SERVICES SCIENCE & ENGINEERING

PORT OF TACOMA
PARCEL 117 SNAIL ERADICATION
--

W026-0040
20618
SHEET NO. TTC1.01
SHEET 12 of 12

Reviewed for 11/7/2025 Revised Permit WO#26-0040 CITY of Tacoma Reviewed for Code Compliance

Appendix G
State Environmental Policy Act (SEPA) Determination of Nonsignificance (DNS)

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Southwest Region Office
PO Box 47775 • Olympia, WA 98504-7775 • 360-407-6300

STATE ENVIRONMENTAL POLICY ACT

DETERMINATION OF NONSIGNIFICANCE

Date of Issuance: March 23, 2026

Lead agency: Department of Ecology, Toxics Cleanup Program, Southwest Region

Agency Contact: Steve Teel
Cleanup Project Manager
steve.teel@ecy.wa.gov
(360)-890-0059

Description of proposal: The project consists of the following work on two Port of Tacoma parcels (Hylebos Marsh Interim Action):

- Capping and containing contaminated soil containing auto fluff and hazardous substances on a portion of the Taylor Way and Alexander Avenue Fill Area (TWAAFA) cleanup site (Ecology cleanup site ID 4692). This work is termed an "interim action" by Ecology as this project site is part of a larger site that requires cleanup. This interim action is being performed under the requirements of Model Toxics Control Act Enforcement Order DE 19410. The interim action will result in a protective remedy to block industrial workers coming into contact with contaminated soil containing auto fluff at the site. Auto fluff and soil containing hazardous substances above industrial cleanup levels will be capped with clean soil, gravel, and asphalt cap and will be stabilized on the sides with a retaining wall. The cap will also reduce potential infiltration that could result in leaching to groundwater. Following completion of the filling, grading, containment wall construction, and capping, the Port will install groundwater monitoring wells to be sampled and/or used for future investigation and final cleanup planning for the larger TWAAFA site.
- Eliminate viable habitat for the Mediterranean vineyard snail (Cernuella virgata), an invasive species located on the property, through habitat removal. Existing wetlands will be filled in, as allowed by permits, and the Property will be graded. Compensatory mitigation of the wetlands will be completed while the property is redeveloped.

Approximately 6,650 cubic yards of fill material will be used to grade and cap the auto fluff and hazardous substances in soil in the interim action area. Some minor excavation is anticipated for installation of the base of the containment wall. The excavated soil will be consolidated within the capped area.

West of the containment wall and outside of the interim action area, the Hylebos Marsh property will be graded to promote drainage away from the capped auto fluff material and is

anticipated to target a 1 percent east-to-west slope. An estimated 10,025 cubic yards of gravel is anticipated to be imported to the site and placed to form an approximately 6-inch thick layer of consolidated material over the snail eradication areas. Following authorization, the Port will grade the Property outside of the proposed containment area and will fill the wetlands to eradicate the invasive snails. In total, 15.97 acres are estimated to be graded and filled as part of the larger project.

Location of proposal: 1205 Alexander Avenue East and 1300 Taylor Way, Tacoma, WA 98409, Pierce County. Pierce County Assessor Parcels (APNs) 0321263045 and 0321352064.

Applicant/Proponent: Port of Tacoma

Project Representative: Scott Hooton
Project Manager, Environmental Programs
Port of Tacoma
PO Box 1837
Tacoma, WA 98401-1837
(253) 383-9428
shooton@portoftacoma.com

Ecology has determined that this proposal will not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). We have reviewed the attached Environmental Checklist, as well as the Public Review Draft Interim Action Plan.

The SEPA Environmental Checklist and Draft Interim Action Plan are available online at Ecology's TWAAFA webpage. In-person review these documents are also available at two repository locations during their associated public comment period (April 15-May 15, 2026). These locations include:

Tacoma Public Library
Main Branch
1102 Tacoma Avenue
Tacoma, WA 98402

Ecology Lacey Office (by appointment)
300 Desmond Drive SE
Lacey, WA 98503
PublicDisclosureSWRO@ecy.wa.gov
360-407-6365

After May 15, 2026, please use the Ecology Lacey Office as the in-person repository location.

This determination is based on the following findings and conclusions:

- The site and adjacent properties are zoned Port Maritime Industrial. The site is undeveloped and covered with low-lying vegetation. Adjacent properties are used for transportation, truck and trailer storage, manufacturing, and a hazardous waste recycling facility.

- The cleanup action will prevent ecological and human direct contact exposure to auto fluff that contains hazardous chemicals by containing and capping these materials.

- The nonnative Mediterranean vineyard snail is extremely destructive to crops, especially grains, and its presence at the Port of Tacoma poses a significant threat to Washington's and the nation's agriculture and natural resources. Eradication efforts from 2007 to present have shrunk the range of these invasive snails from 300-acres to just a 5-acre area within the Taylor Way and Alexander Avenue Fill Area Site. However, the remaining population has been difficult to eradicate; having survived past eradication efforts.

- To verify the snails are eradicated at the Property, Washington State Department of Agriculture will conduct 3-years of monitoring after the cap is installed. Dogs trained to detect the presence of snails will verify the effectiveness of the eradication effort.

- The wetlands at the site are category III wetlands. Category III wetlands have moderate levels of functions, are disturbed in some ways, and are often less diverse or more isolated from other natural resources in the landscape. To make up for the impacts on wetlands that the cleanup and snail mitigation will cause, the Port is required to perform mitigation. The Port is proposing a combination of mitigation approaches. Due to the lack of onsite and in-kind mitigation opportunities and the existing onsite wetlands providing minimal functions, these mitigation approaches will take place at off-property locations. The benefits to the surrounding environments from the proposed mitigation will match the damage caused by filling and grading the wetlands at the site. Since we considered this balance of benefits, we conclude that the interim action cleanup will not cause significant harm.

- Filling of wetlands will be done as permitted by City of Tacoma and according to Department of Ecology administrative order. Other permits that are required include Construction Stormwater General National Pollutant Discharge Elimination System (NPDES), local grading and right-of-way permits.

- Prior to ground disturbing activities, a cultural review process shall be completed. This process initiates consultation with Ecology, Tribes, and the Department of Archaeology and Historic Preservation (DAHP).

- Construction specifications documents will be reviewed and approved by Ecology to ensure all on-site work will be performed in accordance with applicable standards and use of best management construction and erosion control practices.

- The Ecology cleanup project manager will provide oversight during project construction.

The comment period for this DNS corresponds with the comment period for the Public Comment Review Draft Hylebos Marsh Interim Action Plan. The comment period begins on April 15, 2026, and ends on May 15, 2026.

Responsible Official: Marian L. Abbett, PE
Section Manager
Toxics Cleanup Program
Southwest Regional Office
Department of Ecology
P.O. Box 47775
Olympia, WA 98504-7600
360-489-4569
marian.abbett@ecy.wa.gov

Signature:

Date: March 23, 2026

Appendix H
Critical Area
Development Permit
No. LU25-0176

Appendix I
WAC 173-340-900 (RCW 70.105 and MTCA Method A, Table 740-1 requirements)

WAC 173-340-900 Tables.

Table 708-1: Toxicity Equivalency Factors for Chlorinated dibenzo-p-dioxins and Chlorinated Dibenzofurans Congeners

CAS Number	Hazardous Substance	Toxicity Equivalency Factor (unitless)[1]
	Dioxin Congeners	
1746-01-6	2,3,7,8-Tetrachloro dibenzo-p-dioxin	1
40321-76-4	1,2,3,7,8-Pentachloro dibenzo-p-dioxin	1
39227-28-6	1,2,3,4,7,8-Hexachloro dibenzo-p-dioxin	0.1
57653-85-7	1,2,3,6,7,8-Hexachloro dibenzo-p-dioxin	0.1
19408-74-3	1,2,3,7,8,9-Hexachloro dibenzo-p-dioxin	0.1
35822-46-9	1,2,3,4,6,7,8-Heptachloro dibenzo-p-dioxin	0.01
3268-87-9	1,2,3,4,6,7,8,9-Octachloro dibenzo-p-dioxin	0.0003
	Furan Congeners	
51207-31-9	2,3,7,8-Tetrachloro dibenzofuran	0.1
57117-41-6	1,2,3,7,8-Pentachloro dibenzofuran	0.03
57117-31-4	2,3,4,7,8-Pentachloro dibenzofuran	0.3
70648-26-9	1,2,3,4,7,8-Hexachloro dibenzofuran	0.1
57117-44-9	1,2,3,6,7,8-Hexachloro dibenzofuran	0.1
72918-21-9	1,2,3,7,8,9-Hexachloro dibenzofuran	0.1
60851-34-5	2,3,4,6,7,8-Hexachloro dibenzofuran	0.1
67562-39-4	1,2,3,4,6,7,8-Heptachloro dibenzofuran	0.01
55673-89-7	1,2,3,4,7,8,9-Heptachloro dibenzofuran	0.01
39001-02-0	1,2,3,4,6,7,8,9-Octachloro dibenzofuran	0.0003

(1) Source: Van den Berg et al. 2006. The 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds.
Toxicological Sciences 2006 93(2):223-241; doi:10.1093/toxsci/kfl055.

Table 708-2: Toxicity Equivalency Factors for Minimum Required Carcinogenic Polyaromatic Hydrocarbons (cPAHs) under WAC 173-340-708(e)

CAS Number	Hazardous Substance	TEF (unitless)[1]
50-32-08	benzo[a]pyrene	1
56-55-3	benzo[a]anthracene	0.1
205-99-2	benzo[b]fluoranthene	0.1
207-08-9	benzo[k]fluoranthene	0.1
218-01-9	chrysene	0.01
53-70-3	dibenz[a, h]anthracene	0.1
193-39-5	indeno[1,2,3-cd]pyrene	0.1

(1) Source: Cal-EPA, 2005. Air Toxics Hot Spots Program Risk Assessment Guidelines, Part II Technical Support Document for Describing Available Cancer Potency Factors. Office of Environmental Health Hazard Assessment, California Environmental Protection Agency. May 2005.

Table 708-3: Toxicity Equivalency Factors for Carcinogenic Polyaromatic Hydrocarbons (cPAHs) that May be Required under WAC 173-340-708 (8)(e)(v)

CAS Number	Hazardous Substance	TEF (unitless)[1]
205-82-3	benzo(j)fluoranthene	0.1

CAS Number	Hazardous Substance	TEF (unitless)[1]
224-42-0	dibenz[a, j]acridine	0.1
226-36-8	dibenz[a, h]acridine	0.1
194-59-2	7H-dibenzo[c, g]carbazole	1
192-65-4	dibenzo[a, e]pyrene	1
189-64-0	dibenzo[a, h]pyrene	10
189-55-9	dibenzo[a, i]pyrene	10
191-30-0	dibenzo[a, l]pyrene	10
3351-31-3	5-methylchrysene	1
5522-43-0	1-nitropyrene	0.1
57835-92-4	4-nitropyrene	0.1
42397-64-8	1,6-dinitropyrene	10
42397-65-9	1,8-dinitropyrene	1
7496-02-8	6-nitrochrysene	10
607-57-8	2-nitrofluorene	0.01
57-97-6	7,12-dimethylbenzanthracene	10
56-49-5	3-methylcholanthrene	1
602-87-9	5-nitroacenaphthene	0.01

(1) Source: Cal-EPA, 2005. Air Toxics Hot Spots Program Risk Assessment Guidelines, Part II Technical Support Document for Describing Available Cancer Potency Factors. Office of Environmental Health Hazard Assessment, California Environmental Protection Agency. May 2005.

Table 708-4: Toxicity Equivalency Factors for Dioxin-Like Polychlorinated Biphenyls (PCBs)

CAS Number	Hazardous Substance	TEF (unitless)[1]
	Dioxin-Like PCBs	
32598-13-3	3,3',4,4'-Tetrachlorobiphenyl (PCB 77)	0.0001
70362-50-4	3,4,4',5- Tetrachlorobiphenyl (PCB 81)	0.0003
32598-14-4	2,3,3',4,4'-Pentachlorobiphenyl (PCB 105)	0.00003
74472-37-0	2,3,4,4',5-Pentachlorobiphenyl (PCB 114)	0.00003
31508-00-6	2,3',4,4',5-Pentachlorobiphenyl (PCB 118)	0.00003
65510-44-3	2',3,4,4',5-Pentachlorobiphenyl (PCB 123)	0.00003
57465-28-8	3,3',4,4',5-Pentachlorobiphenyl (PCB 126)	0.1
38380-08-4	2,3,3',4,4',5-Hexachlorobiphenyl (PCB 156)	0.00003
69782-90-7	2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 157)	0.00003
52663-72-6	2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167)	0.00003
32774-16-6	3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169)	0.03
39635-31-9	2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189)	0.00003

(1) Source: Van den Berg et al. 2006. The 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds. Toxicological Sciences 2006 93(2):223-241; doi:10.1093/toxsci/kfl055.

Table 720-1
Method A Cleanup Levels for Groundwater.[a]

Hazardous Substance	CAS Number	Cleanup Level
Arsenic	7440-38-2	5 ug/liter[b]
Benzene	71-43-2	5 ug/liter[c]
Benzo(a)pyrene	50-32-8	0.1 ug/liter[d]
Cadmium	7440-43-9	5 ug/liter[e]
Chromium (Total)	7440-47-3	50 ug/liter[f]
DDT	50-29-3	0.3 ug/liter[g]
1,2 Dichloroethane (EDC)	107-06-2	5 ug/liter[h]
Ethylbenzene	100-41-4	700 ug/liter[i]
Ethylene dibromide (EDB)	106-93-4	0.01 ug/liter[j]
Gross Alpha Particle Activity		15 pCi/liter[k]
Gross Beta Particle Activity		4 mrem/yr[l]
Lead	7439-92-1	15 ug/liter[m]
Lindane	58-89-9	0.2 ug/liter[n]
Methylene chloride	75-09-2	5 ug/liter[o]
Mercury	7439-97-6	2 ug/liter[p]
MTBE	1634-04-4	20 ug/liter[q]
Naphthalenes	91-20-3	160 ug/liter[r]
PAHs (carcinogenic)		See benzo(a)pyrene[d]
PCB mixtures		0.1 ug/liter[s]
Radium 226 and 228		5 pCi/liter[t]
Radium 226		3 pCi/liter[u]
Tetrachloroethylene	127-18-4	5 ug/liter[v]
Toluene	108-88-3	1,000 ug/liter[w]
Total Petroleum Hydrocarbons[x]		
[Note: Must also test for and meet cleanup levels for other petroleum components—see footnotes!]		
Gasoline Range Organics		
Benzene present in groundwater		800 ug/liter
No detectable benzene in groundwater		1,000 ug/liter
Diesel Range Organics		500 ug/liter
Heavy Oils		500 ug/liter
Mineral Oil		500 ug/liter
1,1,1 Trichloroethane	71-55-6	200 ug/liter[y]
Trichloroethylene	79-01-6	5 ug/liter[z]
Vinyl chloride	75-01-4	0.2 ug/liter[aa]
Xylenes	1330-20-7	1,000 ug/liter[bb]

Footnotes:

a **Caution on misusing this table.** This table has been developed for specific purposes. It is intended to provide conservative cleanup levels for drinking water beneficial uses at sites undergoing routine cleanup actions or those sites with relatively few hazardous substances. This table may not be appropriate for defining cleanup levels at other sites. For these reasons, the values in this table should not automatically be used to define cleanup levels that must be met for financial, real estate, insurance coverage or placement, or similar transactions or purposes. Exceedances of the values in this table do not necessarily mean the groundwater must be restored to those levels at all sites. The level of restoration depends on the remedy selected under WAC 173-340-350 through 173-340-390.

b **Arsenic.** Cleanup level based on background concentrations for state of Washington.

c **Benzene.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).

d **Benzo(a)pyrene.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61), adjusted to a 1 x 10^{-5} risk. If other carcinogenic PAHs are suspected of being present at the site, test for them and use this value as the total concentration that all carcinogenic PAHs must meet using the toxicity equivalency methodology in WAC 173-340-708(8).

e **Cadmium.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.62).

f **Chromium (Total).** Cleanup level based on concentration derived using Equation 720-1 for hexavalent chromium. This is a total value for chromium III and chromium VI. If just chromium III is present at the site, a cleanup level of 100 ug/l may be used (based on WAC 246-290-310 and 40 C.F.R. 141.62).

g **DDT (dichlorodiphenyltrichloroethane).** Cleanup levels based on concentration derived using Equation 720-2.

h **1,2 Dichloroethane (ethylene dichloride or EDC).** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).

i **Ethylbenzene.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).

j **Ethylene dibromide (1,2 dibromoethane or EDB).** Cleanup level based on concentration derived using Equation 720-2, adjusted for the practical quantitation limit.

k **Gross Alpha Particle Activity, excluding uranium.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.15).

l **Gross Beta Particle Activity, including gamma activity.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.15).

m **Lead.** Cleanup level based on applicable state and federal law (40 C.F.R. 141.80).

n **Lindane.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).

o **Methylene chloride (dichloromethane).** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).

p **Mercury.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.62).

q **Methyl tertiary-butyl ether (MTBE).** Cleanup level based on federal drinking water advisory level (EPA-822-F-97-009, December 1997).

r **Naphthalenes.** Cleanup level based on concentration derived using Equation 720-1. This is a total value for naphthalene, 1-methyl naphthalene and 2-methyl naphthalene.

s **PCB mixtures.** Cleanup level based on concentration derived using Equation 720-2, adjusted for the practical quantitation limit. This cleanup level is a total value for all PCBs.

t **Radium 226 and 228.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.15).

u **Radium 226.** Cleanup level based on applicable state law (WAC 246-290-310).

v **Tetrachloroethylene.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).

w **Toluene.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).

x **Total Petroleum Hydrocarbons (TPH).** TPH cleanup values have been provided for the most common petroleum products encountered at contaminated sites. Where there is a mixture of products or the product composition is unknown, samples must be tested using both the NWTPH-Gx and NWTPH-Dx methods and the lowest applicable TPH cleanup level must be met.

- **Gasoline range organics** means organic compounds measured using method NWTPH-Gx. Examples are aviation and automotive gasoline. The cleanup level is based on protection of groundwater for noncarcinogenic effects during drinking water use. Two cleanup levels are provided. The higher value is based on the assumption that no benzene is present in the groundwater sample. If any detectable amount of benzene is present in the groundwater sample, then the lower TPH cleanup level must be used. No interpolation between these cleanup levels is allowed. The groundwater cleanup level for any carcinogenic components of the petroleum [such as benzene, EDB and EDC] and any noncarcinogenic components [such as ethylbenzene, toluene, xylenes and MTBE], if present at the site, must also be met. See Table 830-1 for the minimum testing requirements for gasoline releases.
- **Diesel range organics** means organic compounds measured using NWTPH-Dx. Examples are diesel, kerosene, and #1 and #2 heating oil. The cleanup level is based on protection from noncarcinogenic effects during drinking water use. The groundwater cleanup level for any carcinogenic components of the petroleum [such as benzene and PAHs] and any noncarcinogenic components [such as ethylbenzene, toluene, xylenes and naphthalenes], if present at the site, must also be met. See Table 830-1 for the minimum testing requirements for diesel releases.
- **Heavy oils** means organic compounds measured using NWTPH-Dx. Examples are #6 fuel oil, bunker C oil, hydraulic oil and waste oil. The cleanup level is based on protection from noncarcinogenic effects during drinking water use, assuming a product composition similar to diesel fuel. The groundwater cleanup level for any carcinogenic components of the petroleum [such as benzene, PAHs and PCBs] and any noncarcinogenic components [such as ethylbenzene, toluene, xylenes and naphthalenes], if present at the site, must also be met. See Table 830-1 for the minimum testing requirements for heavy oil releases.
- **Mineral oil** means non-PCB mineral oil, typically used as an insulator and coolant in electrical devices such as transformers and capacitors measured using NWTPH-Dx. The cleanup level is based on protection from noncarcinogenic effects during drinking water use. Sites using this cleanup level must analyze groundwater samples for PCBs and meet the PCB cleanup level in this table unless it can be demonstrated that: (1) The release originated from an electrical device manufactured after July 1, 1979; or (2) oil containing PCBs was never used in the equipment suspected as the source of the release; or (3) it can be documented that the oil released was recently tested and did not contain PCBs. Method B (or Method C, if applicable) must be used for releases of oils containing greater than 50 ppm PCBs. See Table 830-1 for the minimum testing requirements for mineral oil releases.

y **1,1,1 Trichloroethane.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).

z **Trichloroethylene.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).

aa **Vinyl chloride.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61), adjusted to a 1 x 10^{-5} risk.

bb **Xylenes.** Cleanup level based on xylene not exceeding the maximum allowed cleanup level in this table for total petroleum hydrocarbons and on prevention of adverse aesthetic characteristics. This is a total value for all xylenes.

Table 740-1
Method A Soil Cleanup Levels for Unrestricted Land Uses.[a]

Hazardous Substance	CAS Number	Cleanup Level
Arsenic	7440-38-2	20 mg/kg[b]
Benzene	71-43-2	0.03 mg/kg[c]
Benzo(a)pyrene	50-32-8	0.1 mg/kg[d]
Cadmium	7440-43-9	2 mg/kg[e]
Chromium		
Chromium VI	18540-29-9	19 mg/kg[f1]
Chromium III	16065-83-1	2,000 mg/kg[f2]
DDT	50-29-3	3 mg/kg[g]
Ethylbenzene	100-41-4	6 mg/kg[h]
Ethylene dibromide (EDB)	106-93-4	0.005 mg/kg[i]
Lead	7439-92-1	250 mg/kg[j]
Lindane	58-89-9	0.01 mg/kg[k]
Methylene chloride	75-09-2	0.02 mg/kg[l]
Mercury (inorganic)	7439-97-6	2 mg/kg[m]
MTBE	1634-04-4	0.1 mg/kg[n]

Hazardous Substance	CAS Number	Cleanup Level
Naphthalenes	91-20-3	5 mg/kg[o]
PAHs (carcinogenic)		See benzo(a)pyrene[d]
PCB Mixtures		1 mg/kg[p]
Tetrachloroethylene	127-18-4	0.05 mg/kg[q]
Toluene	108-88-3	7 mg/kg[r]
Total Petroleum Hydrocarbons[s]		
[Note: Must also test for and meet cleanup levels for other petroleum components—see footnotes!]		
Gasoline Range Organics		
Gasoline mixtures without benzene and the total of ethylbenzene, toluene and xylene are less than 1% of the gasoline mixture		100 mg/kg
All other gasoline mixtures		30 mg/kg
Diesel Range Organics		2,000 mg/kg
Heavy Oils		2,000 mg/kg
Mineral Oil		4,000 mg/kg
1,1,1 Trichloroethane	71-55-6	2 mg/kg[t]
Trichloroethylene	79-01-6	0.03 mg/kg[u]
Xylenes	1330-20-7	9 mg/kg[v]

Footnotes:

a **Caution on misusing this table.** This table has been developed for specific purposes. It is intended to provide conservative cleanup levels for sites undergoing routine cleanup actions or for sites with relatively few hazardous substances, and the site qualifies under WAC 173-340-7491 for an exclusion from conducting a simplified or site-specific terrestrial ecological evaluation, or it can be demonstrated using a terrestrial ecological evaluation under WAC 173-340-7492 or 173-340-7493 that the values in this table are ecologically protective for the site. This table may not be appropriate for defining cleanup levels at other sites. For these reasons, the values in this table should not automatically be used to define cleanup levels that must be met for financial, real estate, insurance coverage or placement, or similar transactions or purposes. Exceedances of the values in this table do not necessarily mean the soil must be restored to these levels at a site. The level of restoration depends on the remedy selected under WAC 173-340-350 through 173-340-390.

b **Arsenic.** Cleanup level based on direct contact using Equation 740-2 and protection of groundwater for drinking water use using the procedures in WAC 173-340-747(4), adjusted for natural background for soil.

c **Benzene.** Cleanup level based on protection of groundwater for drinking water use, using the procedures in WAC 173-340-747 (4) and (6).

d **Benzo(a)pyrene.** Cleanup level based on direct contact using Equation 740-2. If other carcinogenic PAHs are suspected of being present at the site, test for them and use this value as the total concentration that all carcinogenic PAHs must meet using the toxicity equivalency methodology in WAC 173-340-708(8).

e **Cadmium.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4), adjusted for the practical quantitation limit for soil.

f1 **Chromium VI.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).

f2 **Chromium III.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4). Chromium VI must also be tested for and the cleanup level met when present at a site.

g **DDT (dichlorodiphenyltrichloroethane).** Cleanup level based on direct contact using Equation 740-2.

h **Ethylbenzene.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).

i **Ethylene dibromide (1,2 dibromoethane or EDB).** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4), adjusted for the practical quantitation limit for soil.

j **Lead.** Cleanup level based on preventing unacceptable blood lead levels.

k **Lindane.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4), adjusted for the practical quantitation limit.

l **Methylene chloride (dichloromethane).** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).

m **Mercury.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).

n **Methyl tertiary-butyl ether (MTBE).** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).

o **Naphthalenes.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4). This is a total value for naphthalene, 1-methyl naphthalene and 2-methyl naphthalene.

p **PCB Mixtures.** Cleanup level based on applicable federal law (40 C.F.R. 761.61). This is a total value for all PCBs.

q **Tetrachloroethylene.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).

r **Toluene.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).

s **Total Petroleum Hydrocarbons (TPH).** TPH cleanup values have been provided for the most common petroleum products encountered at contaminated sites. Where there is a mixture of products or the product composition is unknown, samples must be tested using both the NWTPH-Gx and NWTPH-Dx methods and the lowest applicable TPH cleanup level must be met.

- **Gasoline range organics** means organic compounds measured using method NWTPH-Gx. Examples are aviation and automotive gasoline. The cleanup level is based on protection of groundwater for noncarcinogenic effects during drinking water use using the procedures described in WAC 173-340-747(6). Two cleanup levels are provided. The lower value of 30 mg/kg can be used at any site. When using this lower value, the soil must also be tested for and meet the benzene soil cleanup level. The higher value of 100 mg/kg can only be used if the soil is tested and found to contain no benzene and the total of ethylbenzene, toluene and xylene are less than 1% of the gasoline mixture. No interpolation between these cleanup levels is allowed. In both cases, the soil cleanup level for any other carcinogenic components of the petroleum [such as EDB and EDC], if present at the site, must also be met. Also, in both cases, soil cleanup levels for any noncarcinogenic components [such as toluene, ethylbenzene, xylenes, naphthalene, and MTBE], also must be met if these substances are found to exceed groundwater cleanup levels at the site. See Table 830-1 for the minimum testing requirements for gasoline releases.
- **Diesel range organics** means organic compounds measured using method NWTPH-Dx. Examples are diesel, kerosene, and #1 and #2 heating oil. The cleanup level is based on preventing the accumulation of free product on the groundwater, as described in WAC 173-340-747(10). The soil cleanup level for any carcinogenic components of the petroleum [such as benzene and PAHs], if present at the site, must also be met. Soil cleanup levels for any noncarcinogenic components [such as toluene, ethylbenzene, xylenes and naphthalenes], also must be met if these substances are found to exceed the groundwater cleanup levels at the site. See Table 830-1 for the minimum testing requirements for diesel releases.
- **Heavy oils** means organic compounds measured using NWTPH-Dx. Examples are #6 fuel oil, bunker C oil, hydraulic oil and waste oil. The cleanup level is based on preventing the accumulation of free product on the groundwater, as described in WAC 173-340-747(10) and assuming a product composition similar to diesel fuel. The soil cleanup level for any carcinogenic components of the petroleum [such as benzene, PAHs and PCBs], if present at the site, must also be met. Soil cleanup levels for any noncarcinogenic components [such as toluene, ethylbenzene, xylenes and naphthalenes], also must be met if found to exceed the groundwater cleanup levels at the site. See Table 830-1 for the minimum testing requirements for heavy oil releases.
- **Mineral oil** means non-PCB mineral oil, typically used as an insulator and coolant in electrical devices such as transformers and capacitors, measured using NWTPH-Dx. The cleanup level is based on preventing the accumulation of free product on the groundwater, as described in WAC 173-340-747(10). Sites using this cleanup level must also analyze soil samples and meet the soil cleanup level for PCBs, unless it can be demonstrated that: (1) The release originated from an electrical device that was manufactured after July 1, 1979; or (2) oil containing PCBs was never used in the equipment suspected as the source of the release; or (3) it can be documented that the oil released was recently tested and did not contain PCBs. Method B must be used for releases of oils containing greater than 50 ppm PCBs. See Table 830-1 for the minimum testing requirements for mineral oil releases.

t **1,1,1 Trichloroethane.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).

u **Trichloroethylene.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).

v **Xylenes.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4). This is a total value for all xylenes.

Table 745-1
Method A Soil Cleanup Levels for Industrial Properties.[a]

Hazardous Substance	CAS Number	Cleanup Level
Arsenic	7440-38-2	20 mg/kg[b]
Benzene	71-43-2	0.03 mg/kg[c]
Benzo(a)pyrene	50-32-8	2 mg/kg[d]
Cadmium	7440-43-9	2 mg/kg[e]
Chromium		
Chromium VI	18540-29-9	19 mg/kg[f1]
Chromium III	16065-83-1	2,000 mg/kg[f2]
DDT	50-29-3	4 mg/kg[g]
Ethylbenzene	100-41-4	6 mg/kg[h]
Ethylene dibromide (EDB)	106-93-4	0.005 mg/kg[i]
Lead	7439-92-1	1,000 mg/kg[j]
Lindane	58-89-9	0.01 mg/kg[k]
Methylene chloride	75-09-2	0.02 mg/kg[l]
Mercury (inorganic)	7439-97-6	2 mg/kg[m]
MTBE	1634-04-4	0.1 mg/kg[n]
Naphthalene	91-20-3	5 mg/kg[o]
PAHs (carcinogenic)		See benzo(a)pyrene[d]
PCB Mixtures		10 mg/kg[p]
Tetrachloroethylene	127-18-4	0.05 mg/kg[q]
Toluene	108-88-3	7 mg/kg[r]
Total Petroleum Hydrocarbons[s]		
[Note: Must also test for and meet cleanup levels for other petroleum components—see footnotes!]		
Gasoline Range Organics		

Hazardous Substance	CAS Number	Cleanup Level
Gasoline mixtures without benzene and the total of ethylbenzene, toluene and xylene are less than 1% of the gasoline mixture		100 mg/kg
All other gasoline mixtures		30 mg/kg
Diesel Range Organics		2,000 mg/kg
Heavy Oils		2,000 mg/kg
Mineral Oil		4,000 mg/kg
1,1,1 Trichloroethane	71-55-6	2 mg/kg[t]
Trichloroethylene	79-01-6	0.03 mg/kg[u]
Xylenes	1330-20-7	9 mg/kg[v]

Footnotes:

a **Caution on misusing this table.** This table has been developed for specific purposes. It is intended to provide conservative cleanup levels for sites undergoing routine cleanup actions or for industrial properties with relatively few hazardous substances, and the site qualifies under WAC 173-340-7491 for an exclusion from conducting a simplified or site-specific terrestrial ecological evaluation, or it can be demonstrated using a terrestrial ecological evaluation under WAC 173-340-7492 or 173-340-7493 that the values in this table are ecologically protective for the site. This table may not be appropriate for defining cleanup levels at other sites. For these reasons, the values in this table should not automatically be used to define cleanup levels that must be met for financial, real estate, insurance coverage or placement, or similar transactions or purposes. Exceedances of the values in this table do not necessarily mean the soil must be restored to these levels at a site. The level of restoration depends on the remedy selected under WAC 173-340-350 through 173-340-390.

b **Arsenic.** Cleanup level based on protection of groundwater for drinking water use, using the procedures in WAC 173-340-747(4), adjusted for natural background for soil.

c **Benzene.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747 (4) and (6).

d **Benzo(a)pyrene.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4). If other carcinogenic PAHs are suspected of being present at the site, test for them and use this value as the total concentration that all carcinogenic PAHs must meet using the toxicity equivalency methodology in WAC 173-340-708(8).

e **Cadmium.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4), adjusted for the practical quantitation limit for soil.

f1 **Chromium VI.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).

f2 **Chromium III.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4). Chromium VI must also be tested for and the cleanup level met when present at a site.

g **DDT (dichlorodiphenyltrichloroethane).** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).

h **Ethylbenzene.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).

i **Ethylene dibromide (1,2 dibromoethane or EDB).** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4), adjusted for the practical quantitation limit for soil.

j **Lead.** Cleanup level based on direct contact.

k **Lindane.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4), adjusted for the practical quantitation limit.

l **Methylene chloride (dichloromethane).** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).

m **Mercury.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).

n **Methyl tertiary-butyl ether (MTBE).** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).

o **Naphthalenes.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4). This is a total value for naphthalene, 1-methyl naphthalene and 2-methyl naphthalene.

p **PCB Mixtures.** Cleanup level based on applicable federal law (40 C.F.R. 761.61). This is a total value for all PCBs. This value may be used only if the PCB contaminated soils are capped and the cap maintained as required by 40 C.F.R. 761.61. If this condition cannot be met, the value in Table 740-1 must be used.

q **Tetrachloroethylene.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).

r **Toluene.** Cleanup level based on protection of groundwater for drinking water use, using the procedure described in WAC 173-340-747(4).

s **Total Petroleum Hydrocarbons (TPH).** TPH cleanup values have been provided for the most common petroleum products encountered at contaminated sites. Where there is a mixture of products or the product composition is unknown, samples must be tested using both the NWTPH-Gx and NWTPH-Dx methods and the lowest applicable TPH cleanup level must be met.

- **Gasoline range organics** means organic compounds measured using method NWTPH-Gx. Examples are aviation and automotive gasoline. The cleanup level is based on protection of groundwater for noncarcinogenic effects during drinking water use using the procedures described in WAC 173-340-747(6). Two cleanup levels are provided. The lower value of 30 mg/kg can be used at any site. When using this lower value, the soil must also be tested for and meet the benzene soil cleanup level. The higher value of 100 mg/kg can only be used if the soil is tested and found to contain no benzene and the total of ethylbenzene, toluene and xylene are less than 1% of the gasoline mixture. No interpolation between these cleanup levels is allowed. In both cases, the soil cleanup level for any other carcinogenic components of the petroleum [such as EDB and EDC], if present at the site, must also be met. Also, in both cases, soil cleanup levels for any noncarcinogenic components [such as toluene, ethylbenzene, xylenes, naphthalene, and MTBE], also must be met if these substances are found to exceed groundwater cleanup levels at the site. See Table 830-1 for the minimum testing requirements for gasoline releases.
- **Diesel range organics** means organic compounds measured using method NWTPH-Dx. Examples are diesel, kerosene, and #1 and #2 heating oil. The cleanup level is based on preventing the accumulation of free product on the groundwater, as described in WAC 173-340-747(10). The soil cleanup level for any carcinogenic components of the petroleum [such as benzene, and PAHs], if present at the site, must also be met. Soil cleanup levels for any noncarcinogenic components [such as toluene, ethylbenzene, xylenes and naphthalenes], also must be met if these substances are found to exceed the groundwater cleanup levels at the site. See Table 830-1 for the minimum testing requirements for diesel releases.

- **Heavy oils** means organic compounds measured using NWTPH-Dx. Examples are #6 fuel oil, bunker C oil, hydraulic oil and waste oil. The cleanup level is based on preventing the accumulation of free product on the groundwater, as described in WAC 173-340-747(10) and assuming a product composition similar to diesel fuel. The soil cleanup level for any carcinogenic components of the petroleum [such as benzene, PAHs and PCBs], if present at the site, must also be met. Soil cleanup levels for any noncarcinogenic components [such as toluene, ethylbenzene, xylenes and naphthalenes], also must be met if found to exceed the groundwater cleanup levels at the site. See Table 830-1 for the minimum testing requirements for heavy oil releases.
- **Mineral oil** means non-PCB mineral oil, typically used as an insulator and coolant in electrical devices such as transformers and capacitors, measured using NWTPH-Dx. The cleanup level is based on preventing the accumulation of free product on the groundwater, as described in WAC 173-340-747(10). Sites using this cleanup level must also analyze soil samples and meet the soil cleanup level for PCBs, unless it can be demonstrated that: (1) The release originated from an electrical device that was manufactured after July 1, 1979; or (2) oil containing PCBs was never used in the equipment suspected as the source of the release; or (3) it can be documented that the oil released was recently tested and did not contain PCBs. Method B or C must be used for releases of oils containing greater than 50 ppm PCBs. See Table 830-1 for the minimum testing requirements for mineral oil releases.

t **1,1,1 Trichloroethane.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).

u **Trichloroethylene.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).

v **Xylenes.** Cleanup level based on protection of groundwater for drinking water use, using the procedure in WAC 173-340-747(4). This is a total value for all xylenes.

Table 747-1
Soil Organic Carbon-Water Partitioning Coefficient (K_{oc}) Values: Nonionizing Organics.

Hazardous Substance	K_{oc} (ml/g)
ACENAPHTHENE	4,898
ALDRIN	48,685
ANTHRACENE	23,493
BENZ(a)ANTHRACENE	357,537
BENZENE	62
BENZO(a)PYRENE	968,774
BIS(2-CHLOROETHYL)ETHER	76
BIS(2-ETHYLHEXYL)PHTHALATE	111,123
BROMOFORM	126
BUTYL BENZYL PHTHALATE	13,746
CARBON TETRACHLORIDE	152
CHLORDANE	51,310
CHLOROBENZENE	224
CHLOROFORM	53
DDD	45,800
DDE	86,405
DDT	677,934
DIBENZO(a,h)ANTHRACENE	1,789,101
1,2-DICHLOROBENZENE (o)	379
1,4-DICHLOROBENZENE (p)	616
DICHLOROETHANE-1,1	53
DICHLOROETHANE-1,2	38
DICHLOROETHYLENE-1,1	65
trans-1,2 DICHLOROETHYLENE	38
DICHLOROPROPANE-1,2	47
DICHLOROPROPENE-1,3	27
DIELDRIN	25,546
DIETHYL PHTHALATE	82
DI-N-BUTYLPHTHALATE	1,567
EDB	66
ENDRIN	10,811

Hazardous Substance	K_{oc} (ml/g)
ENDOSULFAN	2,040
ETHYL BENZENE	204
FLUORANTHENE	49,096
FLUORENE	7,707
HEPTACHLOR	9,528
HEXACHLOROBENZENE	80,000
α-HCH (α-BHC)	1,762
β-HCH (β-BHC)	2,139
γ-HCH (LINDANE)	1,352
MTBE	11
METHOXYCHLOR	80,000
METHYL BROMIDE	9
METHYL CHLORIDE	6
METHYLENE CHLORIDE	10
NAPHTHALENE	1,191
NITROBENZENE	119
PCB-Arochlor 1016	107,285
PCB-Arochlor 1260	822,422
PENTACHLOROBENZENE	32,148
PYRENE	67,992
STYRENE	912
1,1,2,2,-TETRACHLOROETHANE	79
TETRACHLOROETHYLENE	265
TOLUENE	140
TOXAPHENE	95,816
1,2,4-TRICHLOROBENZENE	1,659
TRICHLOROETHANE -1,1,1	135
TRICHLOROETHANE-1,1,2	75
TRICHLOROETHYLENE	94
o-XYLENE	241
m-XYLENE	196
p-XYLENE	311

Sources: Except as noted below, the source of the K_{oc} values is the 1996 *EPA Soil Screening Guidance: Technical Background Document*. The values obtained from this document represent the geometric mean of a survey of values published in the scientific literature. Sample populations ranged from 1-65. EDB value from *ATSDR Toxicological Profile* (TP 91/13). MTBE value from *USGS Final Draft Report on Fuel Oxygenates* (March 1996). PCB-Arochlor values from 1994 *EPA Draft Soil Screening Guidance*.

Table 747-2
Predicted Soil Organic Carbon-Water Partitioning Coefficient (K_{oc}) as a Function of pH: Ionizing Organics.

Hazardous Substance	K_{oc} Value (ml/g)		
	pH = 4.9	pH = 6.8	pH = 8.0
Benzoic acid	5.5	0.6	0.5
2-Chlorophenol	398	388	286
2-4-Dichlorophenol	159	147	72
2-4-Dinitrophenol	0.03	0.01	0.01
Pentachlorophenol	9,055	592	410
2,3,4,5-Tetrachlorophenol	17,304	4,742	458

Hazardous Substance	K_{oc} Value (ml/g)		
2,3,4,6-Tetrachlorophenol	4,454	280	105
2,4,5-Trichlorophenol	2,385	1,597	298
2,4,6-Trichlorophenol	1,040	381	131

Source: 1996 *EPA Soil Screening Guidance: Technical Background Document*. The predicted K_{oc} values in this table were derived using a relationship from thermodynamic equilibrium considerations to predict the total sorption of an ionizable organic compound from the partitioning of its ionized and neutral forms.

Table 747-3
Metals Distribution Coefficients (K_d).

Hazardous Substance	K_d (L/kg)
Arsenic	29
Cadmium	6.7
Total Chromium	1,000
Chromium VI	19
Copper	22
Mercury	52
Nickel	65
Lead	10,000
Selenium	5
Zinc	62

Source: Multiple sources compiled by the department of ecology.

Table 747-4
Petroleum EC Fraction Physical/Chemical Values.

Fuel Fraction	Equivalent Carbon Number[1]	Water Solubility[2] (mg/L)	Mol. Wt.[3] (g/mol)	Henry's Constant[4] (cc/cc)	GFW[5] (mg/mol)	Density[6] (mg/l)	Soil Organic Carbon-Water Partitioning Coefficient K_{oc}[7] (L/kg)
ALIPHATICS							
EC 5 - 6	5.5	36.0	81.0	33.0	81,000	670,000	800
EC > 6 - 8	7.0	5.4	100.0	50.0	100,000	700,000	3,800
EC > 8 - 10	9.0	0.43	130.0	80.0	130,000	730,000	30,200
EC > 10 - 12	11.0	0.034	160.0	120.0	160,000	750,000	234,000
EC > 12 - 16	14.0	7.6E-04	200.0	520.0	200,000	770,000	5.37E+06
EC > 16 - 21	19.0	1.3E-06	270.0	4,900	270,000	780,000	9.55E+09
EC > 21 - 34	28.0	1.5E-11	400.0	100,000	400,000	790,000	1.07E+10
AROMATICS							
EC > 8 - 10	9.0	65.0	120.0	0.48	120,000	870,000	1,580
EC > 10 - 12	11.0	25.0	130.0	0.14	130,000	900,000	2,510
EC > 12 - 16	14.0	5.8	150.0	0.053	150,000	1,000,000	5,010
EC > 16 - 21	19.0	0.51	190.0	0.013	190,000	1,160,000	15,800
EC > 21 - 34	28.0	6.6E-03	240.0	6.7E-04	240,000	1,300,000	126,000
TPH COMPONENTS							
Benzene	6.5	1,750	78.0	0.228	78,000	876,500	62.0
Toluene	7.6	526.0	92.0	0.272	92,000	866,900	140.0
Ethylbenzene	8.5	169.0	106.0	0.323	106,000	867,000	204.0
Total Xylenes[8] (average of 3)	8.67	171.0	106.0	0.279	106,000	875,170	233.0
n-Hexane[9]	6.0	9.5	86.0	74.0	86,000	659,370	3,410
MTBE[10]		50,000	88.0	0.018	88,000	744,000	10.9
Naphthalenes	11.69	31.0	128.0	0.0198	128,000	1,145,000	1,191

Sources:

1 **Equivalent Carbon Number.** Gustafson, J.B. et al., *Selection of Representative TPH Fractions Based on Fate and Transport Considerations. Total Petroleum Hydrocarbon Criteria Working Group Series*, Volume 3 (1997) [hereinafter *Criteria Working Group*].
2 **Water Solubility.** For aliphatics and aromatics EC groups, *Criteria Working Group.* For TPH components except n-hexane and MTBE, *1996 EPA Soil Screening Guidance: Technical Background Document*.
3 **Molecular Weight.** *Criteria Working Group.*
4 **Henry's Constant.** For aliphatics and aromatics EC groups, *Criteria Working Group.* For TPH components except n-hexane and MTBE, *1996 EPA Soil Screening Guidance: Technical Background Document*.
5 **Gram Formula Weight (GFW).** Based on 1000 x Molecular Weight.
6 **Density.** For aliphatics and aromatics EC groups, based on correlation between equivalent carbon number and data on densities of individual hazardous substances provided in *Criteria Working Group.* For TPH components except n-hexane and MTBE, *1996 EPA Soil Screening Guidance: Technical Background Document.*
7 **Soil Organic Carbon-Water Partitioning Coefficient.** For aliphatics and aromatics EC groups, *Criteria Working Group.* For TPH components except n-hexane and MTBE, *1996 EPA Soil Screening Guidance: Technical Background Document.*
8 **Total Xylenes.** Values for total xylenes are a weighted average of m, o and p xylene based on gasoline composition data from the *Criteria Working Group* (m = 51% of total xylene; o = 28% of total xylene; and p = 21% of total xylene).
9 **n-Hexane.** For values other than density, *Criteria Working Group*. For the density value, *Hawley's Condensed Chemical Dictionary,* 11th ed., revised by N. Irving Sax and Richard J. Lewis (1987).
10 **MTBE.** *USGS Final Report on Fuel Oxygenates* (March 1996).

Table 747-5
Residual Saturation Screening Levels for TPH.

Fuel	Screening Level (mg/kg)
Weathered Gasoline	1,000
Middle Distillates (e.g., Diesel No. 2 Fuel Oil)	2,000
Heavy Fuel Oils (e.g., No. 6 Fuel Oil)	2,000
Mineral Oil	4,000
Unknown Composition or Type	1,000

Note: The residual saturation screening levels for petroleum hydrocarbons specified in Table 747-5 are based on coarse sand and gravelly soils; however, they may be used for any soil type. Screening levels are based on the presumption that there are no preferential pathways for NAPL to flow downward to groundwater. If such pathways exist, more stringent residual saturation screening levels may need to be established.

Table 749-1
Simplified Terrestrial Ecological Evaluation - Exposure Analysis Procedure under WAC 173-340-7492 (2)(a)(ii).[a]

Estimate the area of contiguous (connected) undeveloped land on the site or within 500 feet of any area of the site to the nearest 1/2 acre (1/4 acre if the area is less than 0.5 acre). "Undeveloped land" means land that is not covered by existing buildings, roads, paved areas or other barriers that will prevent wildlife from feeding on plants, earthworms, insects or other food in or on the soil.		
1) From the table below, find the number of points corresponding to the area and enter this number in the box to the right.		
	Area (acres)	Points
	0.25 or less	4
	0.5	5
	1.0	6
	1.5	7
	2.0	8
	2.5	9
	3.0	10
	3.5	11
	4.0 or more	12

2) Is this an industrial or commercial property? See WAC 173-340-7490 (3)(c). If yes, enter a score of 3 in the box to the right. If no, enter a score of 1.
3) Enter a score in the box to the right for the habitat quality of the site, using the rating system shown below[b]. (High = 1, Intermediate = 2, Low = 3)
4) Is the undeveloped land likely to attract wildlife? If yes, enter a score of 1 in the box to the right. If no, enter a score of 2. See footnote c.
5) Are there any of the following soil contaminants present: Chlorinated dibenzo-p-dioxins/dibenzofurans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, pentachlorobenzene? If yes, enter a score of 1 in the box to the right. If no, enter a score of 4.
6) Add the numbers in the boxes on lines 2 through 5 and enter this number in the box to the right. If this number is larger than the number in the box on line 1, the simplified terrestrial ecological evaluation may be ended under WAC 173-340-7492 (2)(a)(ii).

Footnotes:

a It is expected that this habitat evaluation will be undertaken by an experienced field biologist. If this is not the case, enter a conservative score (1) for questions 3 and 4.

b Habitat rating system. Rate the quality of the habitat as high, intermediate or low based on your professional judgment as a field biologist. The following are suggested factors to consider in making this evaluation:
Low: Early successional vegetative stands; vegetation predominantly noxious, nonnative, exotic plant species or weeds. Areas severely disturbed by human activity, including intensively cultivated croplands. Areas isolated from other habitat used by wildlife.
High: Area is ecologically significant for one or more of the following reasons: Late-successional native plant communities present; relatively high species diversity; used by an uncommon or rare species; priority habitat (as defined by the Washington department of fish and wildlife); part of a larger area of habitat where size or fragmentation may be important for the retention of some species.
Intermediate: Area does not rate as either high or low.

c Indicate "yes" if the area attracts wildlife or is likely to do so. Examples: Birds frequently visit the area to feed; evidence of high use by mammals (tracks, scat, etc.); habitat "island" in an industrial area; unusual features of an area that make it important for feeding animals; heavy use during seasonal migrations.

Table 749-2
Priority Contaminants of Ecological Concern for Sites that Qualify for the Simplified Terrestrial Ecological Evaluation Procedure.

Priority contaminant	Soil concentration (mg/kg)	
	Unrestricted land use[b]	Industrial or commercial site
METALS[c]		
Antimony	See note d	See note d
Arsenic III	20 mg/kg	20 mg/kg
Arsenic V	95 mg/kg	260 mg/kg
Barium	1,250 mg/kg	1,320 mg/kg
Beryllium	25 mg/kg	See note d
Cadmium	25 mg/kg	36 mg/kg
Chromium (total)	42 mg/kg	135 mg/kg
Cobalt	See note d	See note d
Copper	100 mg/kg	550 mg/kg
Lead	220 mg/kg	220 mg/kg
Magnesium	See note d	See note d
Manganese	See note d	23,500 mg/kg
Mercury, inorganic	9 mg/kg	9 mg/kg
Mercury, organic	0.7 mg/kg	0.7 mg/kg
Molybdenum	See note d	71 mg/kg
Nickel	100 mg/kg	1,850 mg/kg

Priority contaminant	Soil concentration (mg/kg)	
	Unrestricted land use[b]	Industrial or commercial site
Selenium	0.8 mg/kg	0.8 mg/kg
Silver	See note d	See note d
Tin	275 mg/kg	See note d
Vanadium	26 mg/kg	See note d
Zinc	270 mg/kg	570 mg/kg
PESTICIDES		
Aldicarb/aldicarb sulfone (total)	See note d	See note d
Aldrin	0.17 mg/kg	0.17 mg/kg
Benzene hexachloride (including lindane)	10 mg/kg	10 mg/kg
Carbofuran	See note d	See note d
Chlordane	1 mg/kg	7 mg/kg
Chlorpyrifos/chlorpyrifos-methyl (total)	See note d	See note d
DDT/DDD/DDE (total)	1 mg/kg	1 mg/kg
Dieldrin	0.17 mg/kg	0.17 mg/kg
Endosulfan	See note d	See note d
Endrin	0.4 mg/kg	0.4 mg/kg
Heptachlor/heptachlor epoxide (total)	0.6 mg/kg	0.6 mg/kg
Hexachlorobenzene	31 mg/kg	31 mg/kg
Parathion/methyl parathion (total)	See note d	See note d
Pentachlorophenol	11 mg/kg	11 mg/kg
Toxaphene	See note d	See note d
OTHER CHLORINATED ORGANICS		
Chlorinated dibenzofurans (total)	3E-06 mg/kg	3E-06 mg/kg
Chlorinated dibenzo-p-dioxins (total)	5E-06 mg/kg	5E-06 mg/kg
Hexachlorophene	See note d	See note d
PCB mixtures (total)	2 mg/kg	2 mg/kg
Pentachlorobenzene	168 mg/kg	See note d
OTHER NONCHLORINATED ORGANICS		
Acenaphthene	See note d	See note d
Benzo(a)pyrene	30 mg/kg	300 mg/kg
Bis (2-ethylhexyl) phthalate	See note d	See note d
Di-n-butyl phthalate	200 mg/kg	See note d
PETROLEUM		
Gasoline Range Organics	200 mg/kg	12,000 mg/kg except that the concentration shall not exceed residual saturation at the soil surface.
Diesel Range Organics	460 mg/kg	15,000 mg/kg except that the concentration shall not exceed residual saturation at the soil surface.

Footnotes:

a Caution on misusing these chemical concentration numbers. These values have been developed for use at sites where a site-specific terrestrial ecological evaluation is not required. They are not intended to be protective of terrestrial ecological receptors at every site. Exceedances of the values in this table do not necessarily trigger requirements for cleanup action under this chapter. The table is not intended for purposes such as evaluating sludges or wastes.
This list does not imply that sampling must be conducted for each of these chemicals at every site. Sampling should be conducted for those chemicals that might be present based on available information, such as current and past uses of chemicals at the site.

b Applies to any site that does not meet the definition of industrial or commercial.
c For arsenic, use the valence state most likely to be appropriate for site conditions, unless laboratory information is available. Where soil conditions alternate between saturated, anaerobic and unsaturated, aerobic states, resulting in the alternating presence of arsenic III and arsenic V, the arsenic III concentrations shall apply.
d Safe concentration has not yet been established. See WAC 173-340-7492 (2)(c).

Table 749-3

Ecological Indicator Soil Concentrations (mg/kg) for Protection of Terrestrial Plants and Animals[a]. For chemicals where a value is not provided, see footnote b.

Note: These values represent soil concentrations that are expected to be protective at any MTCA site and are provided for use in eliminating hazardous substances from further consideration under WAC 173-340-7493 (2)(a)(i). Where these values are exceeded, various options are provided for demonstrating that the hazardous substance does not pose a threat to ecological receptors at a site, or for developing site-specific remedial standards for eliminating threats to ecological receptors. See WAC 173-340-7493 (1)(b)(i), 173-340-7493 (2)(a)(ii) and 173-340-7493(3).

Hazardous Substance[b]	Plants[c]	Soil biota[d]	Wildlife[e]
METALS[f]:			
Aluminum (soluble salts)	50		
Antimony	5		
Arsenic III			7
Arsenic V	10	60	132
Barium	500		102
Beryllium	10		
Boron	0.5		
Bromine	10		
Cadmium	4	20	14
Chromium (total)	42[g]	42[g]	67
Cobalt	20		
Copper	100	50	217
Fluorine	200		
Iodine	4		
Lead	50	500	118
Lithium	35[g]		
Manganese	1,100[g]		1,500
Mercury, inorganic	0.3	0.1	5.5
Mercury, organic			0.4
Molybdenum	2		7
Nickel	30	200	980
Selenium	1	70	0.3
Silver	2		
Technetium	0.2		
Thallium	1		
Tin	50		
Uranium	5		
Vanadium	2		
Zinc	86[g]	200	360
PESTICIDES:			
Aldrin			0.1
Benzene hexachloride (including lindane)			6
Chlordane		1	2.7
DDT/DDD/DDE (total)			0.75
Dieldrin			0.07

Hazardous Substance[b]	Plants[c]	Soil biota[d]	Wildlife[e]
Endrin			0.2
Hexachlorobenzene			17
Heptachlor/ heptachlor epoxide (total)			0.4
Pentachlorophenol	3	6	4.5
OTHER CHLORINATED ORGANICS:			
1,2,3,4-Tetrachlorobenzene		10	
1,2,3-Trichlorobenzene		20	
1,2,4-Trichlorobenzene		20	
1,2-Dichloropropane		700	
1,4-Dichlorobenzene		20	
2,3,4,5-Tetrachlorophenol		20	
2,3,5,6-Tetrachloroaniline	20	20	
2,4,5-Trichloroaniline	20	20	
2,4,5-Trichlorophenol	4	9	
2,4,6-Trichlorophenol		10	
2,4-Dichloroaniline		100	
3,4-Dichloroaniline		20	
3,4-Dichlorophenol	20	20	
3-Chloroaniline	20	30	
3-Chlorophenol	7	10	
Chlorinated dibenzofurans (total)			2E-06
Chloroacetamide		2	
Chlorobenzene		40	
Chlorinated dibenzo-p-dioxins (total)			2E-06
Hexachlorocyclopentadiene	10		
PCB mixtures (total)	40		0.65
Pentachloroaniline		100	
Pentachlorobenzene		20	
OTHER NONCHLORINATED ORGANICS:			
2,4-Dinitrophenol	20		
4-Nitrophenol		7	
Acenaphthene	20		
Benzo(a)pyrene			12
Biphenyl	60		
Diethylphthalate	100		
Dimethylphthalate		200	
Di-n-butyl phthalate	200		
Fluorene		30	
Furan	600		
Nitrobenzene		40	
N-nitrosodiphenylamine		20	
Phenol	70	30	
Styrene	300		

Hazardous Substance[b]	Plants[c]	Soil biota[d]	Wildlife[e]
Toluene	200		
PETROLEUM:			
Gasoline Range Organics		100	5,000 mg/kg except that the concentration shall not exceed residual saturation at the soil surface.
Diesel Range Organics		200	6,000 mg/kg except that the concentration shall not exceed residual saturation at the soil surface.

Footnotes:

a Caution on misusing ecological indicator concentrations. Exceedances of the values in this table do not necessarily trigger requirements for cleanup action under this chapter. Natural background concentrations may be substituted for ecological indicator concentrations provided in this table. The table is not intended for purposes such as evaluating sludges or wastes.
This list does not imply that sampling must be conducted for each of these chemicals at every site. Sampling should be conducted for those chemicals that might be present based on available information, such as current and past uses of chemicals at the site.

b For hazardous substances where a value is not provided, plant and soil biota indicator concentrations shall be based on a literature survey conducted in accordance with WAC 173-340-7493(4) and calculated using methods described in the publications listed below in footnotes c and d. Methods to be used for developing wildlife indicator concentrations are described in Tables 749-4 and 749-5.

c Based on benchmarks published in *Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Terrestrial Plants: 1997 Revision*, Oak Ridge National Laboratory, 1997.

d Based on benchmarks published in *Toxicological Benchmarks for Potential Contaminants of Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process*, Oak Ridge National Laboratory, 1997.

e Calculated using the exposure model provided in Table 749-4 and chemical-specific values provided in Table 749-5. Where both avian and mammalian values are available, the wildlife value is the lower of the two.

f For arsenic, use the valence state most likely to be appropriate for site conditions, unless laboratory information is available. Where soil conditions alternate between saturated, anaerobic and unsaturated, aerobic states, resulting in the alternating presence of arsenic III and arsenic V, the arsenic III concentrations shall apply.

g Benchmark replaced by Washington state natural background concentration.

Table 749-4
Wildlife Exposure Model for Site-specific Evaluations.[a]

Plant	
K_{Plant}	Plant uptake coefficient (dry weight basis)
	Units: mg/kg plant/mg/kg soil
	Value: chemical-specific (see Table 749-5)
Soil biota Surrogate receptor: Earthworm	
BAF_{Worm}	Earthworm bioaccumulation factor (dry weight basis)
	Units: mg/kg worm/mg/kg soil
	Value: chemical-specific (see Table 749-5)
Mammalian predator Surrogate receptor: Shrew (*Sorex*)	
$P_{SB\ (shrew)}$	Proportion of contaminated food (earthworms) in shrew diet
	Units: unitless
	Value: 0.50
$FIR_{Shrew,\ DW}$	Food ingestion rate (dry weight basis)
	Units: kg dry food/kg body weight - day
	Value: 0.45
$SIR_{Shrew,\ DW}$	Soil ingestion rate (dry weight basis)
	Units: kg dry soil/kg body weight - day
	Value: 0.0045
$RGAF_{Soil,\ shrew}$	Gut absorption factor for a hazardous substance in soil expressed relative to the gut absorption factor for the hazardous substance in food.

	Units: unitless
	Value: chemical-specific (see Table 749-5)
T_{Shrew}	Toxicity reference value for shrew
	Units: mg/kg - day
	Value: chemical-specific (see Table 749-5)
Home range	0.1 Acres
Avian predator Surrogate receptor: American robin (*Turdus migratorius*)	
$P_{SB\ (Robin)}$	Proportion of contaminated food (soil biota) in robin diet
	Unit: unitless
	Value: 0.52
$FIR_{Robin,\ DW}$	Food ingestion rate (dry weight basis)
	Units: kg dry food/kg body weight - day
	Value: 0.207
$SIR_{Robin,\ DW}$	Soil ingestion rate (dry weight basis)
	Units: kg dry soil/kg body weight - day
	Value: 0.0215
$RGAF_{Soil,\ robin}$	Gut absorption factor for a hazardous substance in soil expressed relative to the gut absorption factor for the hazardous substance in food.
	Units: unitless
	Value: chemical-specific (see Table 749-5)
T_{Robin}	Toxicity reference value for robin
	Units: mg/kg - day
	Value: chemical-specific (see Table 749-5)
Home range	0.6 Acres
Mammalian herbivore Surrogate receptor: Vole (*Microtus*)	
$P_{Plant,\ vole}$	Proportion of contaminated food (plants) in vole diet
	Units: unitless
	Value: 1.0
$FIR_{Vole,\ DW}$	Food ingestion rate (dry weight basis)
	Units: kg dry food/kg body weight - day
	Value: 0.315
$SIR_{Vole,\ DW}$	Soil ingestion rate (dry weight basis)
	Units: kg dry soil/kg body weight - day
	Value: 0.0079
$RGAF_{Soil,\ vole}$	Gut absorption factor for a hazardous substance in soil expressed relative to the gut absorption factor for the hazardous substance in food.
	Units: unitless
	Value: chemical-specific (see Table 749-5)
T_{Vole}	Toxicity reference value for vole
	Units: mg/kg - day
	Value: chemical-specific (see Table 749-5)
Home range	0.08 Acres
Soil concentrations for wildlife protection[b]	
(1) Mammalian predator:	

$SC_{MP} = (T_{Shrew})/[(FIR_{Shrew, DW} \times P_{SB\ (shrew)} \times BAF_{Worm}) + (SIR_{Shrew, DW} \times RGAF_{Soil, shrew})]$
(2) Avian predator: $SC_{AP} = (T_{Robin})/[(FIR_{Robin, DW} \times P_{SB\ (Robin)} \times BAF_{Worm}) + (SIR_{Robin, DW} \times RGAF_{Soil, robin})]$
(3) Mammalian herbivore: $SC_{MH} = (T_{Vole})/[(FIR_{Vole, DW} \times P_{Plant, vole} \times K_{Plant}) + (SIR_{Vole, DW} \times RGAF_{Soil, vole})]$

Footnotes:

a Substitutions for default receptors may be made as provided for in WAC 173-340-7493(7). If a substitute species is used, the values for food and soil ingestion rates, and proportion of contaminated food in the diet, may be modified to reasonable maximum exposure estimates for the substitute species based on a literature search conducted in accordance with WAC 173-340-7493(4).
Additional species may be added on a site-specific basis as provided in WAC 173-340-7493 (2)(a).
The department shall consider proposals for modifications to default values provided in this table based on new scientific information in accordance with WAC 173-340-702(14).

b Use the lowest of the three concentrations calculated as the wildlife value.

Table 749-5
Default Values for Selected Hazardous Substances for use with the Wildlife Exposure Model in Table 749-4.[a]

	Toxicity reference value (mg/kg - d)				
Hazardous Substance	**BAF_{Worm}**	**K_{Plant}**	**Shrew**	**Vole**	**Robin**
METALS:					
Arsenic III	1.16	0.06	1.89	1.15	
Arsenic V	1.16	0.06	35	35	22
Barium	0.36		43.5	33.3	
Cadmium	4.6	0.14	15	15	20
Chromium	0.49		35.2	29.6	5
Copper	0.88	0.020	44	33.6	61.7
Lead	0.69	0.0047	20	20	11.3
Manganese	0.29		624	477	
Mercury, inorganic	1.32	0.0854	2.86	2.18	0.9
Mercury, organic	1.32		0.352	0.27	0.064
Molybdenum	0.48	1.01	3.09	2.36	35.3
Nickel	0.78	0.047	175.8	134.4	107
Selenium	10.5	0.0065	0.725	0.55	1
Zinc	3.19	0.095	703.3	537.4	131
PESTICIDES:					
Aldrine	4.77	0.007[b]	2.198	1.68	0.06
Benzene hexachloride (including lindane)	10.1				7
Chlordane	17.8	0.011[b]	10.9	8.36	10.7
DDT/DDD/DDE	10.6	0.004[b]	8.79	6.72	0.87
Dieldrin	28.8	0.029[b]	0.44	0.34	4.37
Endrin	3.6	0.038[b]	1.094	0.836	0.1
Heptachlor/heptachlor epoxide	10.9	0.027[b]	2.857	2.18	0.48
Hexachlorobenzene	1.08				2.4
Pentachlorophenol	5.18	0.043[b]	5.275	4.03	
OTHER CHLORINATED ORGANICS:					
Chlorinated dibenzofurans	48				1.0E-05
Chlorinated dibenzo-p-dioxins	48	0.005[b]	2.2E-05	1.7E-05	1.4E-04
PCB mixtures	4.58	0.087[b]	0.668	0.51	1.8
OTHER NONCHLORINATED ORGANICS:					

	Toxicity reference value (mg/kg - d)				
Hazardous Substance	**BAF_{Worm}**	**K_{Plant}**	**Shrew**	**Vole**	**Robin**
Benzo(a)pyrene	0.43	0.011	1.19	0.91	

Footnotes:

a For hazardous substances not shown in this table, use the following default values. Alternatively, use values established from a literature survey conducted in accordance with WAC 173-340-7493(4) and approved by the department.

K_{Plant}: Metals (including metalloid elements): 1.01
Organic chemicals: $K_{Plant} = 10^{(1.588-(0.578 \log K_{ow}))}$,
where log K_{ow} is the logarithm of the octanol-water partition coefficient.

BAF_{Worm}: Metals (including metalloid elements): 4.6
Nonchlorinated organic chemicals:
log K_{ow} < 5: 0.7
log K_{ow} > 5: 0.9
Chlorinated organic chemicals:
log K_{ow} < 5: 4.7
log K_{ow} > 5: 11.8

$RGAF_{Soil}$ (all receptors): 1.0

Toxicity reference values (all receptors): Values established from a literature survey conducted in accordance with WAC 173-340-7493(4). Site-specific values may be substituted for default values, as described below:

K_{Plant} Value from a literature survey conducted in accordance with WAC 173-340-7493(4) or from empirical studies at the site.

BAF_{Worm} Value from a literature survey conducted in accordance with WAC 173-340-7493(4) or from empirical studies at the site.

$RGAF_{Soil}$ (all receptors): Value established from a literature survey conducted in accordance with WAC 173-340-7493(4).

Toxicity reference values (all receptors): Default toxicity reference values provided in this table may be replaced by a value established from a literature survey conducted in accordance with WAC 173-340-7493(4).

b Calculated from log K_{ow} using formula in footnote a.

Table 830-1
Required Testing for Petroleum Releases.

	Gasoline Range Organics (GRO) (1)	Diesel Range Organics (DRO) (2)	Heavy Oils (DRO) (3)	Mineral Oils (4)	Waste Oils and Unknown Oils (5)
Volatile Petroleum Compounds					
Benzene	X (6)	X (7)			X (8)
Toluene	X (6)	X (7)			X (8)
Ethyl benzene	X (6)	X (7)			X (8)
Xylenes	X (6)	X (7)			X (8)
n-Hexane	X (9)				
Fuel Additives and Blending Compounds					
Dibromoethane, 1-2 (EDB); and Dichloroethane, 1-2 (EDC)	X (10)				X (8)
Methyl tertiary-butyl ether (MTBE)	X (11)				X (8)
Total lead & other additives	X (12)				X (8)
Other Petroleum Components					
Carcinogenic PAHs		X (13)	X (13)		X (8)
Naphthalenes	X (14)	X (14)	X (14)		X (14)
Other Compounds					
Polychlorinated Biphenyls (PCBs)			X (15)	X (15)	X (8)
Halogenated Volatile Organic Compounds (VOCs)					X (8)
Other	X (16)	X (16)	X (16)	X (16)	X (16)
Total Petroleum Hydrocarbons Methods					

	Gasoline Range Organics (GRO) (1)	Diesel Range Organics (DRO) (2)	Heavy Oils (DRO) (3)	Mineral Oils (4)	Waste Oils and Unknown Oils (5)
TPH Analytical Method for Total TPH (Method A Cleanup Levels) (17)	NWTPH-Gx	NWTPH-Dx	NWTPH-Dx	NWTPH-Dx	NWTPH-Gx & NWTPH-Dx
TPH Analytical Methods for TPH fractions (Methods B or C) (17)	VPH	EPH	EPH	EPH	VPH and EPH

Use of Table 830-1: An "X" in the box means that the testing requirement applies to groundwater and soil if a release is known or suspected to have occurred to that medium, unless otherwise specified in the footnotes. A box with no "X" indicates (except in the last two rows) that, for the type of petroleum product release indicated in the top row, analyses for the hazardous substance(s) named in the far-left column corresponding to the empty box are not typically required as part of the testing for petroleum releases. However, such analyses may be required based on other site-specific information. Note that testing for Total Petroleum Hydrocarbons (TPH) is required for every type of petroleum release, as indicated in the bottom two rows of the table. The testing method for TPH depends on the type of petroleum product released and whether Method A or Method B or C is being used to determine TPH cleanup levels. See WAC 173-340-830 for analytical procedures. **The footnotes to this table are important for understanding the specific analytical requirements for petroleum releases.**

Footnotes:

(1) The following petroleum products are common examples of GRO: automotive and aviation gasolines, mineral spirits, stoddard solvents, and naphtha. To be in this range, 90 percent of the petroleum components need to be quantifiable using the NWTPH-Gx; if NWTPH-HCID results are used for this determination, then 90 percent of the "area under the TPH curve" must be quantifiable using NWTPH-Gx. Products such as jet fuel, diesel No. 1, kerosene, and heating oil may require analysis as both GRO and DRO depending on the range of petroleum components present (range can be measured by NWTPH-HCID). (See footnote 17 on analytical methods.)

(2) The following petroleum products are common examples of DRO: Diesel No. 2, fuel oil No. 2, light oil (including some bunker oils). To be in this range, 90 percent of the petroleum components need to be quantifiable using the NWTPH-Dx quantified against a diesel standard. Products such as jet fuel, diesel No. 1, kerosene, and heating oil may require analysis as both GRO and DRO depending on the range of petroleum components present as measured in NWTPH-HCID.

(3) The following petroleum products are common examples of the heavy oil group: Motor oils, lube oils, hydraulic fluids, etc. Heavier oils may require the addition of an appropriate oil range standard for quantification.

(4) Mineral oil means non-PCB mineral oil, typically used as an insulator and coolant in electrical devices such as transformers and capacitors.

(5) The waste oil category applies to waste oil, oily wastes, and unknown petroleum products and mixtures of petroleum and nonpetroleum substances. Analysis of other chemical components (such as solvents) than those listed may be required based on site-specific information. Mixtures of identifiable petroleum products (such as gasoline and diesel, or diesel and motor oil) may be analyzed based on the presence of the individual products, and need not be treated as waste and unknown oils.

(6) When using Method A, testing soil for benzene is required. Furthermore, testing groundwater for BTEX is necessary when a petroleum release to groundwater is known or suspected. If the groundwater is tested and toluene, ethyl benzene or xylene is in the groundwater above its respective Method A cleanup level, the soil must also be tested for that chemical. When using Method B or C, testing the soil for BTEX is required and testing for BTEX in groundwater is required when a release to groundwater is known or suspected.

(7)(a) For DRO releases from other than home heating oil systems, follow the instructions for GRO releases in Footnote (6).

(b) For DRO releases from typical home heating oil systems (systems of 1,100 gallons or less storing heating oil for residential consumptive use on the premises where stored), testing for BTEX is not usually required for either groundwater or soil. Testing of the groundwater is also not usually required for these systems; however, if the groundwater is tested and benzene is found in the groundwater, the soil must be tested for benzene.

(8) Testing is required in a sufficient number of samples to determine whether this chemical is present at concentrations of concern. If the chemical is found to be at levels below the applicable cleanup level, then no further analysis is required.

(9) Testing for n-hexane is required when VPH analysis is performed for Method B or C. In this case, the concentration of n-hexane should be deleted from its respective fraction to avoid double-counting its concentration. n-Hexane's contribution to overall toxicity is then evaluated using its own reference dose.

(10) Volatile fuel additives (such as dibromoethane, 1 - 2 (EDB) (CAS# 106-93-4) and dichloroethane, 1 - 2 (EDC) (CAS# 107-06-2)) must be part of a volatile organics analysis (VOA) of GRO contaminated groundwater. If any is found in groundwater, then the contaminated soil must also be tested for these chemicals.

(11) Methyl tertiary-butyl ether (MTBE) (CAS# 1634-04-4) must be analyzed in GRO contaminated groundwater. If any is found in groundwater, then the contaminated soil must also be tested for MTBE.

(12)(a) For automotive gasoline where the release occurred prior to 1996 (when "leaded gasoline" was used), testing for lead is required unless it can be demonstrated that lead was not part of the release. If this demonstration cannot be made, testing is required in a sufficient number of samples to determine whether lead is present at concentrations of concern. Other additives and blending compounds of potential environmental significance may need to be considered for testing, including: tertiary-butyl alcohol (TBA); tertiary-amyl methyl ether (TAME); ethyl tertiary-butyl ether (ETBE); ethanol; and methanol. Contact the department for additional testing recommendations regarding these and other additives and blending compounds.

(b) For aviation gasoline, racing fuels and similar products, testing is required for likely fuel additives (especially lead) and likely blending compounds, no matter when the release occurred.

(13) Testing for carcinogenic PAHs is required for DRO and heavy oils, except for the following products for which adequate information exists to indicate their absence: Diesel No. 1 and 2, home heating oil, kerosene, jet fuels, and electrical insulating mineral oils. The carcinogenic PAHs include benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, benzo(k)fluoranthene, benzo(a)anthracene, and benzo(b)fluoranthene.

(14)(a) Except as noted in (b) and (c), testing for the noncarcinogenic PAHs, including the "naphthalenes" (naphthalene, 1-methyl-naphthalene, and 2-methyl-naphthalene) is not required when using Method A cleanup levels, because they are included in the TPH cleanup level.

(b) Testing of soil for naphthalenes is required under Methods B and C when the inhalation exposure pathway is evaluated.

(c) If naphthalenes are found in groundwater, then the soil must also be tested for naphthalenes.

(15) Testing for PCBs is required unless it can be demonstrated that: (1) The release originated from an electrical device manufactured for use in the United States after July 1, 1979; (2) oil containing PCBs was never used in the equipment suspected as the source of the release (examples of equipment where PCBs are likely to be found include transformers, electric motors, hydraulic systems, heat transfer systems, electromagnets, compressors, capacitors, switches and miscellaneous other electrical devices); or, (3) the oil released was recently tested and did not contain PCBs.

(16) Testing for other possible chemical contaminants may be required based on site-specific information.

(17) The analytical methods NWTPH-Gx, NWTPH-Dx, NWTPH-HCID, VPH, and EPH are methods published by the department of ecology and available on the department's internet website: http://www.ecy.wa.gov/programs/tcp/cleanup.html.

[Statutory Authority: RCW 70.105D.030(2). WSR 07-21-065 (Order 06-10), § 173-340-900, filed 10/12/07, effective 11/12/07. Statutory Authority: Chapter 70.105D RCW. WSR 01-05-024 (Order 97-09A), § 173-340-900, filed 2/12/01, effective 8/15/01.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

Appendix J
National Pollutant Discharge Elimination System (NPDES) Permit No. WAR315656

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600, Olympia, WA 98504-7600 • 360-407-6000

April 29, 2026

Ben Nield
Port of Tacoma
PO Box 1837
Tacoma, WA 98401
Sent by email only: bnield@nwseaportalliance.com

RE: Coverage under the Construction Stormwater General Permit

Permit number:	**WAR315656**
Site Name:	**Hylebos Marsh Interim Action**
Location:	**1205 Alexander Ave**
	Tacoma, WA **County: Pierce**
Disturbed Acres:	**15.97**

Dear Ben Nield:

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 29, 2026.

Retain this letter as an official record of permit coverage for your site. You may keep your records in electronic format if you can easily access them from your construction site. You can get the CSWGP, permit forms, and other information at Ecology's CSWGP eCoverage Packet webpage[1]. Contact your Permit Administrator, listed below, if you want a copy of the CSWGP mailed to you. Please read the permit and contact Ecology if you have any questions.

Electronic Discharge Monitoring Reports (WQWebDMR)
This permit requires you to submit monthly discharge monitoring reports (DMRs) for the full duration of permit coverage (from the first full month of coverage to termination). Your first sampling and reporting period will be for the month of **May** and your first DMR must be submitted by **June 15, 2026**.

[1] http://www.ecology.wa.gov/eCoverage-packet

You must submit your DMRs electronically using Ecology's secure online system, WQWebDMR. To sign up for WQWebDMR go to Ecology's WQWebPortal guidance webpage[2]. 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, please reference Ecology's Focus Sheet: *Appeal of General Permit Coverage*[3].

Annual Permit Fees

RCW 90.48.465 requires Ecology to recover the costs of managing the permit program. Permit fees are invoiced annually until the permit is terminated. Termination conditions are described in the permit. For permit fee related questions, please contact the Water Quality Fee Unit at wqfeeunit@ecy.wa.gov or (800) 633-6193/Option 2. You can also visit Water Quality Permit Fees Webpage[4] for more information.

Ecology Field Inspector Assistance

If you have questions regarding stormwater management at your construction site, please contact your Regional Inspector, Evan Wood of Ecology's Southwest Regional Office in Lacey at evan.wood@ecy.wa.gov, or (360) 706-4599.

Questions or Additional Information

Ecology is here to help. Please review our Construction Stormwater General Permit webpage[5] for more information. If you have questions about the Construction Stormwater General Permit, please contact your Permit Administrator, Melinda Wilson at melinda.wilson@ecy.wa.gov, or (360) 870-8290.

Sincerely,

Jeff Killelea, Manager
Permit and Technical Services Section
Water Quality Program

[2] https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance/WQWebPortal-guidance
[3] https://apps.ecology.wa.gov/publications/summarypages/1710007.html
[4] https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-quality-permits/Fees
[5] www.ecology.wa.gov/constructionstormwaterpermit

Appendix K
Ecology Enforcement Order No. DE 19410

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

In the Matter of Remedial Action by: **The Port of Tacoma,** at the Taylor Way and Alexander Avenue Fill Area (TWAAFA) Site	ENFORCEMENT ORDER No. DE 19410

TO:

Eric Johnson
Executive Director
Port of Tacoma
P.O. Box 1837
Tacoma, WA 98401-1837

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EXHIBIT A	Location Diagram
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EXHIBIT D	Schedule of Work and Deliverables

I. INTRODUCTION

The objective of the State of Washington, Department of Ecology (Ecology) under this Enforcement Order (Order) is to require remedial action at a facility where there has been a release or threatened release of hazardous substances.

Ecology is entering into a separate Agreed Order No. DE 14260 with General Metals of Tacoma, Occidental Chemical Corporation, and Burlington Environmental, LLC (hereinafter "AO PLPs"). The Agreed Order No. DE 14260 requires the AO PLPs to implement the Data Gap Work Plan and Groundwater Monitoring Plan (Exhibit B), prepare and submit the Remedial Investigation and Feasibility Study (RI/FS) report, and draft Cleanup Action Plan (dCAP).

Ecology is issuing this Enforcement Order (Order) to the Port of Tacoma who did not sign the Agreed Order No. DE 14260. This Order requires the Port of Tacoma to work with AO PLPs to implement the Data Gap Work Plan and Groundwater Monitoring Plan, prepare and submit the Remedial Investigation and Feasibility Study (RI/FS) report, and draft Cleanup Action Plan (dCAP). Ecology expects the Port of Tacoma to work jointly with AO PLPs in completing the work required. Ecology believes the actions required by this Order are in the public interest.

II. JURISDICTION

This Enforcement Order is issued pursuant to the Model Toxics Control Act (MTCA), RCW 70A.305.050(1).

III. PLP BOUND

This Enforcement Order shall apply to and be binding upon the Port of Tacoma (Port), their successor and assigns. To the extent allowed by law, changes in ownership or corporate status shall not alter the Port's responsibility under this Order. The Port shall provide a copy of this Order to all agents, contractors, and subcontractors retained to perform work required by this Order, and shall ensure that all work undertaken by such agents, contractors, and subcontractors complies with this Order.

IV. DEFINITIONS

Unless otherwise specified herein, the definitions set forth in RCW 70A.305 and WAC 173-340 shall control the meanings of the terms in this Order.

A. Site: The Site is referred to as the Taylor Way and Alexander Avenue Fill Area (TWAAFA). The Site constitutes a "facility" under RCW 70A.305.020(8). The Site is defined by where a hazardous substance, other than a consumer product in consumer use, has been deposited, stored, disposed of, or placed, or otherwise come to be located. Based upon factors currently known to Ecology, the Site is generally located in the vicinity of 1500 Block of Taylor Way East in Tacoma, Washington, as shown in the in the Location Diagram (Exhibit A).

As of the effective date of this Order, the Site has not been fully characterized but is known to include, but is not limited, to the following properties:

1. Pierce County Assessor's Parcel Numbers (APNs) 0321352066, 0321352054, and 0321352050 (CleanCare Parcels);
2. Portions of the APNs 0321352043, 0321352044, 0321352053, 0321352062, 0321263003, and 0321263024 (BE Tacoma Parcels); and
3. Portions of APNs 0321356008, 0321267005, and 0321355007 (Former ProLogis Property), APN 0321352063 (Potter Property), and APNs 0321263045 and 0321352064 (Hylebos Marsh).

B. Potentially Liable Person (PLP): Refers to any person(s) whom the State of Washington, Department of Ecology (Ecology) finds, based on credible evidence, to be liable under RCW 70A.305.040. As of the effective date of this Order, Ecology has identified and designated by notice letters the following parties as PLPs for the Site: David E.G. Bromley; Donald Oline; the Port of Tacoma; General Metals of Tacoma; Occidental Chemical Corporation; Burlington Environmental LLC (BE) (formerly known as Chemical Processors, Inc. (Chempro), Philip Services Corporation (PSC) and Stericycle Environmental Solution, Inc.(Stericycle)) now an indirect wholly owned subsidiary of Clean Earth Environmental Solutions, Inc. (Clean Earth),

and Potter Property, LLC (Potter). Ecology may continue to identify and designate additional parties as PLPs for the Site based upon credible evidence.

C. The Port: Refers to the PLP subject to this Enforcement Order: the Port of Tacoma.

D. Enforcement Order or Order: Refers to this Order and each of the exhibits to the Order. All exhibits are an integral and enforceable part of this Order.

E. Agreed Order: Refers to Agreed Order No. DE 14260 entered into by General Metals of Tacoma (General Metals); Occidental Chemical Corporation (Occidental); and Burlington Environmental LLC (BE).

F. AO PLPs: Refers collectively to the PLPs that are Parties to Agreed Order No. DE 14260: General Metals; Occidental; and BE

G. Agency Review Draft: Designation for a document that is submitted to Ecology for review for the first time.

H. Public Review Draft: Designation for a document that has been reviewed by Ecology and approved as ready for public comment.

I. Final: Designation for a document after public comment and Ecology approval.

V. FINDINGS OF FACT

Ecology makes the following findings of fact. The history and description of parcel ownership, activities, and releases are further summarized in the table shown in Exhibit C.

All Site Parcels

A. The Site is generally located in the vicinity of 1500 Block of Taylor Way East in Tacoma, Washington, as shown in the in the Location Diagram (Exhibit A).

B. Prior to the 1930s, the area consisted of tidal marsh/tide flats of the Puyallup River Delta. Dredging of the Blair and Hylebos Waterways and filling the intervening land (including the Site) with dredge spoils likely occurred at least once during each decade from the 1930s through the 1970s. By the late 1960s, the Site and surrounding area had been partially filled with dredge spoils from nearby waterways, resulting in a freshwater marsh 5 to 6 feet above the former saltwater marsh.

C. During the late 1960s to early 1980s, Donald Oline owned and operated an unpermitted landfill at the Site (Landfill). Materials discarded and used as fill at the Landfill included lime solvent sludge, byproducts of auto scrapping (auto fluff), wood waste, and other lime wastes.

D. Lime solvent sludge was transported to the Landfill from the Hooker Chemical Company[1] operations. Those lime solvent sludges were contaminated with trichloroethylene (TCE), tetrachloroethylene (PCE), and vinyl chloride.

E. Other lime wastes disposed at the Site were generated by the Domtar operations generated at a building located on Alexander Avenue in Tacoma.

F. Auto fluff was transported to the Landfill from the General Metals operations. Elevated concentrations of arsenic, cadmium, chromium, copper, lead, zinc, petroleum hydrocarbons, and polychlorinated biphenyls (PCBs) have been detected in auto fluff samples from the Site.

CleanCare Parcels

G. In June 1974, Poligen Inc., a division of Lilyblad Petroleum (Poligen/Lilyblad), leased the northwestern parcel (APN 0321352066) from Donald and Alba Oline. In 1975, Poligen/Lilyblad constructed a small tank farm on this parcel consisting of two tanks.

H. In 1981 and 1982, the Solidus Corporation, which owned Poligen/Lilyblad and later became Northwest Processing, purchased the northwestern parcel (APN 0321352066) and the adjacent parcels to the east and southeast (APNs 0321352054 and 0321352050) from Donald and Alba Oline.

I. On May 4, 1982, pursuant to Section 3010 of the Resource Conservation and Recovery Act (RCRA), Northwest Processing notified the U.S. Environmental Protection Agency (EPA) that it was an owner/operator of a hazardous waste treatment and storage facility.

J. In May 1987, Northwest Processing notified Ecology that it was initiating operation as a used oil marketer.

[1] The Hooker Chemical Company later became Occidental.

K. In February 1992, the EPA granted interim status to Northwest Processing to operate as a Treatment, Storage, and Disposal (TSD) facility under RCRA (EPA ID No. WAD 980738512). At the same time, the EPA entered into a federal consent order with Northwest Processing for the investigation and cleanup of the property as a corrective action under Section 3008(h) of RCRA.

L. In March 1992, Northwest Processing merged with CleanCare Corporation (CleanCare). CleanCare's operations included storage and transfer of hazardous and dangerous wastes including paint wastes; solvent and antifreeze recycling; household hazardous waste management; and used oil blending and storage. Numerous spills and tank leaks of petroleum, solvents, and other volatile and semivolatile organic compounds occurred during CleanCare's operations.

M. In October 1998, CleanCare was acquired by Bromley-Marr ECOS Inc., a Canadian Corporation (Bromley-Marr).

N. In July 1999, Ecology issued an Order and Penalty to David Bromley and the CleanCare Corporation for numerous violations of state hazardous waste regulations related to the CleanCare operations. These violations included three instances of failure to notify Ecology of dangerous waste spills and discharges and two instances of failure to mitigate and control spills or non-permitted discharges into the environment. At the same time, Ecology issued Enforcement Orders to David Bromley and the CleanCare Corporation for violations of water quality and oil spill statutes and regulations.

O. In November 1999, Bromley-Marr abandoned the CleanCare property. Ecology asked the EPA to remove the hazardous waste inventory and control exposure to surface contamination. Costs for this Emergency Response action conducted by the EPA under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) exceeded $4.5 million dollars.

P. In December 2002, Ecology terminated RCRA interim status for the CleanCare TSD facility.

BE Tacoma Parcels

Q. In 1961, Donald Oline purchased a property commonly referred to as "Parcel A" (APN 0321352053). From 1970 to 1981, Oline leased "Parcel A" to a series of companies that operated a waste oil storage and recycling business on the property: Aero Oil Company of Tacoma and Acology Oil Company (1970–1973); Puget Sound Industrial Petroleum (PSIP) (1973–1974); Chemical Processors, Inc. (Chempro) (1974–1981).

R. Various fill materials are known to have been placed on "Parcel A" between 1969 and 1975, including dredge spoils, lime wastes, spent lime catalyst from tetrachloroethylene and trichloroethylene production, auto fluff, and gravel. In addition, an oil holding pond was constructed in 1970 and reportedly filled with auto fluff around 1975.

S. By 1976, Chempro had acquired the PSIP oil reclaiming operations and the lease for Parcel A. In 1980, Chempro notified the EPA that it was conducting dangerous waste management activities on "Parcel A." The EPA granted interim status to Chempro to operate as a TSD facility under RCRA (EPA ID No. WAD 020257945).

T. In 1981, Donald Oline sold "Parcel A" (APN 0321352053) to the Solidus Corporation, which later became Northwest Processing. Chempro continued to lease "Parcel A" from Northwest Processing through 1986.

U. In 1982, Chempro purchased and expanded its operations onto the remainder of the "BE Tacoma Parcels" (APNs 0321352043, 0321352044, 0321352062, 0321263003, and 0321263024). In 1992, Chempro purchased "Parcel A" (APN 0321352053) from Northwest Processing.

V. Beginning in late 1986, Chempro was involved in a series of corporate mergers and acquisitions and ultimately became Burlington Environmental, LLC (BE).

W. On April 23, 1999, Ecology and the EPA issued a final dangerous waste management permit for the BE Tacoma facility, effective May 23, 1999.

X. On March 13, 2012, Ecology issued a renewed dangerous waste permit for the BE Tacoma facility, effective March 22, 2012.

Y. In April 2014, BE and the BE Parcels were acquired by Stericycle Environmental Solutions, Inc.; at that time, BE began doing business as "Stericycle." In April 2020, BE and Stericycle Environmental Solutions, Inc. were acquired by Clean Earth, Inc. and, Stericycle Environmental Solutions, Inc. became Clean Earth Environmental Solutions, Inc.

Z. On April 21, 2016, BE conducted a soil vapor investigation within the footprint of a proposed Lab Pack Building on parcels APN 0321263003 and APN 0321352044. The investigation concluded that benzene (and possibly other VOCs) in soil vapor could potentially exceed the MTCA air cleanup levels and that the observed maximum methane concentration of 75 percent could result in a fire or explosion hazard in the new building if soil vapor mitigation measures were not considered in the design of the new building.

Port Parcels

AA. Former ProLogis Property (APNs 0321267005, 0321356008, and 0321355007):

1. A portion of this property was first developed by Mutual Fir Column Company and/or Buffelen Lumber and Manufacturing in the 1920s for lumber milling and planning. This use continued until 1975, when the property was leased to Lindal Cedar Homes for manufactured home construction. However, most of APN 0321267005 and the southern portion of APNs 0321356008 and 0321355007 remained as wetlands/marsh until they were filled during the 1970s.
2. The southern portion of the property remained a tidal marsh, and as filling progressed, an enclosed pond formed that extended onto the CleanCare and former Philip Services Corporation (now BE) properties. The eventual filling of the large marsh pond is believed to have been associated with the Don Oline Landfill. As described above, the Landfill material likely included hazardous substances associated with auto fluff and lime wastes. This filling likely took place after 1969 when historical photographs indicate the pond was still unfilled.
3. AOL Express, a trucking company, operated at the property from August 1983 until 1992. Other warehouse operators included Gateway Consolidators (1984) and APR

Freight Forwarders and Carr-Gottstein Foods, also known as JB Gottstein (1987–2000).

4. In 1990, total petroleum hydrocarbons – gasoline range (TPH-G) soil and groundwater contamination from a leaking underground storage tank (UST) was discovered. This contamination was cleaned up on behalf of AOL Express, and in June 2000, Ecology issued a No Further Action determination for the UST TPH-G release.
5. In 1989, ProLogis purchased the property. By 2000, ProLogis had subdivided the property into the current parcel divisions and demolished the former lumber operation and warehouse buildings. Sometime after 2000, ProLogis constructed a stormwater detention pond on APNs 0321356008 and 0321355007.
6. In January 2005, ProLogis entered into Ecology Agreed Order DE 04TCPSR-1160 to perform a remedial investigation (RI) and feasibility study (FS).
    a. As part of the RI, ProLogis investigated potential releases of hazardous substances that may have been caused by industrial and/or fill activities historically conducted on the ProLogis Property or on adjoining properties. Sampling results showed that the following contaminants of concern are present within the area in concentrations that exceed MTCA cleanup standards: TPH, SVOCs, and metals.
    b. The ProLogis FS recommended capping the contaminated soils with pavement or buildings in conjunction with Site redevelopment as the preferred remedy. This preferred remedy was designed to address the primary pathway of concern (groundwater to marine surface water) by eliminating or reducing the leaching of fill soils and subsequently reducing recharge of the fill aquifer in order to maintain and/or improve groundwater quality.

c. In December 2005, Ecology received the final RI/FS report and confirmed that the scope of work associated with Agreed Order DE 04TCPSR-1160 was completed.

7. The Port purchased the Former ProLogis Property in 2007. The property was vacant until 2015, when the Port used it for temporary storage of new automobiles.
8. In November 2016, the Port entered into a lease agreement with real estate developer Avenue 55, LLC (Avenue 55) for the purpose of redeveloping the Former ProLogis Property.
9. In July 2017, the Port entered into Agreed Order DE 13921 to conduct an interim action in conjunction with Avenue 55's redevelopment of the Former ProLogis Property. .

BB. Former Potter Property (APN 0321352063, located at 1801 Alexander Avenue):

1. This parcel was predominantly wetlands/marsh land until 1958, when the first two buildings were constructed in the northern portion of the parcel. An additional building was constructed in 1972. The exact dates of filling and grading at the property are unknown, but boring logs confirm that auto fluff and lime wastes were present.
2. In the 1960s, Educators Furniture and Supply and/or Educators Manufacturing Company operated at the parcel. Since the 1970s, various light manufacturing and truck trailer and container repair uses have occurred on the parcel.
3. Unlined waste oil storage and treatment ponds from the now BE Tacoma property extended onto the Potter property. In November 2000, BE constructed a 104-foot long trench on the parcel to recover light non-aqueous phase liquid (LNAPL) petroleum hydrocarbon contamination on the groundwater surface. This contamination originated from the historic waste oil pond on the adjacent BE Tacoma property.

4. At this time the Potter property is known to be contaminated with metals, petroleum mixtures, VOCs, and SVOCs in soil and/or groundwater.
5. In 2008, the Port purchased the parcel from Potter.

CC. Hylebos Marsh (APNs 0321263045 and 0321352064):

These parcels comprise a wetlands/marsh and other undeveloped land that the Port purchased from the City of Tacoma in 2008. Historical observations indicate the parcels were used for periodic dumping and filling from approximately 1946 until at least 1991. Lime waste was observed in 1991 in surficial materials in the eastern portion of this area, and auto fluff is suspected to be locally present based on observations of rubber material in a 1991 boring log. A 1967 aerial photo shows a heavily used road running NE-SW across the parcels from Alexander Avenue, which was likely used for transporting lime waste and other fill materials to the Don Oline Landfill areas.

As a result of this industrial history at the TWAAFA Site, the Site's soil and/or groundwater are contaminated with total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and heavy metals. One of the results of these releases on the various parcels is an intermingled plume of groundwater contamination. Contamination from releases crosses over various parcels. For example, at the time of the issuance of this Order, it is known that auto fluff, lime waste and/or lime solvent sludge, and wood waste and debris is located on portions of the Port-owned parcels (ProLogis parcels, Potter Property, and Hylebos Marsh), CleanCare parcels, and BE parcels.

Site Investigations and Reports

DD. Remedial investigation activities have been performed for portions of the Site by BE (formerly known as Philip Services Corporation or PSC), ProLogis, and Tacoma Pierce County Health Department (TPCHD). These investigations are documented in the following reports:

1. Philip Services Corporation, *Final Comprehensive RI Report, Philip Services Corporation Tacoma Facility*, January 21, 2005.

2. Floyd|Snider, *ProLogis Taylor Way Property, Remedial Investigation*, October 3, 2006.
3. Tacoma Pierce County Health Department, *Site Hazard Assessment Report*, February 2002.
4. CRETE Consulting Inc., *Hylebos Marsh Property—Soil and Groundwater Data Report*, March 27, 2020 *(Ecology is currently reviewing this report as of April 30, 2020).*

EE. Additional relevant information is contained within the following documents:

1. Ecology and EPA, *Don Oline Landfill, CleanCare PLP Search Documentation, Volumes 1 and II*, October 12, 2001.
2. Science Applications International Corporation, *RCRA Facility Assessment PR/VSI Report, Chemical Processors, Inc., Northwest Processing, Inc., Sol-Pro, Inc., and Chemical Processors, Parcel A*, February 1990.
3. PTI Environmental Services, *Chempro Tacoma Facility, Potentially Liable Party Search*, December 1989.
4. GeoEngineers, Inc., *Data Summary and Conceptual Site Model, Taylor Way and Alexander Avenue Fill Site*, July 1, 2008.
5. Amec Foster Wheeler, *Revised Soil Vapor Sampling, Stericycle Tacoma Facility, Tacoma, Washington*, July 26, 2016.
6. Woodward-Clyde, *Tacoma Cogeneration Project Phase 2 Site Assessment*, May 1991.

FF. The above information establishes that the Site's soil and/or groundwater are contaminated with total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), pesticides, and metals at concentrations that exceed MTCA cleanup standards. In addition, the Site's indoor air may contain concentrations of one or more VOCs that exceed cleanup levels, and methane

concentrations represent a potential fire and/or explosion hazard for buildings and subsurface structures at the Site.

VI. ECOLOGY DETERMINATIONS

A. Based upon all factors known to Ecology, a "release" or "threatened release" of "hazardous substance(s)" as defined in RCW 70A.305.020(32) and (13), respectively, has occurred at the Site.

B. Based upon credible evidence, Ecology issued a PLP status letter to David Bromley/CleanCare Corporation, the current and/or former President and Chief Executive Officer of Bromley-Marr, dated June 11, 2004, pursuant to RCW 70A.305.040, .020(26), and WAC 173-340-500. By letter dated July 27, 2004, Mr. Bromley voluntarily waived his rights to notice and comment and accepted Ecology's determination that he is a PLP under RCW 70A.305.040.

C. Based upon credible evidence, Ecology issued a PLP status letter to Occidental Chemical Corporation dated September 23, 2005, pursuant to RCW 70A.305.040, .020(26), and WAC 173-340-500. By letter dated November 17, 2005, Occidental voluntarily waived its rights to notice and comment and accepted Ecology's determination that Occidental is a PLP under RCW 70A.305.040.

D. Based upon credible evidence, Ecology issued a PLP status letter to General Metals of Tacoma dated September 23, 2005, pursuant to RCW 70A.305.040, .020(26), and WAC 173-340-500. After providing for notice and opportunity for comment, reviewing any comments submitted, and concluding that credible evidence supported a finding of potential liability, Ecology issued a determination that General Metals is a PLP under RCW 70A.305.040 and notified General Metals of this determination by letter dated November 19, 2007.

E. Based upon credible evidence, Ecology issued a PLP status letter to Donald Oline dated September 23, 2005, pursuant to RCW 70A.305.040, .020(26), and WAC 173-340-500. After providing for notice and opportunity for comment, reviewing any comments submitted, and concluding that credible evidence supported a finding of potential liability, Ecology issued a determination that Mr. Oline is a PLP under RCW 70A.305.040 and notified Mr. Oline of this

determination by letter dated November 19, 2007. Mr. Oline passed away on February 22, 2012. Ecology issued a PLP status letter to the Oline Estate dated October 20, 2016. After providing for notice and opportunity for comment, and reviewing any comments submitted, by letter dated January 17, 2017, Ecology decided to defer making a final determination that the Oline Estate is a PLP for a release of hazardous substances at the Site.

F. Based upon credible evidence, Ecology issued a PLP status letter to the parent company of BE, Philip Services Corporation, dated October 5, 2006, pursuant to RCW 70A.305.040, .020(26), and WAC 173-340-500. After providing for notice and opportunity for comment, reviewing any comments submitted, and concluding that credible evidence supported a finding of potential liability, Ecology issued a determination that PSC is a PLP under RCW 70A.305.040 and notified PSC of this determination by letter dated November 19, 2007.

G. Based upon credible evidence, Ecology issued a PLP status letter to Potter Property LLC dated October 6, 2006, pursuant to RCW 70A.305.040, .020(26), and WAC 173-340-500. After providing for notice and opportunity for comment, reviewing any comments submitted, and concluding that credible evidence supported a finding of potential liability, Ecology issued a determination that Potter is a PLP under RCW 70A.305.040 and notified Potter of this determination by letter dated November 19, 2007.

H. Based upon credible evidence, Ecology issued a PLP status letter to the Port of Tacoma dated August 8, 2007, pursuant to RCW 70A.305.040, .020(26), and WAC 173-340-500. After providing for notice and opportunity for comment, reviewing any comments submitted, and concluding that credible evidence supported a finding of potential liability, Ecology issued a determination that the Port is a PLP under RCW 70A.305.040 and notified the Port of this determination by letter dated November 19, 2007.

I. Based upon credible evidence, Ecology issued a PLP status letter to Stericycle Environmental Solutions, Inc. dated October 6, 2016, pursuant to RCW 70A.305.040, .020(26), and WAC 173-340-500. After providing for notice and opportunity for comment, reviewing any comments submitted, and concluding that credible evidence supported a finding of potential

liability due to its acquisition of BE, Ecology issued a determination that Stericycle is a PLP under RCW 70A.305.040 and notified Stericycle of this determination by letter dated November 22, 2016.

J. Although Pierce County owns the CleanCare Parcels, the county is not a PLP pursuant to RCW 70A.305.020(22)(b)(i) because it is a unit of local government and acquired ownership of the parcels involuntarily as a result of tax delinquency.

K. Pursuant to RCW 70A.305.030(1) and .050(1), Ecology may require PLPs to investigate or conduct other remedial actions with respect to any release or threatened release of hazardous substances, whenever it believes such action to be in the public interest. Based on the foregoing facts, Ecology believes the remedial actions required by this Order are in the public interest.

L. Under WAC 173-340-430, an interim action is a remedial action that is technically necessary to reduce a threat to human health or the environment by eliminating or substantially reducing one or more pathways for exposure to a hazardous substance, that corrects a problem that may become substantially worse or cost substantially more to address if the remedial action is delayed, or that is needed to provide for completion of a site hazard assessment, remedial investigation/feasibility study, or design of a cleanup action plan. Any Party may propose an interim action under this Order. If the Parties are in agreement concerning the interim action, the Parties will follow the process in Section VII.H. If the Parties are not in agreement, Ecology reserves its authority to require interim action(s) under a separate order or other enforcement action under RCW 70A.305, or to undertake the interim action itself.

VII. WORK TO BE PERFORMED

Based on the Findings of Fact and Ecology Determinations, it is hereby ordered that the Port take the following remedial actions at the Site. Ecology expects the Port of Tacoma to work jointly with AO PLPs in completing the work required. These remedial actions must be conducted in accordance with WAC 173-340:

A. Historical Review and Data Gap Work Plan

The Port and the AO PLPs have reviewed and compiled all relevant information about the Site contained in the prior remedial investigations and reports identified in Sections V.DD–V.FF, as well as any documentation about the associated facilities provided by Ecology to the both the Port and the AO PLPs. Based on that review and compilation, the Port and the AO PLPs prepared a plan to investigate and address all gaps in the available data.

The Data Gap Work Plan (Exhibit B) shall be implemented according to the schedule set forth in Exhibit D. The objective of the Data Gap Work Plan is to complete a Remedial Investigation (RI) for the Site that meets the requirements contained in WAC l73-340-350 and 173-340-360.

All sampling shall be done in accordance with the sampling and analysis plan (SAP) and the site-specific health and safety plan (HASP) included in the Data Gap Work Plan, and with Section VIII.F (Sampling, Data Submittal, and Availability) of this Order.

B. **Groundwater Monitoring, Well Installation/Repair, and Surveying**

The Groundwater Monitoring Plan (contained as an appendix within Exhibit B) shall be implemented according to the schedule set forth in Exhibits B and D.

In 2013, Ecology adopted NAVD88 as the agency's official vertical datum. Since then, Ecology's Environmental Information Management System (EIM) database has been modified to accept only NAVD88 referenced elevations, which in turn are used to calculate groundwater level elevations and depths below land surface from user input groundwater levels. Therefore, all new and existing groundwater monitoring wells shall be surveyed to the NAVD88 vertical datum and all new groundwater monitoring and remedial investigation reports shall present only NAVD88 referenced elevations.

Groundwater monitoring reports shall be submitted according to the schedule set forth in Exhibit D.

C. **Remedial Investigation/Feasibility Study (RI/FS) Report**

According to the schedule set forth in Exhibit D, and in accordance with WAC 173-340-350(8), the Port will work jointly with the AO PLPs to will prepare and submit to Ecology for

review and written approval an Agency Review Draft RI/FS Report (Report) that provides information fully documenting the nature and extent of contamination at the Site and otherwise meets the requirements of WAC 173-340-350.

The Report shall present the results of the Data Gap Work Plan and summarize remedial investigation work previously performed at the Site by others (for example PSC, Floyd|Snider, and TPCHD). The Report shall describe the vertical and lateral distribution of contaminants in soil, soil vapor, and groundwater. The Report shall also use ASTM E2993-16, *Standard Guide for Evaluating Potential Hazard as a Result of Methane in the Vadose Zone*, to evaluate the potential hazard to new and existing buildings and structures at the site as a result of methane. Additionally, the Report shall include an analysis of potential remedial alternatives and recommendations regarding a preferred remedial action to be implemented.

Within ninety (90) calendar days of receipt of Ecology's written comments on the Report, the Port shall work jointly with the AO PLPs to submit a Public Review Draft Report to Ecology for review and written approval. The Public Review Draft Report will become the Final Report following public comment and upon Ecology's written approval as follows:

1. Following public comment on the Public Review Draft Report, Ecology will notify the Port of any changes (minor, non-substantive or substantive) that are required as a result of public comment.
2. If only minor, non-substantive changes need to be made following public comment, the Port shall work jointly with the AO PLPs to submit the Report to Ecology for review and written approval within thirty (30) days of receiving Ecology's written comments on the Public Review Draft Report. After Ecology's written approval, the document will be considered the Final Report.
3. In the event substantive changes to the Report are necessary following public comment, the Port shall work jointly with the AO PLPs to submit the Revised Public Review Report to Ecology for review and written approval within sixty (60) days of receiving Ecology's written comments on the Public Review Draft Report.

Ecology will hold another public comment on the Revised Public Review Draft Report. If only minor, non-substantive changes need to be made following public comment, the Port shall work jointly with the AO PLPs to submit the Report to Ecology for review and written approval within thirty (30) days of receiving Ecology's written comments on the Revised Public Review Draft Report. After Ecology's written approval, the document will be considered the Final Report.

D. **Draft Cleanup Action Plan**

According to the schedule set forth in Exhibit D, the Port shall work jointly with the AO PLPs to prepare a preliminary draft Cleanup Action Plan (dCAP) in accordance with WAC 173-340-380, which shall detail the proposed cleanup action for addressing the contamination present on the Site, and shall address the requirements for developing a cleanup action in WAC 173-340-350 through -390, including Ecology's expectations for cleanup alternatives in WAC 173-340-370.

The dCAP shall include a general description of the proposed cleanup action, preliminary cleanup standards from the RI/FS Report and a rationale regarding their selection, a proposed schedule for implementation, description of any institutional controls proposed, and a summary of federal, state, and local laws that are applicable to the proposed cleanup action.

E. If the Port learn of a significant change in conditions at the Site, including but not limited to a statistically significant increase in contaminant and/or chemical concentrations in soil or groundwater, the Port, within seven (7) days of learning of the change in condition, shall notify Ecology in writing of said change and provide Ecology with any reports or records (including laboratory analyses and sampling results) relating to the change in conditions.

F. Pursuant to WAC 173-340-840(5) and Ecology's Toxics Cleanup Program Policy 840 (Data Submittal Requirements), all data previously collected from investigations at the Site after August 1, 2005, shall be submitted to Ecology in electronic format. For additional information regarding electronic format requirements, see the website http://www.ecy.wa.gov/eim. Data

submittal requirements also apply to data collected during the RI/FS investigation and subsequent monitoring conducted under this Order (see Section VIII.F).

G. Exhibit B (Data Gap Work Plan) and Exhibit D (Schedule of Work and Deliverables) are integral and enforceable parts of this Order. All other plans or other deliverables submitted by the Port for Ecology's review and written approval under Exhibit D (Schedule of Work and Deliverables) shall, upon Ecology's written approval, become integral and enforceable parts of this Order.

H. If the Port agrees on an interim action under Section VI.L, the Port (or the Party proposing to conduct the interim action) shall prepare and submit to Ecology an Interim Action Work Plan, including a scope of work and schedule, by the date agreed to in writing by Ecology and the Port. Ecology will provide public notice and opportunity to comment on the Interim Action Work Plan in accordance with WAC 173-340-600(16). No PLP shall conduct the interim action until Ecology approves the Interim Action Work Plan in writing. Upon written approval by Ecology, the Interim Action Work Plan becomes an integral and enforceable part of this Order, and the Port is required to conduct the interim action in accordance with the approved Interim Action Work Plan.

I. If Ecology determines that the Port has failed to make sufficient progress or failed to implement the remedial action, in whole or in part, Ecology may, after thirty (30) days written advance notice to the Port, perform any or all portions of the remedial action or at Ecology's discretion allow the Port the opportunity to correct. In an emergency, Ecology is not required to provide notice to the Port, or an opportunity for dispute resolution. The Port shall reimburse Ecology for the costs of doing such work in accordance with Section VIII.B (Remedial Action Costs). Ecology reserves the right to enforce requirements of this Order under Section X (Enforcement).

J. Except where necessary to abate an emergency situation or where required by law, the Port shall not perform any remedial actions at the Site outside those remedial actions required by this Order to address the contamination that is the subject of this Order, unless Ecology concurs,

in writing, with such additional remedial actions pursuant to Section VIII. J. In the event of an emergency, or where actions are taken as required by law, the Port must notify Ecology in writing of the event and the remedial action(s) planned or taken as soon as practical but no later than within twenty-four (24) hours of the discovery of the event.

VIII. TERMS AND CONDITIONS

A. Public Notice

RCW 70A.305.030(2)(a) requires that, at a minimum, this Order be subject to concurrent public notice. Ecology shall be responsible for providing this public notice and reserves the right to modify or withdraw any provisions of this Order should public comment disclose facts or considerations which indicate to Ecology that this Order is inadequate or improper in any respect.

B. Remedial Action Costs

The Port shall pay to Ecology remedial action costs incurred by Ecology consistent with WAC 173-340-550(2). These costs shall include work performed by Ecology or its contractors for, or on, the Site under RCW 70A.305, including remedial actions, Order preparation, negotiation, oversight, and administration. These costs shall include work performed to issue an Agreed Order in draft form on October 31, 2016, as well as to finalize and implement this Order. These costs shall include Ecology's costs of direct activities and support costs of direct activities as defined in WAC 173-340-550(2). This will include Ecology's accumulated cost (as of December 31, 2019) of $84,952.05 in remedial costs associated with the Site's Taylor Way and Alexander Avenue Fill area.

As detailed in WAC 173-340-550(2), Ecology may send its request for payment to all PLPs who are under an order for the remedial action costs at the Site. For Ecology costs incurred for this Site as of December 31, 2019, the Port (and the AO PLPs as required by Agreed Order DE 14260) shall pay the amount of $84,952.05 within thirty (30) days of receiving from Ecology an itemized statement of costs that includes a summary of costs incurred, an identification of involved staff, and the amount of time spent by involved staff members on the project. A general statement of work performed will be provided upon request. Itemized statements shall be prepared quarterly.

Pursuant to WAC 173-340-550(4), failure to pay Ecology's costs within ninety (90) days of receipt of the itemized statement of costs will result in interest charges at the rate of twelve percent (12%) per annum, compounded monthly.

In addition, Ecology has accumulated approximately $352,302.05 in past remedial costs associated with this Site. Ecology is not seeking cost recovery at this time, and will defer making a decision regarding payment of the remaining amount of $352,302.05 until the negotiation of the next formal agreement for the Site.

In addition to other available relief, pursuant to RCW 19.16.500, Ecology may utilize a collection agency and/or, pursuant to RCW 70A.305.060, file a lien against real property subject to the remedial actions to recover unreimbursed remedial action costs.

C. Designated Project Coordinators

The project coordinator for Ecology is:

Steve Teel
Toxics Cleanup Program
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775
(360) 407-6247

The Port shall designate a project coordinator. The information on the project coordinator will be provided to Ecology within thirty (30) calendar days of the effective date of this Order. Each project coordinator shall be responsible for overseeing the implementation of this Order. Ecology's project coordinator will be Ecology's designated representative for the Site. To the maximum extent possible, communications between Ecology and the Port, and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Order shall be directed through the project coordinators. The project coordinators may designate, in writing, working level staff contacts for all or portions of the implementation of the work to be performed required by this Order.

Any party may change its respective project coordinator. Written notification shall be given to the other party at least ten (10) calendar days prior to the change.

D. Performance

All geologic and hydrogeologic work performed pursuant to this Order shall be under the supervision and direction of a geologist or hydrogeologist licensed by the State of Washington or under the direct supervision of an engineer registered by the State of Washington, except as otherwise provided for by RCW 18.43 and 18.220.

All engineering work performed pursuant to this Order shall be under the direct supervision of a professional engineer registered by the State of Washington, except as otherwise provided for by RCW 18.43.130.

All construction work performed pursuant to this Order shall be under the direct supervision of a professional engineer or a qualified technician under the direct supervision of a professional engineer. The professional engineer must be registered by the State of Washington, except as otherwise provided for by RCW 18.43.130.

Any documents submitted containing geologic, hydrologic, or engineering work shall be under the seal of an appropriately licensed professional as required by RCW 18.43 and 18.220.

The Port shall notify Ecology in writing of the identity of any engineer(s) and geologist(s), contractor(s) and subcontractor(s), and others to be used in carrying out the terms of this Order, in advance of their involvement at the Site.

E. Access

RCW 70A.305.030(1)(a) authorizes Ecology or any Ecology authorized representative to enter all property at the Site that the Subject PLP either owns, controls, or has access rights to, after reasonable notice unless an emergency prevents such notice. The Port shall make all reasonable efforts to secure access rights for those properties within the Site not owned or controlled by the Port where remedial activities or investigations will be performed pursuant to this Order.

F. Sampling, Data Submittal, and Availability

With respect to the implementation of this Order, Port shall make the results of all sampling, laboratory reports, and/or test results generated by it or on its behalf available to

Ecology. Pursuant to WAC 173-340-840(5), all sampling data shall be submitted to Ecology in both printed and electronic formats in accordance with Section VII (Work to be Performed), Ecology's Toxics Cleanup Program Policy 840 (Data Submittal Requirements), and/or any subsequent procedures specified by Ecology for data submittal.

If requested by Ecology, Port shall allow Ecology and/or its authorized representative to take split or duplicate samples of any samples collected by the Port pursuant to the implementation of this Order. The Port shall notify Ecology seven (7) days in advance of any sample collection or work activity at the Site. Ecology shall, upon request, allow the Port and/or its authorized representative to take split or duplicate samples of any samples collected by Ecology pursuant to the implementation of this Order, provided that doing so does not interfere with Ecology's sampling. Without limitation on Ecology's rights under Section VIII.E (Access), Ecology shall notify the Port prior to any sample collection activity unless an emergency prevents such notice.

In accordance with WAC 173-340-830(2)(a), all hazardous substance analyses shall be conducted by a laboratory accredited under WAC 173-50 for the specific analyses to be conducted, unless otherwise approved by Ecology.

G. Retention of Records

During the pendency of this Order, and for ten (10) years from the date of completion of the work performed pursuant to this Order, the Port shall preserve all records, reports, documents, and underlying data in its possession relevant to the implementation of this Order and shall insert a similar record retention requirement into all contracts with project contractors and subcontractors. Upon request of Ecology, Port shall make all such records available to Ecology and allow access for review within a reasonable time.

Nothing in this Order is intended to waive any right Port may have under applicable law to limit disclosure of documents protected by the attorney work-product privilege and/or the attorney-client privilege. If a Subject PLP withholds any requested records based on an assertion of privilege, the Subject PLP shall provide Ecology with a privilege log specifying the records

withheld and the applicable privilege. No Site-related data collected pursuant to this Order shall be considered privileged.

H. Resolution of Disputes

1. In the event that the Port elects to invoke dispute resolution, the Port must utilize the procedure set forth below.

a. Upon the triggering event (receipt of Ecology's project coordinator's written decision or an itemized billing statement), the Port has fourteen (14) calendar days within which to notify Ecology's project coordinator in writing of its dispute (Informal Dispute Notice).

b. The Parties' project coordinators shall then confer in an effort to resolve the dispute informally. The parties shall informally confer for up to fourteen (14) calendar days from receipt of the Informal Dispute Notice. If the project coordinators cannot resolve the dispute within those 14 calendar days, then within seven (7) calendar days Ecology's project coordinator shall issue a written decision (Informal Dispute Decision) stating: the nature of the dispute; the Port's position with regards to the dispute; Ecology's position with regards to the dispute; and the extent of resolution reached by informal discussion.

c. The Port may then request regional management review of the dispute. This request (Formal Dispute Notice) must be submitted in writing to the Southwest Region Toxics Cleanup Section Manager within seven (7) calendar days of receipt of Ecology's Informal Dispute Decision. The Formal Dispute Notice shall include a written statement of dispute setting forth: the nature of the dispute; the disputing Party's position with respect to the dispute; and the information relied upon to support its position.

d. The Section Manager shall conduct a review of the dispute and shall issue a written decision regarding the dispute (Decision on Dispute) within thirty (30) calendar days of receipt of the Formal Dispute Notice. The Decision on Dispute shall be Ecology's final decision on the disputed matter.

2. The Parties shall only utilize the dispute resolution process in good faith and shall expedite, to the extent possible, the dispute resolution process whenever it is used.

3. Implementation of these dispute resolution procedures shall not provide a basis for delay of any activities required in this Order, unless Ecology agrees in writing to a schedule extension.

4. In case of a dispute, failure to either proceed with the work required by this Order or timely invoke dispute resolution may result in Ecology's determination that insufficient progress is being made in preparation of a deliverable, and may result in Ecology undertaking the work under Section VII (Work to be Performed) or initiating enforcement under Section X (Enforcement).

I. Extension of Schedule

1. The Port request for an extension of schedule shall be granted only when a request for an extension is submitted in a timely fashion, generally at least thirty (30) days prior to expiration of the deadline for which the extension is requested, and when good cause exists for granting the extension. All extensions shall be requested in writing. The request shall specify:

a. The deadline that is sought to be extended.

b. The length of the extension sought.

c. The reason(s) for the extension.

d. Any related deadline or schedule that would be affected if the extension were granted.

2. The burden shall be on the Port to demonstrate to the satisfaction of Ecology that the request for such extension has been submitted in a timely fashion and that good cause exists for granting the extension. The existence of good cause shall be determined by Ecology in its sole discretion. Good cause may include, but may not be limited to:

a. Circumstances beyond the reasonable control and despite the due diligence of the Port including delays caused by unrelated third parties or Ecology, such as (but not

limited to) delays by Ecology in reviewing, approving, or modifying documents submitted by the Port;

b. Acts of God, including fire, flood, blizzard, extreme temperatures, storm, or other unavoidable casualty; or

c. Endangerment as described in Section VIII.J (Endangerment).

However, neither increased costs of performance of the terms of this Order nor changed economic circumstances shall be considered circumstances beyond the reasonable control of the Port.

3. Ecology shall act upon any Port's written request for extension in a timely fashion. Ecology shall give the Port written notification of any extensions granted pursuant to this Order. A requested extension shall not be effective until approved in writing by Ecology.

4. At a Port's request, an extension shall only be granted for such period of time as Ecology determines is reasonable under the circumstances. Ecology may grant schedule extensions exceeding ninety (90) days only as a result of one of the following:

a. Delays in the issuance of a necessary permit which was applied for in a timely manner.

b. Other circumstances deemed exceptional or extraordinary by Ecology.

c. Endangerment as described in Section VIII.J (Endangerment).

J. Endangerment

In the event Ecology determines that any activity being performed at the Site under this Order is creating or has the potential to create a danger to human health or the environment on or surrounding the Site, Ecology may direct the Port to cease such activities for such period of time as it deems necessary to abate the danger. The Port shall immediately comply with such direction.

In the event the Port determine that any activity being performed at the Site under this Order is creating or has the potential to create a danger to human health or the environment, the Port may cease such activities. The Port shall notify Ecology's project coordinator as soon as possible, but no later than twenty-four (24) hours after making such determination or ceasing such

activities. Upon Ecology's direction, the Port shall provide Ecology with documentation of the basis for the determination or cessation of such activities. If Ecology disagrees with the Port' cessation of activities, it may direct the Port to resume such activities.

If Ecology concurs with or orders a work stoppage pursuant to this section, the Port's obligations with respect to the ceased activities shall be suspended until Ecology determines the danger is abated, and the time for performance of such activities, as well as the time for any other work dependent upon such activities, shall be extended in accordance with Section VIII.I (Extension of Schedule) for such period of time as Ecology determines is reasonable under the circumstances.

Nothing in this Order shall limit the authority of Ecology, its employees, agents, or contractors to take or require appropriate action in the event of an emergency.

K. Reservation of Rights

Ecology reserves its rights under RCW 70A.305, including the right to require additional or different remedial actions at the Site should it deem such actions necessary to protect human health or the environment, and to issue orders requiring such remedial actions. Ecology also reserves all rights regarding the injury to, destruction of, or loss of natural resources resulting from the release or threatened release of hazardous substances at the Site.

L. Transfer of Interest in Property

Before any voluntary conveyance or relinquishment of title, easement, leasehold, or other interest in any portion of the Site shall be consummated by a Port, the Port shall provide for continued implementation of all requirements of this Order and implementation of any remedial actions found to be necessary as a result of this Order.

Further, prior to a Port's transfer of any interest in all or any portion of the Site, the Port shall provide a copy of this Order to any prospective purchaser, lessee, transferee, assignee, or other successor in said interest; and at least thirty (30) days prior to any transfer, the Port shall notify Ecology of said transfer. Upon transfer of any interest, the Port shall notify all transferees

of the restrictions on the activities and uses of the property under this Order and incorporate any such use restrictions into the transfer documents.

M. Compliance with Applicable Laws

1. *Applicable Law.* All actions carried out by the Port pursuant to this Order shall be done in accordance with all applicable federal, state, and local requirements, including requirements to obtain necessary permits, except as provided in RCW 70A.305.090. The permits or specific federal, state, or local requirements that the agency has determined are applicable and that are known at the time of the execution of this Order have been identified in Exhibit D. The Port has a continuing obligation to identify additional applicable federal, state, and local requirements which apply to actions carried out pursuant to this Order, and to comply with those requirements. As additional federal, state, and local requirements are identified by Ecology or the Port, Ecology will document in writing if they are applicable to actions carried out pursuant to this Order, and the Port must implement those requirements.

2. *Relevant and Appropriate Requirements.* All actions carried out by the Port pursuant to this Order shall be done in accordance with relevant and appropriate requirements identified by Ecology. The relevant and appropriate requirements that Ecology has determined apply have been identified in Exhibit D. If additional relevant and appropriate requirements are identified by Ecology or the Port, Ecology will document in writing if they are applicable to actions carried out pursuant to this Order and the Port must implement those requirements.

3. Pursuant to RCW 70A.305.090(1), the Port may be exempt from the procedural requirements of RCW 70A.15, 70A.205, 70A.300, 77.55, 90.48, and 90.58 and of any laws requiring or authorizing local government permits or approvals. However, the Port shall comply with the substantive requirements of such permits or approvals. For permits and approvals covered under RCW 70A.305.090(1) that have been issued by local government, the Parties agree that Ecology has the non-exclusive ability under this Order to enforce those local government permits and/or approvals.

4. The Port have a continuing obligation to determine whether additional permits or approvals addressed in RCW 70A.305.090(1) would otherwise be required for the remedial action under this Order. In the event either Ecology or the Port determine that additional permits or approvals addressed in RCW 70A.305.090(1) would otherwise be required for the remedial action under this Order, it shall promptly notify the other party of its determination. Ecology shall determine whether Ecology or the Port shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, the Port shall promptly consult with the appropriate state and/or local agencies and provide Ecology with written documentation from those agencies of the substantive requirements those agencies believe are applicable to the remedial action. Ecology shall make the final determination on the additional substantive requirements that must be met by the Port and on how the Port must meet those requirements. Ecology shall inform the Port in writing of these requirements. Once established by Ecology, the additional requirements shall be enforceable requirements of this Order. The Port shall not begin or continue the remedial action potentially subject to the additional requirements until Ecology makes its final determination.

5. Pursuant to RCW 70A.305.090(2), in the event Ecology determines that the exemption from complying with the procedural requirements of the laws referenced in RCW 70A.305.090(1) would result in the loss of approval from a federal agency that is necessary for the state to administer any federal law, the exemption shall not apply and the Port shall comply with both the procedural and substantive requirements of the laws referenced in RCW 70A.305.090(1), including any requirements to obtain permits.

IX. SATISFACTION OF ORDER

The provisions of this Order shall be deemed satisfied upon the Port receipt of written notification from Ecology that Port have completed the remedial activity required by this Order, and that the Port have complied with all other provisions of this Enforcement Order.

X. ENFORCEMENT

Pursuant to RCW 70A.305.050, this Order may be enforced as follows:

A. The Attorney General may bring an action to enforce this Order in a state or federal court.

B. The Attorney General may seek, by filing an action, if necessary, to recover amounts spent by Ecology for investigative and remedial actions and orders related to the Site.

C. A liable party, who refuses without sufficient cause, to comply with any term of this Order will be liable for:

1. Up to three (3) times the amount of any costs incurred by the State of Washington as a result of its refusal to comply.

2. Civil penalties of up to twenty-five thousand dollars ($25,000) per day for each day it refuses to comply.

D. This Order is not appealable to the Washington Pollution Control Hearings Board. This Order may be reviewed only as provided under RCW 70A.305.070.

Effective date of this Order: December 4, 2020

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Marian L. Abbett FOR

Rebecca S. Lawson, P.E., LHG
Section Manager
Toxics Cleanup Program
Southwest Regional Office
(360) 407-6241

EXHIBIT A

LOCATION DIAGRAM

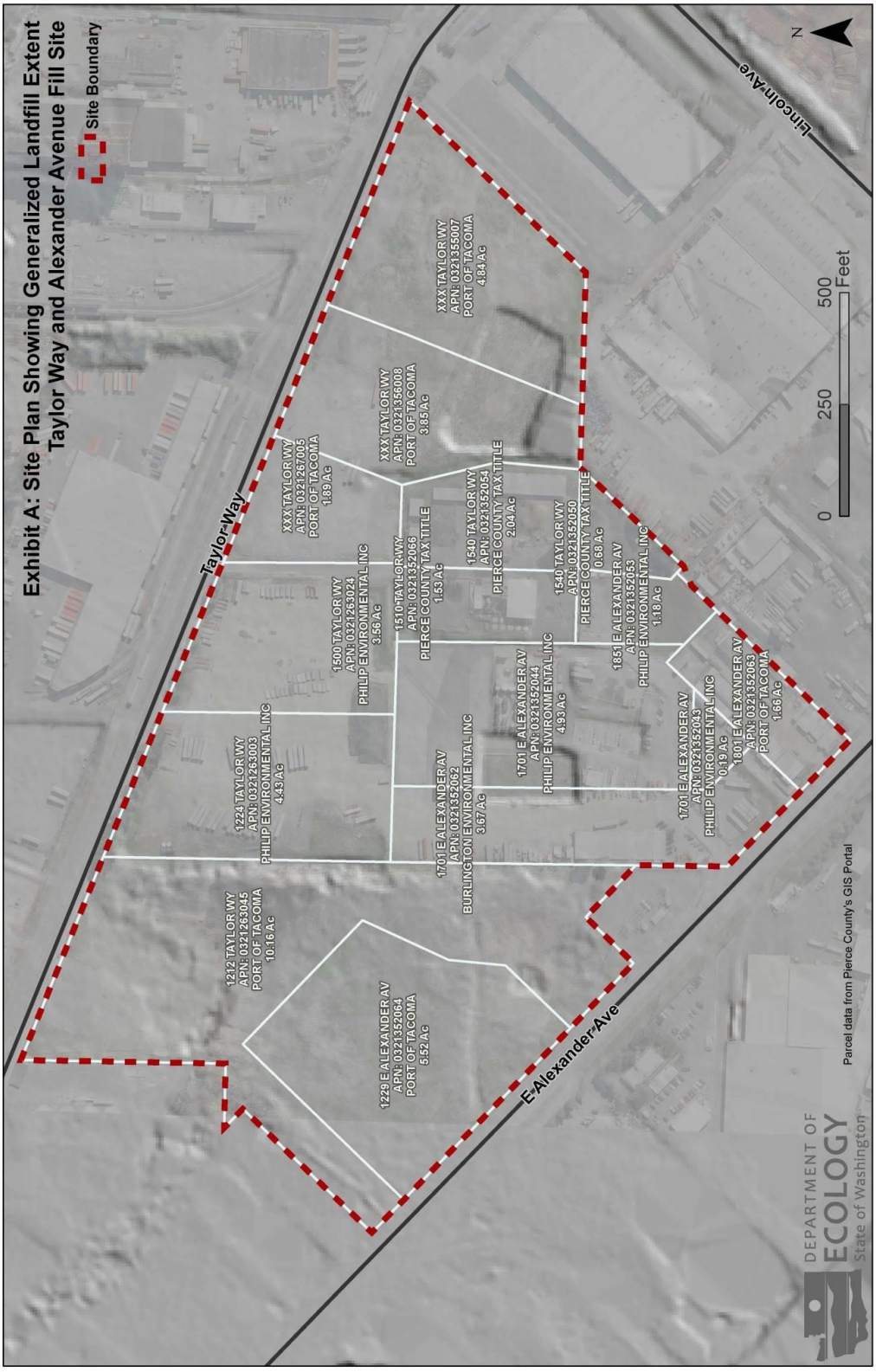


EXHIBIT B

DATA GAP WORK PLAN

Available at: https://apps.ecology.wa.gov/gsp/CleanupSiteDocuments.aspx?csid=4692

EXHIBIT C

SUMMARY TABLE:

TAYLOR WAY AND ALEXANDER AVENUE FILL AREA SITE

PARCEL OWNERSHIP, ACTIVITIES, AND RELEASES

EXHIBIT C. TAYLOR WAY AND ALEXANDER AVENUE FILL AREA PARCEL OWNERSHIP, ACTIVITIES, AND RELEASES.

Owner/Operator	Parcels (APNs)	Dates of Ownership or Operation	Activities	Releases	References
CleanCare Parcels					
Solidus/Clean Tech/CleanCare	**0321352050**	~1982-1999	Chemical and petroleum recycling	Lime-solvent sludge and dredge fill are present beneath this parcel. Improper handling and storage during CleanCare's operation resulted in a number of spills and leaks, with subsequent contamination of soils, stormwater, and groundwater. Ecology inspection reports for the facility noted lack of proper containment, leaking drums and tanks, and spills. Spills also occurred due to vandalism from metal thieves after CleanCare ceased operations in 1999. Petroleum contamination is present in soil and groundwater.	Dames & Moore (1982), EPA (1979), GeoEngineers (2008), Hart Crowser (1986), Landau (2006), Pierce County title records, PSC (2005), PTI (1989), SAIC (1990), TPCHD (2002, 2003), U.S. District Court documents.
Pierce County (tax title foreclosure)		2009-present	Abandoned industrial facility. No active use.		
Don Oline (owner)	**0321352066** (Formerly 0321352052, 0321352802)	1969-1981	Filling of wetlands with waste materials. Oline operated an unpermitted landfill on this parcel during his ownership.	From 1961 to 1981, lime wastes, auto fluff, and Occidental lime-solvent sludges were disposed of on this parcel. Improper handling and storage during CleanCare's operation resulted in a number of spills and leaks, with subsequent contamination of soils, stormwater, and groundwater. Ecology inspection reports for the facility noted lack of proper containment, leaking drums and tanks, and spills. Spills also occurred due to vandalism from metal thieves after CleanCare ceased operations in 1999. Metals, petroleum hydrocarbons, chlorinated VOCs contamination is present in soil and groundwater. PCBs contamination is present in soil.	
Solidus Poligen Lilyblad Northwest Processing CleanCare		1981-1999	Tank farm constructed in 1975. Chemical and petroleum recycling beginning in the late 1970s to 1999.		
Pierce County (tax title foreclosure)		2009-present	Abandoned industrial facility. No active use.		
Mutual Fir Column Company	**0321352054**	1923 to ~1970-71	Lumber milling and planing.	In the 1950s, Mutual Fir Column Company discharged methylmercuric phosphate waste from their sump into a shallow bog near their plant. This bog is thought to have been located on what is now the PSC/Burlington facility. Wood waste and lime-solvent sludge are mapped as extending beneath this parcel. In April 2000, CleanCare Corporation pleaded guilty to two felony counts of violating the Clean Water Act. Improper handling and storage during CleanCare's operation resulted in a number of spills and leaks, with subsequent contamination of soils, stormwater, and groundwater. Ecology inspection reports for the facility noted lack of proper containment, leaking drums and tanks, and spills. Spills also occurred due to vandalism from metal thieves after CleanCare ceased operations in 1999. Metals, petroleum hydrocarbons, chlorinated VOCs contamination is present in soil and groundwater. PCBs contamination is present in soil.	
Lindal Cedar Homes		~1970-71 to 1982	Manufacturing of precut homes, cabins, and other buildings.		
Solidus Corporation		1982-1994	Storing, processing and recycling waste oil, waste antifreeze, used solvents, and other petroleum and hazardous substances.		
CleanTech, Inc.		1994-1995			
CleanCare Corporation		1995-1999			
Pierce County (tax title foreclosure)		2009-present	Abandoned industrial facility. No active use.		

EXHIBIT C. TAYLOR WAY AND ALEXANDER AVENUE FILL AREA PARCEL OWNERSHIP, ACTIVITIES, AND RELEASES.

Owner/Operator	Parcels (APNs)	Dates of Ownership or Operation	Activities	Releases	References
PSC Parcels					
Pierce County	**0321352043**	1926-1942	Unknown	Lime wastes and petroleum contamination are present in soils beneath this parcel. Light non-aqueous phase Liquid (LNAPL) petroleum hydrocarbons are also present in groundwater	PTI (1989), PSC (2005)
Port of Tacoma		1942-1962	Unknown		
Educators Manufacturing Company		1962-1969	Unknown		
Don and Alba Oline (owner)		1969-1980	Filling of wetlands with waste materials. Oline operated an unpermitted landfill on this parcel during his ownership.		
D. Gordon and Virginia Potter, Wallace and Edna Clark, and Emmerson and Lillian Potter (lessees)		1976-1980			
D. Gordon and Virginia Potter, Wallace and Edna Clark, and Emmerson and Lillian Potter (owners)		1980-1982	Unknown		
ChemPro/Burlington Environmental		1982-present	Waste oil handling and storage; chemical waste recycling		
Don and Alba Oline (owner)	**0321352044**	1965-1980	Filling of wetlands with waste materials. Oline operated an unpermitted landfill on this parcel during his ownership.	Wood wastes, General Metals auto fluff, Domtar Industries lime wastes, and Occidental lime-solvent sludge were disposed on this parcel while the Olines owned it. Soil constituents above screening levels include metals, petroleum hydrocarbons, chlorinated volatile organic compounds (VOCs), and polychlorinated biphenyls (PCBs). Groundwater constituents above screening levels include petroleum hydrocarbons, metals, and chlorinated VOCs.	PTI (1989), EPA 1979, PSC (2005), GeoEngineers (2008), SAIC (1990)
D. Gordon and Virginia Potter, Wallace and Edna Clark, and Emmerson and Lillian Potter (lessees)		1976-1980			
D. Gordon and Virginia Potter, Wallace and Edna Clark, and Emmerson and Lillian Potter (owners)		1980-1982	Unknown		
ChemPro/Burlington Environmental		1982-present	Waste oil handling and storage; chemical waste recycling		
Don Oline (owner)	**0321352053** (Note: this parcel is shown as Area 1 on Hart Crowser (1986) Figure 1 and is also referred to as 'Parcel A' in historical documents).	1969-1981	Filling of wetlands with waste materials. Oline operated an unpermitted landfill on this parcel during his ownership.	Oline sequentially filled in wetland areas on the parcel and then leased filled-in areas to others. Between 1969 and 1975, dredge spoils, lime wastes, solvent lime waste, auto fluff, and gravel were deposited on the parcel. An oil holding pond was constructed in 1970 and was filled-in with General Metals auto fluff around 1975. "Considerable" amounts of oil dumped to the ground surface. Spills and leaks from the ChemPro chemical processing unit (predominantly chromic or nitric acid) occurred between 1978-81. Other materials that may also be spilled/leaked at the facility include cyanide sludges, solvent still bottoms, electroplating waste acids, phenols, chelating agents, and paint sludges. Ecology inspection reports from 1983 note other spills and releases. Soil constituents above screening levels include metals, petroleum hydrocarbons, and chlorinated VOCs. Groundwater constituents above screening levels include petroleum hydrocarbons, metals, and chlorinated VOCs.	PTI (1989), Hart Crowser (1986), SAIC (1990), PSC (2005), GeoEngineers (2008)
Solidus Corporation (owner)		1981-1992	Waste oil handling and storage; chemical waste recycling		
ChemPro/Philip Environmental Inc. (owner)		1992-present			
Lessees:					
Aero Oil (Acology Oil)		1970-1973	Oil storage/refining and waste oil recycling		
Puget Sound Industrial Petroleum		1973-1974			
ChemPro of Oregon		1974-1975	Waste oil handling and storage; chemical waste recycling		
ChemPro		1975-1986			
Poligen/Northwest Processing (easement only)		1977			

EXHIBIT C. TAYLOR WAY AND ALEXANDER AVENUE FILL AREA PARCEL OWNERSHIP, ACTIVITIES, AND RELEASES.

Owner/Operator	Parcels (APNs)	Dates of Ownership or Operation	Activities	Releases	References
Don and Alba Oline (owner)	**0321352062** (Formerly 0321352002, 0321352041, and 0321356004)	1965-1980	Filling of wetlands with waste materials. Oline operated an unpermitted landfill on this parcel during his ownership.	Lime waste and/or lime-solvent sludge, auto fluff, and wood waste fill are present beneath this parcel Soil constituents above screening levels include metals, petroleum hydrocarbons, and PCBs.	PTI (1989), PSC (2005), Floyd|Snider (2007a), GeoEngineers (2008).
D. Gordon and Virginia Potter, Wallace and Edna Clark, and Emmerson and Lillian Potter (lessees)		1980-1982	Unknown		
ChemPro/Burlington Environmental Inc.		1982-present	Waste oil handling and storage; chemical waste recycling, various light manufacturing uses and truck trailer and container repair.		
Various wood manufacturing (including Simpson, Mutual Fir Column Company, Shaffer Box Company, and Kanaskat Lumber and Shingle Company	**0321263003, 0321263024**	1920s to mid-1940s	Storage of various materials.	Lime waste fill is present beneath the southern portion of these parcels. Auto fluff fill is present beneath much of these parcels. Wood waste fill is present throughout almost the entire portion of the these parcels. Soil constituents above screening levels include metals, petroleum hydrocarbons, and PCBs.	PSC (2005), Floyd|Snider (2007a).
Tacoma Powdered Metals		late 1940s	1940s to 1980s: aerial photos and historical topographic maps show various grading, filling, and excavation activities. Some of the filling activities occurred during the Oline's ownership. The property was also used for storage of various materials. For example, the 1950 Sanborn Fire Insurance Map shows a large hog fuel pile in the NW corner of the property.		
Buffelen Manufacturing Company		1950s			
Educators Manufacturing Company		1960s			
Don and Alba Oline		1969-1975			
D. Gordon and Virginia Potter, Wallace and Edna Clark, and Emmerson and Lillian Potter (owners)		1975-1982?			
Freeway Containers (current operator)		mid-1980s to present	Storage and repair of truck trailers and/or containers.		
ChemPro/Philip Environmental Inc. (owner)		1982-present	See above.		

EXHIBIT C. TAYLOR WAY AND ALEXANDER AVENUE FILL AREA PARCEL OWNERSHIP, ACTIVITIES, AND RELEASES.

Owner/Operator	Parcels (APNs)	Dates of Ownership or Operation	Activities	Releases	References
Port of Tacoma Parcels					
Mutual Fir Column Company and/or Buffelen Lumber & Manufacturing	**0321356008, 0321267005, 0321355007**	Mid-late 1920s to 1974	Lumber milling and planing. Lindal Cedar Homes leased portions of the property for manufactored homes construction from 1975-1983. Brazier Lumber also leased a portion of the parcels from 1984-85.	Originally, the area comprising the parcels consisted of undisturbed tideflats. Filling of the Tacoma Tideflats began in the 1920s. By 1936, the northeastern portion of these parcels was developed with several manufacturing builidngs, one of which was physically connected to the larger Buffelen facility (located across Taylor Way), via an elevated conveyor structure. The southern portion of the parcels remained undeveloped tidal marsh until the late 1960s when the last remnant of the original tidal marsh was replaced by a large ponded area as a consequence of filling adjacent properties and isolation of the marsh waters. By 1974, the pond had been filled as it was no longer visible in historical aerial photos from this period. Materials encountered in test pits during the ProLogis Remedial Investigation included wood debris, lumber fragments, plastic, bricks, rubber hoses, scrap metal, glass, construction debris, and auto parts. Lime waste was also confirmed in two areas. Results from soil samples confirm that petroleum hydrocarbons, metals, semi-volatile organic compounds (SVOCs), and metals exceed screening levels at selected locations. In groundwater, SVOCs and metals exceeded screening levels.	PSC (2005), Floyd|Snider (2006, 2007b)
AOL Express		1982-1989	Warehousing.		
ProLogis Development Services		1989-2007	Demolished former lumber facility. Subdivided parcels. Planning for future development. Temporary storage of new cars (2015-16).		
Port of Tacoma		2007-present			
Educators Furniture and Supply Educators Manufacturing Company	**0321352063**	1963-71	The parcel was predominantly marsh lands up until the late 1950s. Initial development occuured in 1958 when the first two buildings were constructed in the northern portion of the parcel. Based on the presence of lime waste and auto fluff and aerial photo review, this parcel was included in the Don Oline unpermitted landfill.	Auto fluff and/or lime waste were observed in borings GP-31 and GP-17. Metals and petroleum hydrocarbons exceed MTCA soil screening levels in selected sampling locations. LNAPL petroleum hydrocarbons are also present in groundwater.	PSC (2005), Floyd|Snider (2007c)
Protective Packaging		1973-75	1973 to present: various light manufacturing uses and truck trailer and container repair.		
Burns International Security		1976-79			
Unico Industrial Services		1977-86			
North Coast Custom Boat Makers		1987-89			
Vacant		1990-95			
Handan Container Services		1996-present			
Potter Property LLC (owner)		?-2008			
Port of Tacoma (owner)		2008-present			
City of Tacoma	**0321263045, 0321352064**	?-2008	Wetlands/marsh area that was historically used for periodic dumping and landfilling from 1946 until at least 1991.	The eastern portion of this area is included on maps showing the extent of Don Oline landfill lime waste, auto fluff, and wood waste. A 1967 aerial photo shows a heavily used road running NE-SW across the parcels from Alexander Avenue that was apparently used for dumping lime waste.	PSC (2005), Woodward-Clyde (1991)
Port of Tacoma		2008-present	Vacant industrial land.		

References:

Dames & Moore. 1982. *Historic Land Use Survey of the Tacoma Tideflats*, dated January 1982, published by the Washington State Department of Ecology, WDOE 82-4, January.
Ecology and EPA, *Don Oline Landfill, CleanCare PLP Search Documentation, Volumes I and II*, October 12, 2001.
Floyd|Snider. 2006. *Remedial Investigation ProLogis Taylor Way Property,* October 3.
Floyd|Snider. 2007a. *Freeway Containers Phase I Environmental Site Assessment* (ESA), November 1.
Floyd|Snider. 2007b. *Rangor Building Phase I Environmental Site Assessment* (ESA), November 1.
Floyd|Snider. 2007c. *Handan Containers Phase I Environmental Site Assessment* (ESA), October 5.
GeoEngineers. 2008. *Data Summary and Conceptual Site Model, Taylor Way and Alexander Avenue Fill Site*, prepared for the Port of Tacoma, July 1.
Hart Crowser & Associates. 1986. *Preliminary Assessment, Past Practices in the Vicinity of the Poligen Facility, Port of Tacoma, Washington*, May 1; *in*: PTI (1989).
Landau Associates. 2006. *Phase I Environmental Site Assessment, CleanCare Property, Tacoma, Washington*, May 18.
Philip Services Corporation. 2005. *Final Comprehensive RI Report, Philip Services Corporation Tacoma Facility*, January 21.
PTI Environmental Services. 1989. *Chempro Tacoma Facility Potentially Liable Party Search*, December.
SAIC, Inc. 1990. *RCRA Facility Assessment PR/VSI Report, Chemical Processors, Inc., Northwest Processing, Inc., Sol-Pro, Inc., and Chemical Processors, Parcel A*, February.
Tacoma-Pierce County Health Department (TPCHD). 2002. *Source Protection Programs/Site Hazard Assessment - CleanCare Corporation*, February 26.
TPCHD. 2003. *Memorandum Re: CleanCare*, June 30.

EXHIBIT C. TAYLOR WAY AND ALEXANDER AVENUE FILL AREA PARCEL OWNERSHIP, ACTIVITIES, AND RELEASES.

Owner/Operator	Parcels (APNs)	Dates of Ownership or Operation	Activities	Releases	References

U.S. Environmental Protection Agency (EPA), Region X. 1979. *Inspection Report from the Hooker Chemical Inspection*, July 19, *in*: Don Oline Landfill, CleanCare PLP Search Documentation, Volume I.
Woodward-Clyde. 1991. *Tacoma Cogeneration Project Phase 2 Site Assessment*. May.

EXHIBIT D

SCHEDULE OF WORK AND DELIVERABLES

Deliverable/Task (jointly with the AO PLPs)	**Schedule**
Data Gap Work Plan Implementation	Begins within 30 days of the effective date of this Order.
Groundwater Monitoring Plan Implementation	Begins within 30 days of the effective date of this Order.
Initial Reporting Tasks Field Inspection	Completed within 30 days of the effective date of this Order.
Initial Reporting Tasks: 1. Aboveground Site Conditions memorandum 2. Existing Groundwater Monitoring Network Evaluation and Recommendations memorandum 3. Soil Vapor Intrusion Status and Recommendations memorandum	Tasks 1 and 2 shall be submitted to Ecology within 30 days of the initial reporting tasks field inspection. Task3 shall be submitted within 60 days of the initial field tasks field inspection. Ecology's comments shall be incorporated and a revised plan/memo shall be submitted to Ecology within 30 days of the date of Ecology's comment letter.
Soil and Groundwater Data Report	Submitted to Ecology within 60 days of receipt of validated data.
Submittal of data from previous investigations (August 1, 2005 to the effective date of this Order) to Ecology's Environmental Information Management System (EIM)	Submitted to Ecology within 1 year of the effective date of this Order.
Data Gap Work Plan, Stage 2 Field Tasks	See schedule provided in the Existing Groundwater Monitoring Network Evaluation memorandum and/or the Soil and Groundwater Data Report
Data Gap Work Plan, Stage 2 Reporting Tasks: 1. Groundwater Monitoring Network Revision Summary memorandum 2. Revised Groundwater Monitoring Plan	Task 1 shall be submitted to Ecology within 30 days after Stage 2 field tasks are completed. Task 2 shall be submitted to Ecology within 60 days after Stage 2 field tasks are completed.

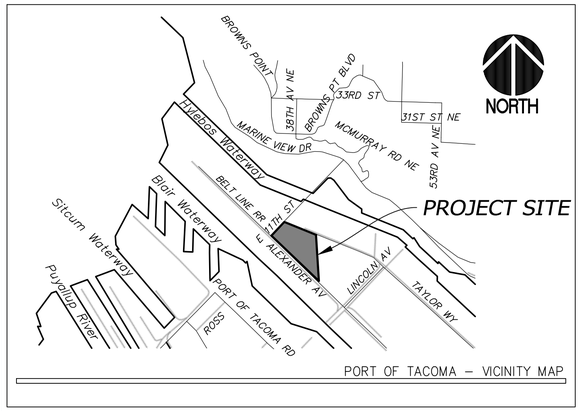
Indoor Air Assessment Protocol	Submitted to Ecology within 60 days following the submittal of the Groundwater Monitoring Network Revision Summary memorandum to Ecology.
Submittal of data collected under this Order in electronic format to EIM	Submitted to Ecology within 30 days of receipt of validated sample results and no later than 120 days from the date of sampling.
Agency Review Draft RI/FS Report	Submitted to Ecology within 120 days of completion of field activities or within 90 days of receipt of laboratory data
Public Review Draft RI/FS Report	Submitted to Ecology as provided in Section VII(C) of this Order.
Preliminary Draft Cleanup Action Plan	Submitted for Ecology review within 90 days of Ecology's acceptance of the Public Review Draft RI/FS Report. Ecology's comments shall be incorporated and revised plan shall be submitted to Ecology within 30 days of the date of Ecology's comment letter on the plan.
Installation of Additional Groundwater Monitoring Wells and Well Decommissioning	Begins within 45 days of Port and AO PLP's receipt of a written request by Ecology.
Groundwater Monitoring Reports	Submitted to Ecology following each groundwater monitoring event, within 30 days of receipt of validated groundwater sample results and no later than 90 days from the date of sampling.

Appendix L
Site Survey

BINDING EDGE

BOUNDARY & TOPOGRAPHIC SURVEY

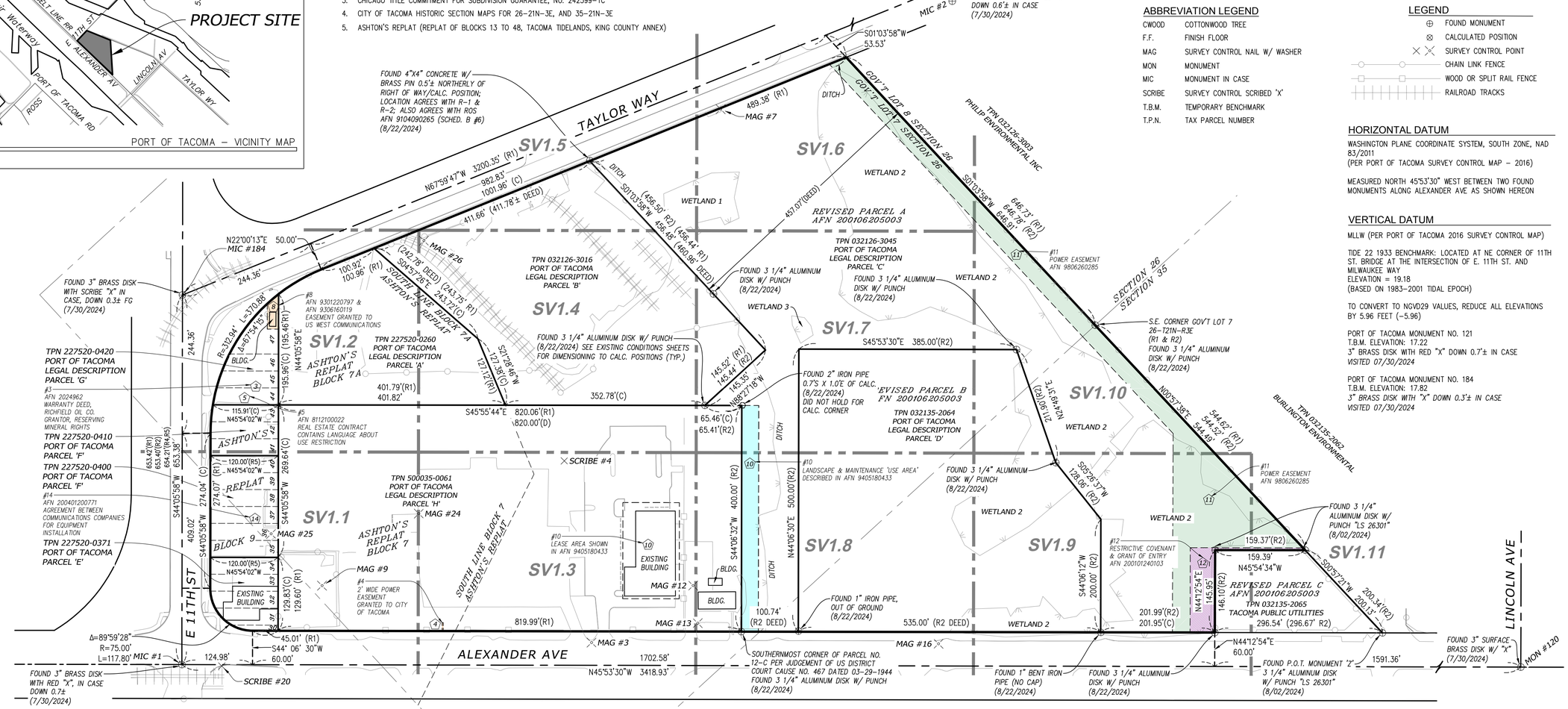
PORTIONS OF THE S.W. 1/4 OF SECTION 26, THE S.E. 1/4 OF SECTION 27, AND THE N.W. 1/4 SECTION 35, TOWNSHIP 21 NORTH, RANGE 3 EAST, W.M., CITY OF TACOMA, PIERCE COUNTY, WASHINGTON



PORT OF TACOMA – VICINITY MAP

REFERENCES

1. RECORD OF SURVEY AFN 200903105001, PARAMETRIX
2. CITY OF TACOMA BLA AFN 200106205003, TPU
3. CHICAGO TITLE COMMITMENT FOR SUBDIVISION GUARANTEE, NO. 242599-TC
4. CITY OF TACOMA HISTORIC SECTION MAPS FOR 26-21N-3E, AND 35-21N-3E
5. ASHTON'S REPLAT (REPLAT OF BLOCKS 13 TO 48, TACOMA TIDELANDS, KING COUNTY ANNEX)



HORIZONTAL SCALE: 1"=100'
100 0 100 200

ABBREVIATION LEGEND

CWOOD	COTTONWOOD TREE
F.F.	FINISH FLOOR
MAG	SURVEY CONTROL NAIL W/ WASHER
MON	MONUMENT
MIC	MONUMENT IN CASE
SCRIBE	SURVEY CONTROL SCRIBED 'X'
T.B.M.	TEMPORARY BENCHMARK
T.P.N.	TAX PARCEL NUMBER

LEGEND

- FOUND MONUMENT
- CALCULATED POSITION
- SURVEY CONTROL POINT
- CHAIN LINK FENCE
- WOOD OR SPLIT RAIL FENCE
- RAILROAD TRACKS

HORIZONTAL DATUM

WASHINGTON PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD 83/2011
(PER PORT OF TACOMA SURVEY CONTROL MAP – 2016)

MEASURED NORTH 45°53'30" WEST BETWEEN TWO FOUND MONUMENTS ALONG ALEXANDER AVE AS SHOWN HEREON

VERTICAL DATUM

MLLW (PER PORT OF TACOMA 2016 SURVEY CONTROL MAP)

TIDE 22 1933 BENCHMARK: LOCATED AT NE CORNER OF 11TH ST. BRIDGE AT THE INTERSECTION OF E. 11TH ST. AND MILWAUKEE WAY
ELEVATION = 19.18
(BASED ON 1983–2001 TIDAL EPOCH)

TO CONVERT TO NGVD29 VALUES, REDUCE ALL ELEVATIONS BY 5.96 FEET (–5.96)

PORT OF TACOMA MONUMENT NO. 121
T.B.M. ELEVATION: 17.22
3" BRASS DISK WITH RED "X" DOWN 0.7'± IN CASE
VISITED 07/30/2024

PORT OF TACOMA MONUMENT NO. 184
T.B.M. ELEVATION: 17.82
3" BRASS DISK WITH "X" DOWN 0.3'± IN CASE
VISITED 07/30/2024

BOUNDARY NOTES

1. THE LEGAL DESCRIPTIONS FOR PARCELS E, F AND G, WHICH ARE LOCATED ALONG THE FRONTAGE OF EAST 11TH STREET, ARE CONTROLLED BY BLOCK 9 OF ASHTON'S REPLAT AND THE LOTS THEREIN. REFERENCE NUMBER 1, RECORD OF SURVEY COMPLETED BY PARAMETRIX AFN 200903105001, ILLUSTRATES A CALCULATED SOLUTION FOR THIS TIER OF LOTS. THE RESOLUTION OF THE LOT LINES WITHIN BLOCK 9 ON THIS SURVEY DIFFERS SLIGHTLY FROM THE PARAMETRIX SURVEY. A PRORATION FACTOR WAS USED TO DETERMINE THE LOT WIDTHS. THIS WAS CALCULATED BY COMPARING THE MEASURED DISTANCE BETWEEN MONUMENTS AT BOTH 11TH & TAYLOR AND 11TH & ALEXANDER AND THE DISTANCE SHOWN ON BOTH ASHTON'S REPLAT AND THE CITY OF TACOMA SECTION MAP FOR SECTION 26, T21N, R3E. THE CALCULATED & RECORD DISTANCES ARE SHOWN HEREON. A POINT COMMON TO FOUR OF THE PARCELS IN THIS SURVEY IS THE EAST–MOST CORNER OF LOT 43 WITHIN BLOCK 9. THIS SOLUTION FOR THIS CALCULATED POSITION WAS HELD FOR ALL FOUR PARCELS TO BE CONSISTENT WITH HARMONY AMONG THE DEED DESCRIPTIONS.

2. THE LINE COMMON TO LEGAL DESCRIPTION PARCELS H, A AND B IS BOUND TO THE EAST–MOST CORNER OF LOT 43, BLOCK 9. THE CALL DESCRIBES THIS LINE AS BEING PARALLEL WITH ALEXANDER, HOWEVER HOLDING THE SOUTHEAST MOST ANGLE POINT AND THE CORNER OF LOT 43 RESULTED IN A SOLUTION CLOSELY MATCHING THE FOUND CORNER AT THE WEST ANGLE POINT OF PARCEL B. THE DECISION TO NOT HOLD THIS LINE PARALLEL TO ALEXANDER RESULTS IN LESS AMBIGUITY BETWEEN COMMON ANGLE POINTS AMONG THE RELEVANT PARCELS.

3. THE LINE COMMON TO LEGAL DESCRIPTION PARCELS B & C HAS DOCUMENTED AMBIGUITY IN THE RECORD. THE PARAMETRIX SURVEY NOTES THAT THERE IS AN OVERLAP BETWEEN DEED CALLS HERE. THE DECISION WAS MADE TO ACQUIESCE TO THE DISTANCE SHOWN ON THE BOUNDARY LINE ADJUSTMENT MAP (REFERENCE NUMBER 2 HEREON) COMPLETED BY TACOMA POWER TO DEFINE THE SOUTHEASTERLY ANGLE POINT OF THAT LINE AND THE FOUND CORNER AT THE POSITION COMMON TO PARCELS B, C AND H. THE RESULTANT CALCULATED DISTANCE IS APPROXIMATELY 0.1' SHORTER THAN RECORD. THE CHOICE TO HOLD THE DISTANCE THAT MORE CLOSELY MATCHES THE TWO MAIN REFERENCES USED TO DEVELOP THIS SURVEY RATHER THAN THE DEED DISTANCE, DOES NOT INTRODUCE ADDITIONAL AMBIGUITY.

SURVEY CONTROL TABLE

POINT #	DESCRIPTION	NORTHING	EASTING	ELEVATION
1	MIC	713373.43	1168935.63	17.22
2	MIC	712655.64	1172252.69	15.45
3	MAG	712897.72	1169484.17	17.02
4	SCRIBE	713162.33	1169672.69	17.92
7	MAG	713417.63	1170303.71	17.21
9	MAG	713301.54	1169210.87	16.66
12	MAG	712845.40	1169683.39	17.02
13	MAG	712791.95	1169643.08	16.34
16	MAG	712469.73	1169924.19	16.59
20	SCRIBE	713322.43	1168984.61	17.61
24	MAG	713274.11	1169422.66	19.70
25	MAG	713429.93	1169209.75	18.85
26	MAG	713615.09	1169764.44	17.44
27	SCRIBE	711998.46	1170309.67	16.99
120	MON	710993.79	1171390.52	15.84
184	MIC	713842.64	1169390.33	17.82

NOTES

1. EQUIPMENT USED: CARLSON CR2+ ROBOTIC TOTAL STATION AND TOPCON GR3 RTK/GPS AND/OR TOPCON HIPER VR RTK/GPS AND/OR JAVAD TRIUMPH–3NR RTK/GPS.
2. THIS SURVEY WAS PERFORMED BY FIELD TRAVERSE WITH THE FINAL RESULTS MEETING OR EXCEEDING THE CURRENT TRAVERSE AND RELATIVE POSITIONAL ACCURACY STANDARDS CONTAINED IN W.A.C. 332–130–090. THE RELATIVE POSITIONAL ACCURACY OF THE POSITIONS LOCATED HEREON MEETS OR EXCEEDS 2 CM (0.07 FT.) PLUS 50 PARTS PER MILLION BETWEEN ANY TWO TESTED POSITIONS. ALL MEASUREMENTS WERE MADE IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S SPECIFICATIONS.
3. IN ACCORDANCE WITH THE REVISED CODE OF WASHINGTON (R.C.W.) 58.09 AND THE WASHINGTON ADMINISTRATIVE CODE (W.A.C.) 332–130, THIS SURVEY MAY DEPICT OCCUPATIONAL INDICATORS THAT DIFFER FROM THE DEEDED LOT LINES. THESE INDICATORS, IF AT ALL PRESENT, MAY REPRESENT A POTENTIAL FOR CLAIMS OF UNWRITTEN TITLE. THIS SURVEY DOES NOT PURPORT TO RESOLVE SUCH ITEMS.
4. FIELD WORK PERFORMED IN JULY THROUGH OCTOBER 2024, UNDER SITTS & HILL PROJECT NUMBER 20618.
5. THIS SURVEY COMPLIES WITH W.A.C. 332–130–145. THE CONTOURS DEPICTED HEREON ARE BASED ON DATA FROM DIRECT FIELD MEASUREMENTS. SPOT ELEVATIONS ARE BASED ON DIRECT FIELD MEASUREMENTS AND ARE DEPICTED FOR REFERENCE. THE PURPOSE OF THIS TOPOGRAPHIC MAP IS TO SERVE AS A BASE MAP FOR CONTEMPLATED SITE IMPROVEMENTS AND DESIGN. THIS TOPOGRAPHIC SURVEY MAP HAS BEEN DEVELOPED FROM A BODY OF FIELD COLLECTED DATA POINTS AND RECORD INFORMATION. NOT ALL UNDERLYING DATA POINTS EXISTING WITHIN THE CAD BASE DRAWING (AUTODESK CIVIL 3D FILE) ARE DEPICTED ON THE PDF DELIVERABLE. SEE THE DIGITAL CAD FILE FOR ALL FIELD COLLECTED DATA, AND CONTACT SITTS & HILL ENGINEERS IF THERE ARE ISSUES WITH MAKING THIS DATA VISIBLE.
6. UTILITIES AS SHOWN HEREON ARE BASED ON FIELD SURVEY OBSERVATION OF UTILITY LOCATE SERVICES PERFORMED BY MOUNTAIN VIEW LOCATING SERVICES, LLC IN SEPTEMBER, 2024 FOR THIS SURVEY. THIS HAS BEEN SUPPLEMENTED BY PUBLIC RECORDS INFORMATION PROVIDED BY THE CITY OF TACOMA, PUGET SOUND ENERGY AND PREVIOUS RECORDS RESEARCH CONDUCTED UNDER SITTS AND HILL PROJECT NUMBERS 17695 AND 16237. RECORD UTILITY LINES SHOWN HEREON ARE DEPICTED WITH THE STANDARD LINETYPE WITH A "– R" AS SHOWN IN THE LEGEND. UTILITIES OTHER THAN SHOWN MAY EXIST ON THE SITE. THE SURVEYOR DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. THE SURVEYOR DOES CERTIFY THAT THEY ARE SHOWN AS ACCURATELY AS POSSIBLE FROM FIELD SURVEY AND PAINTED UTILITY LOCATE LINES. COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA IS CONSISTENT WITH QUALITY LEVEL B OF THE ASCE STANDARD GUIDELINES 38–02.
7. SITTS & HILL ENGINEERS, INC. HAS RELIED UPON TITLE INFORMATION NOTED IN COMMITMENT FOR TITLE INSURANCE PREPARED BY CHICAGO TITLE INSURANCE COMPANY OF WASHINGTON, COMMITMENT NUMBER 242599–TC AMENDED, DATED JULY 25, 2024. IN PREPARATION OF THIS SURVEY, SITTS AND HILL ENGINEERS, INC. HAS CONDUCTED NO INDEPENDENT TITLE SEARCH NOR IS SITTS AND HILL ENGINEERS, INC. AWARE OF ANY TITLE ISSUES AFFECTING THE SURVEYED PROPERTY OTHER THAN THOSE SHOWN ON THE MAP AND/OR DISCLOSED BY SAID TITLE COMPANY'S ORDER. SITTS & HILL ENGINEERS, INC. HAS RELIED WHOLLY ON SAID TITLE COMPANY'S REPORT AND THEREFORE QUALIFIES THE MAP'S ACCURACY AND COMPLETENESS TO THAT EXTENT.
8. C.O.T. SANITATION PERMIT ISSUED FOR BUILDING AT 3302 EAST 11TH ST ON 10/18/88 TO CONNECT OIL/WATER SEPARATOR TO SANITARY SIDE SEWER TO SERVICE WASH PAD. AT THE TIME, THE BUILDING WAS OWNED BY VANCE LIFT TRUCK.
9. THE WETLAND BOUNDARIES, DESIGNATIONS AND FLAG LOCATIONS SHOWN HEREON ARE BASED ON A DELINEATION COMPLETED BY CONFLUENCE ENVIRONMENTAL COMPANY FOR THE PORT OF TACOMA, AS EXHIBITED ON A MAP DATED MAY 2024. SITTS & HILL FIELD LOCATED VISIBLE WETLAND FLAGS AND USED EXISTING ELECTRONIC DATA PROVIDED BY THE PORT OF TACOMA TO SUPPLEMENT THE WETLAND LIMITS. NO WETLAND STAKING OR BUFFER ILLUSTRATION HAS BEEN COMPLETED BY SITTS & HILL. SEE PORT OF TACOMA RECORDS FOR MORE INFORMATION.

SEE SHEET SV1.12 FOR LEGAL DESCRIPTIONS AND TITLE INFORMATION

Port of Tacoma
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MARK:	REVISION:	BY:	APPR:	DATE:

SCHILLING SCOTT M. SCHILLING 26301 REGISTERED PROFESSIONAL LAND SURVEYOR STATE OF WASHINGTON
11.21.24

CHECKED BY DATE

DIRECTOR ENG. DATE | PROJ. ENGR DATE

APPROVED:

PRINTED BY: smootsr Nov 21, 2024
PORT ADDRESS:ONE SITCUM PLAZA
TACOMA, WA 98401-1837

PARCEL 117 CRITICAL AREA SITE REDEVELOPMENT
BOUNDARY & TOPOGRAPHIC SURVEY
BOUNDARY & SITE OVERVIEW

SV1.0
1 OF 13

CONT/CONS:	TOWNSHIP: 21	RANGE: 03	SECTION: 26
M. ID:	DAT–HRZ: WA83–SF	VERT: MLLW 19.39' @ Tide 22 1933	
PHASE:	PARCEL: 117	DRAWING SCALE: AS NOTED	

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PORT OF TACOMA FILE: O:\20600\20618\Drawings\20618 - SV1.0

BINDING EDGE

MATCH LINE SV1.2

MATCH LINE SV1.1

RECORD HYDROGEN LINE

90'

STORM CATCH BASIN TYPE I – ROUND LID
RIM=17.28
IE=15.95, 6" CONC. W

STORM CATCH BASIN TYPE I
RIM=16.18
IE=14.38, 6" CONC. E
IE=12.65, 8" CONC. SW
IE=15.12, 3" CONC. W
IE=14.28, 8" CONC. NW
IE=15.1, 3" CONC. NE

CONNECTION NOT FOUND

STORM CATCH BASIN TYPE I
RIM=17.28
IE=13.20, 8" CONC. NE
IE=13.22, 8" CONC. SW

STORM MANHOLE TYPE II
RIM=17.25
IE=12.24, 8" CONC. NE
IE=12.25, 8" CONC. SE
IE=11.93, 10" CONC. SW
IE=12.27, 8" CONC. NW
LADDER N

2 DROPS

"RAILROAD CROSSING"

GROUND RODS

CONC. RAMP

DROP

E 11TH ST

"COMCAST"

UTILITY CLEANOUT RIM=18.02

N45°54'02"W 120.00' (R5)

3"BRASS CLEANOUT RIM=19.28

4"CPP CLEANOUT RIM=19.29

4"CPP CLEANOUT RIM=19.26

UTILITY CLEANOUT RIM=19.26

6" CLEANOUT RIM=19.30

CLEANOUT RIM=19.23

6" CLEANOUT RIM=19.29

UTILITY CLEANOUT RIM=19.28

2.75"BRASS CLEANOUT RIM=19.30

BROKEN CONC.

ABANDONED CONCRETE FOOTING

2.75"BRASS CLEANOUT RIM=19.29

ASPHALT RAMP OVER CONC. (TYP.)

3"BRASS CLEANOUT RIM=19.30

4"DI CLEANOUT RIM=19.28

SEPTIC SYSTEM PERMITTED IN 1970
PER C.O.T. BUILDING INSPECTION RECORD.
EXACT LOCATION UNKNOWN.

2.5"DI CLEANOUT RIM=19.18

3"DI CLEANOUT RIM=19.20

4"DI CLEANOUTS

UTILITY CLEANOUT RIM=17.40

#14
AFN 200401200771
AGREEMENT BETWEEN
COMMUNICATIONS COMPANIES
FOR EQUIPMENT INSTALLATION

ECOLOGY BLOCKS

UTILITY PATCH

TPN 227520-0400
PORT OF TACOMA
PARCEL 'F'

MAG #25

SEWER CLEANOUT RIM=17.71

UTILITY CLEANOUT RIM=17.80

UTILITY CLEANOUT RIM=17.85

BURIED EDGE OF ASPHALT

JERSEY BARRIER

WOOD POSTS

N45°54'02"W 120.00' (R5)

6' BARBED CHAIN LINK FENCE

ECOLOGY BLOCKS

BOLLARDS W/ CHAIN

GRAVEL SURFACE

GATE

N45°54'02"W 50.00'

SECTION 26

SECTION 27

MAG #9

TPN 227520-0371
PORT OF TACOMA
PARCEL 'E'

EXISTING BUILDING
"PORT MAINTENANCE
3202 E 11TH ST
ASSET #10947"

STORM CATCH BASIN TYPE I
RIM=16.6
IE=13.99, 8" PVC SE
IE=15.74, 3" CONC. S
IE=13.95, 8" CONC. W
IE=15.77, 3" CONC. N

13' SLIDING DOOR

36"

OIL/WATER SEPARATOR
RIM=17.18
IE=14.96, 4" PVC NE
IE=12.1, N. WALL OPENING
IE=15.79, TOP S. WALL
IE=15.29, 4" PVC SW
SEE NOTE 8.

12' SLIDING DOOR

10' SLIDING DOOR

CONCRETE

STORM CATCH BASIN TYPE I
RIM=16.97
IE=15.49, 4" PVC SW

Δ=89°59'28"
L=117.80'
R=75.00'

45.01' (R1)

SANITARY MANHOLE TYPE II
RIM=17.1
IE=9.79, 6" CONC. N
IE=9.88, 6" CONC. NE
IE=14.86, 6" PVC E
IE=9.71±, 8" CONC. SW

BURIED EDGE OF ASPHALT

GATE

6' BARBED CHAIN LINK FENCE

"RR X-ING"

819.99' (R1)

WOOD POST (TYP.)

4' WOOD POST W/ CABLE

"BURIED GAS PIPELINE"

CONC. CURB & GUTTER

TRAFFIC LOOPS

60.00'

S44°06'30"W

STORM CATCH BASIN TYPE I
RIM=17.3
IE=13.18, 8" CONC. NE
IE=16.16, 3" CONC. E
IE=13.18, 8" CONC. S
IE=16.12, 3" CONC. W
IE=13.22, 8" CONC. NW

FOUND P.O.T. MON #121
T.B.M. EL: 17.22
3" BRASS DISK WITH RED "X"
DOWN 0.7'± IN CASE
(7/30/2024)

SCRIBE #20

124.98'

MIC #1

"LIGHTS"

CONNECTION NOT FOUND

STORM CATCH BASIN TYPE I
RIM=17.05
IE=15.92, 3" PVC SE
IE=14.77, 8" CONC. S
IE=14.29, 8" CONC. NW
IE=16.06, 3" PVC NW

CONNECTION NOT FOUND ON 3"PVC PIPE (TYP. THIS SHEET)

STORM CATCH BASIN TYPE I
RIM=16.57
IE=14.79, 6" PVC SE
IE=14.73, 8" PVC NW

N45°53'30"W 3418.93' (M)

1702.58'

ALEXANDER AVE

GRAVEL SURFACE

3–10" CWOOD

TPN 500035-0061
PORT OF TACOMA
PARCEL 'H'

WOOD POST

POSTS W/ CABLE

RIP-RAP

ECOLOGY BLOCKS

GRAVEL

BURIED EDGE OF ASPHALT

MATCH LINE SV1.1

MATCH LINE SV1.3

STORM CATCH BASIN TYPE I
RIM=16.41
IE=14.05, 10" DI SW

FOGLINE

STORM MANHOLE TYPE II
RIM=16.92
IE=13.53, 10" DI NE
IE=13.35, 24" CONC. SE
IE=14.30, 10" DI SW
LADDER SE

STORM CATCH BASIN TYPE I
RIM=16.22
IE=14.27, 10" DI NE

ASPHALT DRIVEWAY

FOGLINE

#4
2" W
GRAN
PER

HORIZONTAL SCALE: 1"=20'
20 0 20 40

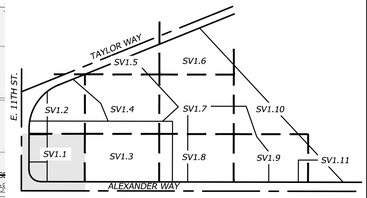
LEGEND

FOUND MONUMENT	JUNCTION BOX
CALCULATED POSITION	HAND HOLE
SURVEY CONTROL POINT	POWER VAULT
SANITARY SEWER MANHOLE	POWER TRANSFORMER
UTILITY CLEAN OUT	POWER MANHOLE
STORM MANHOLE	LIGHT POLE
STORM CATCH BASIN	LIGHT JUNCTION BOX
STORM VAULT	CROSSWALK PEDESTAL
STORM CULVERT	TRAFFIC LOOP
ROOF DRAIN	TELECOM RISER
WATER MANHOLE	TELECOM MANHOLE
WATER VALVE	TELECOM VAULT
WATER METER	TELECOM CABINET
WATER HOSE BIB	UTILITY VAULT
FIRE HYDRANT	UTILITY LID
FIRE DEPARTMENT CONNECTION	COLUMN
WATER BLOW OFF	BOLLARD
IRRIGATION CONTROL VALVE	SIGN
ANODE	MAILBOX
GAS VALVE	WETLAND FLAG
GAS METER	MONITORING WELL
POWER METER	DECIDUOUS TREE
POWER CABINET	EVERGREEN TREE
UTILITY POLE	DOOR CENTERLINE
GUY ANCHOR	SCHED. 'B' EXCEPTION

SD — STORM DRAIN LINE
SS — SANITARY SEWER LINE
SS–R — RECORD SANITARY LINE
W — BURIED WATER LINE
W–R — RECORD WATER LINE
NGAS — BURIED GAS LINE
NGAS–R — RECORD GAS LINE
BP — BURIED POWER LINE
AP — OVERHEAD POWER LINE
BT — BURIED TELECOM LINE
FO — FIBER OPTIC LINE
H — RECORD HYDROGEN LINE
CHAIN LINK FENCE
WOOD OR SPLIT RAIL FENCE
RAILROAD TRACKS
ASPHALT SURFACE
CONCRETE SURFACE
GRAVEL SURFACE
RIP–RAP SURFACE
METAL SURFACE

ABBREVIATION LEGEND

CWOOD	COTTONWOOD TREE
F.F.	FINISH FLOOR
MAG	SURVEY CONTROL NAIL W/ WASHER
MON	MONUMENT
MIC	MONUMENT IN CASE
SCRIBE	SURVEY CONTROL SCRIBED 'X'
T.B.M.	TEMPORARY BENCHMARK



KEY MAP

PORT OF TACOMA FILE: O:\20600\20618\Drawings\20618 - SV1.1

Port of Tacoma
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SCHILLING SURVEYING — REGISTERED PROFESSIONAL LAND SURVEYOR — STATE OF WASHINGTON — 11-21-24

APPROVED:

DIRECTOR ENG. DATE

CHECKED BY DATE

PROJ. ENGR DATE

PRINTED BY: smootsr Nov 21, 2024

PORT ADDRESS:ONE SITCUM PLAZA
TACOMA, WA 98401-1837

DRAWING SCALE: AS NOTED

PARCEL 117 CRITICAL AREA SITE REDEVELOPMENT
BOUNDARY & TOPOGRAPHIC SURVEY
EXISTING CONDITIONS

SV1.1
2 OF 13

CONT/CONS:	TOWNSHIP: 21	RANGE: 03	SECTION: 26
M. ID:	DAT–HRZ: WA83–SF	VERT: MLLW 19.39' @ Tide 22 1933	
PHASE:	PARCEL: 117		

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BINDING EDGE

PORT OF TACOMA FILE: O:\20600\20618\Drawings\20618 - SV1.2

STORM MANHOLE TYPE II RIM=17.93 IE=11.02, 10" CONC. NE IE=13.58, 8" CONC. NE IE=12.02, 12" CONC. SE IE=12.31, 8" CONC. SW IE=11.08, 10" CONC. SW IE=12.20, 6" CONC. W IE=12.88, 8" CONC. W

SINGLE TRAFFIC LIGHT W/ PEDESTRIAN CROSSING BUTTON

CONC. RAMP

CONNECTION NOT FOUND. ABANDONED LINE SHOWN ON C.O.T. "IMPROVEMENT NO. 1809 SANITARY SEWER..." MAP AFN 0033284

STORM MANHOLE TYPE II RIM=18.16 IE=12.86, 8" CONC. NE IE=12.96, 8" CONC. SE IE=12.81, 8" CONC. SW LADDER N "BURIED PETROLEUM PIPELINE" "RAILROAD CROSSING" "YIELD" FOUND P.O.T. MON #184 T.B.M. EL: 17.82 3" BRASS DISK WITH "X" DOWN 0.3'± IN CASE (7/30/2024)

STORM CATCH BASIN TYPE I RIM=17.2 IE=13.85, 8" PVC NE IE=13.87, 8" PVC W

GRAVEL SURFACE

RECORD HYDROGEN LINE

E 11TH ST

STORM CATCH BASIN TYPE I RIM=16.94 IE=15.20, 6" PVC SE IE=15.20, 8" PVC W

653.42'(R1) 653.40'(R2) 654.21'(R4,R5) 653.38' (M) S44°05'58"W 244.36'

STORM CATCH BASIN TYPE I RIM=16.93 IE=14.38, 8" CONC. NE IE=14.77, 8" PVC E

STORM CATCH BASIN TYPE I RIM=17.11 IE=16.14, 3" PVC NE IE=16.23, 3" PVC SW IE=13.92, 8" CONC. SW

SANITARY MANHOLE TYPE II RIM=17.51 IE=7.71, 20" CONC. NE IE=8.20, 8" CONC. SE IE=7.47, 20" CONC. SW IE=8.25, 8" CONC. NW LADDER NE

"CP TEST"

SECTION 26 SECTION 27

CONNECTION NOT FOUND ON 3"PVC PIPE (TYP. THIS SHEET)

50.00' N45°54'02"W

90'

274.04' (M) 274.04' (C)

MATCH LINE SV1.2

MATCH LINE SV1.1

THE ALIGNMENT OF THIS RECORD SANITARY SEWER MAIN WAS EXTRACTED FROM TACOMA GIS RECORDS. MANHOLES NOT SHOWN.

STORM CATCH BASIN TYPE I RIM=17.24 IE=14.98, 8" CONC. SW

CONC. RAMP

"POWER"

"FIRE ALARM"

DROP

GRAVEL SURFACE

SINGLE TRAFFIC LIGHT W/ PEDESTRIAN CROSSING BUTTON

"RAILROAD CROSSING" "YIELD"

STORM CATCH BASIN TYPE I RIM=16.93 IE=14.34, 8" PVC SE IE=14.17, 8" CONC. NW

STORM MANHOLE RIM=17.85 IE=13.60, 8" PVC E IE=12.81, 12" CONC. SE IE=13.71, 8" PVC SE IE=12.21, 12" CONC. SE IE=12.18, 12" CONC. NW LADDER SW

TAYLOR WAY

AREA NOT SURVEYED

N67°59'47"W 3200.35' 982.63' (C)

N22°00'13"E 50.00'

END OF RECORD HYDROGEN LINE

CONC. ROADWAY

CONC. CURB & GUTTER

CONC. RAMP

411.66' (411.78'± DEED)

6' CHAIN LINK FENCE

GATE

GATE REMOVED

ECOLOGY BLOCKS

(242.78' DEED) (243.75' R1) S04°57'16"E 243.72'(C)

244.36'

MIC #184

2 DROPS

WOOD BOLLARD

6" CEDAR

6"CONC LATERAL PER C.O.T. SANITATION PERMIT

#6 AFN 9301220797 & AFN 9306160119 EASEMENT GRANTED TO US WEST COMMUNICATIONS

STORM MANHOLE TYPE II RIM=17.35 FLOODED IE=12.62, 12" DI N IE=10.58±, TOP POSSIBLE PIPE SE IE=10.35±, TOP POSSIBLE PIPE SE IE=11.18±, TOP POSSIBLE PIPE N LADDER NE GIS SHOWS ONLY 1 PIPE NW

STORM CATCH BASIN TYPE I RIM=17.00 IE=14.24, 8" PVC NW

STORM CATCH BASIN TYPE I RIM=17.37 IE=14.80, 8" PVC W

100.92' (C) 100.96' (R1)

1001.96' (C)

6' CHAIN LINK FENCE

CONC. FOOTING

EXISTING BUILDING

6' CHAIN LINK FENCE

ECOLOGY BLOCKS (5)

CONC. RAMP

FENCE ON BOUNDARY LINE

WOOD BOLLARD (TYP.)

ASPHALT PAVING

CONC. BOLLARDS

LIGHT POLE W/ SINGLE TRAFFIC LIGHT

GOOSENECK VENT PIPE

STORM CATCH BASIN TYPE I RIM=17.23 IE=15.72, 6" PVC NW

TPN 227520-0260 PORT OF TACOMA LEGAL DESCRIPTION PARCEL 'A'

MATCH LINE SV1.2

MATCH LINE SV1.4

ABANDONED FOOTING

ASPHALT PAVING

CONCRETE

ECOLOGY BLOCKS

OVERALL CURVE DATA Δ=67°54'15" R=312.94' L=370.88'

GRAVEL OR BROKEN ASPHALT

"RIGHT LANE MUST TURN RIGHT" & "YIELD"

TPN 227520-0420 PORT OF TACOMA LEGAL DESCRIPTION PARCEL 'G'

#3 AFN 2024962 WARRANTY DEED, RICHFIELD OIL CO. GRANTOR, RESERVING MINERAL RIGHTS

#5 AFN 8112100022 REAL ESTATE CONTRACT CONTAINS LANGUAGE ABOUT USE RESTRICTION

BURIED EDGE OF ASPHALT

GRAVEL OR BROKEN ASPHALT

WOOD BOLLARD (TYP.)

6' BARBED CHAIN LINK FENCE AT&T CELL TOWER ENCLOSURE (NO ACCESS)

GATES

GATE

BURIED EDGE OF ASPHALT

6' CHAIN LINK FENCE

GATE

CONNECTION NOT FOUND

4" WOOD POST W/ CABLE

EDGE OF VEGETATION

8X4" WILLOW

401.79' (R1) 401.82' (C)

S45°55'44"E 820.06' (R1) 820.00' (D)

STORM CATCH BASIN TYPE I RIM=12.65 FULL OF DEBRIS IE=11.35, 8" CONC. NE

WOOD BOLLARD

6" CWOOD

4X7" CWOOD

EMPTY VAULT

2 DROPS

ECOLOGY BLOCKS

"RIGHT LANE MUST TURN RIGHT" & RR CROSSING

N45°54'02"W 115.91' (C) 115.94' (R1)

SEWER LINE MAY CONTINUE. RECORD LINE ENDS HERE.

UTILITY CLEANOUT RIM=17.43

"COMCAST"

UTILITY CLEANOUT RIM=18.02

TPN 227520-0410 PORT OF TACOMA PARCEL 'F'

196.16' (R1) 195.96' (C) 195.46' (R1) N44°05'58"E

89.88' (C) 89.88' (R1) S44°05'58"W

HORIZONTAL SCALE: 1"=20'

20 0 20 40

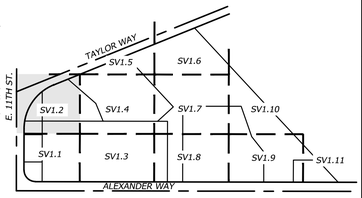
LEGEND

- FOUND MONUMENT
- CALCULATED POSITION
- SURVEY CONTROL POINT
- SANITARY SEWER MANHOLE
- UTILITY CLEAN OUT
- STORM MANHOLE
- STORM CATCH BASIN
- STORM VAULT
- STORM CULVERT
- ROOF DRAIN
- WATER MANHOLE
- WATER VALVE
- WATER METER
- WATER HOSE BIB
- FIRE HYDRANT
- FIRE DEPARTMENT CONNECTION
- WATER BLOW OFF
- IRRIGATION CONTROL VALVE
- ANODE
- GAS VALVE
- GAS METER
- POWER METER
- POWER CABINET
- UTILITY POLE
- GUY ANCHOR
- JUNCTION BOX
- HAND HOLE
- POWER VAULT
- POWER TRANSFORMER
- POWER MANHOLE
- LIGHT POLE
- LIGHT JUNCTION BOX
- CROSSWALK PEDESTAL
- TRAFFIC LOOP
- TELECOM RISER
- TELECOM MANHOLE
- TELECOM VAULT
- TELECOM CABINET
- UTILITY VAULT
- UTILITY LID
- COLUMN
- BOLLARD
- SIGN
- MAILBOX
- WETLAND FLAG
- MONITORING WELL
- DECIDUOUS TREE
- EVERGREEN TREE
- DOOR CENTERLINE
- SCHED. 'B' EXCEPTION

- STORM DRAIN LINE
- SANITARY SEWER LINE
- RECORD SANITARY LINE
- BURIED WATER LINE
- RECORD WATER LINE
- BURIED GAS LINE
- RECORD GAS LINE
- BURIED POWER LINE
- OVERHEAD POWER LINE
- BURIED TELECOM LINE
- FIBER OPTIC LINE
- RECORD HYDROGEN LINE
- CHAIN LINK FENCE
- WOOD OR SPLIT RAIL FENCE
- RAILROAD TRACKS
- ASPHALT SURFACE
- CONCRETE SURFACE
- GRAVEL SURFACE
- RIP-RAP SURFACE
- METAL SURFACE

ABBREVIATION LEGEND

CWOOD	COTTONWOOD TREE
F.F.	FINISH FLOOR
MAG	SURVEY CONTROL NAIL W/ WASHER
MON	MONUMENT
MIC	MONUMENT IN CASE
SCRIBE	SURVEY CONTROL SCRIBED 'X'
T.B.M.	TEMPORARY BENCHMARK



KEY MAP

Port of Tacoma
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WWW.SITTSHILL.COM

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SCHILLING SURVEYING 11-21-24

APPROVED:

DIRECTOR ENG. DATE

CHECKED BY DATE

PROJ. ENGR DATE

BY: smootsr Nov 21, 2024

PRINTED BY: smootsr

PORT ADDRESS:ONE SITCUM PLAZA

TACOMA, WA 98401-1837

DRAWING SCALE: AS NOTED

PARCEL 117 CRITICAL AREA SITE REDEVELOPMENT
BOUNDARY & TOPOGRAPHIC SURVEY
EXISTING CONDITIONS

SV1.2
3 OF 13

CONT/CONS:	TOWNSHIP: 21	RANGE: 03	SECTION: 26
M. ID:	DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933	
PHASE:	PARCEL: 117		

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BINDING EDGE

MATCH LINE SV1.4
MATCH LINE SV1.3
MATCH LINE SV1.1
MATCH LINE SV1.3
MATCH LINE SV1.3
MATCH LINE SV1.8

GRAVEL SURFACE
ASPHALT PAVING
MIXED GRAVEL & DIRT
GRAVEL SURFACE
ASPHALT PAVING
ASPHALT RAMP
ASPHALT DRIVEWAY
ASPHALT DRIVEWAY
ASPHALT DRIVEWAY
ASPHALT DRIVEWAY
FOGLINE
FOGLINE
FOGLINE
FOGLINE

MAG #24
TPN 500035-0061
PORT OF TACOMA
PARCEL 'H'

SCRIBE #4

STORM CATCH BASIN
TYPE I
RIM=16.57
IE=14.07, 12" PVC NE
IE=14.23, 8" PVC SE
IE=14.09, 12" PVC SW

EXTRUDED CURB (TYP.)

CONNECTION TO OUTFALL NOT FOUND

STORM CATCH BASIN
TYPE I
RIM=16.56
IE=14.77, 6" PVC SW
IE=14.65, 8" PVC NW

CONNECTION NOT FOUND

EXTRUDED CURB (TYP.)

4" WOOD POST W/ CABLE

EXTRUDED CURB (TYP.)

EXTRUDED CURB (TYP.)

6" MAPLE

9' ROLLUP

F.F.=18.65

48"

STORM CATCH BASIN
TYPE I
RIM=17.09
IE=14.51, 12" PVC NE
IE=15.28, 6" PVC SE
IE=14.69, 8" PVC SW

UTILITY CLEANOUT
RIM=18.83

36"

#10
LEASE AREA SHOWN
IN AFN 9405180433

EXISTING BUILDING

"HANDICAP PARKING"

HVAC EQUIPMENT

6' CHAIN LINK FENCE

HVAC EQUIPMENT

6' CHAIN LINK FENCE

96"

F.F.=18.65

72"

CITY OF TACOMA ISSUED PERMIT TO PACIFIC MARITIME FOR NEW STORM SEWER CONNECTION FROM BUILDING NO. 40000224482 PER RECORD 40000228341. EXACT LOCATION UNKNOWN.

UTILITY CLEANOUT
RIM=18.36

STORM CATCH BASIN
TYPE I
RIM=17.11
IE=14.27, 8" PVC NE

CONDUIT

UTILITY CLEANOUT
RIM=18.32
POSSIBLE SEWER LATERAL
RECORD DOES NOT
SHOW EXACT LOCATION

8" MAPLE

EXTRUDED CURB (TYP.)

36"

F.F.=18.55

CONDUIT

10" CWOOD

CWOOD

2X6" CWOOD

EXTRUDED CURB (TYP.)

4" WOOD POST W/ CABLE

#4
2' WIDE POWER EASEMENT
GRANTED TO CITY OF TACOMA
PER AFN 2320808

ECOLOGY BLOCKS

STORM CATCH BASIN
TYPE I
RIM=16.39
IE=13.57, 8" PVC SW

BIOSWALE

ECOLOGY BLOCKS

GOOSENECK VENT PIPE

GRAVEL SURFACE

GATE

4' WOOD POST W/ CABLE

819.99' (R1)

"BURIED GAS PIPELINE"

"PACIFIC MARITIME ASSOCIATION" 4' WOOD POST W/ CABLE

3" MAPLE

EXTRUDED CURB (TYP.)

MEMORIAL SIGN

HEDGE

MAST

PROPELLER SCULPTURE

9" MAPLE

9" MAPLE

4' WOOD POST W/ CABLE

EXTRUDED CURB (TYP.)

STORM CATCH BASIN
TYPE I
RIM=16.16
IE=15.20, 6" PVC SW

GATE

CONNECTION MAY EXIST.

MAG #3

POWER POLE
WITH LIGHT ARM
AND 3 DROPS

STORM MANHOLE
TYPE II
RIM=16.67
IE=13.16, 10" DI NE
IE=12.82, 24" CONC. SE
IE=14.10, 12" CONC. SW
IE=12.74, 24" CONC NW
LADDER NW

STORM CATCH BASIN
TYPE I
RIM=16.20
IE=13.39, 8" PVC NE
IE=13.27, 10" DI SW

STORM CATCH BASIN
TYPE I
RIM=16.06
IE=14.06, 10" DI NE

STORM CATCH BASIN
TYPE I
RIM=15.96
IE=14.02, 6" PVC SE
IE=13.70, 10" DI SW

STORM CATCH BASIN
TYPE I
RIM=15.84
IE=13.55, 10" CONC. NE

STORM MANHOLE
TYPE II
RIM=16.54
INACCESSIBLE

STORM MANHOLE
TYPE II
RIM=16.64
IE=12.88, 8" DI NE
IE=12.16, 24" CONC. SE
IE=13.02, 8" DI SW
IE=12.23, 24" CONC. NW
LADDER NW

SOUTH LINE BLOCK 7 ASHTON'S REPLAT

ALEXANDER AVE

1702.59'

N45°53'30"W 3418.93' (M)

AREA NOT SURVEYED

HORIZONTAL SCALE: 1"=20'
20 0 20 40

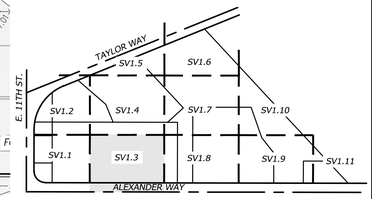
LEGEND

- FOUND MONUMENT
- CALCULATED POSITION
- SURVEY CONTROL POINT
- SANITARY SEWER MANHOLE
- UTILITY CLEAN OUT
- STORM MANHOLE
- STORM CATCH BASIN
- STORM VAULT
- STORM CULVERT
- ROOF DRAIN
- WATER MANHOLE
- WATER VALVE
- WATER METER
- WATER HOSE BIB
- FIRE HYDRANT
- FIRE DEPARTMENT CONNECTION
- WATER BLOW OFF
- IRRIGATION CONTROL VALVE
- ANODE
- GAS VALVE
- GAS METER
- POWER METER
- POWER CABINET
- UTILITY POLE
- GUY ANCHOR
- JUNCTION BOX
- HAND HOLE
- POWER VAULT
- POWER TRANSFORMER
- POWER MANHOLE
- LIGHT POLE
- LIGHT JUNCTION BOX
- CROSSWALK PEDESTAL
- TRAFFIC LOOP
- TELECOM RISER
- TELECOM MANHOLE
- TELECOM VAULT
- TELECOM CABINET
- UTILITY VAULT
- UTILITY LID
- COLUMN
- BOLLARD
- SIGN
- MAILBOX
- WETLAND FLAG
- MONITORING WELL
- DECIDUOUS TREE
- EVERGREEN TREE
- DOOR CENTERLINE
- SCHED. 'B' EXCEPTION

- STORM DRAIN LINE
- SANITARY SEWER LINE
- RECORD SANITARY LINE
- BURIED WATER LINE
- RECORD WATER LINE
- BURIED GAS LINE
- RECORD GAS LINE
- BURIED POWER LINE
- OVERHEAD POWER LINE
- BURIED TELECOM LINE
- FIBER OPTIC LINE
- RECORD HYDROGEN LINE
- CHAIN LINK FENCE
- WOOD OR SPLIT RAIL FENCE
- RAILROAD TRACKS
- ASPHALT SURFACE
- CONCRETE SURFACE
- GRAVEL SURFACE
- RIP-RAP SURFACE
- METAL SURFACE

ABBREVIATION LEGEND

CWOOD	COTTONWOOD TREE
F.F.	FINISH FLOOR
MAG	SURVEY CONTROL NAIL W/ WASHER
MON	MONUMENT
MIC	MONUMENT IN CASE
SCRIBE	SURVEY CONTROL SCRIBED 'X'
T.B.M.	TEMPORARY BENCHMARK



KEY MAP

Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

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11-21-24

APPROVED:

CHECKED BY DATE

DIRECTOR ENG. DATE PROJ. ENGR DATE

PRINTED BY: smootsr Nov 21, 2024

PORT ADDRESS:ONE SITCUM PLAZA TACOMA, WA 98401-1837

PARCEL 117 CRITICAL AREA SITE REDEVELOPMENT
BOUNDARY & TOPOGRAPHIC SURVEY
EXISTING CONDITIONS

TOWNSHIP: 21	RANGE: 03	SECTION: 26	
DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933		
PARCEL: 117	DRAWING SCALE: AS NOTED		

SV1.3
4 OF 13

CONT/CONS:
M. ID:
PHASE:

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PORT OF TACOMA FILE: O:\20600\20618\Drawings\20618 - SV1.3

BINDING EDGE

MATCH LINE SV1.5
MATCH LINE SV1.4

MATCH LINE SV1.2
MATCH LINE SV1.4

MATCH LINE SV1.4
MATCH LINE SV1.7

6' CHAIN LINK FENCE
MAG #26
CLUSTER 4" MADRONA
CLUSTER 3" MADRONA
UNKNOWN VAULT
RIM=17.20
IE=15.75, 1"GALVANIZED
ABANDONED PIPE/CONDUIT E
BOTTOM STRUCTURE EL=14.16
(FULL OF DEBRIS)

GRAVEL SURFACE

TPN 032126-3016
PORT OF TACOMA
PARCEL 'B'

REVISED PARCEL A
AFN 200106205003

ASPHALT PAVING

BURIED END OF RAILS

457.07'(DEED)

DITCH

SOUTH LINE BLOCK 7A ASHTON'S REPLAT

(242.78' DEED) (243.75' R1)
S04°57'26"E 243.72'(C)

UNKNOWN VAULT
RIM=16.86
BOTTOM=16.46
(FULL OF DEBRIS)

S27°26'46"W 127.12' (R1)
127.58' (C)

6' CHAIN LINK FENCE

EDGE OF VEGETATION

GATE

END OF RAILS

CULVERT
IE=16.34 3"PVC NE

STAFF GAUGE

401.79' (R1)
401.82' (C)

S45°55'44"E 820.06' (R1)
820.00' (D)

359.55'(R1)
352.78'(C)

S45°55'44"E 820.06'(R1)
820.00'(D)

TPN 500035-0061
PORT OF TACOMA
PARCEL 'H'

CULVERT
IE=15.78 12"CMP SE

BROKEN CONC.

POSSIBLE CULVERT

CULVERT
IE=16.60 12"PVC NW

ECOLOGY BLOCK WALL

4" WOOD POST W/ CABLE

EXTRUDED CURB (TYP.)

ASPHALT PAVING

CONC. DEBRIS

18" VERTICAL PIPE

6" CHAIN LINK FENCE

EDGE OF VEGETATION

MATCH LINE SV1.4
MATCH LINE SV1.3

HORIZONTAL SCALE: 1"=20'
20 0 20 40

LEGEND

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- CALCULATED POSITION
- SURVEY CONTROL POINT
- SANITARY SEWER MANHOLE
- UTILITY CLEAN OUT
- STORM MANHOLE
- STORM CATCH BASIN
- STORM VAULT
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- POWER MANHOLE
- LIGHT POLE
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F.F.	FINISH FLOOR
MAG	SURVEY CONTROL NAIL W/ WASHER
MON	MONUMENT
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SCRIBE	SURVEY CONTROL SCRIBED 'X'
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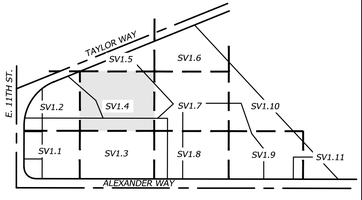

KEY MAP

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APPROVED:

DIRECTOR ENG. DATE | PROJ. ENGR DATE
PRINTED BY: smootsr Nov 21, 2024
PORT ADDRESS:ONE SITCUM PLAZA
TACOMA, WA 98401-1837

CHECKED BY DATE

PARCEL 117 CRITICAL AREA SITE REDEVELOPMENT
BOUNDARY & TOPOGRAPHIC SURVEY
EXISTING CONDITIONS

CONT/CONS:	TOWNSHIP: 21	RANGE: 03	SECTION: 26
M. ID:	DAT–HRZ: WA83–SF	VERT: MLLW 19.39' @ Tide 22 1933	
PHASE:	PARCEL: 117	DRAWING SCALE: AS NOTED	

SV1.4
5 OF 13

BINDING EDGE

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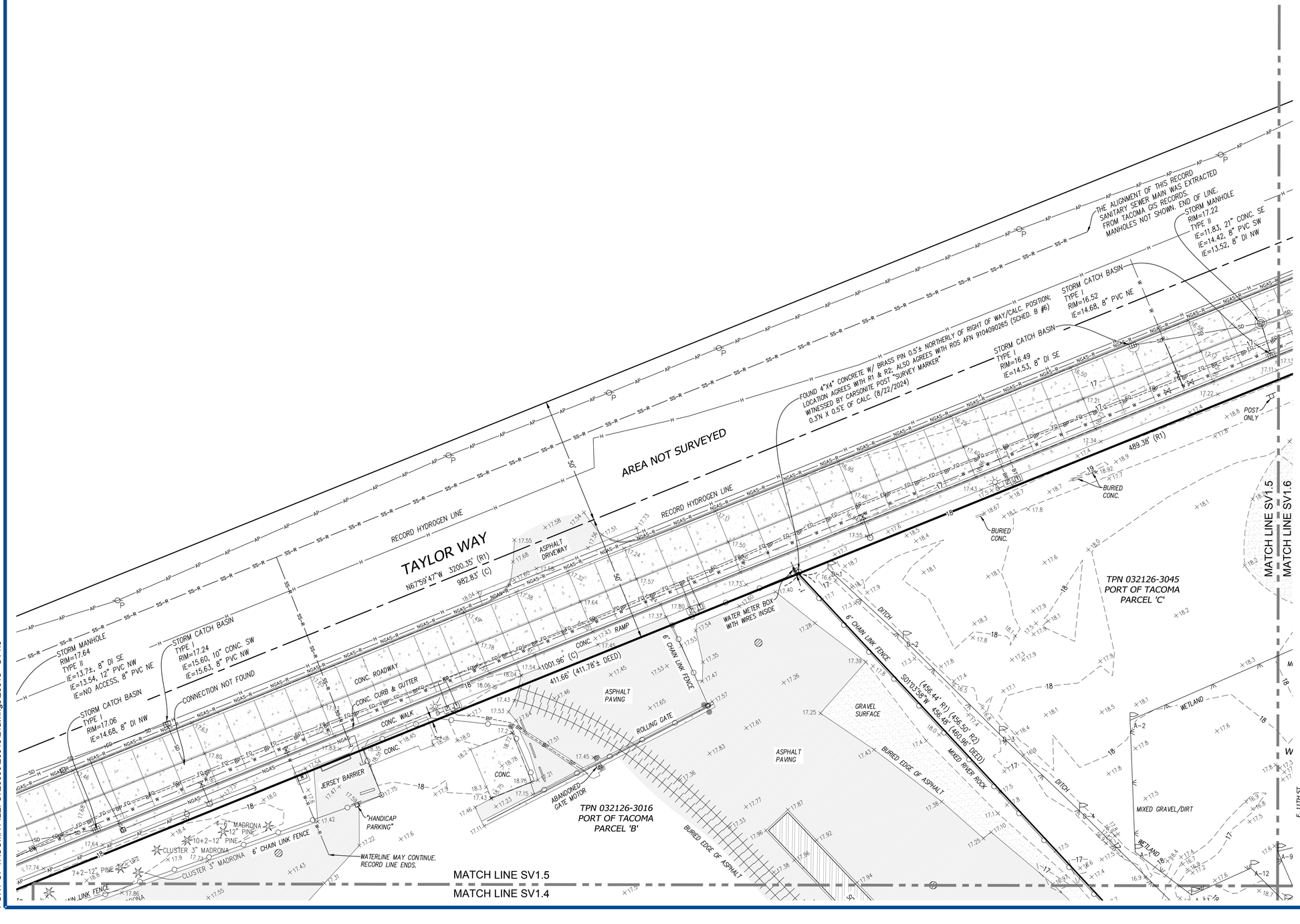

HORIZONTAL SCALE: 1"=20'

20 0 20 40

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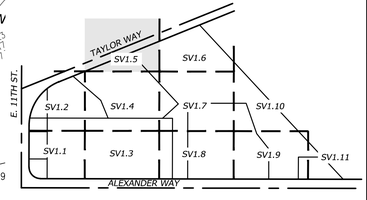
ABBREVIATION LEGEND

CWOOD	COTTONWOOD TREE
F.F.	FINISH FLOOR
MAG	SURVEY CONTROL NAIL W/ WASHER
MON	MONUMENT
MIC	MONUMENT IN CASE
SCRIBE	SURVEY CONTROL SCRIBED 'X'
T.B.M.	TEMPORARY BENCHMARK



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11.21.24

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PARCEL 117 CRITICAL AREA SITE REDEVELOPMENT
BOUNDARY & TOPOGRAPHIC SURVEY
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DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933		
PARCEL: 117	DRAWING SCALE: AS NOTED		

SV1.5
6 OF 13

CONT/CONS:
M. ID:
PHASE:

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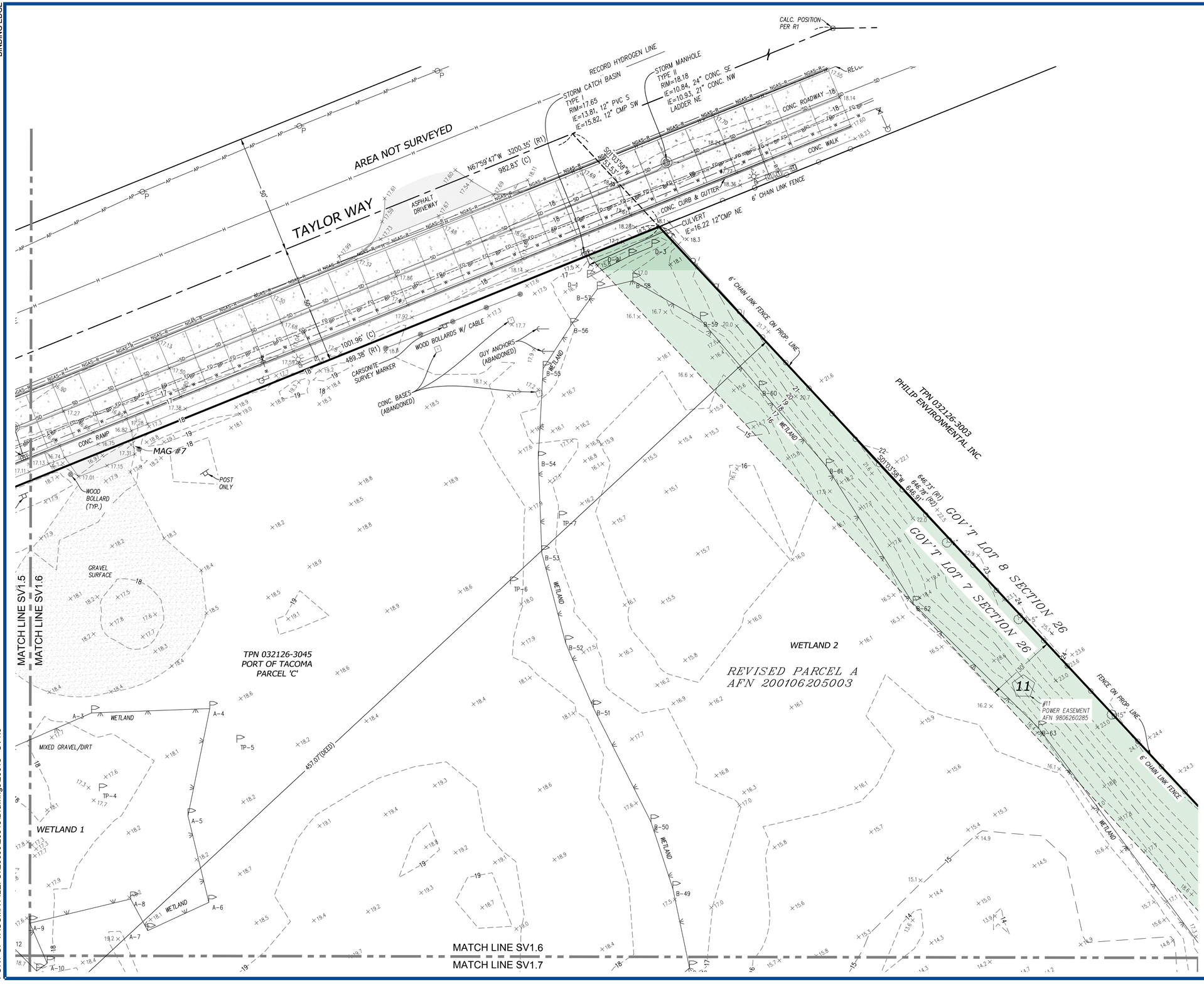

HORIZONTAL SCALE: 1"=20'

20 0 20 40

LEGEND

FOUND MONUMENT	JUNCTION BOX
CALCULATED POSITION	HAND HOLE
SURVEY CONTROL POINT	POWER VAULT
SANITARY SEWER MANHOLE	POWER TRANSFORMER
UTILITY CLEAN OUT	POWER MANHOLE
STORM MANHOLE	LIGHT POLE
STORM CATCH BASIN	LIGHT JUNCTION BOX
STORM VAULT	CROSSWALK PEDESTAL
STORM CULVERT	TRAFFIC LOOP
ROOF DRAIN	TELECOM RISER
WATER MANHOLE	TELECOM MANHOLE
WATER VALVE	TELECOM VAULT
WATER METER	TELECOM CABINET
WATER HOSE BIB	UTILITY VAULT
FIRE HYDRANT	UTILITY LID
FIRE DEPARTMENT CONNECTION	COLUMN
WATER BLOW OFF	BOLLARD
IRRIGATION CONTROL VALVE	SIGN
ANODE	MAILBOX
GAS VALVE	WETLAND FLAG
GAS METER	MONITORING WELL
POWER METER	DECIDUOUS TREE
POWER CABINET	EVERGREEN TREE
UTILITY POLE	DOOR CENTERLINE
GUY ANCHOR	SCHED. 'B' EXCEPTION

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CWOOD	COTTONWOOD TREE
F.F.	FINISH FLOOR
MAG	SURVEY CONTROL NAIL W/ WASHER
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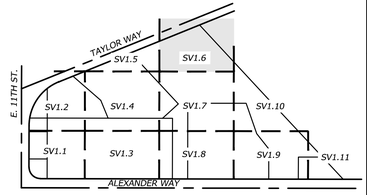

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DRAWING SCALE: AS NOTED

PARCEL 117 CRITICAL AREA SITE REDEVELOPMENT
BOUNDARY & TOPOGRAPHIC SURVEY
EXISTING CONDITIONS

SV1.6
7 OF 13

CONT/CONS:	TOWNSHIP: 21	RANGE: 03	SECTION: 26
M. ID:	DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933	
PHASE:	PARCEL: 117		

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BINDING EDGE

MATCH LINE SV1.6

MATCH LINE SV1.7

MATCH LINE SV1.4

MATCH LINE SV1.7

MATCH LINE SV1.7

MATCH LINE SV1.10

MATCH LINE SV1.7

MATCH LINE SV1.8

REVISED PARCEL A
AFN 200106205003

WETLAND 2

WETLAND 3

TPN 032126-3045
PORT OF TACOMA
PARCEL 'C'

TPN 032135-2064
PORT OF TACOMA
PARCEL 'D'

TPN 500035-0061
PORT OF TACOMA
PARCEL 'H'

457.07'(DEED)

FOUND 3 1/4" ALUMINUM DISK W/ PUNCH (8/22/2024)

DITCH

6' CHAIN LINK FENCE

EDGE OF VEGETATION

CONC. DEBRIS

S01°03'58"W 456.44' (R1) (456.50' R2) 456.48' (456.96' DEED)

N89°27'18"W 145.52' (R1) 145.44' (R2) 145.35' (C)

65.46' (R2)

S45°55'44"E 820.06' (R1) 820.00' (D)

FOUND 3 1/4" ALUMINUM DISK W/ PUNCH 0.1'S OF CALC. (8/22/2024)

FOUND 2" IRON PIPE S0.7' X E1.0' OF CALC. (8/22/2024)

N44°06'32"E 400.00' (R2)

S45°53'30"E 385.00' (R2)

N44°06'30"E 500.00' (R2)

WETLAND

B-48 B-47 B-46 B-45 B-44 B-43 B-42 B-41 B-40 B-39 B-38

C-1 C-2 C-3 C-4 C-5 C-6

TP-8 TP-9

D-6 D-7 D-8

HORIZONTAL SCALE: 1"=20'

20 0 20 40

LEGEND

- FOUND MONUMENT
- CALCULATED POSITION
- SURVEY CONTROL POINT
- SANITARY SEWER MANHOLE
- UTILITY CLEAN OUT
- STORM MANHOLE
- STORM CATCH BASIN
- STORM VAULT
- STORM CULVERT
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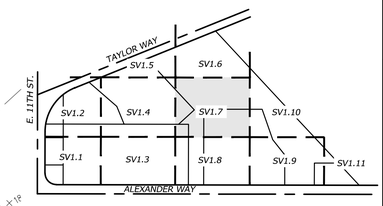
F.F.	FINISH FLOOR
MAG	SURVEY CONTROL NAIL W/ WASHER
MON	MONUMENT
MIC	MONUMENT IN CASE
SCRIBE	SURVEY CONTROL SCRIBED 'X'
T.B.M.	TEMPORARY BENCHMARK



KEY MAP

Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

sitts & hill
CIVIL | STRUCTURAL | ARCHITECTURAL | SURVEY
413 CENTER STREET | TACOMA, WA. 98409
PHONE: (253) 474-9449 | FAX: (253) 474-9310
WWW.SITTSHILL.COM

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SCHILLING SCHILLING SCHILLING SCHILLING
REGISTERED PROFESSIONAL LAND SURVEYOR
11-21-24

CHECKED BY DATE

DIRECTOR ENG. DATE

PROJ. ENGR DATE

PRINTED BY: smootsr Nov 21, 2024

PORT ADDRESS:ONE SITCUM PLAZA TACOMA, WA 98401-1837

APPROVED:

PARCEL 117 CRITICAL AREA SITE REDEVELOPMENT
BOUNDARY & TOPOGRAPHIC SURVEY
EXISTING CONDITIONS

SV1.7
8 OF 13

CONT/CONS:	TOWNSHIP: 21	RANGE: 03	SECTION: 26
M. ID:	DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933	
PHASE:	PARCEL: 117	DRAWING SCALE: AS NOTED	

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PORT OF TACOMA FILE: O:\20600\20618\Drawings\20618 - SV1.7

BINDING EDGE

MATCH LINE SV1.7
MATCH LINE SV1.8

MATCH LINE SV1.3
MATCH LINE SV1.8

MATCH LINE SV1.8
MATCH LINE SV1.9

TPN 500035-0061
PORT OF TACOMA
PARCEL 'H'

TPN 032126-3045
PORT OF TACOMA
PARCEL 'C'

TPN 032135-2064
PORT OF TACOMA
PARCEL 'D'

SECTION 26
SECTION 35

REVISED PARCEL B
AFN 200106205003

#10
LANDSCAPE & MAINTENANCE 'USE AREA' DESCRIBED IN AFN 9405180433

N44°06'32"E 400.00' (R2)

N44°06'30"E 500.00' (R2)

HOUND

TP-10 TP-11

D-1 D-2 D-3 D-4

2-8" WILLOW
3-9" WILLOW

6" CWOOD
8" CWOOD
9" CWOOD
10" CWOOD
2X18" PINE
5X9" CWOOD
3X6"

ASPHALT PAVING
GRAVEL
ABANDONED CONDUIT
EXIST. BUILDING
MAG #12
METAL RING FULL OF RIVER ROCKS
WOOD STEPS
EXISTING BUILDING
UTILITY CLEANOUT RIM=17.21 SEWER LATERAL? NO RECORD FOUND.
3" SQUARE COLUMNS
PLANTER
MAG #13
"TACOMA SEAFARER'S CENTER"
WOOD PLANTER STRIP
OUTLETS ON POST
5" APPLE
GATE
4' CHAINLINK FENCE
1819.99' (R1)
100.74' (R2 DEED)
DITCH
FOGLINE
CULVERT IE=15.22 12"CONC SE
CULVERT IE=15.46 12"CONC NW
SOUTHERNMOST CORNER OF PARCEL NO. 12-C PER JUDGEMENT OF US DISTRICT COURT CAUSE NO. 467 DATED 03-29-1944 FOUND 3 1/4" ALUMINUM DISK W/ PUNCH HELD POSITION ON R/W LINE (8/22/2024)
STORM CATCH BASIN TYPE I RIM=15.85 IE=13.12, 10" DI NE
STORM MANHOLE TYPE II RIM=16.63 IE=12.90, 10" DI NE IE=11.77, 30" CONC. SE IE=12.86, 10" DI SW IE=11.81, 24" CONC. NW LADDER NW
EASEMENT FOR AERIAL POWER LINE SHOWN ON R2 (A.F.N. 200106205003) NO INSTRUMENT OF RECORD WAS REVEALED IN TITLE REPORT
STORM CATCH BASIN TYPE I RIM=16.01 IE=13.36, 10" DI SW
FOUND 1" IRON PIPE, OUT OF GROUND. POSITION NOT HELD. (8/22/2024)
EASEMENT FOR GUY ANCHOR PER R2 (A.F.N. 200106205003) NO INSTRUMENT OF RECORD WAS REVEALED IN TITLE REPORT
STORM CATCH BASIN TYPE I RIM=16 IE=12.97, 10" DI SW
535.00'(R2 DEED)
ALEXANDER AVE
1702.59'
N45°53'30"W 3418.93' (M)
AREA NOT SURVEYED
ASPHALT DRIVEWAY
STORM CATCH BASIN TYPE I RIM=15.91 IE=12.50, 12" DI NE
STORM MANHOLE TYPE II RIM=16.66 IE=11.71, 10" DI NE IE=10.56, 30" CONC. SE IE=11.03, 12" DI SW IE=10.65, 30" CONC. NW
MAG #16
WETLAND
MIXED GRAVEL/DIRT
B-1 B-2 B-26 B-27 B-28

HORIZONTAL SCALE: 1"=20'
20 0 20 40

LEGEND

- FOUND MONUMENT
- CALCULATED POSITION
- SURVEY CONTROL POINT
- SANITARY SEWER MANHOLE
- UTILITY CLEAN OUT
- STORM MANHOLE
- STORM CATCH BASIN
- STORM VAULT
- STORM CULVERT
- ROOF DRAIN
- WATER MANHOLE
- WATER VALVE
- WATER METER
- WATER HOSE BIB
- FIRE HYDRANT
- FIRE DEPARTMENT CONNECTION
- WATER BLOW OFF
- IRRIGATION CONTROL VALVE
- ANODE
- GAS VALVE
- GAS METER
- POWER METER
- POWER CABINET
- UTILITY POLE
- GUY ANCHOR
- JUNCTION BOX
- HAND HOLE
- POWER VAULT
- POWER TRANSFORMER
- POWER MANHOLE
- LIGHT POLE
- LIGHT JUNCTION BOX
- CROSSWALK PEDESTAL
- TRAFFIC LOOP
- TELECOM RISER
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- UTILITY LID
- COLUMN
- BOLLARD
- SIGN
- MAILBOX
- WETLAND FLAG
- MONITORING WELL
- DECIDUOUS TREE
- EVERGREEN TREE
- DOOR CENTERLINE
- SCHED. 'B' EXCEPTION

- STORM DRAIN LINE
- SANITARY SEWER LINE
- RECORD SANITARY LINE
- BURIED WATER LINE
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- BURIED GAS LINE
- RECORD GAS LINE
- BURIED POWER LINE
- OVERHEAD POWER LINE
- BURIED TELECOM LINE
- FIBER OPTIC LINE
- RECORD HYDROGEN LINE
- CHAIN LINK FENCE
- WOOD OR SPLIT RAIL FENCE
- RAILROAD TRACKS
- ASPHALT SURFACE
- CONCRETE SURFACE
- GRAVEL SURFACE
- RIP-RAP SURFACE
- METAL SURFACE

ABBREVIATION LEGEND

CWOOD	COTTONWOOD TREE
F.F.	FINISH FLOOR
MAG	SURVEY CONTROL NAIL W/ WASHER
MON	MONUMENT
MIC	MONUMENT IN CASE
SCRIBE	SURVEY CONTROL SCRIBED 'X'
T.B.M.	TEMPORARY BENCHMARK

KEY MAP
TAYLOR WAY
E. 11TH ST.
SV1.1 SV1.2 SV1.3 SV1.4 SV1.5 SV1.6 SV1.7 SV1.8 SV1.9 SV1.10 SV1.11
ALEXANDER WAY

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REGISTERED PROFESSIONAL LAND SURVEYOR
SCHILLING
STATE OF WASHINGTON
11-21-24

CHECKED BY DATE

DIRECTOR ENG. DATE PROJ. ENGR DATE

APPROVED:

PARCEL 117 CRITICAL AREA SITE REDEVELOPMENT
BOUNDARY & TOPOGRAPHIC SURVEY
EXISTING CONDITIONS

SV1.8
9 OF 13

CONT/CONS:	TOWNSHIP: 21	RANGE: 03	SECTION: 26
M. ID:	DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933	
PHASE:	PARCEL: 117	DRAWING SCALE: AS NOTED	

PRINTED BY: smootsr Nov 21, 2024
PORT ADDRESS:ONE SITCUM PLAZA
TACOMA, WA 98401-1837

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PORT OF TACOMA FILE: O:\20600\20618\Drawings\20618 - SV1.8

BINDING EDGE

MATCH LINE SV1.10
MATCH LINE SV1.9

FOUND 3 1/4" ALUMINUM DISK W/ PUNCH
0.1'W X 0.2'S OF CALC.
(8/22/2024)

S05°26'37"W 128.06' (R2)

WETLAND 2

TPN 032135-2064
PORT OF TACOMA
PARCEL 'D'

TPN 032126-3045
PORT OF TACOMA
PARCEL 'C'

WETLAND 2

WETLAND 2

"80130-AUG26-0945INI"
"80130-28AUG-1300"
PINK FLAGS
(BLANK)

N00°57'36"E 544.62' (R1)
544.52' (R2)
544.45' (M)

6' CHAIN LINK FENCE

#11
POWER EASEMENT
AFN 9806260285

N45°54'34"W 159.39'
159.37' (R2)

FOUND 3 1/4" ALUMINUM DISK
W/ PUNCH "LS 26301"
AT CALC. COR. (8/02/2024)

#12
RESTRICTIVE COVENANT & GRANT OF ENTRY
AFN 200101240103

REVISED PARCEL C
AFN 200106205003

TPN 032135-2065
TACOMA PUBLIC UTILITIES
POWER FACILITIES ENCLOSURE. NO ACCESS.

S44°06'12"W 200.00' (R2)

EASEMENT FOR GUY ANCHOR
PER R2 (A.F.N. 200106205003)
NO INSTRUMENT OF RECORD
WAS REVEALED IN TITLE REPORT

FOUND 1" BENT
IRON PIPE (NO CAP)
(8/22/2024)
0.1'E X 0.3'S OF CALC.

535.00'(R2 DEED)

STORM CATCH BASIN
TYPE I
RIM=15.92
IE=12.41, 10" PVC SW

201.99' (R2 DEED)
201.95'(C)

STORM MANHOLE
TYPE II
RIM=16.80
IE=10.97, 10" PVC NE
IE=9.87, 36" CONC. SE
IE=10.42, 12" PVC SW
IE=10.03, 36" CONC. NW
LADDER NE

STORM CATCH BASIN
TYPE I
RIM=16.07
IE=11.59, 12" PVC NE

ASPHALT
DRIVEWAY

ECOLOGY BLOCKS

ECOLOGY BLOCKS

FOGLINE

FOGLINE

FOGLINE

1702.59'
N45°53'30"W 3418.93' (M)

ALEXANDER AVE

AREA NOT SURVEYED

AREA NOT SURVEYED

FOUND 3 1/4" ALUMINUM DISK W/ PUNCH
0.1'W X 0.1'S OF CALC.
(8/22/2024)

GATE

296.67' (R2)
296.54'

2 DROPS

2 DROPS

8' BARBED CHAIN LINK FENCE

N44°12'54"E 146.10' (R2) 145.95'

N44°12'54"E 60.00'

MATCH LINE SV1.8
MATCH LINE SV1.9

MATCH LINE SV1.9
MATCH LINE SV1.11

HORIZONTAL SCALE: 1"=20'
20 0 20 40

LEGEND

- FOUND MONUMENT
- CALCULATED POSITION
- SURVEY CONTROL POINT
- SANITARY SEWER MANHOLE
- UTILITY CLEAN OUT
- STORM MANHOLE
- STORM CATCH BASIN
- STORM VAULT
- STORM CULVERT
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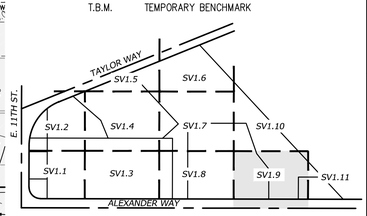
ABBREVIATION LEGEND

CWOOD	COTTONWOOD TREE
F.F.	FINISH FLOOR
MAG	SURVEY CONTROL NAIL W/ WASHER
MON	MONUMENT
MIC	MONUMENT IN CASE
SCRIBE	SURVEY CONTROL SCRIBED 'X'
T.B.M.	TEMPORARY BENCHMARK



KEY MAP

Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

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PHONE: (253) 473-6400 | FAX: (253) 473-6410
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11-21-24

APPROVED:

DIRECTOR ENG.	DATE	PROJ. ENGR	DATE
		CHECKED BY	DATE

PARCEL 117 CRITICAL AREA SITE REDEVELOPMENT
BOUNDARY & TOPOGRAPHIC SURVEY
EXISTING CONDITIONS

CONT/CONS:	TOWNSHIP: 21	RANGE: 03	SECTION: 26
M. ID:	DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933	
PHASE:	PARCEL: 117	DRAWING SCALE: AS NOTED	

PRINTED BY: smootsr Nov 21, 2024
PORT ADDRESS:ONE SITCUM PLAZA
TACOMA, WA 98401-1837

SV1.9
10 OF 13

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PORT OF TACOMA FILE: O:\20600\20618\Drawings\20618 - SV1.9

BINDING EDGE

MATCH LINE SV1.7
MATCH LINE SV1.10

TPN 032126-3003
PHILIP ENVIRONMENTAL INC

S01°03'56"W 646.73' (R1) 646.78' (R2)

3' T-POSTS ONLY

S.E. CORNER GOV'T LOT 7
26-T21N-R3E
(R1 & R2)
FOUND 3 1/4" ALUMINUM DISK W/ PUNCH
HELD POSITION (8/22/2024)

6' CHAIN LINK FENCE

TPN 032135-2062
BURLINGTON ENVIRONMENTAL

N03°57'38"E 544.62' (R1) 544.32' (R2) 544.19'

WETLAND 2

WETLAND

FOUND 3 1/4" ALUMINUM DISK W/ PUNCH
0.1'S X 0.2'W OF CALC.
(8/22/2024)

S45°53'30"E 385.00' (R2)

SECTION 26
SECTION 35

TPN 032135-2064
PORT OF TACOMA
PARCEL 'D'

N24°49'31"E 211.90'(R2)

#11
POWER EASEMENT
AFN 9806260285

CONC. DEBRIS

PINK FLAG
(BLANK)

"149.530-9-11-24-0845"

B-64 B-65 B-66 B-67 B-68 B-69 B-70 B-71 B-72 B-73 B-74 B-75 B-76 B-77 B-22 B-36 B-35 B-34 B-33 B-31 B-37W

MATCH LINE SV1.10
MATCH LINE SV1.9

HORIZONTAL SCALE: 1"=20'
20 0 20 40

LEGEND

- FOUND MONUMENT
- CALCULATED POSITION
- SURVEY CONTROL POINT
- SANITARY SEWER MANHOLE
- UTILITY CLEAN OUT
- STORM MANHOLE
- STORM CATCH BASIN
- STORM VAULT
- STORM CULVERT
- ROOF DRAIN
- WATER MANHOLE
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ABBREVIATION LEGEND

CWOOD	COTTONWOOD TREE
F.F.	FINISH FLOOR
MAG	SURVEY CONTROL NAIL W/ WASHER
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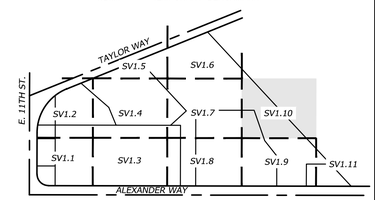

KEY MAP

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11-21-24

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DIRECTOR ENG. DATE | PROJ. ENGR DATE

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PARCEL 117 CRITICAL AREA SITE REDEVELOPMENT
BOUNDARY & TOPOGRAPHIC SURVEY
EXISTING CONDITIONS

SV1.10
11 OF 13

CONT/CONS:	TOWNSHIP: 21	RANGE: 03	SECTION: 26
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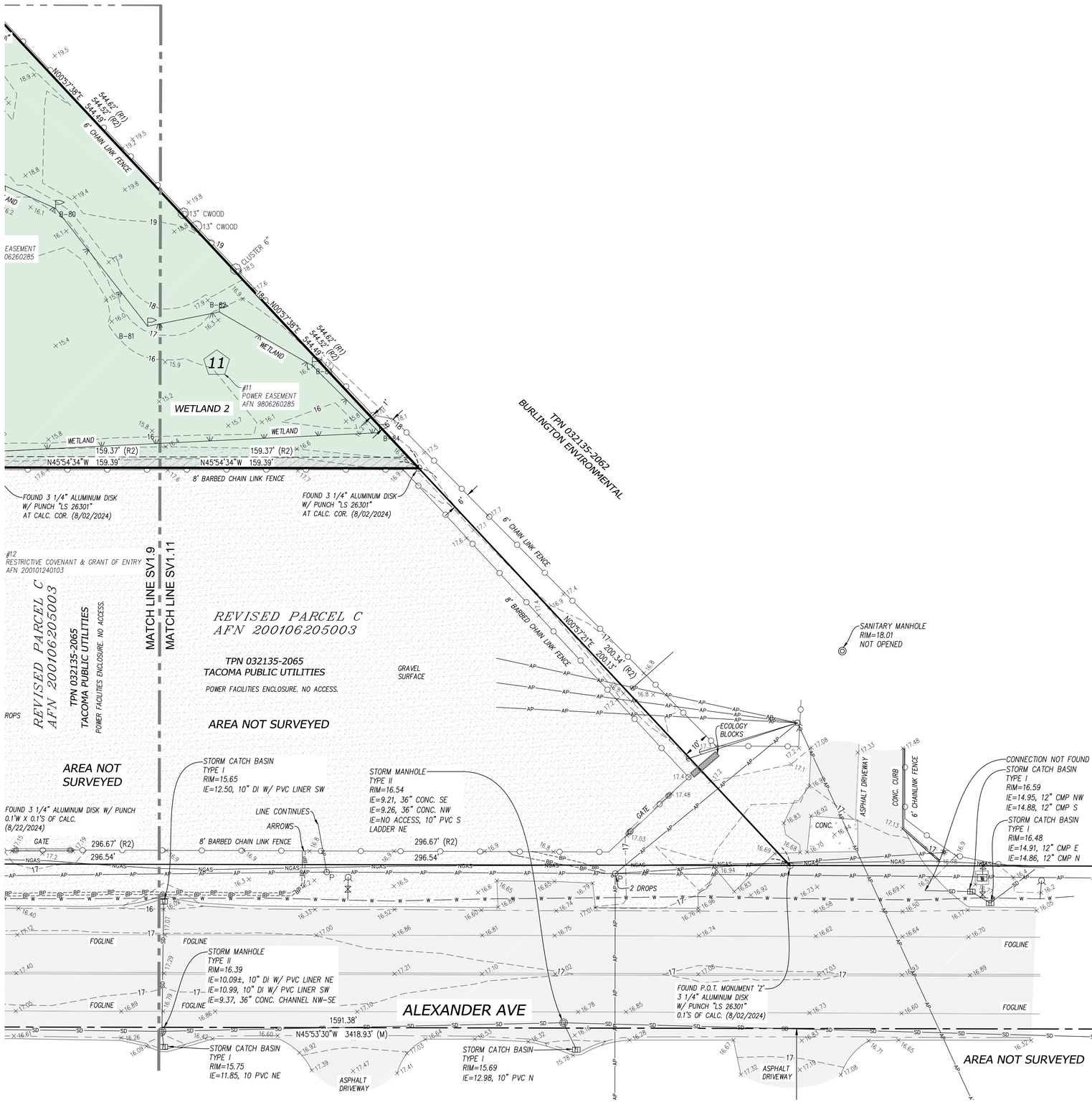
BINDING EDGE



LEGEND

FOUND MONUMENT	JUNCTION BOX
CALCULATED POSITION	HAND HOLE
SURVEY CONTROL POINT	POWER VAULT
SANITARY SEWER MANHOLE	POWER TRANSFORMER
UTILITY CLEAN OUT	POWER MANHOLE
STORM MANHOLE	LIGHT POLE
STORM CATCH BASIN	LIGHT JUNCTION BOX
STORM VAULT	CROSSWALK PEDESTAL
STORM CULVERT	TRAFFIC LOOP
ROOF DRAIN	TELECOM RISER
WATER MANHOLE	TELECOM MANHOLE
WATER VALVE	TELECOM VAULT
WATER METER	TELECOM CABINET
WATER HOSE BIB	UTILITY VAULT
FIRE HYDRANT	UTILITY LID
FIRE DEPARTMENT CONNECTION	COLUMN
WATER BLOW OFF	BOLLARD
IRRIGATION CONTROL VALVE	SIGN
ANODE	MAILBOX
GAS VALVE	WETLAND FLAG
GAS METER	MONITORING WELL
POWER METER	DECIDUOUS TREE
POWER CABINET	EVERGREEN TREE
UTILITY POLE	DOOR CENTERLINE
GUY ANCHOR	SCHED. 'B' EXCEPTION

- STORM DRAIN LINE
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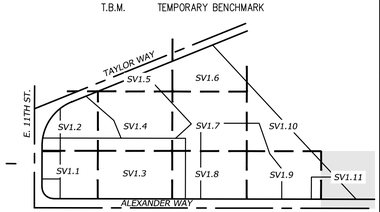

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PORT ADDRESS:ONE SITCUM PLAZA

TACOMA, WA 98401-1837

PARCEL 117 CRITICAL AREA SITE REDEVELOPMENT
BOUNDARY & TOPOGRAPHIC SURVEY
EXISTING CONDITIONS

SV1.11
12 OF 13

CONT/CONS:	TOWNSHIP: 21	RANGE: 03	SECTION: 26
M. ID:	DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933	
PHASE:	PARCEL: 117	DRAWING SCALE: AS NOTED	

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PORT OF TACOMA FILE: O:\20600\20618\Drawings\20618 - SV1.11

LEGAL DESCRIPTION

PER CHICAGO TITLE INSURANCE COMPANY OF WASHINGTON, COMMITMENT NUMBER 242599-TC AMENDED, DATED JULY 25, 2024.

PARCEL A (TAX PARCEL NO. 227520-026-0):

THAT PORTION OF BLOCK 7A, REPLAT OF BLOCKS 13 TO 48, TACOMA TIDELANDS, KING COUNTY ANNEX, KNOWN AS "ASHTON REPLAT", ACCORDING TO PLAT FILED FOR RECORD ON DECEMBER 23, 1918, IN THE OFFICE OF THE COUNTY AUDITOR, IN SECTION 26, TOWNSHIP 21 NORTH, RANGE 3 EAST OF THE W.M., IN PIERCE COUNTY, WASHINGTON, LYING SOUTHERLY OF TAYLOR WAY AS NOW LAID OUT AND ESTABLISHED.

PARCEL B (TAX PARCEL NO. 032126-301-6):

BEGINNING AT A POINT ON THE WEST LINE OF LOT 7, SECTION 26, TOWNSHIP 21 NORTH, RANGE 3 EAST OF THE W.M., IN PIERCE COUNTY, WASHINGTON, WHERE THE SAME INTERSECTS THE SOUTH LINE OF TAYLOR WAY AS ESTABLISHED THROUGH SAID SUBDIVISION;
RUNNING THENCE SOUTH 69°22' EAST ALONG THE SOUTH LINE OF TAYLOR WAY 411.78 FEET, MORE OR LESS, TO A POINT WHICH IS 457.07 FEET WEST OF THE EAST LINE OF SAID SUBDIVISION;
THENCE SOUTH 0°19'14" EAST PARALLEL WITH THE EAST LINE OF SAID SUBDIVISION 460.96 FEET;
THENCE NORTH 89°48'30" WEST 759.62 FEET TO A POINT ON THE GOVERNMENT MEANDER LINE;
THENCE FOLLOWING SAID MEANDER LINE NORTH 69°17'27" EAST 330.932 FEET, NORTH 20°05'59" EAST 259.59 FEET, NORTH 6°20'13" WEST 242.78 FEET TO THE POINT OF BEGINNING;

EXCEPT ANY PORTION WHICH MAY BE WITHIN THE SOUTH 11 ACRES OF GOVERNMENT LOT 7;

ALSO EXCEPT THAT PORTION LYING WITHIN THE FOLLOWING DESCRIBED TRACT X:

TRACT X

COMMENCING AT THE POINT OF INTERSECTION OF THE PROLONGATION OF THE SOUTHEASTERLY LINE OF EAST 11TH STREET AND THE NORTHEASTERLY LINE OF ALEXANDER AVENUE;
THENCE SOUTHEASTERLY WITH THE NORTHEASTERLY LINE OF ALEXANDER AVENUE, 120 FEET TO THE SOUTHEASTERLY LINE OF LOT 30, BLOCK 9, AS THE SAME IS DESIGNATED ON THE REPLAT OF BLOCKS 13 TO 48, TACOMA TIDELANDS, KING COUNTY ANNEX, KNOWN AS "ASHTON REPLAT", WHICH PLAT WAS FILED FOR RECORD ON DECEMBER 23, 1918, IN THE OFFICE OF THE COUNTY AUDITOR, IN PIERCE COUNTY, WASHINGTON, SAID POINT BEING THE TRUE POINT OF BEGINNING;
THENCE SOUTHEASTERLY WITH THE NORTHEASTERLY LINE OF ALEXANDER AVENUE, 880 FEET TO A POINT;
THENCE NORTHEASTERLY PARALLEL TO THE SOUTHEASTERLY LINE OF EAST 11TH STREET, 400 FEET TO A POINT;
THENCE NORTHWESTERLY PARALLEL TO THE NORTHEASTERLY LINE OF ALEXANDER AVENUE 880 FEET TO THE MOST EASTERLY CORNER OF LOT 43, BLOCK 9, AS THE SAME IS DESIGNATED ON THE REPLAT OF BLOCKS 13 TO 48, TACOMA TIDELANDS, KING COUNTY ANNEX, KNOWN AS "ASHTON REPLAT", WHICH PLAT WAS FILED FOR RECORD ON DECEMBER 23, 1918, IN THE OFFICE OF THE COUNTY AUDITOR; THENCE SOUTHWESTERLY WITH THE SOUTHEASTERLY LINE OF LOTS 30 TO 43 OF SAID ADDITION, A DISTANCE OF 400 FEET TO THE POINT OF BEGINNING.

PARCEL C (TAX PARCEL NO. 032126-304-5):

REVISED PARCEL A OF CITY OF TACOMA BOUNDARY LINE ADJUSTMENT NUMBER MPD2001-00012, RECORDED UNDER PIERCE COUNTY AUDITOR'S FILE NUMBER 200106205003, BEING A PORTION OF GOVERNMENT LOT 7, SECTION 26 AND THE NORTHWEST QUARTER OF THE NORTHWEST QUARTER OF SECTION 35, ALL IN TOWNSHIP 21 NORTH, RANGE 3 EAST OF THE W.M., IN THE CITY OF TACOMA, PIERCE COUNTY, WASHINGTON.

PARCEL D (TAX PARCEL NO. 032135-206-4):

REVISED PARCEL B OF CITY OF TACOMA BOUNDARY LINE ADJUSTMENT NUMBER MPD2001-00012, RECORDED UNDER PIERCE COUNTY AUDITOR'S FILE NUMBER 200106205003, BEING A PORTION OF GOVERNMENT LOT 7, SECTION 26 AND THE NORTHWEST QUARTER OF THE NORTHWEST QUARTER OF SECTION 35, ALL IN TOWNSHIP 21 NORTH, RANGE 3 EAST OF THE W.M., IN THE CITY OF TACOMA, PIERCE COUNTY, WASHINGTON.

PARCEL E (TAX PARCEL NO. 227520-037-1):

THE NORTHEASTERLY 10 FEET OF LOT 30, ALL OF LOT 31, 32, 33 AND 34, BLOCK 9, STATE LAND COMMISSIONER'S REPLAT OFBLOCKS 13 TO 48, INCLUSIVE, TACOMA TIDELANDS, FORMERLY IN KING COUNTY, SOMETIMES KNOWN AS ASHTON REPLAT, ACCORDING TO THE MAP THEREOF RECORDED DECEMBER 23, 1918, RECORDS OF PIERCE COUNTY AUDITOR, IN PIERCE COUNTY, WASHINGTON;

EXCEPT THAT PORTION OF SAID LOTS APPROPRIATED BY THE CITY OF TACOMA IN PIERCE COUNTY SUPERIOR COURT CAUSE NUMBER 60379 FOR STREETS.

PARCEL F (TAX PARCEL NO. 227520-040-0 AND 227520-041-0):

LOTS 35 TO 43, INCLUSIVE IN BLOCK 9 OF "STATE LAND COMMISSIONER'S REPLAT OF BLOCKS 13 TO 48, BOTH INCLUSIVE, TACOMA TIDELANDS, FORMERLY KING COUNTY, SOMETIMES KNOWN AS ASHTON REPLAT", AS PER MAP THEREOF FILED FOR RECORD DECEMBER 23, 1918, RECORDS OF PIERCE COUNTY AUDITOR, IN PIERCE COUNTY, WASHINGTON.

PARCEL G (TAX PARCEL NO. 227520-042-0):

LOTS 44 TO 47, INCLUSIVE IN BLOCK 9 OF "STATE LAND COMMISSIONER'S REPLAT OF BLOCKS 13 TO 48, BOTH INCLUSIVE, TACOMA TIDELANDS, FORMERLY KING COUNTY, SOMETIMES KNOWN AS ASHTON REPLAT", AS PER MAP THEREOF FILED FOR RECORD DECEMBER 23, 1918, RECORDS OF PIERCE COUNTY AUDITOR, IN PIERCE COUNTY, WASHINGTON.

PARCEL H (TAX PARCEL NO. 500035-006-1):

COMMENCING AT A POINT OF INTERSECTION OF THE PROLONGATION OF THE SOUTHEASTERLY LINE OF EAST ELEVENTH STREET, AND THE NORTHEASTERLY LINE OF ALEXANDER AVENUE;
THENCE SOUTHEASTERLY WITH THE NORTHEASTERLY LINE OF ALEXANDER AVENUE, 120 FEET TO THE SOUTHEASTERLY LINE OF LOT 30, BLOCK 9, OF STATE LAND COMMISSIONER'S REPLAT OF BLOCKS 13 TO 48, BOTH INCLUSIVE, TACOMA TIDELANDS (FORMERLY IN KING COUNTY) COMMONLY KNOWN AS ASHTON'S REPLAT, AS PER MAP THEREOF FILED FOR RECORD DECEMBER 23, 1918, SITUATE IN THE CITY OF TACOMA, COUNTY OF PIERCE, WASHINGTON, SAID POINT BEING THE POINT OF BEGINNING;
THENCE SOUTHEASTERLY WITH THE NORTHEASTERLY LINE OF ALEXANDER AVENUE, 880 FEET TO A POINT;
THENCE NORTHEASTERLY PARALLEL TO THE SOUTHEASTERLY LINE OF EAST ELEVENTH STREET, 400 FEET TO A POINT;
THENCE NORTHWESTERLY PARALLEL TO THE NORTHEASTERLY LINE OF ALEXANDER AVENUE, 880 FEET TO THE MOST EASTERLY CORNER OF LOT 43 OF SAID BLOCK 9;
THENCE SOUTHWESTERLY WITH THE SOUTHEASTERLY LINES OF LOT 43, 42, 41, 40, 39, 38, 37, 36, 35, 34, 33, 32, 31 AND 30, INCLUSIVE, IN SAID BLOCK 9, A DISTANCE OF 400 FEET, TO THE POINT OF BEGINNING;

EXCEPT THE MOST SOUTHEASTERLY 60 FEET THEREOF.

SCHEDULE B EXCEPTIONS

PER CHICAGO TITLE INSURANCE COMPANY OF WASHINGTON, COMMITMENT NUMBER 242599-TC AMENDED, DATED JULY 25, 2024.

* NOT A SURVEY MATTER, DESCRIPTION PROVIDED AS A COURTESY
** CONTENT/DATA WITHIN INSTRUMENT IS INSUFFICIENT TO DETERMINE EXACT LOCATION
*** INSTRUMENT IS BLANKET IN NATURE OR AFFECTS ENTIRE PROPERTY
DNA DOES NOT AFFECT SUBJECT PARCELS

EXCEPTION NUMBER	AFN	DESCRIPTION
1*	N/A	NOTE REGARDING THE GRANTOR'S RESERVATION OF MINERAL RIGHTS
2	1948212	SUPPLEMENTAL DEED
3	2024962	WARRANTY DEED; GRANTOR: RICHFIELD OIL CORPORATION; GRANTEE: HENRY F. PEARSON AND LITA A. PEARSON; THE INSTRUMENT INCLUDES THE RIGHT OF THE GRANTOR TO MAINTAIN MINERAL RIGHTS OVER THE PROPERTY; AFFECTS PARCEL G; SHOWN HEREON
4	DNA 2320808	EASEMENT FOR THE INSTALLATION AND MAINTENANCE OF GUY WIRES AND ANCHORS; GRANTEE:CITY OF TACOMA; NOVEMBER 12, 1969; AFFECTED AREA LIES ADJACENT TO CURRENT RIGHT OF WAY OF ALEXANDER AVE.
5*	8112100022	REAL-ESTATE CONTRACT; GRANTOR: DAVID J. HERBERT AND LAURA L. HERBERT; GRANTEE: HAROLD F. PALMER AND EDITH M. PALMER; INSTRUMENT CONTAINS A RESTRICTION ON THE OPERATION OF A FOOD SERVICE BUSINESS; AFFECTS PARCEL G
6	9104090265	RECORD OF SURVEY; REQUESTED BY LLOYD HOLMES – P.Q. CORPORATION; JOHN CRAMER, P.L.S. 18898; JUNE 11, 1990; AFFECTS PARCELS A AND B
7***	9209010050	NOTE REGARDING THE SUBJECTS PARCELS LOCATION WITHIN THE COMMENCEMENT BAY SUPERFUND SITE
8	9301220797	WARRANTY DEED; GRANTOR: HAROLD F. PALMER AND EDITH M. PALMER; GRANTEE: PORT OF TACOMA; JANUARY 22, 1993; INSTRUMENT CONTAINS AN EASEMENT IN FAVOR OF U.S. WEST COMMUNICATIONS DATED JANUARY 20, 1993; DETAILED IN RECORD OF SURVEY A.F.N. 9306160119; AFFECTS PARCEL G
9	9306160119	RECORD OF SURVEY; REQUESTED BY PAC-TECH ENGINNERING INC., JOHN W. BECKER, L.S. 13670; JUNE 16, 1993; INSTRUMENT DETAILS LOCATION OF EASEMENT DESCRIBED IN A.F.N. 9301220797
10	9405180433	PERMIT BETWEEN THE CITY OF TACOMA, PUBLIC UTILITIES, LIGHT DIVISION AND THE SEAMEN'S CENTER (PERMITTEE); INSTRUMENT GRANTS THE PERMITTEE THE RIGHT TO LANDSCAPE AND MAINTAIN AN AREA OF THEIR LEASEHOLD. AFFECTS THE NORTHWESTERLY 30' OF PARCEL H.
11	9806260285	RESTRICTIVE COVENANT AND GRANT OF ENTRY; INSTRUMENT RESTRICTS THE USE OF A PORTION OF SAID PROPERTY FOR NATURAL RESOURCE RESTORATION AS DEFINED IN THE CITY OF TACOMA NATURAL RESOURCES DAMAGES CONSENT DECREE, CIVIL CASE NO. C97-5336-RJB; AND GRANTS RIGHT OF ENTRY TO COMMENCEMENT BAY NATURAL RESOURCES TRUSTEES OR THEIR DESIGNEES. AFFECTS PARCEL C AND D.
12	200102080545	RESTRICTIVE COVENANT AND GRANT OF ENTRY; INSTRUMENT RESTRICTS THE USE OF A PORTION OF SAID PROPERTY FOR NATURAL RESOURCE RESTORATION AS DEFINED IN THE CITY OF TACOMA NATURAL RESOURCES DAMAGES CONSENT DECREE, CIVIL CASE NO. C97-5336-RJB; AND GRANTS RIGHT OF ENTRY TO COMMENCEMENT BAY NATURAL RESOURCES TRUSTEES OR THEIR DESIGNEES. AFFECTS PARCEL C.
13	200106205003	BOUNDARY LINE ADJUSTMENT; REQUESTED BY TACOMA PUBLIC UTILITIES; JEFFERY A. SINGLETON, L.S. 26301; JUNE 20, 2001; AFFECTS PARCELS C AND D.
14	200401200771	MEMORANDUM OF AGREEMENT BETWEEN QWEST WIRELESS LLC (LICENSOR) AND AT&T WIRELESS SERVICES OF WASHINGTON (LICENSEE) FOR THE PURPOSE OF INSTALLING, OPERATING, AND MAINTAINING A RADIO COMMUNICATIONS FACILITY; DECEMBER 19, 2003; AFFECTS PARCEL F.
15***	200903105001	RECORD OF SURVEY; REQUESTED BY THE PORT OF TACOMA; DARREL G. PLEIN, L.S. 42695, MARCH 10, 2009; SUPERSEDES SURVEY FILED UNDER AFN 200901265003.
16***	N/A	NOTE REGARDING TITLE 53 RCW LAWS RELATING TO THE USE OF LAND WITHIN PORT DISTRICTS
17*	N/A	NOTE REGARDING GENERAL AND SPECIAL TAXES. AFFECTS PARCEL A.
18*	N/A	NOTE REGARDING GENERAL AND SPECIAL TAXES. AFFECTS PARCEL B.
19*	N/A	NOTE REGARDING GENERAL AND SPECIAL TAXES. AFFECTS PARCEL C.
20*	N/A	NOTE REGARDING GENERAL AND SPECIAL TAXES. AFFECTS PARCEL D.
21*	N/A	NOTE REGARDING GENERAL AND SPECIAL TAXES. AFFECTS PARCEL E.
22*	N/A	NOTE REGARDING GENERAL AND SPECIAL TAXES. AFFECTS PORTION OF PARCEL F.
23*	N/A	NOTE REGARDING GENERAL AND SPECIAL TAXES. AFFECTS REMAINING PORTION OF PARCEL F.
24*	N/A	NOTE REGARDING GENERAL AND SPECIAL TAXES. AFFECTS PARCEL G.
25*	N/A	NOTE REGARDING GENERAL AND SPECIAL TAXES. AFFECTS PARCEL H.
26***	N/A	NOTE REGARDING TAXABLE STATUS OF PROPERTY
27**	2864651	NOTE REGARDING SEWER TAP AND CONNECTION CHARGES; NOVEMBER 1, 1978; CORRECTED BY INSTRUMENT AFN 2881434; AMENDED BY INSTRUMENT 8012010130; MAP OF AFFECTED AREA NOT RECORDED WITH INSTRUMENT
28*	200005240175	LEASE; INCLUDING TERMS, COVENANTS, CONDITIONS, AND PROVISIONS THEREIN; SEE DOCUMENT.
29*	200103140080	MEMORANDUM OF LEASE; INCLUDING TERMS AND CONDITIONS THEREIN; SEE DOCUMENT.
30*	200401200770	MEMORANDUM OF LEASE; INCLUDING TERMS AND CONDITIONS THEREIN; SEE DOCUMENT.
31*	201602120079	MEMORANDUM OF LEASE; INCLUDING TERMS AND CONDITIONS THEREIN; SEE DOCUMENT.
32*	N/A	NOTE REGARDING UNRECORDED LEASEHOLDS, ETC.

Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841
sitts&hill
CIVIL | STRUCTURAL | ARCHITECTURAL | SURVEY
413 CENTER STREET | TACOMA, WA 98409
PHONE: (253) 474-9449 | FAX: (253) 474-9310
WWW.SITTSHILL.COM

MARK:	REVISION:	BY:	APPR:	DATE:

REGISTERED PROFESSIONAL LAND SURVEYOR
SCHILLING
STATE OF WASHINGTON
11-21-24

CHECKED BY DATE
DIRECTOR ENG. DATE
APPROVED:

PROJ. ENGR DATE
PRINTED BY: smootsr Nov 21, 2024
PORT ADDRESS:ONE SITCUM PLAZA
TACOMA, WA 98401-1837
DRAWING SCALE: AS NOTED

PARCEL 117 CRITICAL AREA SITE REDEVELOPMENT
BOUNDARY & TOPOGRAPHIC SURVEY
LEGAL DESCRIPTION & TITLE INFORMATION

SV1.12
13 OF 13

CONT/CONS:	TOWNSHIP: 21	RANGE: 03	SECTION: 26
M. ID:	DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933	
PHASE:	PARCEL: 117		

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BINDING EDGE

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Appendix M
Deadline Bullets Snail Bait Safety Data Sheets

SAFETY DATA SHEET

1. Identification

Product identifier	**Deadline Bullets®**
Other means of identification	
SDS number	305
Product registration number	
EPA	5481-507 5481-511
Synonyms	Deadline® M-Ps™ * Deadline® T&O * Deadline® M-Ps™ Mini Pellets * Deadline® Ornamental * MollXide * Valley Ag Slug Hammer Slug Bait * Babocide Pellets 4 RB
Recommended use	Mollusicide
Recommended restrictions	Keep away from dogs!
EPA Registration number	EPA: 5481-507, 5481-511
Pest Control Products Act (Canada)	WHMIS: 26650

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name	AMVAC Chemical Corporation	
Address	4695 MacArthur Court Suite 1200 Newport Beach, CA 92660 United States	
Telephone	AMVAC Chemical Corp AMVAC Chemical Corp	949-260-1200 949-260-6270(FAX)
Website	www.amvac.com	
E-mail	CustServ@amvac.com	
Emergency phone number	Medical CHEMTREC® (USA+Canada) Product Use CHEMTREC® (Outside USA)	888-681-4261 800-424-9300 888-462-6822 +1-703-527-3887

2. Hazard(s) identification

Physical hazards	Not classified.
Health hazards	Not classified.
Environmental hazards	Not classified.
OSHA defined hazards	Not classified.
Label elements	
Hazard symbol	None.
Signal word	None.
Hazard statement	Not available.
Precautionary statement	
Prevention	Observe good industrial hygiene practices.
Response	Wash hands after handling.
Storage	Store away from incompatible materials.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.

Supplemental information This is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced in section 15. The pesticide label also includes other important information, including directions for use.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Metaldehyde		108-62-3	4
Other components		Mixture	96

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin contact Take off contaminated clothing and wash before reuse. Wash off immediately with plenty of water. If skin irritation occurs: Get medical advice/attention.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion Get medical attention if symptoms occur. Rinse mouth. Drink 1 or 2 glasses of water. Do not induce vomiting without advice from poison control center. Never give anything by mouth to a victim who is unconscious or is having convulsions.

Most important symptoms/effects, acute and delayed Based on animal toxicity information for Metaldehyde, it is anticipated that this material would be harmful upon ingestion and that direct contact may elicit mild eye and skin irritation. Overexposure to Metaldehyde may cause excessive salivation, vomiting, nausea, acetonuria (odor of acetone on breath), convulsions, increased body temperature, depression of medullary respiratory and vasomotor control centers and coma. May be fatal. [Note: Because of the low amounts of Metaldehyde in the product, it is unlikely the victim can be exposed to sufficient quantities of Metaldehyde to have coma or death induced.] Overexposure may aggravate preexisting conditions associated with the kidney, liver, and brain.

Indication of immediate medical attention and special treatment needed According to manufacturer of Metaldehyde Technical communication , gastric lavage with a 2.5% solution of sodium bicarbonate - powdered charcoal and prevention of acidosis by sodium bicarbonate may be needed. Administration of Diazepam or Clonidine 20 minutes after ingestion of 1000 mg/kg of Metaldehyde by mice delayed the onset of symptoms and reduced mortality. This is equivalent to 0.6 lb of product ingested for a 10 kg child. Therefore, Diazepam and Clonidine may be appropriate antidotes to reduce the symptomatology of Metaldehyde ingestion. For acute inhalation overexposure, the patient should be monitored as respiratory failure may occur 24 to 48 hours after exposure.

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media None known.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Firefighting equipment/instructions In the event of fire, cool tanks with water spray. Water runoff can cause environmental damage.

General fire hazards No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up Wear appropriate protective equipment and clothing during clean-up. Shovel up, sweep up or vacuum up the material and place in a container for salvage or disposal.

Environmental precautions	Avoid release to the environment.

7. Handling and storage

Precautions for safe handling	Keep out of the reach of children. Keep away from food, drink and animal feedstuffs. Avoid breathing dust. Avoid contact with skin. Avoid contact with eyes. Wear appropriate personal protective equipment recommended in section 8. Wash thoroughly after handling. Wash contaminated clothing before reuse. Avoid release to the environment.
Conditions for safe storage, including any incompatibilities	Keep container tightly closed. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place.

8. Exposure controls/personal protection

Occupational exposure limits	This mixture has no ingredients that have PEL, TLV, or other recommended exposure limit.
Biological limit values	No biological exposure limits noted for the ingredient(s).
Exposure guidelines	Dust exposure limit.
Appropriate engineering controls	General ventilation normally adequate.

Individual protection measures, such as personal protective equipment

Eye/face protection	Not normally needed. If contact is likely, safety glasses with side shields are recommended.
Skin protection	
Hand protection	To prevent skin contact use suitable protective gloves.
Other	Wear suitable protective clothing.
Respiratory protection	No personal respiratory protective equipment normally required. In case of insufficient ventilation, wear suitable respiratory equipment.
Thermal hazards	Not applicable.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Physical state	Solid.
Form	Pellets.
Color	Red, blue or buff.
Odor	Aldehyde odor
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	1.9 mm Hg @ 24°C (active ingredient).
Vapor density	6.06 (air = 1).
Relative density	Not available.
Solubility(ies)	
Solubility (water)	0.2 g/l @ 17°C for active ingredient.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.

Other information

Bulk density 45 lb/ft³ (typical)

10. Stability and reactivity

Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability Material is stable under normal conditions.

Possibility of hazardous reactions No dangerous reaction known under conditions of normal use.

Conditions to avoid Avoid conditions which create dust.

Incompatible materials Strong oxidizing agents.

Hazardous decomposition products Acetaldehyde can be formed by decomposition of Metaldehyde. Decomposition by burning may result in carbon monoxide and other toxic fumes and vapors of unknown composition.

11. Toxicological information

Information on likely routes of exposure

Inhalation Prolonged inhalation may be harmful.

Skin contact Slight skin irritant.

Eye contact Causes mild eye irritation.

Ingestion May cause discomfort if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics Based on animal toxicity information for Metaldehyde, it is anticipated that this material would be harmful upon ingestion and that direct contact may elicit mild eye and skin irritation. Overexposure to Metaldehyde may cause excessive salivation, vomiting, nausea, acetonuria (odor of acetone on breath), convulsions, increased body temperature, depression of medullary respiratory and vasomotor control centers and coma. May be fatal. [Note: Because of the low amounts of Metaldehyde in the product, it is unlikely the victim can be exposed to sufficient quantities of Metaldehyde to have coma or death induced.]

Information on toxicological effects

Acute toxicity Based on available data, the classification criteria are not met.

Product	Species	Test Results
Deadline Bullets®		
Acute		
Dermal		
LD50	Rat	> 5050 mg/kg
Inhalation		
Dust		
LC50	Rat	> 2.48 mg/l, 4 h
Oral		
LD50	Rat	> 5000 mg/kg

Skin corrosion/irritation Causes slight skin irritation.

Serious eye damage/eye irritation Causes mild eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity Not classified.

Carcinogenicity Not classifiable as to carcinogenicity to humans. Acetaldehyde, a decomposition product of Metaldehyde, has been listed as carcinogenic in the IARC monographs and by the NTP. Acetaldehyde is present at less than 0.01% in the product. None of the components found in appreciable quantities has been found to be carcinogenic by IARC, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity No evidence of reproductive toxicity has been observed. No evidence of teratogenicity in laboratory animals.

Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not an aspiration hazard.
Chronic effects	Prolonged inhalation may be harmful. Overexposure may aggravate preexisting conditions associated with the kidney, liver, and brain.

12. Ecological information

Ecotoxicity	This product may be fatal to dogs, other pests, and wild animals if eaten. May be toxic to water inhabitants. Do not contaminate water bodies.
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	

Partition coefficient n-octanol / water (log Kow)

Metaldehyde	0.12

Mobility in soil	No data available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this product.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not incinerate sealed containers. Dispose of contents/container in accordance with all applicable local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with all applicable regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not available.

15. Regulatory information

US federal regulations

This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

This product is registered under EPA/FIFRA Regulations. It is a violation of Federal Law to use this product in any manner inconsistent with its labeling. Read and follow all label directions. This product is excluded from listing requirements under EPA/TSCA.

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

CAUTION! Harmful if swallowed. Avoid breathing dust. May cause eye irritation. Avoid contact with eyes, skin, and clothing. Keep out of reach of children and pets, poultry and livestock. Keep children, dogs and other pets out of treated areas.

ENVIRONMENTAL HAZARDS

For terrestrial uses, do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate.

Toxic Substances Control Act (TSCA)

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Metaldehyde (CAS 108-62-3) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Contains component(s) regulated under the Safe Drinking Water Act.

US state regulations

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 2016 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	Apr-08-2015
Revision date	Jul-19-2022
Version #	5.4
HMIS® ratings	Health: 1 Flammability: 0 Physical hazard: 0
NFPA ratings	Health: 1 Flammability: 0 Instability: 0
Disclaimer	This information is provided for the limited guidance to the user. While AMVAC believes that the information is, as of the date hereof, reliable, it is the user's responsibility to determine the suitability of the information for its purposes. The user is advised not to construe the information as absolutely complete since additional information may be necessary or desirable when particular, exceptional, or variable conditions or circumstances exist (like combinations with other materials), or because of applicable regulations. No express or implied warranty of merchantability or fitness for a particular purpose or otherwise is made hereunder with respect to the information or the product to which the information relates. AMVAC Chemical Corporation cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. ©2022 AMVAC Chemical Corporation. AMVAC and the AMVAC Logo are trademarks owned by AMVAC Chemical Corporation. All Rights Reserved. ACGIH is a trademark of the American Conference of Governmental Industrial Hygienists. CHEMTREC is a trademark of the American Chemistry Council, Inc. HMIS is a trademark of the American Coatings Association. NFPA is a trademark of the National Fire Protection Association, Inc.
Revision information	This document has undergone significant changes and should be reviewed in its entirety.

Appendix N
Ecology
Administrative Order
No. 24560

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Southwest Region Office
PO Box 47775, Olympia, WA 98504-7775 • 360-407-6300

April 22, 2026

Port of Tacoma
Attn: Kristin Evered
PO Box 1837
Tacoma, WA 98401

Re: Administrative Order No. **24560** to impact non-federally regulated wetlands, which are waters of the state, to construct the Neptune Development in Pierce County, Washington

Dear Kristin Evered:

The Department of Ecology (Ecology) received your Joint Aquatic Resources Permit Application (JARPA) on April 9, 2025, requesting authorization for proposed work in non-federally regulated wetlands, which are waters of the state. Ecology has determined that the proposed work, as conditioned by the enclosed Order, will comply with applicable provisions of Chapter 90.48 RCW and other applicable requirements of state law.

This approval is subject to the conditions contained in the enclosed Order. **You must familiarize yourself with and abide by the conditions in the Order, including all notification requirements.** If you have any questions, please contact Brook Swensen at Brook.Swensen@ecy.wa.gov or 564-999-1749. The enclosed Order may be appealed by following the procedures described in the Order.

Sincerely,

Maria Sandercock, Section Manager
Southwest Regional Office
Shorelands and Environmental Assistance Program

Enclosure (1)

By certified mail: 9489 0090 0027 6341 0522 92

Sent via email to: Kevered@portoftacoma.com

e-cc: Leeann Simmons, U.S. Army Corps of Engineers
Mark Rettmann, Port of Tacoma, mrettmann@portoftacoma.com
Shanta Frantz, City of Tacoma, sfrantz@tacoma.gov
Alexia Henderson, City of Tacoma, ahenderson2@tacoma.gov
Steve Teel, Toxic Clean Up Program, Ecology
ECYREFEDPERMITS@ECY.WA.GOV

In The Matter of Issuing an Administrative Order to Port of Tacoma pursuant to RCW 90.48.120 and WAC 173-201A

Port of Tacoma
Attn: Kristin Evered
PO Box 1837
Tacoma, WA 98401

Order No.	24560
Corps Reference No.	NWS-2025-34; NWS-2026-49; NWS-2025-896
Site Location	Neptune Development, located within wetlands and ditches in Tacoma, Pierce County, Washington.

This is an Administrative Order requiring the Port of Tacoma to comply with Chapter 90.48 RCW and the rules and regulations of the Department of Ecology (Ecology) by taking certain actions which are described below. RCW 90.48.120(2) authorizes Ecology to issue Administrative Orders requiring compliance whenever it determines that a person has violated or creates a substantial potential to violate any provision of Chapter 90.48 RCW.

The U.S. Army Corps of Engineers (Corps) issued a jurisdictional determination on April 8, 2025 (NWS-2025-34) concluding that the waters at the impact site (Wetland 1, Wetland 2, Wetland 3, Ditch A, Ditch B, Ditch C, and Stormwater Feature 1) are not waters of the U.S. The Corps issued a second jurisdictional determination on January 16, 2026 (NWS-2026-49) concluding that the wetland compensation site Parcel 37D (Wetland A) is not a water of the U.S. The Corps issued a third jurisdictional determination on March 25, 2026 (NWS-2025-896) concluding that the waters at compensation site Parcel 12 (Wetland A and Ditch 1) are not waters of the U.S.

On April 9, 2025, Ecology received a request to impact non-federally regulated wetlands, which are waters of the state, to construct the Neptune Development in Pierce County. The project is located at 1212 Taylor Way, Tacoma; NW and SW ¼ Section 35 and 26, Township 21N, Range 03E; Pierce County; WRIA 10 (Puyallup-White).

This Administrative Order authorizes 5.446 acres of Category III wetland impacts at the project location. Offsite Mitigation for this proposal will include a total of 4.128 acres of creation, 0.928 acres of enhancement, and 2.34 acres of estuarine emergent (EEM) advance mitigation credits (described below in Table 1) and all other actions as proposed in the Parcel 117 Snail Eradication Project Compensatory Mitigation Plan dated March 17, 2026, received by Ecology on March 26, 2026.

Table 1:

Location	Mitigation Type and Area
1402 Lincoln Ave (Parcel 37D)	1.106 acres creation and 0.832 acres enhancement
3802 Taylor Way (Parcel 12)	3.022 acres creation and 0.096 acres of noncredit generating enhancement
1131 East Alexander Avenue (Lower Wapato Creek Habitat Advance Mitigation Site)	2.34 acres of Estuarine Emergent Wetland (EEM) credits

For purposes of this Order, the term "Project Proponent" shall mean the Port of Tacoma and its agents, assigns, and contractors.

In view of the foregoing and in accordance with RCW 90.48.120(2):

IT IS ORDERED that the Project Proponent shall comply with the following:

A. General Conditions:

1. The Project Proponent shall construct and operate the project in a manner consistent with the request (JARPA and attachments) received by Ecology on April 9, 2025, or as otherwise approved by Ecology.

2. For purposes of this Order, all submittals required by its conditions shall be sent to fednotification@ecy.wa.gov and a cc to Brook.swensen@ecy.wa.gov. Any submittals shall reference Order No. 24560.

3. The Project Proponent shall provide access to the project site and any mitigation sites upon request by Ecology.

4. Copies of this Order shall be kept on the job site and readily available for reference by Ecology personnel, the construction superintendent, construction managers and forepersons, and state and local government inspectors.

5. Nothing in this Order waives Ecology's authority to issue additional orders if Ecology determines further actions are necessary to implement the water quality laws of the state. Further, Ecology retains continuing jurisdiction to make modifications hereto through

supplemental order, if additional impacts due to project construction or operation are identified (e.g., violations of water quality standards, downstream erosion, etc.), or if additional conditions are necessary to further protect the public interest.

6. The Project Proponent shall ensure that all project engineers, contractors, and other workers at the project site with authority to direct work have read and understand relevant conditions of this Order and all permits, approvals, and documents referenced in this Order. The Project Proponent shall provide Ecology a signed statement (see Attachment A for an example) before construction begins.

7. To transfer this Order to a new owner or operator the Project Proponent shall:

    a. Complete a Request for Transfer of Order with a specific transfer date of the Order's obligations, coverage, and liability and submit it to Ecology per condition A.2. Link to form: https://apps.ecology.wa.gov/publications/SummaryPages/ECY070695.html;

    b. Provide a copy of this Order to the new owner or operator; and

    c. The transfer is not considered valid until the Project Proponent receives written notification from Ecology that the transfer has been approved.

8. The Project Proponent is responsible for obtaining all other permits, licenses, and certifications that may be required by federal, state, local or tribal authorities.

B. Notification Requirements:

1. The Project Proponent shall provide written notification to Ecology in accordance with condition A.2 above for the following activities:

    a. Immediately following a violation of the state water quality standards or when the project is out of compliance with any condition of this Order

    b. At least seven (7) days prior to conducting work activities in wetlands

    c. Within seven (7) days of completing work activities in wetlands.

2. If U.S. Army Corps of Engineers (Corps) determines the proposed project requires a Federal permit, the Project Proponent shall inform Ecology immediately in order to receive the appropriate authorization.

C. Wetland Mitigation Conditions:

1. The Project Proponent shall mitigate wetland impacts as described in the Parcel 117 Snail Eradication Project Compensatory Mitigation Plan (hereafter called the "Mitigation Plan") prepared by GeoEngineers, and dated March 17, 2026, received by Ecology on March 26, 2026, or as modified by this Order or revised and approved by Ecology.

2. The Project Proponent shall submit any changes to the Mitigation Plan in writing to Ecology (see A.2) for review and approval before implementing the changes.

3. The Project Proponent shall have a qualified wetland professional at the wetland mitigation site to supervise during construction and planting.

4. Unless otherwise approved by Ecology in writing, the Project Proponent shall begin compensatory mitigation before, or concurrently with impacting wetlands, or Ecology may require additional compensation to account for additional temporal loss of wetland functions.

5. If the mitigation site(s) cannot be completed within 13 months of the date of this Order or the Project Proponent has not submitted the proof of advance mitigation withdrawal, the Project Proponent shall inform Ecology, in writing, of the status of:

    a. Work activities in wetlands at Neptune Development

    b. Parcel 12 and Parcel 37D

    c. When the advance mitigation ledger will be submitted

        With the:

    d. Reason for the delay.

    e. Expected date of completion.

    The Project Proponent shall submit an updated written notification every 12 months thereafter until the wetland impacts at Neptune Development, Parcel 12, and Parcel 37D are complete.

Advance mitigation

6. Prior to impacting wetlands, the Project Proponent shall submit to Ecology the following as proof of advance mitigation withdrawal:

    a. A ledger showing that the required amount of 2.34 acres of Estuarine Emergent Wetland (EEM) credits has been deducted from the advance wetland mitigation site.

b. The ledger must include the Order number, Order issuance date, impact acreage, the amount of 2.34 acres of EEM credits required by the Order, and the date the 2.34 acres of EEM credits was deducted.

Offsite Mitigation (Parcel 12 and 37D) Implementation

7. The Project Proponent shall ensure that all excess excavated site material is disposed of in an appropriate location outside of wetlands and their buffers at the wetland mitigation site(s) and above the 100-year floodplain.

8. The Project Proponent shall ensure that no material is stockpiled within existing wetlands or their buffers at the wetland mitigation site(s) at any time, unless provided for in the Mitigation Plan.

9. The Project Proponent shall ensure that no construction debris is deposited within existing wetlands or their buffers at the wetland mitigation site(s) at any time, unless provided for in the Mitigation Plan.

10. The Project Proponent shall not use polyacrylamide at the mitigation site(s).

11. The Project Proponent shall not use hay or straw on exposed or disturbed soil at the mitigation site(s), unless otherwise approved by Ecology.

12. Aquatic herbicides can be used or applied only by certified applicators or persons under the direct supervision of a certified applicator, and only for those uses covered by the certified applicator's license category.

    a. Applicators are required to be permitted under Ecology's Noxious Weed Control Permit.

    b. Applicators shall comply with all conditions of the Noxious Weed Control Permit.

13. If weed-barrier fabric is used on the site, the Project Proponent shall use only permeable, fully biodegradable, non-toxic weed-barrier fabric for entire-site and/or individual plant weed control, unless otherwise approved by Ecology. If non-biodegradable plastic weed-barrier fabric is approved by Ecology, it shall be used only at the base of individual plants and shall be removed before it starts to break down, before it interferes with plant growth, or before the end of the monitoring period, whichever comes first.

14. If seeding is used as a best management practice for temporary erosion control, it must be a seed mix consisting of native, annual, non-invasive plant species, unless otherwise approved by Ecology.

15. If solid or mesh plant protector tubes are used on the mitigation site(s), Ecology strongly recommends that the Project Proponent use fully biodegradable options (photodegradable is not considered biodegradable). If non-biodegradable plant protection options are used, they shall be removed before they interfere with plant growth or before the end of the monitoring period, whichever comes first.

16. The Project Proponent shall place permanent signs at the intervals necessary so that they are visible from any potential access points and at a maximum interval of 100' to mark the area as wetland mitigation sites.

17. Upon completion of site-grading and prior to planting, the Project Proponent shall submit to Ecology written confirmation (email or signed letter, see A.2), from a surveyor or project engineer, that the finished grades are consistent with the approved Mitigation Plan or subsequent Ecology-approved plan changes. The confirmation should indicate how final elevations were confirmed.

18. After completing construction and planting of the mitigation sites(s), the Project Proponent shall submit to Ecology (see A.2) an as-built report, including plan sheets, documenting site conditions at Year Zero. The as-built report must:

    a. Be submitted within 90 days of completing construction and planting.

    b. Include the information listed in Attachment B (Information Required for As-built Reports).

    c. Include documentation of the recorded legal mechanism required in Condition C.20.

19. For the allowance of no perimeter buffer on the south side of the Parcel 37D mitigation site, the Project Proponent shall submit to Ecology (see A.2) documentation that the parcel to the south (Parcel 0320034052) has legal protection from development within 13 months of issuance of this order. Noncompliance with this condition may result in the need for additional wetland compensation.

20. The Project Proponent shall follow the steps below to record a wetland notice (or other approved site protection mechanism) for the Parcel 12 and Parcel 37D mitigation sites:

    a. Request a template from Ecology or use an appropriate alternative to develop a draft site protection mechanism.

    b. Send the draft site protection mechanism to Ecology for review and approval.

c. Record the Ecology-approved site protection mechanism with the County Recording Office, Registrar of Deeds, or other official responsible for maintaining records for, or interest in, real property.

d. Record the site protection mechanism with a figure that corresponds with the legal description showing the area that is being protected, a copy of this Order, and a site map showing the location of wetlands and their buffers that are being protected.

e. Send a copy of the recorded site protection mechanism to Ecology with the As-Built Report (see C.18), unless otherwise approved by Ecology.

Offsite Mitigation (Parcel 12 and 37D) Monitoring and Maintenance

21. The Project Proponent shall water and maintain all mitigation site plantings so as to meet the Mitigation Plan's performance standards. If an irrigation system is installed, it shall be removed by the end of year three unless permission is received in writing from Ecology to allow the system to remain for a longer period.

22. The Project Proponent shall monitor the mitigation site for a minimum of 10 years. The Project Proponent shall use the monitoring methods described on page(s) 24-27 of the Mitigation Plan.

23. The Project Proponent shall submit to Ecology (see A.2) monitoring reports documenting mitigation site conditions for years 1, 2, 3, 5, 7, and 10. The monitoring reports must:

    a. Be submitted by December 31 of each monitoring year.

    b. Include the information listed in Attachment C (Information Required for Monitoring Reports).

24. The Project Proponent shall implement the Mitigation Plan's contingency measures if the Mitigation Plan's goals, objectives, or performance standards are not being met.

25. Prior to implementing contingency measures not specified in the Mitigation Plan, the Project Proponent shall consult with and obtain written approval from Ecology for the contingency measures.

26. When necessary to meet the performance standards, the Project Proponent shall replace dead or dying plants with the same species, or an appropriate native plant alternative, during the current or upcoming planting season and note species, numbers, and approximate locations of all replacement plants in the subsequent monitoring report.

27. For monitoring years five (5) and ten (10) the Project Proponent shall use the currently approved federal wetland delineation manual and appropriate regional supplement to delineate all compensatory wetlands and include delineation information (e.g. data sheets, maps, etc.) in the monitoring reports.

28. At the end of the monitoring period, the Project Proponent shall use the Credit-Debit Method to determine the achieved score for each function and include the credit scoring form and credit worksheet in the monitoring report.

29. If the Project Proponent has not met all conditions, including performance standards, for the mitigation site at the end of the monitoring period, Ecology may require additional monitoring, additional mitigation, or both.

30. The Project Proponent's obligation to compensate for wetland impacts under Condition C.1 is not met until the Project Proponent has received written notice from Ecology that the obligation is met.

D. Timing

1. This Order will expire when all its conditions have been met and upon receipt of a mitigation closeout letter from Ecology.

Failure to comply with this Order may result in the issuance of civil penalties or other actions, whether administrative or judicial, to enforce the terms of this Order.

Your right to appeal

You have a right to appeal this Order to the Pollution Control Hearings Board (PCHB) within 30 days of the date of receipt. 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).

To appeal, you must do all of the following within 30 days of the date of receipt of this Order:

- File your notice of appeal and a copy of this Order with the PCHB (see filing information below). "Filing" means actual receipt by the PCHB during regular business hours as defined in WAC 371-08-305 and -335. "Notice of appeal" is defined in WAC 371-08-340.
- Serve a copy of your notice of appeal and this Order on the Department of Ecology by mail, in person, or by email (see addresses below).

You must also comply with other applicable requirements in Chapters 43.21B RCW and 371-08 WAC.

Address and Location Information

Filing with the PCHB

For the most current information regarding filing with the PCHB, visit: https://eluho.wa.gov/ or call: 360-664-9160.

Service on Ecology

Street Address:

Department of Ecology
Attn: Appeals Processing Desk
300 Desmond Drive SE
Lacey, WA 98503

Mailing Address:

Department of Ecology
Attn: Appeals Processing Desk
PO Box 47608
Olympia, WA 98504-7608

E-Mail Address:

ecologyappeals@ecy.wa.gov

Contact information

Please direct all questions about this Order to:

Brook Swensen
Department of Ecology
Southwest Regional Office
564-999-1749
Brook.swensen@ecy.wa.gov

More information

- **Pollution Control Hearings Board Website**
  https://eluho.wa.gov
- **Chapter 43.21B RCW - Environmental and Land Use Hearings Office – Pollution Control Hearings Board**
  http://app.leg.wa.gov/RCW/default.aspx?cite=43.21B

- **Chapter 371-08 WAC – Practice And Procedure**
  http://app.leg.wa.gov/WAC/default.aspx?cite=371-08
- **Chapter 34.05 RCW – Administrative Procedure Act**
  http://app.leg.wa.gov/RCW/default.aspx?cite=34.05
- **Chapter 90.48 RCW – Water Pollution Control**
  http://app.leg.wa.gov/RCW/default.aspx?cite=90.48
- **Chapter 173-201A WAC – Water Quality Standards for Surface Waters of the State of Washington**
  http://apps.leg.wa.gov/WAC/default.aspx?cite=173-201A

Signature

Dated this 22nd day of April, 2026 at the Department of Ecology, Lacey, Washington

_____

Maria Sandercock, Section Manager
Southwest Regional Office
Shorelands and Environmental Assistance Program

Attachment A

Statement of Understanding
Administrative Order Conditions

Neptune Development

Administrative Order No. 24560

As the Project Proponent for the Neptune Development project, I have read and understand the conditions of Washington State Department of Ecology Order No. 24560, and any permits, plans, documents, and approvals referenced in the Order. I have and will continue to ensure that all project engineers, contractors, and other workers at the project site with authority to direct work have read and understand the conditions of this Order and any permits, plans, documents, and approvals referenced in the Order.

_____ _____
Signature Date

_____ _____
Title Phone

_____
Company

Attachment B

Information Required for As-built Reports

Ecology requires the following information for as-built reports submitted under this Order. Ecology will accept additional information that may be required by other agencies.

Background Information

1. Project name.
2. Ecology Order number and the Corps reference number.
3. Name and contact information of the person preparing the as-built report. Also, if different from the person preparing the report, include the names of:
    a. The Project Proponent
    b. The landowner
    c. Wetland professional on site during construction of the mitigation site(s).
4. Date the report was produced.

Mitigation Project Information

5. Brief description of the **final** mitigation project with any changes from the approved plan made during construction. Include:
    a. Actual acreage of Cowardin classes and mitigation type(s) (re-establishment, rehabilitation, creation, enhancement, preservation, upland, buffers).
    b. Important dates, including:
        i. Start of project construction.
        ii. When work on the mitigation site began and ended.
        iii. When different activities such as grading, removal of invasive plants, installing plants, and installing habitat features began and ended.
6. Description of any problems encountered, and solutions implemented (with reasons for changes) during construction of the mitigation site(s).
7. List of any follow-up actions needed, with a schedule.
8. Vicinity map showing the geographic location of the site(s) with landmarks.
9. Mitigation site map(s), 8-1/2” x 11” or larger, showing the following:

a. Boundary of the site(s).

b. Topography (with a description of how elevations were determined).

c. Installed planting scheme (quantities, densities, sizes, and approximate locations of plants, as well as the source(s) of plant material).

d. Location of habitat features.

e. Location of permanent photo stations and any other photos taken.

Include the month and year when each map was produced or revised. The site map(s) should reflect on-the-ground conditions after the site work is completed.

10. Photographs taken at permanent photo stations and other photographs, as needed. Photos must be dated and clearly indicate the direction from which each photo was taken. Photo pans are recommended.

11. A copy of any deed notifications, conservation easements, or other approved site protection mechanism.

Attachment C

Information Required for Monitoring Reports

Ecology requires the following information for monitoring reports submitted under this Order. Ecology will accept additional information that may be required by other agencies.

Background Information

1. Project name.
2. Ecology Order number and the Corps reference number.
3. Name and contact information of the person preparing the monitoring report. Also, if different from the person preparing the report, include the names of:
    a. The Project Proponent
    b. The landowner
    c. The party responsible for the monitoring activities.
4. Dates the monitoring data were collected.
5. Date the report was produced.

Mitigation Project Information

6. Brief description of the mitigation project, including acreage of Cowardin classes and mitigation type(s) (re-establishment, rehabilitation, creation, enhancement, preservation, upland, buffers).
7. Description of the monitoring approach and methods. For each performance standard being measured provide the following information:
    a. Description of the sampling technique (e.g., monitoring point for soil or hydrology, line or point intercept method, ocular estimates in individually placed plots). If you are using a standardized technique, provide a reference for that method.
    b. Size and shape of plots or transects.
    c. Number of sampling locations and how you determined the number of sampling locations to use.
    d. Percent of the mitigation area being sampled.

e. Locations of sampling (provide a map showing the locations), how you determined where to place the sampling locations (e.g., simple random sample), and whether they are permanent or temporary.

f. Schedule for sampling (how often and when).

g. Description of how the data was evaluated and analyzed.

8. Summary table(s) comparing performance standards with monitoring results and whether each standard has been met.

9. Discussion of how the monitoring data were used to determine whether the site(s) is meeting performance standards.

10. Goals and objectives and a discussion of whether the project is progressing toward achieving them.

11. Summary, including dates, of management actions implemented at the site(s), for example, maintenance and corrective actions.

12. Summary of any difficulties or significant events that occurred on the site that may affect the success of the project.

13. Specific recommendations for additional maintenance or corrective actions with a timetable.

14. Photographs taken at permanent photo stations and other photographs, as needed. Photos must be dated and clearly indicate the direction the camera is facing. Photo pans are recommended.

15. Vicinity map showing the geographic location of the site(s) with landmarks.

16. Mitigation site map(s), 8-1/2" x 11" or larger, showing the following:

a. Boundary of the site(s).

b. Location of permanent photo stations and any other photos taken.

c. Data sampling locations, such as points, plots, or transects.

d. Approximate locations of any replanted vegetation.

e. Changes to site conditions since the last report, such as areas of regrading, a shift in the location of Cowardin classes or habitat features, or a change in water regime.

Include the month and year when each map was produced or revised. The site map(s) should reflect on-the-ground conditions during the most recent monitoring year.

Appendix O
Special Approved Discharge (SAD) Permit

City of Tacoma
Environmental Services

Environmental Compliance: (253) 502-2222
Operations: (253) 591-5595
SAD@tacoma.gov

SPECIAL APPROVED DISCHARGE AUTHORIZATION

TO THE CITY OF TACOMA'S SANITARY SEWER SYSTEM

Tacoma Municipal Code(TMC), Subchapter 12.08B.250 and 12.08C.360

The Special Approved Discharge (SAD) Authorization is issued solely to the Authorized Discharger named in the Authorization and is subject to the conditions set forth in this authorization for discharge to the City of Tacoma's Sanitary Sewer System.

I. GENERAL INFORMATION

SAD # 26-007	Effective Date: July 1, 2026	Expiration Date: June 30, 2027
Authorized Discharger: Port of Tacoma		
Company Representative: Elly Bulega		
Address of Company: PO Box 1837		
City: Tacoma	State: WA	Zip: 98401
Phone: 253-428-8638	Email: ebulega@portoftacoma.com	
Name of Property Owner: Port of Tacoma		
Address of Property Owner: PO Box 1837		
City: Tacoma	State: WA	Zip: 98401
Phone:	Email:	

II. PROJECT INFORMATION

Project Name: Parcel 117 Snail Eradication
Discharge Type: Sanitary
Flow rate (Gallons Per Minute): 100
Discharge Location: Private sanitary sewer line that dumps into City of Tacoma Segment 6271803

Project Narrative: The Port of Tacoma is doing a contaminated soil remediation. The site previously held auto fluff which is known to contain metals, petroleum hydrocarbons and polychlorinated biphenyls (PCBs). Soil samples have also found traces of tetrachloroethene (PCE) and trichloroethene (TCE). This authorization allows the treated discharge of contaminated groundwater and/or contaminated contact stormwater to the City of Tacoma's Municipal sanitary sewer following review of analytical sample data and authorization from the Control Authority. This is a for fee authorization.

III. AUTHORIZATION GENERAL CONDITIONS

1. Duty to Comply

The Authorized Discharger shall comply with TMC Subchapters 12.08B and 12.08C, Authorization Terms and Conditions, and the Special Approved Discharge Authorization Policy.

2. Dilution Prohibition

The Authorized Discharger shall not, in any way, dilute a discharge as a substitute to achieve

compliance with the Special Approved Discharge Authorization.

3. Calibration and Maintenance of Equipment
The Authorized Discharger shall provide, calibrate, inspect, and maintain all flow measuring, discharge, sampling, monitoring, and pretreatment equipment accurately and reliably.

Authorized Dischargers shall not interfere with, cause damage to, or make unauthorized alterations to any monitoring or pretreatment equipment.

Records of maintenance and calibration shall be maintained.

4. Flow Measurement
The Authorized Discharger shall use approved flow measurement devices and methods and meter all discharge flows, unless other authorization has been granted by the Control Authority.

The Authorized Discharger shall control and monitor the flow of water in the upstream and downstream system to ensure that the capacity of the City of Tacoma's Municipal Sewer System is not exceeded as a result of the additional flow caused by the discharge.

The Authorized Discharger may be required to reduce the flow rate of the discharge or cease discharging during heavy rain events which may overburden the sanitary sewer system.

5. Discharge Parameters
The Authorized Discharger shall meet prescribed discharge parameters as outlined in section IV of the Special Approved Discharge Authorization in order to discharge to the City of Tacoma's Municipal Sewer System.

6. Discharge Contingencies
The Authorized Discharger shall cease discharge when a violation of the Special Approved Discharge Authorization General Conditions is suspected or detected; or when directed by the City of Tacoma.

The Authorized Discharger shall observe and monitor the discharge for unusual color, odor, and/or sheen. If any of these conditions are observed, the discharge shall be ceased, and the Control Authority shall be notified.

7. Access
The Authorized Discharger shall provide access at reasonable times to the Control Authority for the purposes of inspection to evaluate compliance with the Special Approved Discharge Authorization.

8. Authorization Duration
Special Approved Discharge Authorizations shall be issued for no longer than one (1) year. Conditions of the Authorization may be subject to change by the Control Authority at any time during the life of the Authorization.

9. Project Completion Notification
The Authorized Discharger shall submit notification in writing to the Control Authority upon completion of the project.

10. Authorization Transfer
A Special Approved Discharge Authorization may not be transferred, reassigned, or sold.

11. Severability
If any provision of the Special Approved Discharge Authorization, TMC Subchapters 12.08B and 12.08C, or the application thereof to any person or circumstance is held invalid, the remainder of the Special Approved Discharge Authorization or TMC Subchapters 12.08B and 12.08C, or the application of such provision to other persons or circumstances, shall not be affected thereby.

12. Property Rights
The issuance of the Special Approved Discharge Authorization does not convey to the Authorized Discharger any property rights, either real or personal or convey any exclusive privileges. Nor does such issuance authorize any injury to private property, any invasion of personal rights, or any violation of federal, state or local laws.

13. Authorization Termination
The Control Authority may terminate the Special Approved Discharge Authorization for violation of the Authorization's terms and conditions or for violation of TMC, Subchapters 12.08B and 12.08C provisions.

IV. DISCHARGE PARAMETERS

Parameter	Discharge Limit		Approved Analytical Method	
			EPA	Standard
Arsenic	0.23	mg/L	200.7, 200.8	
Cadmium	0.103	mg/L	200.7, 200.8	
Chromium	4.74	mg/L	200.7, 200.8	
Copper	1.46	mg/L	200.7, 200.8	
Lead	0.427	mg/L	200.7, 200.8	
Mercury	0.033	mg/L	245.1; 245.2	
Molybdenum	0.55	mg/L	200.7, 200.8	
Nickel	1.12	mg/L	200.7, 200.8	
Selenium	0.14	mg/L	200.7, 200.8	
Silver	0.64	mg/L	200.7, 200.8	
Zinc	2.44	mg/L	200.7, 200.8	
BTEX	0.750	mg/L	624	
Benzene	0.050	mg/L	624	
pH	5.0-11.0	Units		4500HB-2000
Flow	100	gpm		
TTO - SVOA, VOA	2.13	mg/L	624/625	
TSS	225	mg/L		2540D-1997
Polychlorinated Biphenyls (PCBs)[1]	0.003	mg/L		

V. DISCHARGE REQUEST

Discharging to the municipal sewer system without prior permission from the Control Authority is prohibited.

Batch Dischargers
For discharges that occur by batch, the Authorized Discharger shall submit a Batch Discharge Request form. A copy of the analytical results from a certified laboratory and a chain of custody shall be attached and emailed to: SAD@cityoftacoma.org. Once reviewed, the Control Authority will return the approved email and the Authorized Discharger may commence the discharge between the hours of 7:30 a.m. and 5:00 p.m.

Continuous Dischargers
For discharges that occur on a continuous basis, the Authorized Discharger shall submit a copy of analytical data results from a certified laboratory and chain of custody to email: SAD@cityoftacoma.org. Once reviewed, the Control Authority will return the approved email and the Authorized Discharger may commence the discharge.

[1] PCBs shall mean the sum of the following Aroclor congeners: PCB-1016, PCB-1221, PCB-1232, PCB-1242, PCB-1248, PCB-1254, and PCB1260. Compliance reports shall separately list the result of each congener.

VI. DISCHARGE RECORDS

The Authorized Discharger shall submit discharge records for the previous month, including no discharge notification to the Control Authority by the 15th of each month.

1. The Authorized Discharger shall notify the Control Authority within twenty-four (24) hours of any changes to the site contact.
2. The Authorized Discharger shall notify the Control Authority within twenty-four (24) hours of any significant change to the quality or volume of the discharge or changes that affect the potential for slug load to the Municipal Sewer System.
3. The Authorized Discharger shall submit a formal written notification to the Control Authority within five (5) days of the occurrence describing the following:

    a. What was discharged
    b. Volume of the discharge
    c. Circumstances of the discharge
    d. Duration of the discharge including beginning and end times and dates
    e. Corrective actions to prevent reoccurrence

4. The Authorized Discharger shall notify the Control Authority within twenty-four (24) hours of becoming aware of any of the following violations:

    a. Discharges prohibited by Tacoma Municipal Code, Subchapters 12.08B and 12.08C, except where authorized by the Special Approved Discharge Authorization
    b. Exceedance of wastewater discharge limits as established in the Special Approved Discharge Authorization
    c. Failure to perform any Best Management Practices included in the Special Approved Discharge Authorization
    d. Bypass of any part of a required pretreatment system.

5. The Authorized Discharger shall submit a formal written report to the Control Authority within five (5) days after becoming aware of the violation. The report shall include the following information:

    a. Description of the violation, including the cause, date and time of the violation
    b. Date and time the discharge was stopped
    c. Measures taken to correct the violation
    d. Measures taken to prevent future violations

BILLING INFORMATION

The Authorized Discharger must pay the applicable fees and maintain payments as provided in Tacoma Municipal Code, Subchapter 12.08B.250. The Authorized Discharger, from which material in violation of Subchapter 12.08C is discharged into the City of Tacoma's Municipal Sewer System shall be liable to pay any supplemental charges the City of Tacoma incurs to respond to such violation as referenced in Subchapter 12.08B.500.

ENFORCEMENT PROVISION

Violations of this Authorization or Tacoma Municipal Code, Subchapters 12.08B and 12.08C may result in termination of the Special Approved Discharge Authorization and/or enforcement action in accordance with the policies and procedures contained in Tacoma's Enforcement Response Plan for wastewater, or Tacoma's Stormwater Compliance Policy for stormwater.

Date: _____ By: _____

Casandra Moore
Science Division Manager
Environmental Services

Date: _____ By: _____

Authorized Representative

Appendix P
Existing Side Sewer Photos

Capped Sewer Photos

The horizontal pipes are approximately 4’ below grade. The capped vertical pipe is approximately 2’ below grade.