PORT OF TACOMA

TACOMA, WASHINGTON

ARKEMA INTERIM ACTION - PHASE 1

PROJECT NO. 101585.01

CONTRACT NO. PA000000403

PROCUREMENT NO.

072026-1051

Thais Howard, PE

Director, Engineering

Brett Ozolin, PE

Project Manager

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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)
 6/18/2026	01 57 13 -Stormwater Pollution Prevention 02 41 19 - Selective Demolition 02 60 00 - Contaminated Site MaterialHandling 02 61 00 - Transportation and Disposal of Contaminated Soils 31 10 10 - Site Clearing & Grubbing 31 56 13.16 - Self-Hardening Slurry Containment Wall
 6-19-2026	31 05 16 - Aggregates 31 20 00 - Earthwork 31 23 19 - Dewatering 31 62 16 - Steel Piles 32 12 16 - Asphalt Paving 32 13 13 - Concrete Paving 32 92 19 - Seeding 33 05 63 -Utility Vaults and Structures 33 42 00 - Storm Drain Utility System 33 44 19 - Stormwater Treatment

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00 26 00 - Substitution Procedures

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Construction Stormwater General Permit WAR315655, Issued April 29, 2026

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State Environmental Policy Act - Determination of Nonsignificance, Issued November 17, 2025

APPENDIX D - PROJECT SPECIFIC SUPPLEMENTAL BIDDER RESPONSIBILITY CRITERIA

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END OF SECTION

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PART 1 - GENERAL

1.01 SUMMARY

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

Sheet No.	Drawing Title
G1.0	Cover Sheet
G1.1	General Notes, Legend and Abbreviations
SV1.0	Topographic Survey
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C1.4	Pre-Cap Grading Plan
C1.5	Stormwater Diversion Berm Construction
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C1.10	Containment Wall Details
C1.11	Final Restoration Cross Sections
C2.0	Overall Grading and Drainage Plan
C2.4	Grading and Drainage Plan - Area 4
C2.5	Grading and Drainage Plan - Area 5
C2.6	Grading and Drainage Plan - Area 6
C2.7	Grading Drainage Plan - Area 7
C2.9	Storm Drainage Notes and Details
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C2.14	North Outfall Notes and Details
C2.15	South Outfall Notes and Details
C2.16	Storm Drain Profiles
C2.19	Storm Drain Profiles
C2.25	Storm Drainage Details

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PART 3 - EXECUTION - NOT USED

END OF SECTION

ARKEMA INTERIM ACTION - PHASE 1

PROJECT NO. 101585.01 | CONTRACT NO. PA000000403

Scope of Work: The Work required for this Project includes:
Containment Wall: the work consists of constructing a continuous wall with a self-hardening slurry that consists of a mixture of ground granulated blast furnace slag, select clay and water to form a low permeability barrier to contain groundwater. The wall shall be keyed into the second site aquitard by vibrating beam methods.

Site Preparation and Wall Area Capping: the existing site will require preparation, excavation, fill, grading, demolition, surcharge, and temporary works prior to containment wall installation. An impervious cap consisting of imported soil, geotextile and a PVC liner will be placed over the wall area following wall installation to reduce stormwater infiltration within the containment wall.

Stormwater Conveyance Improvements: one new 30-inch outfall and one existing 36-inch outfall will be modified as part of the Work. Outfall construction and modification includes piping, vaults, headwalls, steel piling installation, check valves and cofferdams. A collection and conveyance system will be installed to connect the wall cap area to new and existing outfalls.

Bid Estimate: Estimated cost range is $6,500,000 to $7,000,000, 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** September 10th, 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 August 20th, 2026 at 9:00 A.M. The site visit will convene at the project site. The following Personal Protective Protective Equipment is required for the site visit: sturdy shoes, reflective vest, gloves, and safety glasses 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 072026-1051. 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.

Project Specific Supplemental Bidder Criteria:	Pursuant to RCW 39.04.350, Bidders are advised the Port has established relevant project specific Supplemental Bidder Responsibility Criteria for determining bidder responsibility included in Appendix D of the Responsibility Contract Documents.
Special Conditions:	Partial funding of this project is being provided by the Washington State Department of Ecology. All terms and conditions included in the grant agreement between the Port of Tacoma and Washington State Department of Ecology are fully incorporated into the agreement with the Contractor.

END OF SECTION

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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

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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: Arkema Interim Action - Phase 1 **PROJECT NO.: 101585.01**

SUBMITTED BY: _____ CONTRACT NO.: PA000000403

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. Supplemental information relating to existing surface and subsurface conditions and structures is available to Bidders online at https://apps.ecology.wa.gov/cleanupsearch/site/3405 but will not be part of the contract documents unless identified in these specifications.

B. 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. Geotechnical Report: Entitled Final Geotechnical Engineering Memorandum - Initial Site Investigation Former Arkema Manufacturing Site, dated November 8, 2024.

a. This report identifies properties of below grade conditions and offers recommendations for the design of foundations, prepared primarily for the use of Engineer.

b. The recommendations described shall not be construed as a requirement of this Contract, unless specifically referenced in the Contract Documents.

c. This report, by its nature, cannot reveal all conditions that exist on the site. Should subsurface conditions be found to vary substantially from this report, changes in the design and construction of foundations will be made, with resulting credits or expenditures to the Contract Price accruing to the Port.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

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PART 1 - GENERAL

1.01 SUMMARY

A. This Section provides the notification required for disclosure of asbestos, lead-containing or other hazardous materials.

1.02 HAZARDOUS MATERIALS NOTICE

A. Contractor is notified that soils and groundwater in certain portions of the Work area are known to contain greater than 20ppm of inorganic arsenic. Remnant contamination (soil with arsenic levels less than 20ppm of inorganic arsenic) is present through the site.

B. Detailed information regarding the known nature and extent of refuse and impacted soil and groundwater in the project area is included in the report attached to these specifications as Appendix A - Interim Action Work Plan - Former Arkema Manufacturing Site. Appendix A and related reference material can also be accessed through the Washington State Department of Ecology website with reference for Site 3405.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

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BIDDER'S NAME: _____

PROJECT TITLE: **ARKEMA INTERIM ACTION - PHASE 1** _

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	TESC	1	LS		
4	Clearing and Grubbing	9.2	ACRE		
5	Demolition - Asphalt (4-inch thickness)	1,213	CY		
6	Demolition - Concrete	5,400	CY		
7	Demolition - Rail Road Ties	27	Ton		
8	Demolition - Subsurface Utilities	1	LS		
9	Demolition - Miscellaneous Debris Allowance	17	Tons		
10	Preload Placement & Compaction - On Site Material	3,700	CY		
11	Preload Placement & Compaction - Import Material	9,320	CY		
12	Preload Removal & Stockpiling	10,520	CY		
13	Storm Drain Preload Removal	1	LS		
14	Pre-cap Grading and Earthworks	1	LS		
15	North Outfall	1	LS		
16	South Outfall	1	LS		
17	Storm Piping	1	LS		
18	Utility Structures	1	LS		
19	Treatment Vaults	1	LS		
20	Inline Check Valves	1	LS		
21	Temporary East-West Ditch Stormwater Re-Route Pump System	1	LS		
22	Temporary East-West Stormwater Re-Route Pump System Operation	21	DAY		

23	Temporary Utility Trench Dewatering Pump and Treatment System	1	LS		
24	Temporary Utility Trench Dewatering Pump and Treatment System Operation	21	DAY		
25	Containment Wall	76,491	VSF		
26	Permanent Containment Wall Protective Cap	251,076	SF		
27	Containment Wall Surfacing	1	LS		
28	Trench Safety Systems	1	LS		
29	Utility Trench Over Excavation and Backfill Allowance	100	Tons		

TOTAL BID AMOUNT	
10.3% 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.

In accordance with RCW 39.04.180, Bidders are instructed to write in the cost ($) of Trench Safety Systems here _____.

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	Printed Name and 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

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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 6 is “No” or any answer to questions 7 through 11 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 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

7. Has the Bidder been disqualified from bidding on any public works project under RCW 39.06.010 or 39.12.065(3)?
☐ Yes ☐ No

8. 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

9. Has the Bidder ever been found to be out of compliance with Apprenticeship Utilization requirements of RCW 39.04.320?
☐ Yes ☐ No

10. 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

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 7 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: Arkema Interim Action - Phase 1

PROJECT NO.: 101585.01

CONTRACT NO.: PA000000403

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: Arkema Interim Action - Phase 1

BIDDER: _____

CONTRACT AND PROJECT NUMBER: PA000000403/ 101585.01 _____

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 L&I 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	

Item No.	Item	Initials/ Comments
	electronically by clicking on the following link https://esd.wa.gov/ or by emailing a request to 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

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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: **Arkema Interim Action - Phase 1** **(Title)**

101585.01 | PA000000403 (Project/Contract No.)

2901 Taylor Way (Project Address)

Tacoma, WA 98421 (Project Address 2)

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 Work is grant funded and has obligatory expenditure and reimbursable milestones. The contractor shall have completed and invoiced Bid Items #4 through Bid Item #15 and partial invoicing of Bid Items #1 through #3 as allowed by the contract by May 1st 2027. Additionally, permitted in water outfall related construction work shall be in compliance with permit schedule requirements. At the discretion of the Engineer, the completion milestones may be extended based on invoicing and progression of other Bid Item work to meet grant expenditure requirements.

The Contractor shall achieve all interim milestones as set forth in the Contract Documents and Substantial Completion of the entire Work not later than September 30th, 2027, subject to adjustments of this Contract Time as provided in the Contract Documents. The Contractor shall achieve Final Completion of the entire Work within 60 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 completion requirements for Bid Items #4 through #15 by May 1st, 2027 shall be $10,000 per calendar day.

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 $250 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

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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 Arkema Interim Action - Phase 1 , Project No. 101585.01/Contract No. PA000000403, 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 Arkema Interim Action - Phase 1 , Project No. 101585.01/Contract No. PA000000403, 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: Arkema Interim Action - Phase 1

PROJECT NO.: 101585.01 _____

CONTRACT NO.: PA000000403 _____

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. PA000000403 with the Port for Arkema Interim Action - Phase 1 , Project No. 101585.01.

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

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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.

   United States Longshoremen's and Harbor Worker's Act (USL&H) and Jones Act may be required for this project. The Contractor shall be solely responsible for determining the applicability of USL&H and Jones Act coverage. The failure of the Contractor to procure either USL&H or Jones Act coverage shall at no time create liability on the part of the Port. The Contractor shall bear all responsibility and shall indemnify and hold harmless the Port for any and all liability, cost, and/or damages.

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 September 10th, 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.

C. TWIC identification credential are NOT required for this project.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

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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 Arkema Interim Action - Phase 1 consists of:

a. TESC: Project work will occur within an approximate 26 acre area that requires stabilization and stormwater management. Stormwater will be collected and infiltrated on site.

b. Demolition: The site operated as chemical plant for decades and remnant fixtures and debris remain on site. Demolition will primarily include breaking and stockpiling remnant concrete foundations for historical buildings, storage tanks, support towers and other structures. Concrete will be stockpiled on-site for re-use in future site development phases. Demolition activities will also include demolishing and stockpiling historical hot mix asphalt roadways and removal and disposal of abandoned rail ties and other miscellaneous debris.

c. Grading: Project earthworks will create a graded and free draining 10-acre area with two drainage basins at project completion. The area and basins will be built through several anticipated stages of grading before and after containment wall construction. The basins will be built by grading onsite material, available onsite fill, and importing new material.

d. Stormwater infrastructure: The project proposes to install a new outfall and adjust an existing outfall. Outfall work will require reinforced concrete headwall and pad construction in tidal conditions in conformance with project permits. The outfall structures will be built inside cofferdams. Outfall work includes installation of new tide valves. The stormwater work consists of installing multiple catch basins, treatment vaults and over 1,200 feet of piping. The majority of installed storm water infrastructure will be a part of the sites permanent stormwater drainage system. The installed piping and infrastructure will collect and convey surface water from the graded area to the Blair Waterway.

e. Containment wall installation: The work includes construction of a low permeability containment wall by vibrating beam methods around a contaminated groundwater plume. A mixture of slag, clay and water shall be installed by injection and displacement in panels that keyed into the second aquitard. Testing, monitoring and performance shall follow the specifications.

f. Containment wall capping: The containment wall shall be capped by geotextile and a PVC liner to form an impermeable surface. Crushed surfacing base course shall be placed on the liner system to protect the liner and complete the capping system.

1.02 LOCATION

A. The work is located at:

2901 Taylor Way

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. Working Facility

1. There are no work hour restriction associated with this location, although the Contractor shall comply with City of Tacoma ordinances with regard to noise and work hour restrictions. In the event that the Contractor is planning to work outside typical work hours (Monday - Friday 0700 -1700) the Contractor is to notify the Engineer at least three (3) days in advance to arrange for inspection and testing as necessary

C. 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. 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.

b. 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.

c. Site gates are secured with chains and padlocks. Contractor shall be responsible for providing their own padlocks and attaching them so other padlocks remain useable

1.03 CONSTRAINTS - GENERAL

A. Constraints for Work at Site

1. Outfall and associated storm drainage work will be conducted below the ordinary high water mark (OHWM) of the Hylebos Waterway. The Work will be conducted in accordance with USACE NWS-2024-787-WRD.

2. Work below the OHWM will only occur from July 15th through February 15th in any year when juvenile salmonids are unlikely to be present.

3. Work below the OHWM will occur during tidal cycles.

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. 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.

2. 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.
3. 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.
4. 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.
5. 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. This item shall include an office location for the Engineer's representative.

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: TESC

1. Item Description: The Work of this item includes all labor, equipment and materials necessary to furnish, install, maintain, improve and remove best management practices (BMP's) to manage erosion, water quality and stabilize the site in accordance with project Specifications and Drawings. The Work shall include updating, maintaining and reporting requirements and obligations of the General Construction Stormwater Permit.
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: Clearing and Grubbing

1. Item Description: The Work of this item includes all labor, equipment and materials necessary to remove and dispose of trees, shrubs and other vegetative growth within the limits shown on the Drawings.
2. Measurement: This item will be measured by ACRE complete for the overall area complete.
3. Payment: This item will be paid for by ACRE as specified in the Contractor’s submitted bid, in accordance with the approved Schedule of Values.

E. Item #5: Demolition - Asphalt (4-inch Thickness)

1. Item Description: The Work of this item includes all labor, material and equipment as necessary for the demolition of existing asphalt surfaces. The item shall include the excavation, handling, transport, stockpiling and stockpile covering for future reuse of asphalt material. Stockpile location shall be on site as directed by Engineer.
2. Measurement: This item will be measured by Cubic Yard (CY) in stockpile locations.
3. Payment: This item will be paid based on actual quantities for the period being billed.

F. Item #6: Demolition - Concrete

1. Item Description: The Work of this item includes all labor, material and equipment as necessary for the demolition of existing concrete structures. This item shall include the breaking, excavation, handling, transport, stockpiling and stockpile covering for future reuse of concrete material. Concrete thicknesses range between 6-inches and 2-feet in areas identified for demolition. Stockpile location shall be on site as directed by Engineer.
2. Measurement: This item will be measured by Cubic Yard (CY) in stockpile locations.
3. Payment: This item will be paid for based on actual quantities for the period being billed.

G. Item #7: Demolition - Rail Road Ties

1. Item Description: The Work of this item includes all labor, material, equipment and fees as necessary to legally remove and dispose creosote rail road ties from within the TESC limits. Rail ties remain in historical rail alignments where rails were previously removed.
2. Measurement: This item will be measured by Ton.
3. Payment: This item will be paid for based on actual quantities by Ton for the period being billed.

H. Item #8: Demolition - Subsurface Utilities

1. Item Description: The Work of this item includes all labor, material, equipment and as necessary to cut and grout plug existing utilities and remove obstructions in accordance with the Specifications and Drawings. This work shall include any trenching, backfill and dewatering to complete the work. Dewatering shall include pumping and conveyance to the Temporary Utility Trench Dewatering Pump and Treatment System. Disposal of removed utilities and obstructions shall be paid in accordance with Item #9: Demolition - Miscellaneous Debris Allowance.
2. Measurement: This item will be measured by LS.
3. Payment: This item will be paid for based on percentage complete for the period being billed.

I. Item #9: Demolition - Miscellaneous Debris Allowance

1. Item Description: The Work of this item includes all labor, material and equipment as necessary for the demolition, collection and disposal of existing miscellaneous debris on site. This Item shall include utilities, metal pipe, steel casing, plastic pipe, miscellaneous steel such as grates, covers, and bollards, conduit, conductors, and other debris. The estimate assumes 17 tons of debris could be collected. Concrete debris is not included and shall be stockpiled in accordance with Bid Item #6 - Demolition - Concrete.
2. Measurement: This item will be measured by Ton.
3. Payment: This item will be paid for based on actual quantities.

J. Item #10: Preload Placement & Compaction - On Site Material

1. Item Description: The Work of this item includes all labor, material and equipment as necessary to excavate, transport, place and compact existing site soil material as Preload Placement and Compaction in preparation for Containment Wall installation from within the Dredging Sediment Pile area located at the southwest corner of the site. The Engineer estimates 5,700 cubic yards are available for use on site and assumes 3,700 cubic yards will be used as preload.
2. Measurement: This item will be measured by cubic yard (CY).
3. Payment: This item will be paid for based on actual quantities for the period being billed.

K. Item #11: Preload Placement & Compaction - Import Material

1. Item Description: The Work of this item includes all labor, material and equipment as necessary to transport, place and compact import soil materials as preload in preparation for Containment Wall installation. The Engineer estimates 9,320 cubic yards of import will be necessary to complete preload placement and compaction. Source material approval and testing shall be in conformance with the contract documents and Department of Ecology approved work plans for the site. The Engineer estimates 9,300 cubic yards of imported material for preload placement and compaction will be repurposed under Item #27: Containment Wall Surfacing.
2. Measurement: This item will be measured by cubic yard (CY).
3. Payment: This item will be paid for based on actual quantities for the period being billed.

L. Item #12: Preload Removal & Stockpiling

1. Item Description: The Work of this item includes all labor, material, and equipment as necessary to excavate, transport and stockpile excess surcharge material in accordance with project Specifications and Drawings. The Work shall also include installation of a stockpile cover.
2. Measurement: This item will be measured by Cubic Yard.
3. Payment: This item will be paid for based on actual quantities for the period being billed.

M. Item #13: Strom Drain Preload Removal

1. Item Description: The Work of this item includes all labor and equipment as required to remove the uppermost 2 feet of installed preload material located above the project storm drain utility in accordance with the drawings and specifications. The removed material may be graded down the preload slope and compacted so that that the finish graded slope is flatter than the temporary preload slope. The Engineer estimates a volume of 710 cubic yards.
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 based on percentage complete for the period being billed.

N. Item #14: Pre-cap Grading and Earthworks

1. Item Description: The Work of this item includes all labor, material, and equipment as necessary to establish the Pre-Cap Grading Plan contours and elevations in accordance with project Specifications and Drawings. This item includes grading existing site soils from within the grading limits as well as grading existing site soils from the Dredging Sediment Pile. The Engineer estimates the grading of 9,400 cubic yards of cut from existing site soils from within the grading limits. The Engineer estimates an additional 2,400 cubic yards of material from the Dredging Sediment Pile will be required to meet the Pre-Cap Grading Plan contours and elevations. The Contractor shall assume 1,200 cubic yards of Preload Placement & Compaction - On Site Material shall be repurposed and paid for under Item #12: Preload Removal and Stockpiling. The contractor shall assume this bid item will include the excavation, transportation, grading and compaction of an additional 1,200 cubic yards of onsite soils from the Dredging Sediment Pile shall be to meet the required elevations .
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.

O. Item #15: North Outfall

1. Item Description: The Work of this item includes all labor, material, and equipment as necessary to furnish and install the North Outfall. The North Outfall shall include all work components in accordance with the project Specifications, permits, and Drawings from the start of the slab to the end of the splash pad. This bid item shall include, but not be limited to, excavations, sheet pile wall cofferdams and dewatering installations, import aggregate backfill, the transport of trench spoils to a covered onsite stockpile location, concrete headwall, debris barrier and splash pad installations, and the subsequent removal of temporary facilities. This item does not include Storm Piping or WASTOP In-Line Check Valves.
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 based on actual quantities for the period being billed.

P. Item #16: South Outfall

1. Item Description: The Work of this item includes all labor, material, and equipment as necessary to furnish and install the South Outfall. The South Outfall shall include all work components in accordance with the project Specifications, permits, and Drawings from the start of the slab to the end of the splash pad. This bid item shall include, but not be limited to, removal of existing outfall tide gate valve, modifying the existing outfall piles, excavations, the transport of trench spoils to a covered onsite stockpile location, sheet pile wall cofferdams and dewatering installations, import aggregate backfill, concrete headwall, debris barrier and splash pad installations, and the subsequent removal of temporary facilities. This item does not include Storm Piping or WASTOP In-Line Check Valves.
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 based on actual quantities for the period being billed.

Q. Item #17: Storm Piping

1. Item Description: The Work of this item includes all labor, material, and equipment as necessary to furnish and install project Storm Piping in accordance with project Specifications and Drawings. The Work shall include, but not be limited to the salvage of existing 36” diameter HDPE storm piping, excavation, dewatering and conveyance of trench groundwater to the Temporary Utility Trench Dewatering Pump and Treatment System, providing and installation of import storm piping bedding, trench dams, and trench backfill aggregate materials, and the transport of trench spoils to a covered onsite stockpile location. The Work shall include drainage system testing and reporting as required by the Specifications and Drawings to verify drainage system performance and the subsequent removal of all temporary facilities.
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 based on actual quantities for the period being billed.

R. Item #18: Utility Structures

1. Item Description: The Work of this item includes all labor, material, and equipment as necessary to furnish and install project Utility Structures in accordance with project Specifications and Drawings. The Work includes, but is not limited to, excavation, dewatering and conveyance of trench groundwater to the Temporary Utility Trench Dewatering Pump and Treatment System, providing and installation of import utility structure foundation, bedding and trench backfill aggregate materials, and the transport of trench spoils to a covered onsite stockpile location. The Work shall include the removal of temporary facilities, the required fill transport and grading to establish the proposed finish grade around each structure. Material from the Dredging Sediment Pile may be used to establish indicated finish grades.
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 based on actual quantities for the period being billed.

S. Item #19: Treatment Vaults

1. Item Description: The Work of this item includes all labor, material, and equipment as necessary to furnish and install project Treatment Vaults in accordance with project Specifications and Drawings. The work shall also include procuring and installing the vault utility structure, the vault media, the vault plumbing, the vault metalwork, excavation, import backfill, the transport of trench spoils to a covered onsite stockpile location, and dewatering and conveyance of groundwater to the Temporary Utility Trench Dewatering Pump and Treatment System as required.
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 based on actual quantities for the period being billed.

T. Item #20: Inline Check Valves

1. Item Description: The Work of this item includes all labor, material, and equipment as necessary to furnish and install Inline Check Valves in accordance with project Specifications and Drawings.
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 based on actual quantities for the period being billed.

U. Item #21: Temporary East-West Ditch Stormwater Reroute Pump System

1. Item Description: The Work of this item includes all labor, material, and equipment as necessary to furnish, install and remove temporary pump system to reroute stormwater around the existing outfall during Outfall South, Storm Piping and Utility Structure Work that impacts existing ditch drainage. The work shall include restoring the ditch to the lines and grades prior to system installation. Temporary security fencing and relocation of traffic barriers shall be included in this item.
2. Measurement and Payment: This item shall be paid at the lump sum price listed in the Contractor's submitted bid as follows:
    a. 80% after completion of system installation
    b. 20% after removal of system and existing ditch restoration

V. Item #22: Temporary East-West Ditch Stormwater Reroute Pump System Operation

1. Item Description: The Work of this item includes all labor, material, and equipment as necessary to operate and maintain the Temporary East-West Ditch Stormwater Reroute Pump System to manage ditch drainage surface water. This item shall assume the system will operate up to 21 days.
2. Measurement: This item will be measured by DAY.
3. Payment: This item will be paid for based on actual quantities for the period being billed.

W. Item #23: Temporary Utility Trench Dewatering Pump and Treatment System

1. Item Description: The Work of this item includes all labor, material, and equipment as necessary to furnish and install a water treatment system capable of receiving pumped utility trench and excavation groundwater consisting of arsenic contaminated dewatering water. The system shall be designed by the contractor to meet discharge and treatment criteria as specified in the Project Drawings, Specifications and Permits.
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.

X. Item #24: Temporary Utility Trench Dewatering Pump and Treatment System Operation

1. Item Description: The Work of this item includes all labor, material, and equipment as necessary to operate and maintain the Dewatering Pump and Treatment System to manage arsenic contaminated utility trench groundwater dewatering discharge. This item shall assume the system will operate up to 21 days.

Y. Item #25: Containment Wall

1. Item Description: The Work of this item includes all labor, material, testing, and equipment as necessary to furnish and install the Containment Wall to the dimensions and elevations per the Specifications and Drawings. This item shall include Protective Caps Where Subject to Traffic, berms as required to isolate slurry work areas and Work Pad to support Containment Wall construction equipment.
2. Measurement: This item will be measured by vertical square foot (VSF).
3. Payment: This item will be paid for based on actual quantities for the period being billed in accordance with the approved Schedule of Values.

Z. Item #26: Permanent Containment Wall Protective Cap

1. Item Description: The Work of this item includes all labor, material, and equipment as necessary to furnish and install the Permanent Containment Wall Protective Cap per the Specifications and Drawings. This work shall include two (2) layers of non-woven geotextile, the 30-mil PVC liner, and liner key-in trench. This work shall include fusing the cap to PVC monitoring well casings.
2. Measurement: This item will be measured by square foot (SF).
3. Payment: This item will be paid for based on actual quantities for the period being billed.

AA. Item #27: Containment Wall Surfacing

1. Item Description: The Work of this item includes all labor, material, and equipment as necessary to furnish and grade a (1) one-foot thick crushed surfacing base course rock cap on top of and around the Permanent Containment Wall Protective Cap to the elevations and grades of the Restoration Surface. This item estimates import, placement, and compaction of 9,300 cubic yards of either Preload Placement & Compaction - Import Material or virgin material that meets 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 based on actual quantities for the period being billed in accordance with the approved Schedule of Values.

BB. Item #28: Trench Safety Systems.

1. Item Description: The Work of this item includes shoring and safety systems for all trench excavations exceeding 4-foot depths.
2. Measurement: This item will be measured as a lump sum unit.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid.

CC. Item #29: Utility Trench Over Excavation and Backfill Allowance

1. Item Description: The Work of this item includes all labor, material, equipment as necessary to provide authorized over excavation and backfill below the contract trench subgrade elevations. The Work includes, but is not limited to, excavation below the contract trench bedding subgrade elevation to replace a soft trench foundation, shoring, dewatering, replacing the excavated over excavation volumes with 2"-4" quarry spalls backfill, and compaction to the required trench bedding subgrade elevation to provide a firm trench foundation.
2. Measurement: This item shall be field measured (length of trench (ft) x width of trench (ft) x depth of trench (ft) / 27 cft/cy x 1.7 tons/cy) = Tons. The Contractor and the Engineer shall agree upon the measurements in the field prior to requesting payment.
3. Payment: This item will be paid as on a case-by-case basis and deducted from the total or remaining allowance figure. For example, if the total allowance figure is XX tons (100 tons initially), and there are 3 new cases that the total requires 30 tons payment, then 30 tons will be paid at the Unit bid price and the allowance figure total is reduced to XX-30 ton total (100-30 = 70 tons). Should the entire allowance be used, then an additional allowance figure will be established in accordance with contract requirements. Should the contract not require 100 tons, then there will be a net credit to the Port at the project conclusion.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXEUCTION - NOT USED

END OF SECTION

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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

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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 14 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 or virtually as scheduled by the Engineer.

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

C. Cost Meeting
    1. A separate cost meeting may be set up by the Engineer to discuss RFI's (or any other issues) that may cause scope, schedule or monetary changes to the contracts in more detail then necessary at the progress meeting. The Engineer will arrange, host and provide an agenda for cost meetings. Attendees would include the Engineer, Contractor's job superintendent and others as invited.

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

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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

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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 building 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.

E. The Contractor is alerted to the presence of odorous conditions during excavation and stockpiling of materials due to hydrogen sulfide and possibly other odorous gases. The Contractor shall take appropriate health and safety measures to assess concentrations of these gases, and mitigate as required. Mitigation measures shall include the use of personal protective equipment, if required.

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. Asbestos and 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, and

k. Odorous conditions and toxic gases.

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. Railroad safety procedures;

13. Administrative controls;

14. Emergency plan including locations of and route to nearest hospital;

15. Medical surveillance program for site personnel before, during, and after completion of site work;

16. 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, and

    c. Arsenic exposure assessment results;

17. Name and qualification of person preparing the HASP and person designated to implement and enforce the HASP;

18. 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;

19. Excavation, stockpiling, and truck loading procedures;

20. Lighting and sanitation; and

21. 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 greater than 20 ppm of 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 dust, fibers, particulates, or vapors may be released during site activities. Inhalation of airborne inorganic arsenic 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. Arsenic exposure may cause skin irritation.

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. Work over or adjacent to water, presenting hazards of falling into water, hypothermia from exposure to the elements, and drowning;

2. Operation of marine equipment, including winches, dredges, and related equipment, entrapment, ensnarement, and being struck by moving parts hazards;

3. Completion of diver surveys with specific health and safety elements;

4. 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
5. 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.

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. Enclosure equipment (for dust and asbestos fiber control);
4. Fencing and barriers;
5. Warning signs and labels;
6. Trenching equipment;
7. Fire extinguishers;
8. Equipment to support hot work;
9. Equipment to support lockout/tagout procedures;
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, including arsenic, 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 GENERAL SAFETY GUIDELINES FOR HAZARDOUS GASES

A. The generally accepted procedure to protect the worker from the effects of the dangers from hazardous gases is through the use of four safeguard measures:

1. Test the atmosphere: Before entering a trench, underground vault, or any other excavation, the atmosphere shall be tested to detect any adverse environmental conditions with a gas detector instrument. Test instruments shall be properly maintained and calibrated. The test shall be conducted from top to bottom of the excavation or every four (4) feet.

2. Ventilate all confined spaces: Before entry and during the entire time workers are in the confined space. Forced ventilation is the generally accepted procedure.

3. Use appropriate safety equipment: All personnel shall be trained to operate the appropriate safety equipment that are to be utilized during the course of their work. It is the responsibility of the Contractor's Site Safety and Health Officer to ascertain that all safety equipment is being used when appropriate.

4. Provide backup safety personnel: Prior to any personnel entering an excavation or confined space, a separate individual shall be positioned outside the space.

B. Safety Monitoring Instrumentation: The Safety and Health Officer shall have appropriate instruments (detector[s]) to test for oxygen deficiency and for the presence of methane gas, hydrogen sulfide, and/or other known or suspected vapors and gases. The Site Safety and Health Officer shall periodically calibrate the instruments, regularly test the excavation or space areas and other work areas for safe working conditions, and ensure that appropriate safety equipment is available.

3.04 SUPPLEMENTAL SAFETY PROGRAM FOR GASES

A. Supplemental to the Contractor's regular safety program, the Contractor shall develop and institute procedures to inform all workers at the site of the potential for the presence of methane and other landfill gases emanating from the natural decomposition of refuse buried at or near the job site, and the importance of safety precautions to ensure the safety of workers and the public.

B. Recommended Precautions: In addition to conforming to safety rules and regulations of governmental authorities having jurisdiction, the Contractor shall conform to the following minimum precautionary measures:

1. Frequently monitor for all possible hazardous gases, oxygen deficiency and other known or suspected vapors and gases.
2. Prohibit smoking in or near open excavations, exposed refuse, and in the vicinity of underground pipe laying activities. Smoking will be permitted only in those areas designated by the Site Safety and Health Officer.
3. In the event toxic gas is present in sufficient quantities to trigger a gas detection alarm, the Contractor shall immediately evacuate all personnel from the area until determined safe by the Site Safety and Health Officer.
4. Do not use explosives.
5. Do not leave refuse exposed overnight, unless otherwise approved by the Engineer. Any refuse exposed during construction activities shall be covered with at least a 6-inch layer of earth, tarps, or membrane.
6. Do not weld in trenches, enclosed areas, or over refuse unless performed in areas tested and approved by the Site Safety and Health Officer.
7. Construction equipment used in excavation activities and/or refuse removal operations shall be equipped with vertical exhaust and spark arresters.
8. Electric motors utilized in excavation areas and below ground shall be explosion-proof.
9. As construction progresses, all pipe openings and valves shall be closed as soon as installed to prevent the migration of gases through the pipeline system.

C. Suggested Measures: If not already included in the Contractor's standard safety practices, the Contractor shall add the following measures to their safety program:

1. Workers shall be cautioned on the possibility of collapsing excavations during construction operations near and in open excavations particularly in refuse-filled areas. Anyone working near the edge of deep excavations should be secured with a safety belt, harness, or limit line to preclude the possibility of falling into the opening. Refuse filling operations and compaction is quite variable and therefore may not provide the same slope stability as excavations in native soils.
2. Any personnel working near the edge of well excavations or similar construction should wear a harness securely attached to a lanyard. The lanyard shall be made as short as possible and securely fastened to a safe object.
3. Safe and suitable ladders that project 2 feet above the top of the trench shall be provided for all trenches over 4 feet in depth. A minimum of one ladder shall be provided for each 25 feet of open trench, and be so located that workers in the trench need not move more than 25 feet to a ladder.
4. No worker shall be allowed to work alone in an excavation. An individual shall be positioned outside the excavation, but within eyesight of the workers in the excavation, and assist them should an emergency develop.
5. Work upwind of an excavation where possible, unless the excavation is constantly monitored and declared safe.
6. Workers should avoid contact with exposed refuse where possible.
7. No excavation or drilled hole greater than 2 feet deep shall be left unattended or open overnight unless it is securely covered in a manner acceptable to the Engineer.

8. Fire extinguishers with a rating of at least A, B, and C shall be available onsite.
9. Startup and shutdown of equipment shall be avoided in areas of exposed refuse.
10. Personnel in an open excavation or in the presence of landfill gas shall be fully clothed with appropriate personal protection equipment. Workers shall immediately vacate the excavation if gases are detected therein, and shall not be permitted to re-enter the excavation unless satisfactory precautionary measures are implemented.

3.05 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

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PART 1 - GENERAL

1.01 SUMMARY

A. The project site is a regulated site under the Washington State Department of Ecology due to the presence of Arsenic and other contamination.

B. This Section discloses procedures to follow if other unknown or suspected 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

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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

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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 Project 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.

C. The Port will provide archaeological monitoring by or under the guidance of a professional archaeologist (archaeologist).

1. All ground disturbing activities in native soils must be observed by the archaeologist.

D. All Contractor employees shall be aware of the Inadvertent Discovery Plan and shall notify the Engineer if a suspected archeological resource is discovered.

E. A copy of the Inadvertent Discovery Plan shall be kept on site and available at all times during ground disturbing 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. Washington State Department of Ecology's "Inadvertent Discovery Plan – Plan and Procedures for the Discovery of Cultural Resources and Human Skeletal Remains". A copy of this Plan is located in Appendix A (Appendix K within Appendix A).

1.03 AUTHORITY OF ARCHAEOLOGIST

A. At any time, when the archaeologist determines that possible cultural resources or skeletal remains might be present, they have the authority to stop work, secure the area of the find and determine a work stoppage zone. This area shall remain protected until further decisions can be made regarding the work site.

B. The archaeologist will stand in close proximity of the construction equipment to view subsurface deposits as they are exposed and will be in close communication with the equipment operators to ensure adequate opportunity for observation and documentation. The archaeologist will coordinate the depths of the lifts with the Engineer and the Contractor.

C. The archaeologist will be provided the opportunity to screen excavated sediments and matrix samples when this is judged to be useful.

D. Archaeological monitoring will proceed until it can be determined by the archaeologists that skeletal remains or other cultural resources are not likely to be impacted by construction activities.

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
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 that suspected 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 photographed, 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 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 Engineer or Environmental Project Manager immediately.

END OF SECTION

PART 1 - GENERAL

1.01 PERMITS, CODES, AND REGULATIONS

A. The Port entered amended Agreed Order No. DE 5668 (Agreed Order) with the Washington State Department of Ecology (Ecology) on April 14th, 2026, to implement cleanup interim actions (the Work).

B. The Interim Action Work Plan (IAWP) is a deliverable under the Agreed Order and is the basis of the Work. The IAWP is attached as Appendix A. Work shall be completed in accordance with the IAWP and shall specifically adhere to the following sections:

1. Appendix A - (Appendix D) Potentially Applicable or Relevant and Appropriate Requirements
2. Appendix A - (Appendix I) Acceptance Criteria for Virgin Quarry Material
3. Appendix A - (Appendix K) Inadvertent Discovery Plan

C. Under the Agreed Order, the Port is required to comply with all federal, state and local substantive requirements.

D. The following permits/approvals have been applied for (or are on file) and incorporated into the Contract:

1. Washington State Department Of Ecology Construction Stormwater General Permit (CSWGP), WAR315655
2. US Army Corps Of Engineers Nationwide Permit (NWP) 7, NWS-2024-787-WRD
3. State Environmental Policy Act (SEPA) Compliance

E. Conform with the requirements of the IAWP and listed permits and additional or other applicable permits, codes, and regulations as may govern the Work.

F. 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).

1. The Contractor is alerted to potentially needing to obtain a Puget Sound Clean Air Agency (PSCAA) permit for proposed equipment.

G. 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.

H. Process through Engineer, request to extend, modify, revise, or renew any of the permits (listed in 1.0D.A above) or IAWP. 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 the IAWP, 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

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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 telecommunications services,
3. Temporary sanitary facilities,
4. Temporary Controls: Barriers, enclosures, and fencing, and
5. Field offices.

1.02 TEMPORARY UTILITIES

A. No existing utilities are available on site. All utilities have been demolished, capped or disconnected.

B. 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.

1.03 TELECOMMUNICATIONS SERVICES

A. Provide, maintain, and pay for telecommunications services to field office at time of project mobilization. It is the Contractor’s responsibility to be able to receive phone calls and emails at the job site.

1.04 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.

1.05 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. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.

C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.06 FIELD OFFICES

A. Office: Weathertight, with lighting, electrical outlets, and equipped with sturdy furniture.

B. Provide space for Engineer representative with table and chair to accommodate 1 person.

1.07 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to final inspection.

B. Clean and repair damage caused by installation or use of temporary work.

C. Restore existing facilities used during construction to original condition.

D. 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. Contractor shall conduct all business through the gate assigned by the Engineer.

B. Provide unimpeded access for emergency vehicles. Maintain 20 foot (6 m) width driveways with turning space between and around combustible materials.

C. Provide and maintain access to fire hydrants free of obstructions.

3.03 PARKING

A. All Contractor's employee cars and work vehicles will be parked on-site as designated by the Engineer.

B. Prevent parking on or adjacent to access roads or in non-designated areas.

3.04 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. Flaggers to direct traffic as required by Tacoma Rail to accommodate the Contractor's work.

2. 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.

3. 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.

3.05 FLARES AND LIGHTS

A. Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

3.06 HAUL ROUTES

A. Confine construction traffic to designated haul routes.

3.07 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.

3.08 REMOVAL, REPAIR

A. Repair existing facilities damaged by use, to original condition.

B. Repair damage caused by installation.

3.09 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.

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 B 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 Volume II of the Washington State Department of Ecology's Stormwater Management Manual for Western Washington (2024). The BMPs are to prevent pollution of air and water, control peak volumetric flow rates and velocity of stormwater, 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. The NPDES permit will be transferred to the Contractor.

C. Unless otherwise noted in the CSWPPP, the work shall include, but is not limited to the following:

   1. Silt Fencing
   2. Catch Basin Protection
   3. Street Sweeping
   4. Dust Control
   5. Construction Entrance
   6. Wattles
   7. Erosion Control Blankets
   8. Wheel Wash

9. Temporary Dewatering – Infiltration on site
10. Concrete Handling
11. Concrete Washout
12. Materials on Hand
13. Sawcutting
14. Plastic Covering
15. Stockpile Protection.

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 site.

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 Construction Stormwater General Permit, January 2026.
   5. Administrative Order DE 5668, Department of Ecology, including all amendments.

1.03 SUBMITTALS

A. Safety Data Sheet (SDS) for any dust palliative products.

B. Product Data: Submit data on the following:
   1. Catch basin protection.
   2. Filter fabric fence
   3. Wattle

4. Erosion Control Blanket
5. Wheel Wash
6. Gravel Backfill
7. Plastic Covering
8. Rip Rap
9. Geotextile

C. Temporary Dewatering 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 and on the Drawings.

E. Project CESCL personnel certifications including the name and number of the primary CESCL.

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 the listed 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 contamination of adjacent streams or other watercourses, the Hylebos Waterway, the East-West Ditch, 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 DUST CONTROL

A. Potable water BMP for dust control proposed by the Contractor and approved by the Engineer.

2.02 CONSTRUCTION ENTRANCE/EXIT

A. Geotextile fabric shall comply with Section 31 20 00 – Earthwork, stabilization geotextile fabric material requirements.

B. Rip rap shall conform to Section 31 20 00 – Earthwork, riprap pad material requirements protection.

2.03 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.

2.04 WATTLES

A. Wattles are temporary erosion and sediment control barriers consisting of straw that is wrapped in biodegradable tubular plastic or similar encasing material. Wattles shall be located to reduce runoff velocity, to spread the flow of rill and sheet runoff, or to capture and retain sediment carried in runoff. Straw wattles shall be 8 to 10 inches in diameter.

2.05 SILT FENCE

A. 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)	0.60 mm maximum for slit film woven (#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

B. Filter fabric 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.

C. Posts shall consist of either:

1. Wood with dimensions of 2-inches by 2-inches wide min. and a 3-feet min. length. Wood posts shall be free of defects such as knots, splits, or gouges.
2. No. 6 steel rebar or larger.
3. ASTM A 120 steel pipe with a minimum diameter of 1-inch, or as approved by the Engineer.
4. U, T, L, or C shape steel posts with a minimum weight of 1.35 lbs./ft.
5. Other steel posts having equivalent strength and bending resistance to the post sizes listed above.

2.06 EROSION CONTROL BLANKET

A. Erosion Control Blanket shall be Type 2D as established in the FHWA FP-03 and the Erosion Control Technology Council.

1. 100% biodegradable short-term double net straw fiber erosion control blanket mechanically bound together and sewn together on 1.5 inch centers.
2. Designed for use on moderate slope and channel applications
3. Comply with the following requirements:

Rolled Erosion Control Product (RECP)		
Property	Requirement	Test Method
Minimum Tensile Strength (lbs./ft.)	75	ASTM D 4595
Maximum “C” Factor (a)	0.20 at 2H:1V	ASTM D 6459
Minimum Shear Stress (lbs./sq. ft.) (b,c)	1.75	ASTM D 6460
Seed Germination Enhancement	200% minimum	ASTM D 7322
Dry Weight or Mass per Unit Area (oz./sq. yd.)	6.00 minimum	ASTM D 6475

a. "C" Factor calculated as ratio of soil loss from RECP protected slope (tested at specified or greater gradient, h:v) to ratio of soil loss from unprotected (control) plot in large-scale testing. These performance test values shall be supported by periodic bench scale testing under similar test conditions using Erosion Control Technology Council (ECTC) Test Method # 2.

b. Required minimum shear stress RECP (unvegetated) can sustain without physical damage or excess erosion (> 12.7 mm (0.5 in) soil loss) during a 30-minute flow event in large-scale testing. These performance test values shall be supported by periodic bench scale testing under similar test conditions and failure criteria using Erosion Control Technology Council (ECTC) Test Method #3.

c. The permissible shear stress levels established for each performance category are based on historical experience with products characterized by Manning's roughness coefficients in the range of 0.01 - 0.05.

4. Provide staples and accessories in accordance with manufacturer’s requirements.

2.07 CATCH BASIN PROTECTION

A. Catch Basin Protection Inserts shall be DrainGuard Oil and Sediment Catch Basin Inserts, 11091, as manufactured by Advanced Environmental or approved equal.

B. Gravel Backfill Aggregate: Shall comply with the following requirements:

SIEVE SIZE	PERCENT PASSING
4″	**99-100**
2″	**75-100**
NO. 4	**22-66**
NO. 200	**5.0 MAXIMUM**
DUST RATIO	**2/3 MAXIMUM**
SAND EQUIVALENT	**60 MINIMUM**

C. Weep Hole Geotextile Fabric: Comply with Silt Fence Geotextile Fabric requirements.

2.08 PLASTIC COVERING

A. Plastic covering shall be a clear or black colored sheet plastic, 10 mils in thickness and conforming to ASTM D4397.

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. Construction Activities generating water shall be infiltrated on site. Coordinate with Section 31 23 19 Dewatering and Section 33 42 00 Storm Drain Utility System requirements.

C. Temporary East-West Ditch Reroute: Coordinate with temporary East-West Ditch reroute work in accordance with Section 33 42 00 Storm Drain Utility System requirements.

D. 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.

E. The Contractor shall be solely responsible for schedule impacts incurred because of Contractor, subcontractor, or supplier actions in implementing the requirements of this Section.

F. Comply with the CSWPPP, the contract document requirements and the project NPDES Construction General Stormwater Permit 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 measure (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. The TESC measures in an inactive site shall be inspected and maintained by the Contractor at a frequency described in the Project Construction Stormwater General Permit. Catch basins 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.

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 Discharge 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. Restrict traffic to the construction entrance/exit.

C. 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. The Contractor shall install, operate and maintain the 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 of all laws.

B. 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.

C. All vehicles that enter the work area, shall be required to pass over the wheel wash prior to leaving the site.

3.06 WATTLES

A. Install in accordance with Contract Document requirements, Construction Stormwater Permit, and Stormwater Management Manual BMPs.

3.07 SILT FENCE

A. Install in accordance with the Contract Document requirements, Construction Stormwater Permit, and Stormwater Management Manual BMPs.

3.08 EROSION CONTROL BLANKET

A. Install in accordance with the Contract Documents requirements, Construction Stormwater Permit, and Stormwater Management Manual BMPs.

3.09 CATCH BASIN PROTECTION

A. Install in accordance with the Contract Documents requirements, Construction Stormwater Permit, and Stormwater Management Manual BMPs.

3.10 STOCKPILE PROTECTION

A. Install in accordance with the Contract Documents requirements, Construction Stormwater Permit, and Stormwater Management Manual BMPs.

3.11 OTHER TESC OR BMP'S

A. Treatment Vaults: The Contractor shall NOT use the project treatment vault installations for construction stormwater discharges.

B. The Contractor shall NOT use project conveyance pipelines to discharge construction stormwater. Provide plugs as required to prevent flows from entering the stormwater conveyance pipelines (from the Hylebos Waterway or from onsite catch basin installations).

C. Street Sweeping: Provide street sweeping when sediments are observed on Taylor Way.

D. Dewatering: Provide temporary pumps, discharge piping, generators, and appurtenances as necessary to dewater the required excavations. The Contractor shall determine the equipment sizes and types. Temporary dewatering shall comply with the project CSWPPP and no discharges shall occur. All stormwater shall be infiltrated on the site. The Contractor's project CECSL shall provide the methodology and implement the applicable BMP's for the site.

1. The site is an Ecology site (Cleanup Site ID 3405) with remediation being completed under Agreed Order # DE 5668. Construction of utilities will be occurring in areas with soil contaminated with arsenic at up to 100 ppm. The majority of this soil disturbance will occur in low contamination areas, with arsenic below 20 ppm. Some additional grading of soils will occur within the barrier wall area, but accumulation and collection of groundwater will not occur in this area. This stormwater will be allowed to infiltrate.

2. During construction of the barrier wall and outfalls at the Former Arkema Manufacturing Site (Arkema), stormwater will be infiltrated across the site as currently occurs and the site will not discharge to surface waters throughout the duration of the construction project. Construction stormwater will be generated through contact with exposed soil surfaces from grading and trenching activities related to barrier wall and utility installation. Dewatering is likely necessary as part of utility installation work (stormwater conveyance piping); during this short duration work (expected to be 1 week), any water pumped from the excavation would be pumped to 20,000 gallon steel tanks for temporary holding and solids settling. Any water accumulated in the tank would be allowed to settle overnight and the water in the tank would be sampled the following day for total arsenic by EPA 200.8 or equivalent to confirm arsenic is below 150 ug/L (equivalent to ISGP arsenic discharge limit) and allowable for dispersion and infiltration across the site in vegetated areas. If the water concentration is greater than 150 ug/L and is deemed unacceptable for infiltration onsite, then the water will be shipped off site for proper disposal in accordance with unit price bid. Stormwater conveyance piping is being installed in areas across the site where soil arsenic concentrations are primarily below cleanup levels (20 mg/kg) and the testing is being performed as a precaution.

E. BMP C150 Materials on Hand: Keep quantities of erosion prevention and sediment control materials on the project site at all times to be used for regular maintenance and emergency situations such as unexpected heavy rains. Having these materials on-site reduces the time needed to implement BMPs when inspections indicate that existing BMPs are not meeting the Construction CSWPPP requirements.

ITEM	QUANTITY
PLASTIC COVERING, 6 MIL	2 ROLLS
GEOTEXTILE FABRIC	1 ROLL
SILT FENCING	100 LINEAL FEET
RIP RAP ROCK MATERIAL	5 TONS
WATTLES	100 LINEAL FEET
CATCH BASIN INSERTS	5
FILLED SANDBAGS	50

F. BMP C151: Concrete Handling:

1. Concrete truck chutes, pumps, and internals shall be washed out only into formed areas awaiting installation of concrete.

2. Hand tools shall be washed off only into formed areas awaiting installation of concrete.
3. When no formed areas are available, contain washwater and leftover product in a lined container. Dispose of washwater in a manner that does not violate groundwater or surface water quality standards.
4. Unused concrete remaining in the truck and pump shall be returned to the originating batch plant for recycling.

G. BMP C154 Concrete Washout Areas: Perform washout of concrete trucks offsite or in approved onsite Contractor concrete washout facilities only.
1. Do not wash out concrete trucks onto the ground, or into storm drains, open ditches, streets, or streams.
2. Do not allow excess concrete to be dumped onsite, except in designated concrete washout areas.
3. Concrete washout areas may be prefabricated concrete washout containers, or temporary self-installed structures (above-grade or below-grade).

H. BMP C152: Sawcutting and Surface Pollution Prevention:
1. Vacuum slurry and cuttings during cutting and surfacing operations.
2. Do not leave slurry and cuttings on permanent concrete or asphalt pavement overnight.
3. Do not drain slurry and cuttings to a natural or constructed drainage conveyance system.
4. Dispose of collected slurry and cuttings in a manner that does not violate groundwater or surface water quality standards.
5. 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.

I. BMP C160: Certified Erosion and Sediment Control Lead (CESCL): Provide a CESCL for the project duration.
1. The CESCL shall have a current certificate proving attendance in an erosion and sediment control training course that meets the minimum CESCL training and certification requirements established by Ecology.
2. The CESCL lead shall have authority to act on behalf of the Contractor and shall be available, on call, 24 hours per day throughout the period of construction.
3. The Construction CSWPPP shall include the name, telephone number, fax number, and address of the designated CESCL.
4. Duties and responsibilities of the CESCL shall include, but are not limited to, the following:
    a. Maintaining a permit file on site at all times which includes the CSWPPP and any associated permits and plans.
    b. Directing BMP installation, inspection, maintenance, modification, and removal.
    c. Updating all project drawings and the CSWPPP with changes made.
    d. Keeping daily logs and inspection reports in accordance with Ecology requirements.

5. Facilitate, participate in, and take corrective actions resulting from inspections performed by outside agencies or the Port.
6. Keep an inventory of onsite materials on hand.

END OF SECTION

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PART 1 - GENERAL

1.01 SUMMARY

A. This section includes the requirements for preparing, submitting, and coordinating product data, shop drawings, and samples under the applicable specification section.

1.02 SUBMITTALS

A. The Contractor shall submit the following in accordance with the Contract Documents:

1. 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 with information specific to the Project, including compatibility with adjacent Work where applicable.

2. Shop Drawing Submittals: Prepared specifically for this Project; indicate dimensions, utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

3. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

a. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns; unless otherwise approved by the Engineer.

PART 2 - PRODUCTS

2.01 NEW PRODUCTS

A. Provide new, unused 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 to minimize on-Site storage time, double handling, 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 to minimize waste, excessive handling, and misapplication.

B. Store and protect products in accordance with manufacturers' written instructions and the requirements of the contract documents.

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 stored products to verify products are undamaged and are maintained in acceptable condition.

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.

1.04 QUALITY ASSURANCE

A. Use adequate number of skilled and thoroughly trained workers to perform the work of this section in a timely and comprehensive manner.

B. Minimum accuracy for required work is as follows:

1. Grade: Horizontal Tolerance: Plus or minus 0.5 feet (152 mm), Vertical Tolerance: Plus or minus 0.05 feet (15 mm).
2. Culverts and ditches: Horizontal Tolerance: Plus or minus 0.5 feet (152 mm), Vertical Tolerance: Plus or minus 0.05 feet (15 mm).
3. Structures: Horizontal Tolerance: Plus or minus 0.5 feet (152 mm) (location), Vertical Tolerance: Plus or minus 0.05 feet (15 mm).

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

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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 02 41 19 and Section 02 61 00.

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.

e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances.

f. Remove debris and surface dust from limited access spaces, including roofs. attics, and similar spaces.

g. Sweep concrete floors broom clean in unoccupied spaces.

h. Remove labels that are not permanent.

i. Clean light fixtures, lamps. globes, and reflectors to function with full efficiency.

j. Leave Project clean and ready for occupancy.

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. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
    a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
2. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

END OF SECTION

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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.

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. Complete startup and testing of systems and equipment

2. Perform preventive maintenance on equipment used prior to Substantial Completion
3. Terminate and remove temporary facilities from Project site
4. 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. Submit Warranties to the Engineer as a submittal, as described in 01 33 00 – Submittal Procedures.

B. In the event of equipment failure, during such time or in such a location that immediate repairs are mandatory, the Contractor shall respond promptly (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

A. Operation and Maintenance Manual Submittal

1.02 SUBMITTALS

A. Operation and Maintenance Data:

1. For equipment, or component parts of equipment put into service during construction and operated by the Port, submit completed documents within ten days after acceptance.
2. Submit 2 copies of completed documents 7 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Engineer comments. Revise content of all document sets as required prior to final submission.
3. Submit 2 sets of revised final documents in final form by Final Completion.

PART 2 - PRODUCTS

2.01 OPERATION AND MAINTENANCE MANUALS

A. For small equipment and products (such as furnishings or equipment not requiring routine maintenance),the following information (minimum of 2 printed copies, plus one digital) shall be furnished for all items on the Project requiring operational and/or maintenance procedures and for any additional items indicated by the Engineer. Printed information shall be organized by the Contractor into appropriately sized 3-ring binders (no larger than 3”).The binders shall be sized for material approximately 8-1/2 by 11 inches, and the material in the binders shall not protrude beyond the covers. The binder(s) shall be divided with coversheets for each major item of equipment. The cover sheets shall be typewritten to indicate the name, type of equipment, and location(s) within the Project where installed. A neatly typewritten index shall be provided. Electronic information shall be in PDF format (additional formats where specified) and shall be organized with folders and appropriate file names so as to make the information easily accessible:

1. Product Summary:
    a. Provide the following information (as applicable, indicate ‘N/A’ where an item does not apply) in Excel spreadsheet format:
        1) Asset Number (to be provided by the Engineer at a later date)
        2) Description
        3) Plan Sheet Number
        4) Parcel Number
        5) Vendor
        6) Manufacturer
        7) Model Year
        8) Serial Number
        9) Warranty – Start Date; Finish Date
        10) Purchase Price

11) Make

12) Model

2. Operating Procedures: These instructions consist of the manufacturer's recommended step-by-step procedures for use of the product.
3. Maintenance Procedures: These instructions consist of the equipment manufacturer's recommended steps and schedules for maintaining the product.
4. Specific Information: Where items of information not included in the above list are required, they will be provided as described in the specifications for the equipment.
5. Complete identification, including model and serial numbers.
6. Submittal information, as specified in Section 01 33 00 Submittal Procedures.
7. Warranty Information: This information consists of the name, address, and telephone number of the manufacturer's representative to be contacted for warranty, parts, or service information.
8. Provide DVDs, and audio-visual training materials utilized in the manufacturer's instruction program for the Port.
9. All operation and maintenance information shall be comprehensive and detailed and shall contain information adequately covering all normal operation and maintenance procedures.
10. All information shall be specific for the items of equipment installed on the project. Material not directly applicable shall be removed, omitted, or clearly marked as inapplicable.
11. If manufacturer's standard brochures and manuals are used to describe operating and maintenance procedures, such brochures and manuals shall be modified to reflect only the model or series of equipment used on this project.
12. Extraneous material shall be crossed out neatly or otherwise annotated or eliminated. It shall be the responsibility of the Contractor to ensure that all operation and maintenance materials are obtained. Material submitted must meet the approval of the Engineer prior to project final acceptance.

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Section includes:

1. Protection of existing facilities designated to remain.
2. Protection of existing utilities designated to remain.
3. Demolition of designated facilities and utilities.
4. Providing designated temporary utilities and facilities.
5. Disposal of Debris.

1.02 DEFINITIONS

A. Debris: All natural or man-made material produced by demolition work.

B. Demolish/Demolition: Removal and disposal of the identified item in its entirety.

C. Dispose/Disposal: Loading, handling, transportation and deposition of the demolished item to an approved onsite or offsite location.

D. CSWPP: Construction Stormwater Pollution Prevention Plan. See Section 01 57 13 TESC and CSWPP requirements.

E. BMP: Best Management Practice. See Section 01 57 13 TESC and CSWPP requirements.

1.03 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Demolition Management Plan (DMP)

1. The DMP shall provide the procedures proposed for the complete accomplishment of the demolition work and management of the demolition wastes and documentation. The procedures shall provide for safe conduct of the work, careful removal and disposition of materials specified to be salvaged or Disposed, protection of property to remain undisturbed, and coordination with other work in progress. The procedures shall include a detailed description of the methods, staff, and equipment to be used for each operation, the sequence of operations, and quality control measures to ensure compliance with the Contract and regulatory requirements.

C. Waste Facilities: Provide submittal of proposed waste facility. Upon approval, provide certificates certifying where all offsite demolition was Disposed.

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. 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.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Materials: Conform to 31 20 00 Earthwork requirements.

PART 3 - EXECUTION

3.01 GENERAL

A. Project Sequencing/Scheduling requirements: The Contractor shall expect to perform Selective Demolition work during rainy/wet weather conditions in the spring, summer, fall and winter months. The Contractor shall implement and employ means and methods necessary to execute selective demolition work in accordance with Plan and Specification requirements and within the project schedule time frame. Schedule work to minimize existing earthen soil disturbances.

B. Utility locates shall be performed prior to the start of demolition. Coordinate and resolve with the Engineer to turn off or de-energize affected services before starting demolition.

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.

D. Explosives: Use of explosives for demolition work will not be permitted.

E. Demolition Excavation and Backfill: Required excavations to perform selective demolition work shall conform to Section 31 20 00 requirements. Excavations shall be backfilled with materials in accordance with Plan and Section 31 20 00 requirements. Excavation and backfill work to execute selective demolition work shall be incidental to Selective Demolition

F. Coordinate the south outfall Demolition work with required temporary East-West Ditch Reroute work scope in Section 33 42 00 Storm Drain Utility System requirements.

3.02 PREPARATION

A. Call the underground locate line at 811 no less than two working days before performing Work.

B. Request underground utilities to be located and marked within and surrounding construction areas.

C. Schedule shutdown of existing utilities affected by work of this Section with appropriate utility company and Engineer prior to start of work.

D. Verify existing topographic and surfacing conditions before starting work.

E. Verify site clearing, grubbing and Demolition work areas are flagged and marked prior to execution.

F. Identify waste area prior to placement of removed materials.

G. Verify TESC BMP installations prior to execution. Coordinate with Section 01 57 13 TESC and CSWPP requirements.

3.03 EARTHWORK

A. Execute Earthwork in accordance with Section 31 20 00 Earthwork requirements.

3.04 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 Selective Demolition work shall be protected from the weather. Coordinate with Section 01 57 13 TESC and CSWPP 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. Backfill: Fill depressions caused by Demolition operations with satisfactory soil materials in accordance with Section 31 20 00 Earthwork requirements.

G. Monitoring Wells: All designated monitoring wells shall be protected from damage. Utilize existing ecology blocks or other means and methods.

3.05 DEMOLITION

A. Remove and Dispose of designated items shown on the Drawings to approved locations.

1. All designated concrete and pavement Demolition located within the barrier wall work limits shall be stockpiled onsite. Provide separate stockpiles for the concrete and asphalt pavement Demolition. The stockpile location may be located outside of the barrier wall work limits. The barrier wall work area limits are shown on the drawings.

2. All designated utility Demolition located within the project limits shall be Disposed of offsite at approved offsite locations.

3. Provide TESC stockpile protection BMP’s in accordance with Section 01 57 13 TESC and CSWPP requirements.

4. Remove piling to 3-feet below grade, if encountered under foundations, and completely remove piling if observed within 5-feet of the centerline of the barrier wall alignment.

B. Remove/Salvage Existing South Project Stormwater Outfall:

1. Carefully remove the existing beehive grate from the outfall’s upstream catch basin structure and the 36” HDPE storm drain pipeline for reuse-reinstallation.

2. Salvage or Demolish the existing stormwater catch basin structure base section from the outfall’s upstream catch basin structure. The Contractor may re-use the existing riser and base sections of the catch basin or provide an entirely new structure.

3. Demolish the existing outfall duckbill check valve and Dispose of offsite.

4. Carefully remove and Dispose of a portion of the existing 10” steel piles located above the required elevations. The existing portion of piles located below the required elevations shall remain and be incorporated into the new installation.

C. Provide designated temporary utilities required for construction. Upon installation of permanent utilities and/or facilities, remove the temporary utility.

D. Railroad Ties: Remove and Dispose of existing wood rail ties offsite at an approved location.

1. Remove remaining rail ties from prior rail beds. Rails have been removed previously.

2. Stockpile or load into waste disposal bins directly prior to transport and disposal at an approved disposal facility in accordance with approved DMP.

E. Continuously clean-up and remove waste materials from site. Do not allow materials to accumulate on site.

3.06 DISPOSAL

A. Disposal of offsite waste material: Remove designated waste material promptly from Port of Tacoma's property at approved waste facilities. Dispose in accordance with local, State and Federal Regulations.

B. Disposal of onsite waste material: Stockpile asphalt and concrete demolition material promptly on the site at approved onsite locations. Provide stockpile protection in accordance with Section 01 57 13 TESC and CSWPP requirements.

C. Do not burn or bury materials on site. Leave site in clean condition.

END OF SECTION

PART 1 – GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. The provisions and intent of the contract, including the General Conditions, apply to this work as specified in this section. Work related to this section is described in:

1. Section 01 31 00 – Project Management and Coordination
2. Section 01 35 29 – Health, Safety, and Emergency Response Procedures
3. Section 01 45 00 – Quality Control
4. Section 01 57 13 – TESC and CSWPP
5. Section 01 71 23 – Field Engineering
6. Section 31 20 00 – Earthwork

1.02 DESCRIPTION OF WORK

A. The Interim Action Work Plan (IAWP) includes grading of arsenic impacted soil from the property located at 2901 Taylor Way, Tacoma, Washington. Graded material deemed to be Unsuitable Soil Materials shall be stockpiled on site and/or disposed in an approved landfill based on Engineer direction.

B. Material generated from within the barrier wall alignment shall remain within the alignment and material outside the barrier wall alignment may be used inside or outside the alignment.

C. The barrier wall, outfall installation and stormwater conveyance infrastructure identified under this Contract are required under the IAWP in accordance with State of Washington Department of Ecology Agreed Order No. DE 5668 (Agreed Order).

D. The removal of arsenic impacted soil for offsite disposal could occur in the following locations:

1. Removal of vegetation and debris from within arsenic impacted soil areas.
2. Grading across the barrier wall area.
3. Trenching for installation of stormwater conveyance piping installation.

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 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 (facilities) 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. 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.

F. 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.

G. 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.

1.05 JOB CONDITIONS

A. Much of the 45-acre site was previously demolished down to foundations or bare soils.

1. Remnant foundations, asphalt, crushed rock, vegetation, and sand/gravel cover the 45 acre ground surface.

2. Precipitation that falls on the site infiltrates the relatively permeable surface soil.

B. Remnant arsenic has been found in the soils at the site. All excavated materials shall be treated as arsenic impacted materials.

C. The site is a historical industrial site and debris may be encountered during excavation and shall be disposed in an approved landfill in accordance with all laws.

1. Trash, concrete, wire, rope, logs, or other industrial waste onsite shall be considered to be debris.

2. Boulders and large rocks shall be considered to be debris.

3. Vegetation from clearing and grubbing shall be considered to be debris.

1.06 SUBMITTALS

A. Prior to excavation and/or grading 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 excavation and/or grading of subsurface materials.

B. A completed Soil (waste) Profile prior to export to an off-site receiving facility.

C. Waste Management Final Report

1. 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:

a. 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.

b. Percentage of total waste material generated that was recycled, reused, or salvaged.

2. Quantities shall be reported by weight (tons) unless otherwise approved by the Engineer.

3. 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.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION

3.01 CLEARING AND GRUBBING

A. Separation of clearing and grubbing debris is required to remove organics and allow for characterization of the material by the Engineer. Contractor shall assume the clearing and grubbing debris is uncontaminated and will be shipped off site as standard clearing and grubbing waste.

3.02 CONDUCT OF EXCAVATION FOR SITE SOILS

A. The Contractor shall not mix excavated materials from areas within the barrier wall alignment with excavated materials from areas outside the barrier wall alignment, unless this mixing occurs within the barrier wall alignment and material from outside the barrier wall alignment is deemed necessary to meet pre-cap installation grades.

B. If soils are deemed unacceptable for reuse by the Engineer (Unsuitable Soil Material), the Contractor shall load excavated material into trucks for transport to approved offsite landfill disposal or handle as directed by the Engineer.

C. The Contractor may temporarily stockpile excavated material for loading into truck for offsite disposal.

1. The Contractor shall not stockpile excavated material designated for offsite disposal for longer than 24 hours during weekdays or 72 hours if over a non-working weekend, assuming a Soil Profile for the material is available. If material is awaiting a Soil Profile, once the Soil Profile is available, the Contractor shall not stockpile excavated material designated for offsite disposal for longer than 24 hours during weekdays or 72 hours if over a non-working weekend.

2. The Contractor shall stockpile excavated material only in areas approved by the Engineer.

D. 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.

E. 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.

3.03 CONDUCT OF EXCAVATED ARSENIC IMPACTED MATERIAL LOADING

A. The Contractor Work Plan shall set forth a truck traffic plan that establishes the location of truck loading and truck routes to prevent tracking of excavated material from the excavation area.

3.04 CONDUCT OF BACKFILL

A. Excavated Areas

1. The Contractor shall backfill excavated areas with material deemed acceptable for reuse by the Engineer from other grading operations on site or with Common Fill (described in Section 31 20 00 – Earthwork) only if other on-site material is unavailable.
2. The Contractor shall backfill to existing grade.
3. The Contractor shall place backfill, as described in Section 31 20 00 – Earthwork.

END OF SECTION

PART 1 – GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. The provisions and intent of the contract, including the General Conditions, apply to this work as specified in this section. Work related to this section is described in:

1. Section 01 30 00 – Administrative Requirements
2. Section 01 35 29 – Health, Safety, and Emergency Response Procedures
3. Section 01 45 00 – Quality Control
4. Section 01 57 13 – Stormwater Pollution Prevention
5. Section 01 71 23 – Field Engineering
6. Section 02 60 00 – Contaminated Site Material Handling
7. Section 31 10 00 – Site Clearing & Grubbing
8. Section 31 20 00 – Earthwork

1.02 DESCRIPTION OF WORK

A. The Interim Action Work Plan (IAWP) includes grading of arsenic impacted soil from the property located at 2901 Taylor Way, Tacoma, Washington. Graded material deemed to be Unsuitable Soil Materials shall be stockpiled on site and/or disposed in an approved landfill based on Engineer direction.

B. Material generated from within the barrier wall alignment shall remain within the alignment and material outside the barrier wall alignment may be used inside or outside the alignment.

1.03 DEFINITIONS

A. 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.

1.04 JOB CONDITIONS

A. All excavated materials, not reused on site, shall be transported and disposed at approved offsite landfill. This includes all Unsuitable Soil Materials.

B. All vegetation and debris shall be disposed in an approved landfill in accordance with all laws, including but not limited to:

1. Trash, concrete, wire, rope, logs, or other industrial waste onsite shall be considered to be debris.
2. Boulders and large rocks shall be considered to be debris.
3. Vegetation from clearing and grubbing shall be considered to be debris.

C. Transport and Upland Disposal

1. If upland disposal is necessary, the contractor shall coordinate profiling and disposal with the Port of Tacoma and the Engineer.

PART 2 - PRODUCTS – NOT USED

PART 3 – EXECUTION

3.01 TRANSPORT

A. The Contractor shall transport materials in tarped trucks.

1. The Contractor shall use self-tarping trucks. The truck driver shall be able to close tarp from within the cab.

2. The Contractor's truck drivers shall remain inside their vehicles at all times when on the project site during Remediation work.

B. The Contractor shall load trucks and secure loads so that no material is lost on public right-of-way.

C. The Contractor shall confirm trucks are debris free after emptying at landfill or landfill transfer station and prior to entering onto public roads so that no material is lost on public right-of-way.

D. The Contractor shall comply with state and federal load size laws and regulations.

3.02 DISPOSAL

A. The Contractor shall provide approved upland RCRA Subtitle D and Subtitle C solid waste landfill disposal for materials.

B. For the Contractor's information, the Contractor is not limited to using these facilities.

1. Subtitle D Facilities:

a. Pierce County Recycling, Composting and Disposal, LLC d/b/a LRI (Address: 17925 Meridian E, Puyallup, WA 98375)

b. Waste Management Greater Wenatchee [Washington] Regional Landfill (Address: 191 Webb Road, East Wenatchee, WA 98802)

c. Allied Waste Roosevelt Regional Landfill (Address: 500 Roosevelt Grade Rd, Roosevelt, WA 99356

2. Subtitle C Facilities:

a. Chemical Waste Management of the Northwest (Address: 17629 Cedar Springs Ln, Arlington, OR 97812)

C. The Contractor shall provide a daily tabulation of material shipped off-site for disposal. The tabulation shall include for each truck: the truck ID, approximate departure time from the site and the landfill destination.

D. The Contractor shall provide on a daily basis, all landfill weigh tickets for each truck load.

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. WSDOT Test Method T113.

F. 2026 WSDOT Standard Specifications

G. American Association of State Highway and Transportation Officials:

1. AASHTO T85 – Specific Gravity of Coarse Aggregate.

2. AASHTO T96 – Los Angeles Wear Test.

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 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. Analytical results of chemical testing of import materials as described in Section 01 45 00 – Quality Control.

D. Import Aggregate Material Certificates: One certificate shall be provided for each of the following:
1. Shoreline Stabilization Materials.
2. Pipe Zone Bedding and Backfill Materials.
3. Utility Structure Bedding and Backfill Materials.
4. Washed Rock.
5. Pea Gravel.
6. Gravel Borrow.
7. Crushed Surfacing.
8. Quarry Spall Materials.
9. Control Density Fill (CDF)

1.05 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 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.

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 following activities shall be performed by the Contractor as specified below to ensure Import Soil Materials are natural, native, virgin materials, meet chemical standards detailed herein and meet contract specifications.

B. 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.

C. 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, as appropriate.

D. 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.

E. 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 Ecology may choose to inspect the source at their convenience and may collect and analyze samples of the proposed material.

F. 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. Shoreline Stabilization

1. Shoreline Material shall be of hard, sound, and durable material, free from seams, cracks, and other defects that tend to destroy its resistance to weather, and it shall consist of broken or processed bedrock. It shall conform to following quality requirements.

a. Degradation Factor (WSDOT T113): >15

b. Los Angeles Wear, 500 revolutions (AASHTO T96): <50%

c. Specific Gravity, SSD (AASHTO T85): >2.55.

2. Shoreline Stabilization Material

a. Suitable shape shall be angular rock (having sharply defined edges) to subangular (having a shape in between rounded and angular) for a higher degree of interlocking to provide stability to the protected area.

b. Length divided by thickness shall be less than or equal to 3.0.

c. Outfall Scour Apron Pad rock materials shall conform to the following gradation

APPROXIMATE SIZE (IN.)	PERCENT PASSING
18”	95-100%
16”	80-95%
12”	50-80%
8”	15-50%
4”	15 % MAX

B. Pipe Zone Bedding and Backfill Material: Shall conform to Plan and specification requirements.

1. Pipe Zone Bedding: Pipe zone bedding material shall consist of crushed surfacing top course and quarry spall materials per Plan cross sectional requirements.

2. Pipe Zone Backfill: Pipe zone backfill material shall consist of gravel borrow per Plan cross section requirements.

C. Utility Structure Bedding and Backfill Material

1. Utility Structure Bedding Material: Shall consist of crushed surfacing top course and quarry spall materials per Plan cross sectional requirements.

2. Utility Structure Backfill Material: Shall conform to pipe zone backfill requirements.

D. Washed Rock: Shall comply with the following requirements for grading and quality at the project site.

SIEVE SIZE	PERCENT PASSING
2”	99-100
1-1/2”	90-100
1”	20-55
¾”	0-15
3/8”	0-5
ALL PERCENTAGES ARE BY WEIGHT	

E. Pea Gravel: Shall comply with the following requirements for grading and quality at the project site:

SIEVE SIZE	PERCENT PASSING
½”	99-100
3/8”	85-100
NO. 4	10-30
NO. 8	0-10
NO. 16	0-5
ALL PERCENTAGES ARE BY WEIGHT	

F. Gravel Borrow: Aggregate for gravel borrow shall consist of granular material, free from wood, bark, or other extraneous material and shall meet 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	**50 MINIMUM**
ALL PERCENTAGES ARE BY WEIGHT	

G. Controlled Density Fill (CDF): Shall conform to WSDOT Standard Specification 6-02 Pumpable Lean Concrete requirements.

H. Recycled Onsite Soil Materials: Unsatisfactory wet soils free from organics may be recycled for onsite reuse by mixing and aerating with satisfactory soils so that the combined product is satisfactory for use as common fill.

I. Common Soils: Shall be existing native, naturally occurring onsite soils. If excavated common soils are used on-site, they shall comply with the respective aggregate specification for the intended use. Imported common soils are prohibited.

J. Crushed Surfacing: Shall be manufactured from ledge rock, talus or gravel in accordance with provisions herein. The materials shall be uniform in quality and substantially free of wood, roots, bark and other extraneous organic material and shall meet the following test requirements:

Aggregate Property	Test Method	Requirement
Los Angeles Wear, 500 Rev.	AASHTO T96	35% maximum
Degradation Factor Top Course	WSDOT Test Method T113	25 Minimum
Degradation Factor Base Course	WSDOT Test Method T113	15 Minimum

1. Crushed surfacing top course material shall meet the following requirements for grading and quality when placed in hauling vehicles for delivery to the project site. The exact point of acceptance shall be at the project site.

Sieve Size	Percent Passing
3/4"	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	

2. Crushed surfacing base course material shall meet the following requirements for grading and quality when placed in hauling vehicles for delivery to the project site. The exact point of acceptance shall be at the project site.

Sieve Size	Percent Passing
1-1/4"	99-100

1"	80-100
3/8"	50-80
No. 4	25-45
No. 40	3-18
No. 200	7.5 maximum
% Fracture	75 minimum
Sand Equivalent	40 minimum
All percentages are by weight	

K. Quarry Spalls: Quarry spalls shall consist of broken stone and be free of rock fines, soil, wood, steel, asphalt, plastic or other extraneous or contaminated materials. Quarry spalls shall be approved by the Engineer prior to placement.

Quarry spall material shall conform to the following requirements for quality;

Aggregate Property	Test Method	Requirement
Los Angeles Wear, 500 Rev.	AASHTO T96	50% maximum
Degradation Factor	WSDOT Test Method T113	15 minimum
Specific Gravity	AASHTO T85	2.55 minimum

Quarry spall materials shall comply with the following grading requirements;

Sieve Size	Precent Passing
8"	100
3"	40 maximum
3/4"	10 maximum
All percentages are by weight	

2.03 SOURCE QUALITY CONTROL

A. Section 01 45 00 - Quality Control: 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 TESC and CSWPPP requirements.

B. Stockpile unsuitable hazardous materials on impervious material and cover to prevent erosion and leaching, until disposed of.

C. Cleanup soil stockpiles and grade the earth to the required grades after stockpiled soils have been used.

END OF SECTION

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PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Section includes:

1. Traffic control.
2. Flagging of clearing limits.
3. Protection of existing trees and vegetation designated to remain.
4. Protection of existing facilities designated to remain.
5. Protection of existing utilities designated to remain.
6. Clearing and Grubbing of designated trees, shrubs, grass/sod, landscaping and other plant life.
7. Providing designated temporary utilities and facilities.
8. Disposal.

1.02 DEFINITIONS

A. Clearing: Removal and disposal of all designated vegetative material from the surface, such as trees, brush, down timber, grasses or other natural vegetation and material.

B. Grubbing: Removal and disposal of all designated vegetative matter from underground, such as, stumps, roots, buried logs or other debris.

C. Debris: All natural material produced by clearing and grubbing.

D. Disposal: Loading, handling, transportation and deposition of the clearing and grubbing waste to an approved offsite location/source.

1.03 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Waste Facilities: Provide submittal of proposed waste facility. Upon approval, provide certificates certifying where all offsite Clearing and Grubbing waste was disposed.

1.04 QUALITY ASSURANCE

A. Conform to applicable provisions of Specifications herein and to the Drawing requirements.

1.05 SUMMARY

A. 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.

B. 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.

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 Engineer.

D. Pre-work Meeting: The Contractor shall schedule and coordinate a preconstruction meeting with the Department of Ecology Inspectors prior to commencing any project work. Comply with inspection requirements.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Materials: Conform to 31 20 00 Earthwork requirements.

PART 3 - EXECUTION

3.01 GENERAL

A. Project Sequencing/Scheduling requirements: The Contractor shall expect to perform Site Clearing and Grubbing work during rainy/wet weather conditions in the spring, summer, fall and winter months. The Contractor shall implement and employ means and methods necessary to execute site Clearing and Grubbing work in accordance with Plan and Specification requirements and within the project schedule time frame. Schedule work to minimize existing earthen soil disturbances.

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. Site Clearing and Grubbing Backfill: Required excavations to perform Clearing and Grubbing work shall conform to Section 31 20 00 requirements. Excavations shall be backfilled with materials in accordance with Plan and Section 31 20 00 requirements. Excavations and backfill work to execute site Clearing and Grubbing work shall be incidental to Site Clearing and Grubbing.

3.02 PREPARATION

A. Call the underground locate line at 811 no less than two working days before performing Work.

B. Complete onsite private locate for underground utilities to be marked within and surrounding construction areas.

C. Schedule shutdown of existing utilities affected by work of this Section with appropriate utility company and Engineer prior to start of work.

D. Verify existing topographic and surfacing conditions before starting work.

E. Verify site clearing work areas are flagged and marked prior to execution.

F. Identify waste area prior to placement of removed materials.

G. Verify TESC BMP installations prior to execution. Coordinate with Section 01 57 13 TESC and CSWPPP requirements

3.03 EARTHWORK

A. Execute Earthwork in accordance with Section 31 20 00 Earthwork 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: Protect existing soils and prevent stormwater runoff offsite as a result of Clearing and Grubbing work. Coordinate with Section 01 57 13 TESC and CSWPPP requirements.

3.05 CLEARING AND GRUBBING

A. Contractor shall limit 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.

B. General: Remove designated trees, shrubs, grass, organics and other vegetation, improvements or obstructions interfering with construction within the Clearing and Grubbing limits. Take possession of timber within Clearing and Grubbing limits. Promptly remove such items off premises. Removal includes digging or grubbing out stumps and roots in their entirety.

C. Strippings or Grass/Sod Removal: Excavate or strip all sod and organic material within the Clearing limits prior to commencing required earthwork operations. Strippings shall be stockpiled onsite in designated areas. The Engineer shall then test the materials for contaminants. If the stripping material is clean, then the Contractor shall dispose of the strippings offsite at an approved waste site. If the stripping material is contaminated, then the Contractor shall load up third party waste disposal company trucks, and the third party waste disposal company will dispose of the stripping waste via a separate contract. All required stripping work shall be included in the Contractors bid. The average stripping depth is estimated at approximately 6 inches in the existing vegetated areas.

D. Safety: Ensure safe passage of persons around area of Clearing and Grubbing. Conduct operations to prevent damage to adjacent buildings, structures and other facilities, injury to persons, and protect portions of existing facilities designated to remain.

E. Existing Facilities or Improvements: Provide protection necessary to prevent damage to existing facilities or improvements either on adjoining property or on Port of Tacoma’s property.

F. Damage: 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.

G. Backfill: Fill depressions caused by Clearing and Grubbing operations with satisfactory soil materials in accordance with Section 31 20 00 Earthwork requirements.

3.06 DISPOSAL

A. Disposal of Waste Material: Remove all site clearing and grubbing waste material promptly from Port of Tacoma’s property following approval from the Engineer at approved waste facilities. The site clearing and grubbing waste is assumed to not be contaminated, but confirmation sampling by the Engineer will be necessary to confirm. Dispose in accordance with local, State and Federal Regulations.

B. Do not burn or bury materials on site. Leave site in clean condition.

END OF SECTION

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PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Earthwork shall include, but not be limited to:

1. Excavation, fill and grading of existing native 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.
5. Fill and backfill of soils to required elevations.
6. Surveying for earthwork, utilities and record documents.
7. Provide and install geotextile and PVC liner materials.
8. Provide and install various import soil materials.
9. Provide various import utility bedding and backfill soils specified herein.
10. Providing and managing earthwork material stockpiles.
11. Earthwork compaction to required densities.
12. Earthwork Quality Control.
13. Earthwork protection.
14. Final grading.
15. Provide quarry spall apron pads and shoreline protection.
16. Earthwork maintenance.
17. Soil Material Disposal.

1.02 PROJECT STAGING OF THE WORK

A. Stage 1 work shall consist of installing TESC measures.

B. After Stage 1 work is complete, Stage 2 work shall be initiated. As shown on the Contract Documents, Stage 2 work consists of:

1. Site Clearing and Grubbing work
2. Selective Site Demolition work.
3. Barrier Wall pre-load installation.
4. Stormwater Outfall work, weather and permitting schedule pending.

C. After Stage 2 work is complete, Stage 3 work shall be initiated. As shown on the Contract Documents, Stage 3 work consists of:

1. Stormwater Outfall work, weather and permitting schedule pending.
2. Stormwater System pre-load installation.
3. Completing earthwork cuts and fills and grading to Pre-Cap Grade. If after all grading is complete to the required subgrade elevations, provide a detailed topographic survey to demonstrate installation compliance with the contract document requirements.

D. After Stage 3, the Contractor shall complete Stage 4. As shown on the Contract Documents, Stage 4 work consists of:

1. Stormwater system installation (piping and structures).
2. Barrier Wall installation.
3. Install the stormwater treatment vaults.

E. After Stage 4, the Contractor shall complete Stage 5. As shown on the Contract Documents, Stage 5 work consists of:

1. Installation of the Barrier Wall liner and gravel cover.
2. Providing an as-built survey and the civil 3D surface model of the finish grade surface to the Engineer.
3. Providing seeding work.

F. After Stage 5, the Contractor shall complete Stage 6. As shown on the Contract Documents, Stage 6 work consists of:

1. Completing Punchlist work.
2. Completing Record Drawing work.
3. Completing Contract Document work.
4. Obtaining Final Approvals and Acceptances.

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 import soil materials are constructed upon.

N. Unsatisfactory Soil Materials: Unsatisfactory soil materials are soils that have not been approved for specified installations, are soils that are mixed with other deleterious soils due to the Contractor’s operations or are soils that have deteriorated due to excessive moisture. Unsatisfactory soil materials have no acceptable installations unless they are processed to comply with common fill material requirements.

O. 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.

P. Utilities: Underground or above ground pipes, conduits, and structure located over the site.

Q. Utility Structures: Underground vaults, catch basins and manholes used with utilities.

R. Utility Structure Bedding Material: Satisfactory import soil material placed below the utility structure and above the structure foundation grade to provide utility structure support.

S. Utility Trench or Structure Foundation: Firm, unyielding soils located below the respective utility or structure. See Drawing cross sections.

1.04 SUBMITTALS

The Contractor shall prepare and submit the following to the Engineer:

A. For Import Aggregate Materials:

1. Comply with Section 31 05 16 Aggregate requirements.

2. Comply with Interim Action Work Plan Appendix I for Acceptance Criteria for Virgin Quarry Material.

B. Manufacturer's Data Certificate: Provide supplier name of materials

C. Temporary Sheet Pile Cofferdam Shop Drawings

D. Surveying product deliverables (in Autocad Civil 3D-2024 edition and PDF): Coordinate with Section 01 71 23 - Field Engineering requirements.

1. The project pre-load measurements.

2. The project as-builts (a Topographic survey of all work performed).

3. The finish subgrade surface.

4. The finish grade surface.

E. Contractor Work Plan: The Contractor shall submit a work plan (combination of drawings and description) for approval. Plan shall include truck loading and truck routes to prevent tracking of contaminated material from the work area in accordance with specification 02 60 00. Plan shall include methods for adhering to soil movement criteria specified in section 1.05.B.

F. Certificates shall include, but not necessarily be limited to:

1. Geotextile.

2. PVC liner.

1.05 JOB CONDITIONS

A. The project site is an active contaminated soil site. Former owners included Arkema, Elf Ato Chem, AtoFina Chemicals to name a few. The main constituent to remediate is arsenic. Previous remediation work has been performed to limit the movement of arsenic in groundwater, including installation of a sheet pile wall, ferric chloride injections and limited excavation.

B. All excavated soil materials shall be treated as arsenic impacted materials. All excavated soil materials (except for site clearing waste materials) shall remain onsite.

1. All excavated soils located within the barrier wall limits shall remain within the barrier wall limits. The barrier wall limits are shown on the drawings.

2. All excavated soils located outside of the barrier wall limits may be placed as common fill located either inside or outside of the barrier wall limits. The barrier wall limits are shown on the drawings.

C. 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 as debris.

2. Boulders and large rocks shall be considered as debris.

3. Vegetation from clearing and grubbing shall be considered as debris.

D. Geotechnical Information is available in Section 00 31 00 Available Project Information includes relevant portions of the former Arkema Manufacturing site Geotechnical Memorandum, dated November 8, 2024, prepared by Sage Geotechnical and boring logs prepared as part of the pre-design investigation.

E. Existing site soils are moisture sensitive and there is a seasonably high groundwater table.

F. The project earthwork volumes do not balance. The project requires import soil volumes. All onsite soils (excluding site clearing waste soils) shall remain onsite. The Contractor shall be entirely responsible to provide satisfactory soil volumes to meet required plan grade elevations.

G. Provide TESC stockpile protection BMP’s in accordance with the SWPPP.

H. 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.

I. 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 is NOT allowed.

E. The use of recycled onsite concrete and asphalt materials is allowed.

2.02 GEOTEXTILE FABRIC

A. Geotextile for Shoreline Stabilization

1. Non-woven geotextile fabric shall be placed over all excavated shoreline protection areas, prior to the placement of quarry spalls, as shown on the Contract Documents.

2. Fabric shall be non-biodegradable; resistant to most soil chemicals, and acids and bases in the pH range of 3 to 12; free of defects or flaws which significantly affect its physical properties; protected from ultraviolet degradation. Use of fabric other than Carthage Mills FX®-160HS or Amoco 4516 will require approval by the Engineer prior to use.

B. Geotextile for Barrier Wall PVC Liner Protection

1. Non-woven geotextile fabric shall be placed below and above the 30-MIL PVC liner, as shown on the Contract Documents.

2. Fabric shall be non-biodegradable; resistant to most soil chemicals, and acids and bases in the pH range of 3 to 12; free of defects or flaws which significantly affect its physical properties; protected from ultraviolet degradation. Use of fabric other than TenCate Mirafi® 140N will require approval by the Engineer prior to use.

C. Geotextile for all other applications

1. Geotextiles shall consist only of long chain polymeric fibers or yarns formed into a stable network such that the fibers or yarns retain their position relative to each other during handling, placement, and design service life. At least 95 percent by weight of the material shall be polyolefins or polyesters. The material shall be free from defects or tears. The geotextile shall also be free of all treatment or coating which might adversely alter its hydraulic or physical properties after installation.

2. Stabilization Geotextile Fabric shall be woven and conform to the following requirements:

a. Grab Tensile Strength: 315 lbf, minimum; ASTM D4632.

b. Seam Breaking Strength: 270 lbf, minimum; ASTM D4632.

c. Tear Strength: 112 lbf, minimum; ASTM D4533.

d. Puncture Resistance: 620 lbf, minimum; ASTM D6241.

e. Apparent Opening Size: No. 40 sieve, maximum; ASTM D4751.

f. Permittivity: 0.10 per second, minimum; ASTM D4491.

g. UV Stability: 50 percent after 500 hours' exposure; ASTM D4355.

h. Grab Failure Strain: <50%; ASTM D4632.

D. Use of fabric other than that specified will require approval by the Engineer prior to use.

E. 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.

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 work day.

D. Dewatering: Comply with Section 31 23 19 Dewatering requirements.

E. Project Sequencing/Scheduling requirements: The Contractor shall expect to perform Earthwork work during rainy/wet weather conditions in the spring, summer, fall and winter months. 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.

H. TESC: Provide soil stockpile covers and protection from the weather in accordance with Section 01 57 13 TESC and CSWPPP requirements.

3.02 INTERTIDAL WORK

A. Intertidal Work

1. Portions of the work along the Hylebos Waterway shoreline and the East-West ditch are located below the high tide line or ordinary high water level of Hylebos Waterway (approximately elevation +13.5 ft. Mean Lower Low Water (MLLW), work in the intertidal zone (shoreline generally below +13.5 ft. MLLW) are submerged under water during high tides and exposed ground during low tides. The Contractor's intertidal work shall comply with all aspects of the U.S. Army Corps of Engineers permit for the project, and in accordance with the Contract Documents.

2. Work between 0 feet and +13.5 feet MLLW

   a. The Contractor shall schedule work between May 1, 2026 through February 14, 2027.

   b. The Contractor shall schedule work during low tides of elevations that are at least 2 feet below the elevation of active work in order to work "in the dry".

   c. The Contractor shall only excavate as much intertidal area as can be compacted by an excavator mounted plate compactor that delivers a minimum impulse force of 16,000 lbs. at 2,100 cycles per minute or similar equipment prior to inundation by tidal waters. The hoe pack shall function and operate in accordance with the manufacturer's specifications.

   d. Prior to inundation by tidal waters, the Contractor shall establish a smooth surface free of depressions that might otherwise result in entrapment of juvenile salmonids or other fish with the falling tide.

3. Work below +13.5 feet MLLW shall be conducted when tides are out and below the elevation of the work area when reasonably possible. When not so, the work can be completed when area is submerged during permitted in water work period. For in water work, provide a contractor design-build temporary steel sheet pile cofferdam so that the adjacent Hylebos Waterway may be kept clean during outfall construction.

4. The Contractor shall use land-based equipment for work unless approved otherwise by the Engineer.

5. The Contractor shall provide a design-build temporary sheet pile cofferdam within the outfall work space to allow outfall work performance. Remove temporary sheet pile cofferdam upon completion of the outfall work. Complete the shoreline protection immediately upon temporary cofferdam removal.
6. Heavy construction equipment (like excavators, dozers, cranes, dump trucks, etc.) shall be kept off of the intertidal portion of the site and work from above elevation +13.5 ft. MLLW. Positioning of construction equipment below elevation +13.5 ft. MLLW is allowed only upon approval of a detailed Contractor work plan for such activities, and only when not practical otherwise. Or the Contractor may work within the temporary sheet pile cofferdam work space.
7. A containment boom shall be installed and maintained in the water adjacent to the intertidal work areas prior to and during the commencement of Excavation activities. The containment boom shall be installed outside of the temporary cofferdam and maintained throughout the outfall work duration.
    a. The containment boom shall be a typical floating hard boom, such as an oil containment boom, with material (e.g., rubber) extending 4 feet below the water surface. The purpose of the boom shall be to deter fish from entering the littoral habitat adjacent to the work being completed on the intertidal shoreline and to contain floatable debris that is released during the work.
    b. Installation of the boom shall ensure that no fish are trapped within the contained area during low tides.
    c. If fish are observed within the contained area, the Contractor shall remove the boom temporarily to release observed fish and then re-install the boom after releasing observed fish.

3.03 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.

3.04 ONSITE REUSE

A. The Contractor shall consider all excavated material as suitable for onsite reuse as Common Fill Material located in the onsite subgrade installation except for the following:

1. Site clearing materials.
2. Debris, rocks, boulders, and vegetation waste
3. Selective demolition materials (see section 02 41 19 for specifics).

B. The Contractor may stockpile excavated common soil material for onsite reuse as follows:

1. Stockpile soil materials suitable 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.

C. The Contractor may use satisfactory onsite common soils for the utility pre-load work in accordance with Drawing requirements.

D. Only clean virgin soils are allowed/installed above the PVC liner and located within the gravel cap section.

3.05 IMPORT MATERIAL STOCKPILE

A. The Contractor shall stockpile delivered Import Soil 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 Soil Material stockpiles from contamination or intermixing with common soils.

3.06 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. If the Contractor identifies Unsuitable Soil Material, notify the Engineer. Unsuitable Soil Material shall be removed, stockpiled onsite, and tested by the Port for disposal.
2. Unsatisfactory Soil Materials located within contract Excavation extents shall be removed as Excavation, stockpiled onsite and covered in accordance with Section 01 57 13 TESC and CSWPPP requirements. The unsatisfactory soils shall be processed to comply with common fill requirements or stockpiled onsite for reuse at a later date.
3. Common Soil Material located within contract Excavation extents shall remain onsite and may be used for satisfactory common fill purposes or stockpiled for future use.
4. In the event that materials used for decommissioning shallow groundwater monitoring wells are encountered in Excavations, such as clays and bentonite, the materials shall remain onsite and may be used for satisfactory common soil purposes.
5. Comply with paragraph 1.05.B, JOB CONDITIONS requirements.

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:

1. Excavation for Quarry Spall Pads: Excavate to the required elevations, lines and grades within the specified tolerances

E. Excavations to Subgrade: Execute Subgrade and Grade to Inspection requirements in paragraph 3.13 SUBGRADE AND GRADE TO INSPECTIONS.

3.07 CONDUCT OF SHORELINE EXCAVATION

A. The Contractor shall excavate the Hylebos shoreline to the lines, grades (within ± 0.1 ft.), and extents shown on the Contract Documents for shoreline protection and onsite reuse. The Engineer will observe the Excavation and may provide guidance on modification to Excavation extents based upon observed field conditions.

B. The Contractor shall stockpile existing excavated shoreline materials designated for reuse located in approved areas only. See Plans for specific materials. Otherwise, existing excavated shoreline materials shall be considered as Common Soil Material.

C. The Contractor shall use dump trucks or containers for transport within the site that do not leak material or water.

3.08 CONDUCT OF UTILITY AND UTILITY STRUCTURE EXCAVATIONS

A. The Contractor shall excavate utility trenches for underground storm drain utility piping and Utility Structure installations, to the line and grade shown on the Contract Documents.

B. The Contractor shall excavate trenches sufficiently wide to enable installation of Utilities and allow inspection.

C. 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.

D. The Contractor’s trenching operations shall not proceed more than 100 feet in advance of pipe laying except with written approval of the Engineer.

E. The Contractor shall not disturb bottom of excavations intended as bearing surfaces. Provide firm foundation for Utilities and Utility Structures.

F. Execute Subgrade and Grade to Inspection requirements in paragraph 3.14 SUBGRADE AND GRADE TO INSPECTIONS.

3.09 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 shall direct the Contractor to excavate beyond the lines and grades shown on the Contract Documents and to backfill the Authorized Overexcavation in accordance with Bid Item #28 provisions. Overexcavation and backfill may be required in the following cases:

1. Unsuitable Soil Materials exposed at required Excavations to Subgrades.
2. Unsatisfactory soils due to excessive moisture in native soils located at required gravel cover section Excavations to Subgrades.
3. Unsuitable Soil Materials exposed at the trench foundation grade.
4. Unsatisfactory soils due to excessive moisture at the trench foundation grade.

D. 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.

E. The Contractor shall record all Authorized Overexcavation and backfill locations on the Record Drawings.

3.10 CONDUCT OF PRE-LOAD FILL PLACEMENT

A. The Contractor shall not begin the pre-load fill until demolition and site clearing operations are complete.

B. Place the pre-load fill in accordance with the plan requirements. Unless otherwise specified on the drawings, the pre-load material shall comply with import gravel borrow requirements. Coordinate with Section 31 05 16 Aggregates for Earthwork requirements.

C. Place pre-load monitoring plates and measure the elevations at 30' intervals along the perimeter, bi-weekly. The Contractor shall provide detailed elevations of the pre-load at the beginning and end of the pre-load time duration. The pre-load time duration is estimated to be 2 months. The elevations shall be recorded by a professional land surveyor.

D. The Contractor shall provide the preload data to the Engineer to determine whether the preload can be removed. To remove the preload, the settlement data must show a linear trend when plotted against the logarithm of time, and the average difference between the last two readings shall be less than 0.02 ft. The Engineer may select other criteria to evaluate preload removal, based on the observed performance of the preload.

E. Upon completion of the pre-load embankment work, the Contractor may reuse the pre-load materials in the construction of the barrier wall outer berm (provided the material is kept clean, the barrier wall inner berm and/or the common fill within the barrier wall limits. At the utility pre-load, the Contractor shall remove the upper portion of the pre-load in accordance with Plan requirements.

3.11 CONDUCT OF SHORELINE BACKFILL AND STABILIZATION PLACEMENT

A. The Contractor shall not begin backfill or shoreline stabilization until soil Excavation elevations have been approved by the Engineer.

B. Conduct of Geotextile Fabric Placement

1. The Contractor shall place geotextile fabric on all excavated shoreline areas as shown on the Contract Documents and in accordance with manufacturer's recommendations.

2. The Contractor shall roll out geotextile fabric oriented up and down the slope.

3. The Contractor shall overlap adjacent pieces of geotextile fabric a minimum of 3 feet. The Contractor shall install geotextile fabric such that a single piece covers the slope from the lower limit to the top of slope with no joints or overlaps.

4. The Contractor shall place geotextile fabric in a manner that avoids ripping of the material during shoreline protection material placement.

C. Conduct of Import Material Placement

1. The Contractor shall place materials to the lines, grades, and thicknesses shown on the Contract Documents.

2. The Contractor shall start material placement at the bottom of the slope and proceed upward.

3. The Contractor shall place Import Soil Materials by methods which do not tend to segregate rock/particle sizes.

4. The Contractor shall use an excavator mounted plate compactor (hoepac) that delivers a minimum impulse force of 16,000 lbs. at 2,100 cycles per minute or similar equipment prior to compaction of shoreline protection import materials, except riprap. The hoepac shall function and operate in accordance with the manufacturer's specifications.

3.12 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.

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. Do not place Backfill Material 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.

3.13 CONDUCT OF UTILITY AND UTILITY STRUCTURE BACKFILL

A. Pass the Subgrade and Grade to Inspection test per paragraph 3.14.

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 Material 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.

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.

3.14 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.

B. The Engineer will conduct testing as appropriate to verify the soil firmness/stability at the foundation grade (see Drawing cross sections).

1. Test subgrade or grade surface in accordance with paragraph 3.18 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.

3.15 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 removal 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, Subgrades, 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.

3.16 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. Gravel area Subgrades shall pass a proof roll test. The Contractor shall compact each layer of fill to 95 percent maximum dry unit weight.

2. For the existing biofiltration swale located in the southern portion of the site, the Contractor shall compact the soils in Excavation to Subgrade conditions to 90% of maximum dry unit weight. In fill to Subgrade conditions, compact the fill to 90% of maximum dry unit weight. The Contractor shall hand rake these areas smooth prior to topsoil placement as described in Section 32 92 19 – Seeding.

3. For Utility Trenches and Structures, the Contractor shall compact pipe zone bedding and Utility Structure bedding aggregates at 90 percent maximum dry unit weight and pipe zone backfill aggregates to subgrade at 95 percent maximum dry unit weight.

B. The Contractor shall provide all water required for soil compaction.

3.17 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. Gravel area finish grades and subgrades shall be shaped to required lines and grades within 0.50 inch above or below required elevations. The Contractor shall obtain the Engineer's subgrade approval prior to placement of gravel area section materials.

3.18 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 D 6938 as applicable or a proof-roll test may be required at all grades at the Engineer's discretion. The Contractor shall provide samples of material 2 weeks prior to planned use for testing by ASTM D 1557. 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 D 6938, 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 D 6938, minimum of two per Utility Structure located within the pipe zone backfill.

D. Cut to fill grades: A proof-roll test shall be required at all gravel area 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. 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.

2. Proof-roll with a fully-loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons.

3. 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.

4. Should the Subgrade surface area not deflect, the proof roll test will be considered acceptable and subsequent fill/embankment or paving work shall commence.

3.19 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.

3.20 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 Engineer.

3.21 DISPOSAL

A. The Contractor shall stockpile all unsuitable soil. Further handling of the material will be at the direction of the Engineer and will be in accordance with Specification 02 60 00 and 02 61 00 if off-site disposal is necessary.

END OF SECTION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Section includes:

1. Dewatering.

1.02 SUBMITTALS

A. Work Plan: The Contractor shall submit a dewatering work plan for Engineer approval.

1.03 JOB CONDITIONS

A. Coordinate with Section 01 57 13 TESC and CSWPPP, and Section 31 20 00 Earthwork, and Section 33 42 00 Storm Drain Utility System requirements

B. Existing site soils are moisture sensitive and there is a seasonably high groundwater table.

C. Site groundwater information is available in Appendix A – Interim Action Work 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.

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.

C. Dewatering:

1. 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.
2. The Contractor shall expect groundwater during installation of the deeper utilities. The Contractor shall provide, 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.

3. The Contractor shall collect and treat all dewatering water necessary to complete the Work. Contractor shall provide adequate treatment for water generated to reduce arsenic concentrations to at least 150 µg/L, consistent with the NPDES permits, which include an arsenic discharge limit, discharging to the Hylebos Waterway. Following acceptable treatment of water, Contractor shall pump water to specified infiltration location in Contract Documents.
4. The Contractor shall provide and maintain pumps, sumps, suction and discharge lines and other dewatering system components to convey water away from excavations for treatment and infiltration.
5. The Contractor shall provide facilities for retaining or disposing the dewatered discharge onsite. The dewatering discharge shall comply with Section 01 57 13 Temporary Erosion Sediment Control and Construction Stormwater Pollution Prevention requirements.
6. Contractor shall employ and have readily available equipment and methods to satisfactorily dewater for acceptable installation.
7. 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.

D. Stormwater Reroute for South Outfall Reconfiguration

1. The Contractor shall provide and maintain pumps, sumps, suction and discharge lines to allow intercepting of stormwater from the East/West Ditch during South Outfall Work. Intercepted stormwater shall be routed around the work area via a pipe network and temporary outfall structure.
2. Provide temporary construction cofferdam, place additional material upstream side as necessary to maintain work area.
3. Contractor shall comply with Section 01 57 13 Temporary Erosion Sediment Control and Construction Stormwater Pollution Prevention and Section 33 42 00 Storm Drain Utility System requirements.
4. The Contractor shall not allow rerouted stormwater to contact dewatering water. If contact occurs, the dewatering water-rerouted stormwater mixture shall be treated as dewatering water at no additional cost to the Port.

E. Intertidal Work

1. Dewater the outfall temporary cofferdam to execute the required outfall work. Comply with US Army Corps of Engineer permit requirements. The permit is provided in Appendix C.

3.02 DISPOSAL

A. All dewatering disposal shall be in accordance with Section 01 57 13 Temporary Erosion Sediment Control and Construction Stormwater Pollution Prevention requirements.
B. All stormwater from East-West ditch reroute will not need to be treated prior to discharge. Coordinate with Section 33 42 00 Storm Drain Utility System requirements.

3.03 MAINTENANCE

A. The Contractor shall repair and maintain dewatering throughout the construction duration.

END OF SECTION

PART 1 – GENERAL

1.01 SUMMARY

A. This section of the specifications includes requirements for constructing a continuous wall with a self-hardening slurry consisting of a mixture of ground granulated blast furnace slag (GGBFS), select clay and water to create a low permeability barrier for the containment of groundwater (containment wall). Specifications are provided for construction of the containment wall with regard to materials, monitoring, sampling, quality control, documentation, site restoration, acceptance, and potential remedial actions.

B. Objective: The objective of the containment wall is to develop a continuous low permeability barrier surrounding the main arsenic plume as shown on the Contract Drawings with adequate strength by using a self-hardening slurry.

C. The Contractor's means and methods shall be sufficient to enable placement of slurry and removal of excess hardened slurry.

D. The Contractor shall develop and implement an installation approach to meet the objective described above. Contractor's means and methods are subject to review by the Engineer for conformance to the stated objectives and performance requirements. The containment wall alignment, profile, and details are illustrated on Contract Drawings C1.0 and C1.3 through C1.5. Alternate approaches developed by and proposed by the Contractor shall be submitted to the Engineer for review and may only be implemented if approved. The written approach and its implementation shall address the following:

1. Ensure Surveyor has clearly and carefully marked subsurface utilities and known structures in the vicinity of work prior to intrusive activities. The limits of any intrusive work shall be clearly marked in the field and thoroughly checked for utilities prior to proceeding with any excavation or subsurface work. Protect utilities and structures as needed.

2. Remove all foundations or other obstructions impacting the containment wall alignment which include monitoring wells, manhole sections, leachate or other conveyance piping, French drain systems, and any other items shown on the Contract Drawings and identified for removal. Notify the Engineer of any French drain systems to be left in place, as needed, to facilitate construction.

3. Ensure all conveyance piping is properly cut and capped to prevent pathways for slurry loss. Pipe bedding, gravel conduits and/or porous backfill shall be sealed to prevent slurry loss.

4. Prepare working pads with berms for containment wall installation as shown on the Contract Drawings.

5. Layout of containment wall locations and design depths.

6. Plan and install one test section of containment wall a minimum of 30 feet long and provide sufficient QA/QC testing to document that the construction means are suitable and that the resulting containment wall meets project requirements. The location of the test section shall be along the alignment (Contract Drawing C1.0), determined by the Contractor, subject to approval by the Engineer.

7. Install containment wall as shown on Contract Drawings and indicated in the notes.

8. Reroute surface water as required during installation of containment wall to maintain site drainage and stormwater management.

9. Contain and treat contact water, as needed, within the working corridor and discharge to specified infiltration area.
10. Excavated trench spoils shall be used as general fill for site grading. Excess hardened slurry mix shall be handled as directed by Engineer.
11. Protect containment wall during the curing process and place cover over containment wall after it has obtained sufficient strength (10 psi UCS) as shown on Contract Drawings.
12. Plan for managing construction water. Management of Construction Water is described in Section 01 57 13 Temporary Erosion and Sediment Control and Construction Stormwater Pollution Prevention and 31 23 19 Dewatering.

1.02 SCOPE OF WORK/DEFINITIONS

A. Furnish all plant, labor, equipment and materials, and perform all operations as required to construct a self-hardening slurry containment wall (Containment Wall) as shown on the Contract Drawings and specified herein at the Port of Tacoma Arkema Facility in Tacoma, Washington.

B. The Containment Wall shall be installed using a steel wide flange beam measuring approximately 33 inches wide and capable of reaching depths up to 45 feet to produce each wall panel. The alignment and minimum depth of the panels are indicated on the Contract Drawings. The self-hardening slurry shall be injected as a slurry using the specified beam as it is vibrated into the ground. To ensure the wall remains continuous, an approximately 14-inch long lateral fin or similar shall be attached to the aft side of the beam at the base and inserted into the previously constructed panel as a guide.

C. The work pad shall be designed and constructed by the Contractor. The work pad shall be a soil surface graded and compacted to the minimum lines and grades indicated on the Contract Drawings. The work pad is intended to support truck traffic and barrier wall construction equipment including a crane with a vibratory hammer of sufficient size to install the containment wall panels. The work pad shall have an average width of 24 feet, and a minimum width of 16 feet, unless otherwise approved in writing by the Engineer.

D. The Containment Wall shall have an average thickness of 6 inches, and achieve an in-situ hydraulic conductivity of less than or equal to 1x10-8 cm/sec.

E. A self-hardening slurry consisting of a clay and slag-cement mixed with potable water shall be injected through a vibrated beam from the base of the beam driven to bottom of containment wall depth, as shown in Contract Drawings, to form the Containment Wall. Overlapping panels shall be constructed to form a continuous barrier along the planned alignment.

1.03 REFERENCES

A. AMERICAN PETROLEUM INSTITUTE (API)

1. API RP 13B-1 (2019; Errata 1 2020; Errata 2 2021; Errata 3 2023) Recommended Practice for Field Testing Water-Based Drilling Fluids
2. API Spec 13A (2020; Addendum 1 2020; Addendum 2 2022, Errata 1 2024) Specification for Drilling- Fluid Materials

B. ASTM INTERNATIONAL (ASTM)

1. ASTM C989 (2025) Standard Specification for Slag Cement for Use in Concrete and Mortars

2. ASTM D2166 (2016) Standard Test Method for Unconfined Compressive Strength of Cohesive Soil
3. ASTM D4380 (2020) Standard Test Method for Determining Density of Construction Slurries
4. ASTM D4832 (2023) Standard Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders
5. ASTM D5084 (2024) Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter
6. ASTM D6910 (2019) Standard Test Method for Marsh Funnel Viscosity of Construction Slurries
7. ASTM D7100 (2020) Standard Test Method for Hydraulic Conductivity Compatibility Testing of Soils with Aqueous Solutions

C. Where reference is made to one of the above standards, the revision in effect at the time of the Work shall apply.

1.04 SITE CONDITIONS

A. The Contractor is responsible for becoming familiar with site conditions.

B. Verify that containment wall construction conditions are suitable at the site.

C. The proposed alignment crosses subsurface utilities.

1.05 QUALIFICATIONS

A. The installation of the Containment Wall shall be performed by a qualified Contractor experienced in the vibrating beam method and/or the equipment and processes necessary to successfully implement this method. A qualified Contractor is defined as having experience with at least two (2) projects in the past 15 years using the vibrating beam method and/or each of the following:

1. A minimum of two (2) projects of similar scope involving installation of a containment wall using a mixture of water, clay and cement, or similar low permeability grout mixture. And;
2. A minimum of two (2) projects using vibratory pile driving equipment to install steel H-beam or other steel piling similar to that used for the vibrating beam method and;
3. A minimum of two (2) projects using grout mixing equipment capable of high shear collodial mixing and positive displacement pumps for delivery of mixed grout, and;
4. Experience with and Quality Control methods to:
    a. track and adjust grout mix for strength and permeability
    b. record and adjust grout pumping rate, volume and pressure
    c. methods to maintain beam verticality and control beam depth

The Contractor shall submit documentation of prior experience if requested as required in the Supplemental Bidder Responsibility Criteria.

B. A construction and slurry wall specialist provided by the Contractor shall be used to supervise the containment wall construction. The specialist shall be on site at all times during installation. The Contractor shall submit credentials of the specialist. The specialist shall have previous experience with the vibrating beam method and understand:

1. Mixing methods required for proper preparation of the slurry mix.
2. Construction equipment, materials, testing, and quality control required for proper installation of the barrier wall.

C. The Contractor shall use competent personnel to perform the Work and submit credentials for personnel. Personnel shall have prior experience using the vibrating beam or similar equivalent methods.

1.06 QUALITY CONTROL

A. The Contractor shall provide quality control measures as necessary to assure that the containment wall is constructed in a manner that satisfies the performance requirements set forth in these Specifications. Quality control measures shall be implemented by the Contractor during the construction sequence to avoid defects in the finished wall that would reduce the effectiveness of the barrier.

B. These measures shall include but are not limited to visual observations and measurements by the Contractor's experienced personnel on installation procedures, wall depths and alignment, barrier verticality, barrier continuity, and testing of slurry, as necessary, to provide a containment wall meeting these Specifications and the Contract Drawings.

C. The Contractor is required to perform quality control testing in accordance with Parts 2 and 3 of this Specification and to provide the Engineer with the results of quality control testing, measurements and documentation of observations on a daily basis.

1.07 QUALITY ASSURANCE

A. The Engineer will perform additional testing, measurements, and observations as outlined in quality control procedures to ensure quality assurance. The Contractor is required to fully cooperate with the Engineer during all quality assurance testing activities.

1.08 SUBMITTALS

A. The Contractor shall submit a detailed safety program demonstrating how the Contractor intends to protect their own personnel, other job site personnel, on project equipment and structures, outside personnel and equipment passing across the project, the general public, and adjacent embankments/impoundments, structures and utilities. Provide emergency contact information for Contractor (primary and backup contact) reachable 24 hours per day, 7 days per week including holidays in the event conditions requiring emergency response actions arise. As a minimum meet all Health and Safety requirements of the Engineer’s Health and Safety Plan provided in Appendix A, sub-Appendix J.

B. Containment Wall Work Plan. The Contractor shall submit a detailed Work Plan describing proposed construction procedures, materials, equipment, and schedules. Allow 2 weeks for Engineer review of this Plan. This Work Plan shall include, but not be limited to, the Contractor’s plan for:

1. Coordinating the construction, maintenance, and removal of working pads, mixing pads, and stockpile areas.
2. Equipment set-up and site use layout including storage areas, working pad locations, and dimensions.
3. Plan for protecting adjacent embankments/impoundments, utilities, and structures, as needed.

4. Equipment specifications: including maximum vibrated beam depth capabilities, equipment model numbers, and types for slurry mixing equipment.
5. Materials properties, sources, and (manufacturer's) certificates of quality.
6. Procedure for clay (sepiolite or alternate clay source) slurry mixing, storage, and transportation.
7. Procedure for self-hardening slurry mixing, including fillers and additives (if any), and transportation.
8. Procedure for containment wall panel installation and immediate self-hardening slurry placement.
9. Procedures for the control and management of stormwater to minimize stormwater contact with contaminated materials and divert stormwater around work areas. Refer to Section 01 57 13 TESC and CSWPP requirements.
10. Procedures for excavation spoils containment, spill prevention, and stockpile storage.
11. Cleanup, spoils disposal, and slurry disposal. Must include estimation of the volume of spoils, work pad removal, and waste slurry, and how material will be managed, processed, or stabilized for disposal.
12. Monitoring plan for stability of the trench and slope stability of adjacent embankments during Containment Wall construction along portions of the alignment bordered by water bodies. Containment Wall construction along the sheet pile wall adjacent to the Hylebos Waterway requires survey points along transects spaced at maximum 50' centers and monitored at least once per shift as per section 3.4 E below. Survey measurements shall be made available to the Engineer within 24 hours after they are taken. Survey system shall be capable of repeatable measurements with horizontal accuracy of 0.05 ft and vertical accuracy of 0.01 ft or better.
13. Procedures for reinstalling or repairing containment wall sections in the case of cave-ins or other indications of potential adverse effects to containment wall integrity or localized instability of the slurry trench, and response plan in the event of larger scale instability including larger trench sidewall cave-ins or movement indicating inadequate adjacent slope stability.

C. Contractor's Construction Quality Control Plan

1. The Contractor's Construction Quality Control Plan shall include methods and procedures for mixing the slurry and delivering it to the vertical barrier panels, checking verticality and continuity of the panels and ensuring the containment wall meets specification requirements for physical properties and performance.
2. Refer to Section 1.06 for additional requirements of the Contractor's Construction Quality Control Plan.

D. Design Mix

1. Pre-approved Design Mix

a. A pre-approved design mix has been developed using select materials from pre-approved sources. See Sections 2.02 and 2.03 for descriptions of the pre-approved sources. These materials shall be used in construction of the containment wall unless otherwise proposed and tested by the Contractor to show compatibility of the design mix with existing groundwater conditions such that the resulting mix achieves containment wall requirements for strength under conditions of ASTM D2166 and ASTM D4832 and permeability under conditions of ASTM D7100. Alternate materials of containment wall construction will not be permitted unless approved by the Engineer.

2. Alternate Design Mix

a. Any alternate design mix proposed by the Contractor shall include the following:

1) A description of the methods used to test samples during alternate design mix testing (if proposed), including mix water, permeant, slag-cement, clay, and any admixtures.

2) Laboratory slag-cement-clay design mix and trial mix reports, including proportions, density, slag-cement content, clay content, unconfined compressive strength, moisture content, and hydraulic conductivity on at least four samples of the proposed design mix.

3) Hydraulic conductivity tests of proposed mixes should be conducted using site groundwater as permeant and continue long enough to evaluate for long-term compatibility. Consideration for compatibility of the design mix with site conditions will be given to samples prepared with site groundwater as the mix water during sample preparation.

4) Source (supplier) and relevant properties of all materials used for design mix (e.g., water, slag-cement, clay, and admixtures).

E. During progress of Work, the Contractor shall submit on a regular basis to the Engineer documentation of the following:

1. Daily reports submitted by noon of the following working day for the date of the report. Daily reports shall include:

a. A written record of the actual installed depth of each panel constructed that day along with the design depth and top elevation of the installed panel. Document any discrepancies between depth measurements and requirements and how discrepancies were rectified.

b. A record of plant-mixed sepiolite slurry quantities, proportions, and admixtures. Adjustments to slurry mixture shall be noted.

c. A record of plant-mixed slag-cement quantities, proportions, and admixtures. Adjustments to slurry mixture shall be noted.

d. A record of plant-mixed slag-cement-sepiolite slurry quantities, proportions, and admixtures. Adjustments to slurry mixture shall be noted.

e. A record of in-trench slag-cement-sepiolite slurry properties taken during construction. Procedures and admixtures used to modify slurry properties shall be noted.

f. A record of in-trench grab sample locations (alignment and depth) noting the number of cylinders cast and designated laboratory testing.

g. A record of all quality control samples taken, showing dates, locations, type of tests, and field test results for those samples tested on-site. All strength testing shall include the number of days the samples were cured prior to testing.

h. A record of quality control samples sent to a laboratory for off-site testing.

2. Laboratory test results submitted to Engineer within two days of receipt of report from the laboratory.

3. A final report shall be submitted within four weeks of the completion of work, which shall include:

a. Containment Wall As-Built Plan: Plan shall depict location, dimensions, and depths of each panel installed, including actual installation depth with top and bottom of wall elevation.

b. Quality Control Data: A record of the quantity, location, and results of quality control samples.

PART 2 – PRODUCTS

2.01 GENERAL

A. Materials described herein to be used in construction of the Containment Wall have been pre-tested and approved for meeting project goals and achieving long-term compatibility with site conditions. The selected materials are sepiolite and ground granulated blast furnace slag (GGBFS) as described in Sections 2.02 and 2.03, respectively.

B. Contractor may propose alternate materials for preparation of the slurry for containment wall construction other than the pre-approved mix design described in this Section, subject to review and approval by the Engineer. Additional laboratory and field demonstrations performed by the Contractor will be required prior to implementation of modified slurry mix designs. Refer to Section 1.04.C.2.

2.02 SEPIOLITE

A. Sepiolite used in preparing slurry shall be pulverized (powder or granular) premium grade sepiolite and shall meet the most current API Standard 13A specifications. Sepiolite shall be Sea Mud available from IMV Nevada located at 498 E. Imvite Rd., Amargosa Valley, Nevada. Alternate sources will not be permitted without additional compatibility testing of the design mix by the Contractor.

B. Sepiolite shall be graded so that a minimum of 70 percent will pass a No. 200 mesh sieve and meet the requirements set forth in Table 1.

2.03 SLAG-CEMENT

A. Slag-cement shall be New Cem Grade 100, a ground granulated blast furnace slag (GGBFS) per ASTM C989 available from LaFarge of Seattle, Washington and located at 5400 W Marginal Way SW, Seattle, WA. Slag-cement additives and/or replacements or other cementitious additives which produce acceptable material properties will not be allowed without additional compatibility testing of the design mix by the Contractor and written acceptance by the Engineer.

2.04 WATER

A. Potable water available from City of Tacoma water systems near the site shall be used to manufacture slurry and shall be free of excessive amounts of deleterious substances (e.g., soil, oils, acids, salts, and organic matter) or harsh properties (e.g., hardness, pH, and total dissolved solids) that may adversely affect slurry properties.

B. It is the responsibility of the Contractor that the slurry resulting from the mix water shall always meet the standards of this specification and requirements shown in Table 1.

2.05 ADDITIVES

A. Admixtures such as softening agents, dispersants, retarder, plugging, or bridging agents may be added to the water or the slurries to permit efficient use of materials and proper workability, provided these additives do not adversely affect the long- or short-term performance of the containment wall. Additives, if approved and used in the slurry mix(es) shall be incorporated in proportions similar to that used in Contractor design mix testing and long-term compatibility testing performed prior to containment wall construction.

B. The Contractor shall advise the Engineer of any and all additives used in production of the slurry for containment wall construction and document quantities used in each batch.

C. Laboratory and field testing will be required of the Contractor by the Engineer to demonstrate that additives do not adversely affect performance of the Containment Wall.

2.06 SELF-HARDENING SLURRY

A. Self-hardening slurry shall consist of a stable colloidal suspension of sepiolite and GGBFS in water and shall be controlled in accordance with the most current API Recommended Practice 13B-1.

B. The Contractor shall select and produce a unit weight for the self-hardening slurry mixture needed to maintain stable panels during construction of the containment wall. The slurry shall exhibit properties in accordance with Table 1. (Marsh funnel >40 seconds and unit weight in range of 70 to 75 pcf)

C. Additional sepiolite, GGBFS or admixtures may be required depending on the hardness, temperature, or other water quality parameters, and the quality of the sepiolite and GGBFS.

D. Self-hardening slurry shall be prepared by mixing potable water, sepiolite and GGBFS with high shear mixing equipment until the granular particles are fully hydrated and the resulting slurry appears homogeneous. Particles of sepiolite and GGBFS shall be fully dispersed with no clods present. The Contractor shall note that during design mix testing in the laboratory, more success was achieved by mixing sepiolite and GGBFS in dry form prior to introduction of water; however, the Contractor is responsible for all means and methods during the mixing process.

E. The self-hardening slurry shall be constantly circulated to maintain homogeneity until introduced into the trench.

F. The in-trench self-hardening slurry mixture shall be tested at the intervals and meet the requirements for permeability and unconfined compressive strength (UCS) set forth in Table 1, Containment Wall Quality Control Testing Plan or as approved by the Engineer.

G. The self-hardening slurry shall be protected from any loading (including foot traffic) and shall not be covered until it has cured for a minimum of 3 days or has achieved a green color and a minimum unconfined compressive strength of 20 psi (undrained shear strength of 10 psi).

H. After initial curing has occurred as described in Item G, the Containment Wall shall be protected with the cover shown on the Contract Drawings and shall not be crossed with construction traffic except at designated crossings and then only following installation of the upgraded cover at crossings shown on the Contract Drawings. Temporary equipment crossings may be used by the Contractor provided they completely bridge over the installed containment wall and are acceptable to the Engineer.

2.07 EQUIPMENT

A. GENERAL

1. The Containment Wall shall be constructed using suitable equipment capable of producing a finished product, as specified.

2. All equipment shall be free of fluid leaks that discharge substances onto the ground. All broken or leaking lines, hoses, valves, pistons, pipes, tanks, and other equipment components shall be immediately repaired or removed.

3. Equipment shall be maintained in such a condition so as to deliver the manufacturer' s rated output. If inadequate quality of production is obtained, larger and/or different equipment shall be provided by the Contractor.

B. SLURRY MIXING AND PLACING EQUIPMENT

1. The self-hardening slurry shall be mixed in a mixing plant which shall include a high-speed/high shear colloidal mixer, or other equipment that achieves complete dispersion of the components and produces a stable, homogenous slurry mix. The plant shall be capable of providing a continuous supply of slurry to the vertical barrier during construction. The necessary pumps, sumps, hoses, valves, supply lines, mixers, and tools shall be provided by the Contractor.

C. VIBRATED BEAM

1. The vibrated beam shall be an approximately 33-inch wide flange beam, plus an approximately 14- inch fin with appropriate slurry nozzles affixed to the bottom of the beam.

2. The thickness of the driving shoe, as measured perpendicularly to the web shall be at least 6 inches. The web of the beam may be built-up depending on soil conditions.

3. Attached to the wide flange beam shall be slurry pipes for the injection of slurry. Each beam must be of sufficient length to penetrate the maximum expected depth, plus some margin.

4. The vibrated beam shall be marked so that the depth of the bottom of the beam can be readily observed.

D. QUALITY CONTROL EQUIPMENT

1. The Contractor shall provide all equipment necessary for quality control testing.

2. Minimum quality control testing by the Contractor is specified herein.

3. All equipment shall be maintained in good working order and shall meet the requirements of the applicable test standards cited herein.

PART 3 – EXECUTION

3.01 GENERAL

A. All Containment Wall construction activities shall be conducted in the presence of the Engineer or a coordinated representative.

B. All work performed in this section shall comply with the Safety, Health, and Emergency Response Requirements set forth in the Contractor's HASP.

C. All work performed in this section shall comply with the Environmental Protection Procedure in Section 01 57 13 - TESC and CSWPP.

3.02 LAYOUT AND SURVEY CONTROL

A. Contractor shall provide a Surveyor licensed in the State of Washington to establish a survey control grid which shall be utilized for location in the field.

B. For each 20-foot length of the Containment Wall, Contractor shall survey the location and provide markings clearly showing the Station, existing grade and design top and bottom elevations of the Containment Wall using real-time transit survey from established control points. Survey shall be performed during each day of wall construction to ensure accurate location.

C. For containment wall depth control, Contractor may use kinematic (RTK) global positioning system (GPS) that provides real time base elevations of the vibrated beam to supplement field survey control. GPS systems may only be used upon field demonstration of its accuracy and upon written approval of the Engineer.

D. Do not deviate more than 6 inches from the horizontal alignment shown on the Contract Drawings without prior written approval of the Engineer.

3.03 SITE PREPARATION

A. Prepare the work pad, as needed, and staging areas as shown on the Contract Drawings and described in this paragraph.

B. Perform demolition and remove all existing structures, utilities, foundations and other obstructions and debris within the lateral limits of the Containment Wall installation area.

C. Install and maintain survey stakes in appropriate locations along the alignment to identify the 20-foot station locations along the alignment. These stakes will be referenced for quality control and quality assurance measurements during barrier wall construction.

3.04 OPERATIONAL CONDITIONS

A. Weather Conditions

1. Construction shall not take place in an ambient temperature below 32 degrees Fahrenheit (F) or above 105 degrees F without approval by the Engineer.

2. Excavation shall not be performed during periods of heavy rainfall or stormwater run-on if it results in water being added to the slurry which will adversely impact the ability to meet required properties.

B. Obstructions

1. If unidentified obstructions including boulders, unknown subsurface structures, or unknown abandoned utilities are encountered that were not cleared during Demolition, the Contractor shall stop construction at that location until the nature of the obstruction is known. Develop a plan to remove obstruction for Engineer's review and acceptance before continuing work in the obstruction vicinity.
2. The Contractor may by-pass an obstruction and continue Containment Wall installation in another location along the wall alignment until the obstruction is cleared or modifications to the alignment are in place.

3.05 EQUIPMENT

A. Contractor shall have suitable equipment so that the containment wall can be installed to its final depth continuously along the Containment Wall alignment. Additional equipment required shall be provided by the Contractor.

B. The vibrated beam crane shall have guide leads to assist in control of verticality to full depth during construction of Containment Wall panels. It shall have the capacity to safely handle all loads from the pile driving operations

C. The length of the beam shall reach at least 8 ft longer than the maximum depth to the base of the containment wall shown on the Contract Drawings.

D. The vibratory pile hammer shall be sized to allow efficient penetration of the vibrated beam to full depth considering the soil and groundwater conditions at the site.

E. The slurry batching plant shall include the necessary equipment including a high shear mixer capable of producing a colloidal suspension of sepiolite and GGBFS in water, as well as tanks, hoppers, power supply, pumps, valves, hoses, supply lines, and all other equipment required to adequately produce and continuously supply slurry to the containment wall during construction.

3.06 CONTAINMENT WALL INSTALLATION

A. Slurry Mixing

1. Produce slurry by gradually adding components to water and thoroughly mixing until complete homogenous slurry is achieved. The resulting slurry shall display the slurry properties specified herein before introduction to the vertical barrier panels.
2. All slurry shall be mixing plant mixed.
3. The Contractor shall provide a full-time slurry specialist who shall regularly test and control the mixing and placing of the slurry in accordance with the Contractor's Construction Quality Control Plan in order to maintain the specified properties of the slurry.
4. The Contractor's Construction Quality Control Plan shall include methods and procedures for mixing the slurry, delivering it to the vertical barrier panels and producing a functioning Containment Wall meeting the requirements of these specifications. See Section 1.08.C.
5. The Contractor shall handle the slag-cement and clay in a manner that does not allow fugitive dust particles to be released.
6. Keep the self-hardening slurry in constant circulation until introduced into the Containment Wall.

B. Driving and Slurry Placement

1. The Contractor is responsible for using the construction staking and control points provided by the Contractor's Surveyor.

2. The beam shall be controlled by guide leads ensuring installation within 1% of vertical. Each insertion shall overlap the previous insertion by a minimum of 3 inches, in addition to the 14-inch fin that inserts into the previous panel.
3. The beam shall be inserted to the required depth by a vibratory pile driver vibrating at its optimum rate and shall be extracted at a rate suitable for the proper injection of slurry. The pumping pressure and rate of slurry injection shall be such that a full reservoir trench level is maintained around the beam during extraction.
4. The completed containment wall shall be continuous with no gaps and shall have an average thickness of 6 inches.
5. The Contractor shall arrange its work activities and constantly take care to avoid spillage or accidental discharge of slurries, water, or other liquids into uncontained areas on the site.

C. Depth of Containment Wall Panels

1. Provide penetration of the vibrated beam to the elevations shown on the Contract Drawings, or as determined in the field by the Engineer.
2. Obstructions that prevent the vibrated beam from achieving the required depth shall be broken or moved by drilling methods, driving piles, excavation, or other means deemed acceptable to the Contractor. If the obstacle cannot be penetrated or moved by these means, the alignment of the barrier wall shall be modified to go around the obstacle subject to approval of the Engineer. Refer to Section 3.04.B.
3. Should the beam reach refusal prior to design depth, the actual recorded depth of that panel will be determined by the Engineer.

D. Tolerances

1. Alignment of the containment wall shall be within 1 foot of the alignment staked in the field. Request for greater variations shall be submitted to the Engineer for review at least 48 hours prior to the installation in the area of the proposed change.
2. The completed top of the containment wall shall be within 0.2 feet of the design top of wall elevation at the end of construction.
3. The containment wall shall be plumb within 1% of vertical.

E. Treatment to Top of Vertical Barrier

1. A temporary cover shall be constructed above the vertical barrier for protection following installation. Construction of the temporary cover shall begin after the slurry has adequately cured. Placement of a cloth cover or other means for protection from the elements may be applied at the Contractor's discretion, if needed until soil cover can be placed.
2. Material excavated from the containment wall reservoir trench or excess material from the containment wall operations may be used for the temporary cover provided it is uncontaminated and is approved by the Engineer. Other excess material from the operations shall be stockpiled in the appropriate stockpile area and handled similarly to other native materials encountered at the site.
3. The wall may be overbuilt in elevation during installation and cut back to design elevation prior to the self-hardening slurry achieving an unconfined compressive strength of 100 psi.

4. Upon completion of containment wall curing to a minimum set strength of approximately 100 psi, the containment wall protective cap shall be installed as indicated on the Contract Drawings.

F. Containment Wall Penetrations

1. Penetrations through the containment wall shall be sealed using a low permeability grout or other similar methods using means acceptable to the Engineer.

2. Submit a plan for sealing containment wall penetrations to the Engineer for review and approval a minimum of 2 weeks prior to application.

3.07 TEST SECTION

A. Prior to starting full scale construction of the containment wall, a test section shall be constructed along a 30-foot length of the containment wall alignment in an area selected by the Contractor.

B. The purpose of the Test Section is to verify that equipment and means provided by the Contractor will produce a containment wall with the required physical characteristics and specified properties described in these Contract Drawings and Specifications.

C. Allow for a 40-day period for sample curing and laboratory testing of self-hardening slurry prior to commencement of full-scale containment wall production. Schedule containment wall installation activities accordingly.

D. The Test Section shall be installed using the same means and methods proposed to construct full-scale production sections of the containment wall.

E. Additional test sections may be required by the Engineer at no additional cost to the Owner or Contractor if the original Test Section does not successfully meet the following criteria. Specifically:

1. Test Section panels continuously overlap and are successfully installed to the design depth of the containment wall.

2. Adjacent panels are demonstrated to be continuous using a guide plate (as described in Section 3.08.E.2) inserted into overlapping containment wall panels to the full depth of the installed panels.

3. Self-hardening slurry is consistently produced at the mixing plant meeting the viscosity and unit weight requirements of these Specifications.

4. Quality control samples obtained from in-trench slurry and tested by the Contractor meet the strength and permeability requirements of these Specifications. Since the self-hardening slurry strength increases with time and the permeability reduces with time, the Engineer will examine the physical property trends from Contractor laboratory testing for comparison to trends at early stages of curing during the mix design program to determine acceptability. Refer to Appendix A, sub-appendix C for Barrier Wall Slurry Mix Design Testing Report.

F. Quality Control testing for the Test Section will be performed similarly to that for full production as described in Section 3.08 - FIELD QUALITY CONTROL but at an increased frequency as described in Table 1 of that Section.

G. Construction of the Test Section may be slowed or discontinued as determined by the Engineer based on quality control testing, visual observations, or other available information.

H. Once the Test Section is complete the Engineer will review the available data and evaluate suitability of the proposed means and methods. The Engineer will communicate conclusions of this evaluation to the Contractor and Owner as soon as possible. The Engineer reserves 3 working days to evaluate test section data in which work may be paused.

3.08 FIELD QUALITY CONTROL

A. GENERAL.

1. The Contractor shall be responsible to ensure that work is performed to the standards established herein subject to review and inspection of the Engineer.

2. Quality control records, routine test observations, and measurements shall be made available for inspection by the Engineer.

B. TEST AND FREQUENCY - MINIMUM REQUIREMENTS

1. Quality control testing shall be performed in accordance with the approved Construction Quality Control Plan. Minimum requirements are specified below.

2. Perform the sampling and control testing as indicated, according to the methods specified below and at the frequencies specified below. Sampling and testing shall be performed by personnel experienced in the type of test required. Samples shall be representative of the overall volume of material from which the sample is taken.

3. Equipment for sampling and testing shall be in good condition. Equipment shall be set up for on-site testing and testing shall be performed on-site, unless otherwise specified or accepted in writing by the Engineer. Test results shall become the property of the Owner. The Contractor shall be responsible for representative, quality and accurate sampling, and testing. Mathematical calculations shall be checked by someone other than the person performing the original calculations.

Table 1

Item	Sampling & Testing	Criteria	Frequency
Slurry-As Mixed	Sampled immediately before entering the trench: Unit Weight Viscosity	 70 pcf to 75 pcf > 40 seconds	Every 10,000 gallons or twice daily (whichever is greater) Minimum 20 tests during Test Section
Slurry-In Wall (in panel during day of placement)	Sample from panel at varied depths Unit Weight Viscosity	 70 pcf to 75 pcf > 40 seconds	One grab sample each shift

Table 1			
Slurry-In Wall (after curing)	Hydraulic Conductivity (2 ea. event) Strength (UCS) (5 ea. event)	> 1x10-8 cm/sec > 100 psi	Min. 7 cylinder samples every shift. Store samples and test one set for every 200 linear feet of containment wall installed with a minimum of one set of tests per week Minimum 21 samples and 3 sets of tests during Test Section
Barrier Verticality	Measured with hand level	Plumb within 1% of vertical	Each beam insertion
Barrier Continuity	Insert guide at specified frequency before slurry has cured	Extends to full depth of panel or acceptable to Engineer	Every panel for the first 30 feet of the Test Section and, with approval of the Engineer, every 10th panel thereafter

C. TESTING SCHEDULE

1. Tests shall conform to the following:

Table 2	
Test	Standard
Unit Weight of Slurry	API RP 13B-1, ASTM D4380
Viscosity, Marsh (seconds)	API RP 13B-1, ASTM D6910
Hydraulic Conductivity	ASTM D 5084
Unconfined Compressive Strength	ASTM D2166 or ASTM D4832

D. RECORD KEEPING

1. The Contractor shall keep detailed and accurate records of the mixing plant and vertical panel production during installation of the containment wall.
    a. Mixing plant record keeping shall include maintaining an accurate record of slurry ingredients, including any additives used for slurry production, mixing time for each batch, and the volume of slurry produced for each batch.
    b. Production records during driving of the vibrated beam shall include an accurate record of the total penetration depth of each beam drive, top and bottom elevation of each completed panel, a record of the driving pressure, and changes in slurry pressure versus depth for each beam.

c. Any obstructions encountered or deviations from design.

d. Copies of these records shall be provided to the Engineer on a daily basis. Electronic versions prepared in Microsoft Excel or equivalent of field documentation to be provided to Engineer no later than 3 days from generation unless approved by the Engineer.

E. WALL CONTINUITY AND THICKNESS

1. The Contractor shall maintain a rigorous quality control program for the penetration of each beam to help ensure wall continuity. The Contractor shall also compare the square foot production in relation to the volume of slurry produced to give an average wall thickness estimate for that day.

2. The Contractor shall introduce a guide plate into the trench before the self-hardening slurry has cured to verify containment wall continuity. The guide plate may be rectangular or circular and shall have external dimensions that are at least 2.5 inches thick and 42 inches long (or 42-inch dia.). The guide plate shall be inserted to the full depth of the panel. The guide plate shall be inserted for each panel over the first 30 feet of barrier wall constructed. If no problems are identified during the first 30 feet of construction, the test frequency may be reduced to every 10th panel or once per production day at the discretion of the Engineer.

3. Alternative means of documenting containment wall continuity may be proposed by the Contractor, should the guide plate fail to readily provide barrier wall continuity information, subject to approval by the Engineer.

4. The Contractor shall help the Engineer in any possible way for other tests, as long as this participation does NOT interfere with wall production.

F. Quality Control Testing

1. Quality control activities will be the responsibility of the Contractor.

2. The parameters of the self-hardening slurry after mixing and in-trench slurry must meet the requirements shown on Table 1.

3. Water

a. Collect a sample of potable water from the selected source prior to commencement of slurry mixing activities (minimum 2 weeks).

b. Measure and record the level of dissolved solids, hardness, and pH of water proposed for use in preparing slurry.

c. Provide results to the Engineer for approval.

4. Mix Tank Slurry Sampling and Testing

a. A grab sample of the slurry shall be collected from the mix tank each day prior to the commencement of slurry panel construction and tested for compliance with the required slurry material properties. If test results are not satisfactory, Contractor will adjust the mixing operation or add supplemental reagents (subject to prior approval by Engineer) and conduct additional quality control sampling and testing until quality control requirements are met. Collect and test a second sample during afternoon shift (minimum two samples per day).

b. Conduct all slurry tests specified in this Section in accordance with API RP 13B-1 and the requirements of Table 1. If more than one batching plant is being used, the testing frequencies shall apply to each batching plant separately.

5. In-Trench Slurry Sampling and Testing:

a. As shown in Table 1, take at least one grab sample of the self-hardening slurry for every shift of work. The samples must be taken from different batch times during the week (e.g., morning and afternoon, alternating).

b. Samples of the in-trench self-hardening slurry should be collected from various locations from the top of trench, mid-height, and bottom of trench. Use sampling device designed to collect isolated sample from target depth. Obtain additional grab samples at any time or location requested by the Engineer. The Contractor must provide personnel who have a working knowledge of API standard test procedures to perform the tests. The Contractor must furnish all the equipment for slurry sampling and testing.

c. Grab samples must be collected from the trench at various depths to be used for permeability and strength testing. Plastic molds used to cast the test specimens must be cylindrical with dimensions of 3-in. diameter and 6-in. height. From each grab sample collected, cast seven (7) cylinder test specimens. Discard and note clumps not passing 1/4-inch screen. Pour wet grab sample into cylinder molds, rod to remove trapped air pockets, and seal. Store the specimens in a reasonably constant temperature (60 to 80 degrees Fahrenheit) and damp environment until tested or until otherwise directed by the Engineer.

d. The Engineer will select at least two sets of seven cylinders for testing per week of operation, or one every 200 lf of containment wall, whichever is more. The selected sets of cylinders will be tested by the Contractors Testing Laboratory. Handle, store, and test samples in accordance with ASTM D4832.

e. Samples for strength testing shall be submitted by the Contractor to a certified independent laboratory approved by the Engineer. One specimen will be tested for strength after curing for 14 days, one after curing for 28 days, and one after curing for 56 days. If the 14-day strength test results indicate the minimum specified strength (20 psi) may not be achieved by 28 days, the 28-day test specimen may be held until 56 days or longer before testing. The Engineer may direct additional strength testing based on results of the testing program.

f. Select two test specimens from the chosen grab samples for permeability testing (hydraulic conductivity) in a triaxial type permeability cell by a certified independent laboratory approved by the Engineer. The Engineer will designate whether permeability testing should be performed after reviewing results of strength testing of samples from the same set of cylinders. The length of curing prior to the start of permeability testing may be varied but will not be less than 28 days. The Engineer may require additional permeability testing with the need for such additional testing determined based, at least in part, on the results of previous sample testing.

g. Quality Control requirements for hardened sepiolite-GGBFS are presented in Table 1.

h. Perform permeability tests in accordance with ASTM D 5084 with the following conditions applied:

1) Average Effective Confining Stress = 100 kPa (14.5 psi).

2) Hydraulic Gradient: Maximum allowed per ASTM D5084.

3) Permeant: Potable water from the site used in mixing operation.

4) Backpressure: Sufficient to ensure a Skempton’s pore pressure parameter b >= 0.95.

5) Continue permeability tests until inflow-outflow measurements or flow rates demonstrate that steady state seepage conditions are evident.

6) Size permeameter cell to accommodate the full height of the specimen as cast (i.e., no trimming or cutting of sample).

G. CORRECTIVE ACTION

1. Whenever tests conducted by the Contractor and/or the Engineer indicate material or workmanship are not in accordance with the Contract Drawings and Specifications, work shall be halted and the cause of the discrepancy shall be identified.

2. Work not in accordance with the Contract Drawings and Specifications shall be removed, replaced, or otherwise corrected so as to conform to the Contract Drawings and Specifications.

H. QUALITY ASSURANCE

1. The Engineer may sample and test independently of the Contractor. Sampling and testing performed independently by the Engineer will be in addition to the specified tests and shall not relieve the Contractor of any testing responsibilities.

2. Sampling and testing performed by the Contractor, work necessary to identify the cause of any nonconformance, and remedial work necessary because of construction not in accordance with the Contract Documents shall be at the Contractor's expense.

3.09 CLEAN-UP

A. After completion of construction operations, remaining material and slurry shall be removed from the ground surface in the construction area, including the mixing areas. The excess slurry shall be spread out on the ground outside of the barrier wall alignment. Location of placement and other necessary clean-up shall be subject to approval of the Engineer.

END OF SECTION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK:

A. Section Includes:

1. Rolled steel section piles
2. Miscellaneous structural steel, roller supports and signage for a complete storm drain utility outfall support.

1.02 REFERENCES

A. ASTM International:

1. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.
2. ASTM A252 - Standard Specification for Welded and Seamless Steel Pipe Piles.

B. American Welding Society:

1. AWS D1.1 - Structural Welding Code - Steel.

C. SSPC: The Society for Protective Coatings:

1. SSPC SP 10 - No. 2 Near White Blast Cleaning.
2. SSPC PAINT 16 - Coal Tar Epoxy Polyamide Black Coating.
3. SSPC PS 11.01 - Black Coal Tar Epoxy Polyamide Painting System.
4. SSPC PA 2 - Measurement of Dry Coating Thickness with Magnetic Gages.

1.03 PERFORMANCE REQUIREMENTS

A. Vibrate piles to achieve the required penetration/tip elevation as indicated on Contract Documents or to practical refusal. For a vibratory pile driver, practical refusal shall be defined as a rate of penetration equal to or less than one (1) inch per minute.

1.04 SUBMITTALS

A. Shop Drawings: Indicate details and schedule of pile installation sequence.

B. Product Data: Submit pile driving equipment data sheets. Submit details of collars, tips and splices.

C. Submit Contractor installation qualifications and welder certifications.

D. Submit painting system, coating tests and inspections documentation.

E. Submit support and hardware.

F. Manufacturer's Mill Certificate: Submit certifications that the steel pipe piles and miscellaneous channel, angle, plate and structural shape steel meets or exceeds specified requirements.

1.05 CLOSEOUT SUBMITTALS

A. Project Record Documents: Accurately record the following:

1. Sizes, lengths and locations of piles.
2. Sequence of driving.
3. Pile driving logs:

a. For vibratory pile driver: Penetration of pile in feet per minute for the entire length of piles.

4. Identify piles requiring drilling and hole diameters.
5. Final base and top elevations.
6. Pile driving equipment and accessories used.
7. Any interruptions in pile driving or unusual driving conditions.

1.06 QUALIFICATIONS

A. Installer: Company specializing in performing Work of this section with minimum three (3) years experience.

B. Monitor pile driving operations by special inspector experienced in this Work.

C. Welders Certificates: Certify welders employed on the Work, verifying AWS and WABO qualification within previous twelve (12) months.

1.07 PRE-CONSTRUCTION MEETINGS

A. Convene minimum one (1) week prior to commencing Work of this section.

1.08 DELIVERY, STORAGE AND HANDLING

A. Provide sufficient dunnage to prevent rubbing of steel to steel during shipment.

B. Protect shop coated piles from damage to applied coating. Use nylon slings to handle coated piles.

1.09 SCHEDULING

A. Do not install piles until area is clear of debris or other material interfering with pile installation. Piles to be installed in the dry (Mudline at pile location is above water’s surface).

PART 2 - PRODUCTS

2.01 MATERIALS

A. Piles:

1. ASTM A252: Steel pipe piles, grade 3, minimum 45 ksi yield strength, sizes and lengths indicated on Contract Documents.

B. Accessories: Points, driving cap, etc. to suit pile shape.

C. Protective Coating: Two part coal tar epoxy polyamide coating system manufactured by Tnemec or preapproved equal meeting the following requirements:

1. Prime Coat: Organic zinc primer meeting SSPC PAINT 20 type II.
2. Top Coats: Top coats of coal tar epoxy polyamide meeting SSPC PAINT 16.
3. Color: Top coat shall be black. Verify color of pile coating system with the Engineer. Primer and top coat shall be different colors.
4. Both the prime coat and the top coats shall be from the same manufacturer to ensure coating system compatibility.

D. Other: Other steel detailed in the outfall structure support and hardware material requirements are detailed in the Contract Documents.

E. Maintain record of coating tests and inspections. Provide test and inspection record to the Engineer.

PART 3 - EXECUTION

3.01 PREPARATION

A. Obtain prior approval of vibratory hammer type to be used.

B. Prepare to place piles from existing site elevations.

C. Paint Coating System:

1. Blast clean each pile to be coated in accordance with SSPC SP 10.

2. Apply prime coat to all surfaces not more than two (2) hours after blast cleaning. Prime coat shall be applied in accordance with SSPC PS 12.01 to a minimum dry film thickness (DFT) of two mils.

3. Apply top coats to all surfaces after the prime coat is fully dry. Top coats shall be applied in accordance with SSPC PS 11.01 to a minimum DFT of 16 mils.

4. Apply coating with uniform gloss and thickness. Cured coating shall be free of blisters, pinholes, fish eyes, sags, runs and other irregularities.

5. Allow coating to fully cure prior to transporting or driving piles.

D. Field Touchup Paint Coating:

1. Provide touchup system for repair of coating defects compatible with shop coating.

2. Before driving, touchup abraded surfaces in coating. Clean and touchup field welds.

3. Apply touchup coating to match shop coating.

3.02 INSTALLATION

A. Vibratory pile installation procedures shall meet the requirements specified in the applicable permits.

B. Install piles only in presence of special inspector that is retained by the Engineer. Provide forty eight (48) hours notice to the Engineer in advance of pile installation operations.

C. Use equipment capable of supporting pile firmly in vertical position.

D. Align top of pile normal to vibratory force of pile to minimize bowing of pile during installation.

E. Install piles to minimum tip penetration or to vibratory resistance indicated in Paragraph 1.03 of this Section. Take corrective action, when required, to prevent observable bowing of pile at final vibratory resistance.

F. Protect pile head during installation operations.

G. Reinstall piles which have lifted due to installation of adjacent piles or by soil uplift (heave).

H. Do not damage piles during operations.

I. Cut off tops of piles to elevations indicated and prepare pile top to receive pile caps.

J. Pile Cut offs shall be the property of the Contractor.

K. Pile installation operations shall occur in the dry between the hours of 7 a.m. and 7 p.m., or as approved by the Engineer.

L. Install pile cap, miscellaneous structural steel, rollers, roller support, signage, hardware and touch up painting in accordance with the Contract Document requirements.

3.03 WELDING AND SPLICING (AS REQUIRED)

A. Perform welding in accordance with AWS D1.1 for shielded metal arc welding.

B. Only use welders qualified in accordance with AWS D1.1.

C. Splice pile sections with one of the following:

1. Complete penetration butt weld of flanges and web.

2. Splicer sleeve with flanges welded with full penetration groove welds.

D. Use jig or alignment device during welding to maintain required specified.

E. For splices made during pile installation, rigid frame pile leads may be used as jig.

F. Use only butt weld splices within 20 feet from pile cutoff elevation or design grade, whichever is lower.

G. Comply with the following for number, type and location of splices:

1. No more than three (3) splices for piles over 100 feet long.

2. No more than two (2) splices for piles up to 100 feet long.

3. No splice closer than 25 feet from tip.

3.04 ERECTION TOLERANCES

A. Maximum Variation from Vertical for Plumb Piles: One (1) in 48.

B. Maximum Variation from Pile Cutoff Elevation: One (1) inch.

C. Maximum Out of Position: Three (3) inches.

D. Maximum Variation in Centerline after Splicing: 3/8 inch in 40 feet for undriven portion.

3.05 FIELD QUALITY CONTROL

A. Unacceptable Piles: Piles that fail tests, are placed out of position, are below cut off elevations or are damaged shall be:

1. Removed and replaced at the direction of the Engineer, or

2. Repaired/modified at the direction of the Engineer.

3. The decision to either remove and replace or to repair/modify unacceptable piles shall be at the sole discretion of the Engineer.

4. Contractor shall bear all additional costs due to either removal and replacement or repair/modification of unacceptable piles.

B. Provide additional piles or replace piles to conform to specified requirements.

C. All welds will be 100% inspected and tested using nondestructive testing methods.

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. Schedule: Coordinate with project scheduling requirements are detailed in Section 01 32 16 – Construction Progress Schedule.

B. Weather Limitations: HMA shall not be placed on a wet surface, or when the average surface temperatures are less than 40°F.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Aggregates:

1. General: Use locally available materials and gradations that exhibit satisfactory record of previous installations.

B. Crushed Surfacing Aggregate: Crushed Surfacing aggregate material shall be manufactured from ledge rock, talus, or gravel sources. Recycled aggregate materials are NOT allowed for use as Crushed Surfacing Materials. The materials shall be uniform in quality and substantially free from wood, roots, bark, and other extraneous material.

1. Los Angeles Wear, 500 Revolutions, 35% maximum.
2. Degradation Factor – Crushed Surfacing Top Course: 25 minimum and Crushed Surfacing Base Course :15 minimum.
3. Crushed Surfacing Top Course material shall comply with the following requirements for grading and quality at the project site.

Sieve Size	Percent Passing
3/4”	99-100
1/2”	80-100
No. 4	46-66
No. 40	8-24
No. 200	10.0 maximum
% Fracture	75% minimum
Sand Equivalent	40 minimum
All percentages are by weight	

a. The fracture requirement shall be at least one fractured face and will apply to the combined aggregate retained on the No. 4 sieve in accordance with FOP for AASHTO T 335.

b. The portion of crushed surfacing retained on a No. 4 sieve shall not contain more than 0.15 percent wood waste.

4. Crushed Surfacing Base Course material shall comply with the following requirements for grading and quality at the project site.

Sieve Size	Percent Passing
1-1/4”	99-100
1”	80-100
5/8”	50-80
No. 4	25-45
No. 40	3-18
No. 200	7.5 maximum
% Fracture	75% minimum
Sand Equivalent	40 minimum
All percentages are by weight	

a. The fracture requirement shall be at least one fractured face and will apply to the combined aggregate retained on the No. 4 sieve in accordance with FOP for AASHTO T 335.

b. The portion of crushed surfacing retained on a No. 4 sieve shall not contain more than 0.15 percent wood waste.

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
3/4"	99-100
1/2"	90-100
3/8"	90 maximum
1/4"	55-75
No. 8	23-49
No. 40	11-24
No. 200	2.0 - 7.0
% Fracture	75% minimum
All percentages are by weight	

   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.

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 2024 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	

C. 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.

D. Job Mix Formula Test Results:

1. 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

The mix criteria VMA and VFA only apply to HMA accepted by statistical evaluation.

2.04 ASPHALT PAVING SOURCE QUALITY CONTROL

A. Submit proposed mix design of each class of mix for review prior to beginning of Work.

B. Test samples in accordance with WSDOT Standard Specification Section 5-04.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify permanent barrier wall protective cap where subject to traffic has been properly compacted.

3.02 ASPHALT PAVEMENT INSTALLATION

A. Provide asphalt section base course aggregates in accordance with plan cross sectional requirements. Compact base course aggregates to 95% optimum density.

B. Place asphalt mix by hand 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.

C. Place in strips not less than five 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.

D. Promptly correct surface irregularities in paving course. 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.

E. Rolling: 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.

4. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

F. Joints: Construct joints to have same texture, density and smoothness as other sections of asphalt concrete course. Clean contact surfaces.

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 parallel to centerline

2. ¼ inch transverse to centerline

3. 3/16 inch when no discernible centerline

B. Variation from Required Finish Grade Elevation: 1/2 inch.

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 Engineer.

B. The Engineer may test in place asphalt concrete courses for compliance with requirements for compaction. 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.

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 (3) 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.

C. 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 F.

END OF SECTION

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PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. The Work includes cast-in-place concrete for the following:

1. Concrete surface slabs on grade.
2. Outfall slabs and headwalls.
3. Utility Structures.

1.02 SUBMITTALS

A. Product Data: Submit data on the following products:

1. Concrete admixtures.
2. Curing compounds.
3. Fiber reinforcement.
4. Steel reinforcement materials.
5. Accessories.

B. Submit Certificates of Compliance documentation for all specified products.

C. Design Data: Submit concrete mix designs that identify mix ingredients and proportions, including admixtures.

1. Each concrete strength.
2. Air entrained concrete work.

D. Submit Certificates of Compliance documentation provided with each delivered concrete truckload certifying conformance Contract Document requirements.

E. Submit Certificate of Compliance documentation indicating Work performed at fabricator's facility conforms to Contract Documents

1.03 QUALITY ASSURANCE

A. Perform Concrete work in accordance with American Concrete Institute (ACI) requirements:

1. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials.
2. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.
3. ACI 308.1 - Standard Specification for Curing Concrete.
4. ACI 318 - Building Code Requirements for Structural Concrete.
5. ACI 347 - Guide to Formwork for Concrete.
6. ACI SP-66 - ACI Detailing Manual.

B. Pre-Cast concrete shall comply with the 6th Edition of the PCI Design Handbook: Precast and Pre-stressed Concrete requirements.

C. Perform reinforcement work in accordance with Concrete Reinforcing Steel Institute requirements:

1. CRSI - Manual of Standard Practice.

2. CRSI - Placing Reinforcing Bars.

D. Acquire cement and aggregate from one source for Work.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Handle precast members in position consistent with their shape and design. Lift and support only from support points.

B. Lifting or Handling Devices: Capable of supporting member in positions anticipated during manufacture, storage, transportation, and erection.

C. Protect members to prevent staining, chipping, or spalling of concrete.

D. Mark each member with date of production and final position in structure.

PART 2 - PRODUCTS

2.01 CONCRETE MATERIALS

A. All project concrete shall be air entrained 4,000 psi, 28 day strength concrete.

1. Maximum slump is 4 1/2" for concrete without plasticizer. If plasticizer is used, a higher final slump may be allowed upon Engineer's approval.

2. Maximum water/cement ratio (w/c) shall be 0.55 for general concrete, and 0.47 for slabs.

3. The cement shall be in conformance with ASTM C-150.

4. Use 1 1/2" minus coarse aggregate for concrete 6" thick and greater; use 3/4" minus coarse aggregate for thinner sections in accordance with ASTM C-33.

5. Provide air entrainment in conformance with ASTM C-260 (5% ± 1%) in concrete exposed to freeze-thaw action.

6. The pozzolanic material will be in conformance with ASTM C-618-05.

7. High early calcium chloride materials shall not be allowed.

8. Use of slag materials shall not be allowed.

B. The Contractor may provide an alternate concrete mix design in support of required utility structure performance design criteria in Section 33 05 63 – Utility Vaults and Structures.

C. All concrete surfacing slabs shall be fiber-reinforced.

1. Fiber-reinforced concrete shall contain 1.5 pounds per cubic yard fibers such as "Fibermesh 300” polypropylene fibrillated fibers by Propex concrete systems, or approved equal.

2. Add to concrete mix per the manufacturer’s instructions.

3. Fibers shall conform to ASTM C1116, type III.

2.02 REINFORCEMENT MATERIALS

A. Reinforcing Steel: Shall comply with ASTM A706, 60 ksi yield grade, deformed billet bars, uncoated finish.

B. Form reinforcement bends with minimum diameters in accordance with ACI 318.

C. Provide straight continuous lengths of reinforcement.

D. Tie Wire: Minimum 16 gage annealed type.

E. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions.

F. Reinforcing Splicing: Provide required lap lengths. Welding is not acceptable.

2.03 FORM MATERIALS

A. Form Materials: At discretion of Contractor.

B. Lumber Forms:

1. Application: Use for edge forms and unexposed finish concrete.

2. Boards: 2 inches or 4 inches in width, ship lapped or tongue and groove, “Standard” Grade Douglas Fir, conforming to WCLIB Standard Grading Rules for West Coast Lumber. Surface boards on four sides.

3. Nails, Lag Bolts, Through Bolts, Anchorages: Size, strength and character to maintain formwork in place while placing concrete.

C. Preformed Steel Forms: Minimum 16 gage matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surfaces

D. Form Release Agent: Colorless mineral oil that will not stain concrete, or absorb moisture.

2.04 ACCESSORIES

A. Evaporation Reducer: Confilm by Master Builders or approved equivalent. Spray apply immediately after screeding at the rate of 300 square feet per gallon.

2.05 SOURCE QUALITY CONTROL AND TESTS

A. Provide Certification of Compliance documentation with each delivered truckload of concrete. The Certificate of Compliance shall verify that the delivered concrete conforms to the approved design mix. The Certificate shall include the following:

1. Manufacturer’s plant (batching facility) name

2. Project Name.

3. Date

4. Time batched

5. Truck Number

6. Initial revolution counter reading

7. Quantity (quantity batched this load)

8. Type of concrete by class and producer design mix number

9. Cement producer, type, and Mill Certification Number

10. Approved aggregate gradation designation

11. Mix design weight per cubic yard and actual batched weights for:

a. Cement

b. Coarse concrete aggregate and moisture content (each size)

c. Fine concrete aggregate and moisture content

d. Water (including free moisture in aggregates)

e. Admixtures brand and total quantity batched

f. Air-entraining admixture

g. Water-reducing admixture

h. Other admixture

12. For concretes that use combined aggregate gradation, include the aggregate components and moisture contents for each size in lieu of the aggregate information described above.

13. Certificate shall be signed by a responsible representative of the concrete producer, affirming the accuracy of the information provided for each load of concrete delivered to the project.

B. When the pre-cast fabricator is approved by the Engineer, provide certificate of compliance indicating Work performed at fabricator's facility conforms to Contract Documents.

1. Specified shop tests are not required for Work performed by approved fabricator.

PART 3 - EXECUTION

3.01 GENERAL

A. All concrete construction shall conform to ACI.

3.02 EXAMINATION

A. Remove soils, debris and ice from formwork, reinforcement, and concrete substrates.

B. At concrete slab locations, verify concrete slab subgrade is ready for concrete work.

1. Verify that the concrete subgrade is compacted and approved prior to starting concrete work.

C. Verify requirements for concrete cover over reinforcement.

3.03 FORMWORK INSTALLATION AND REMOVAL

A. Formwork - General:

1. Construct forms to correct shape and dimensions, braced, and of sufficient strength to maintain shape and position under imposed loads from construction operations.

2. Carefully verify horizontal and vertical positions of forms. Correct misaligned or misplaced forms before placing concrete.

3. Complete wedging and bracing before placing concrete.

4. Keep wood forms wet until stripped

B. Erect formwork, shoring, and bracing to achieve design requirements in accordance with requirements of ACI 347.

C. Apply form release agent on formwork in accordance with manufacturer's recommendations. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.

D. Locate and set in place required embed items to be cast directly into concrete. Install straight, level, and plumb. Ensure items are not disturbed during concrete placement.

E. Openings:

1. Frame openings in concrete where indicated in Contract Documents in location and size for the intended purpose.
2. Coordinate work to avoid cutting and patching of concrete after placement.
3. The Contractor may core drill concrete at required opening locations instead of framing opening.

F. Screeds:

1. Set screeds and establish levels for tops of concrete surfacing slabs and levels for finish on slabs.
2. Slope surfacing slabs to drain where required or as shown in the Contract Documents.
3. Before depositing concrete, remove debris from space to be occupied by concrete and thoroughly wet forms. Remove freestanding water.

G. Form Removal:

1. Leave forms in place for minimum number of days as specified in ACI 347. Strip formwork after the concrete has set. Do not damage concrete during stripping.
2. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
3. Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged. Discard damaged forms.

H. Form Cleaning: Thoroughly clean forms and reapply form coating before each reuse. For exposed work, do not reuse forms with damaged faces or edges. Apply form coating to forms in accordance with manufacturer’s specifications. Do not coat forms for concrete indicated to receive “scored finish.” Apply form coatings before placing reinforcing steel.

3.04 PLACING REINFORCEMENT

A. Place, support and secure reinforcement against displacement. Do not deviate from required position beyond specified tolerance.

B. Do not weld crossing reinforcement bars for assembly.

C. Accommodate placement of formed openings.

D. Space reinforcement bars with minimum clear spacing in accordance with ACI 318 and Concrete Reinforcing Steel Institute requirements.

1. Where bars are indicated in multiple layers, place upper bars directly above lower bars.
2. Maintain concrete cover around reinforcement in accordance with ACI 318.

Cast Against and permanently exposed to earth	3 inches
Exposed to earth or weather #6 or larger #5 or smaller	 2 inches 1-1/2 inches

E. Provide full length reinforcement pieces in all installations.

F. Lap splices, shall be class "B" tension lap splices per ACI 318. Stagger splices a minimum of (1) lap length. All reinforcing shall be chaired to ensure proper clearances. Support of foundation reinforcing shall provide isolation from moisture and corrosion.

3.05 PLACING CONCRETE

A. Notify Engineer a minimum 48 hours prior to commencement of operations.

B. Ensure reinforcement, inserts, embedded parts, formed expansion and contraction joints are not disturbed during concrete placement.

C. Place concrete in accordance with ACI 318. Execute pours in one continuous pour. Do not interrupt successive placement; do not permit cold joints to occur.

D. Mechanically vibrate all concrete when placed.

E. Deposit concrete at final position. Prevent segregation of mix.

F. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

3.06 CONCRETE FINISHING

A. Plant Finish of Pre-Cast Items: Normal plant finish; surface may contain small surface holes caused by air bubbles, minor chips or spalling at edges or ends, without major discoloration or pocketing.

B. Concrete Surface Slabs: Concrete surface slabs shall consist of a medium broom finish with a steel troweled edge.

C. Cure members under identical conditions to develop required concrete quality, and minimize appearance blemishes including non-uniformity, staining, or surface cracking

3.07 CURING AND PROTECTION

A. Cure concrete in accordance with ACI 308.1 requirements.

B. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

C. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

3.08 REPAIR WORK

A. Repair spalling. Fill voids flush with surface.

3.09 FIELD QUALITY CONTROL

A. General: Field Quality Control testing and sampling shall be performed by the Engineer in accordance with Section 01 45 00 - Quality Control requirements.

B. Reinforcement Inspection:

1. Placement Acceptance: Specified material requirements and specified placement tolerances.

2. Periodic Placement Inspection: Inspect for correct materials, fabrication, sizes, locations, spacing, concrete cover, and splicing.

3. Notify Engineer after placement of reinforcing steel in forms, but prior to placing concrete.

C. Concrete Inspections:

1. Continuous Placement Inspection: Inspect for proper installation procedures.
2. Periodic Curing Inspection: Inspect for specified curing temperature and procedures.

D. Strength Test Samples: Comply with the following requirements:

1. Sampling Procedures: ASTM C172.
2. Cylinder Molding and Curing Procedures: ASTM C31/C31M, cylinder specimens, field cured.

E. Field Testing: Comply with the following requirements:

1. Slump Test Method: ASTM C143/C143M.
2. Air Content Test Method: ASTM C173/C173M or ASTM C231.
3. Temperature Test Method: ASTM C1064/C1064M.
4. Measure slump and temperature for each compressive strength concrete sample.
5. Measure air content in air entrained concrete for each compressive strength concrete sample.

F. Cylinder Compressive Strength Testing: Comply with the following requirements:

1. Test Method: ASTM C39/C39M.
2. Test Acceptance: In accordance with ACI 318.
3. Test one cylinder at 7 days.
4. Test one cylinder at 14 days.
5. Test two cylinders at 28 days.
6. Retain one cylinder for 28 days for testing when requested by Engineer.
7. Dispose remaining cylinders when testing is not required.

G. Maintain records of concrete placement. Record date, location, quantity, air temperature and test samples taken.

3.10 ACCEPTANCE AND REJECTION OF CONCRETE

A. Acceptance:

1. The Engineer shall accept concrete that conforms to the Contract Document requirements.

B. Rejection:

1. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Engineer upon discovery.
2. Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
3. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Engineer for each individual area.
4. Repair or replacement of defective concrete will be determined by Engineer.

5. Rejection Without Testing – The Engineer, prior to sampling, may reject all batches or loads of concrete that appear defective in composition; such as cement content or aggregate proportions. Rejected material shall not be incorporated in the project.

END OF SECTION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Section Includes:

1. Providing and placing Compost Amended Topsoil
2. Final grade Compost Amended Topsoil for finish landscaping
3. Fertilizing
4. Seeding
5. Maintenance.

1.02 REFERENCES

A. Washington Administrative Code (WAC) 173-303 Dangerous Waste Regulations.

B. Washington Administrative Code (WAC) 173-350 Solid Waste Handling Standards.

1.03 DEFINITIONS

A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass, Scotch Broom, Blackberry, Butterfly Bush, Poison Hemlock and Japanese Knotweed.

B. Compost Amended Topsoil: Compost amended topsoil is topsoil that is amended with compost.

1.04 SUBMITTALS

A. Submit seed mix, fertilizer and other accessories.

B. Submit seed vendor licenses and endorsements for approval. All seed vendors shall have a business license issued by the Washington State Department of Licensing with a “seed dealer” endorsement.

C. Submit gradation analysis for the following materials:

1. Topsoil
2. Compost
3. Blended amended compost topsoil mixture.

D. Submit Certifications of Compliance documents that materials meet or exceed specified requirements, and complies with WAC 173-350 and WAC 173-303 requirements. Submit analytical chemistry results.

E. Submit company qualifications, experience and personnel used for Engineer approval.

F. Submit import materials source for Engineer approval.

G. Submit topsoil subgrade pH analysis.

H. Submit soil analysis of Compost Amended Topsoil for recommended soil amendments.

I. Submit recommended soil amendments for the Compost Amended Topsoil.

1.05 CLOSEOUT SUBMITTALS

A. Provide seed lot bag tags.

1.06 QUALITY ASSURANCE

A. Provide topsoil and compost material from single source throughout the Work.

B. Provide seed mixture in containers showing percentage of seed mix, germination percentage, inert matter percentage, weed percentage, year of production, net weight, date of packaging, and location of packaging.

1.07 QUALIFICATIONS

A. Seed Supplier: Company specializing in manufacturing Products specified in this section with minimum three years' experience.

B. Installer: Company specializing in performing work of this section with minimum three years of experience.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver seed mixture in sealed containers. Seed in damaged packaging is not acceptable.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

C. Deliver Compost Amended Topsoil and stockpile in onsite locations in quantities to execute the work, being careful not to contaminate stockpiled import topsoils with existing onsite soils prior to installation.

PART 2 - PRODUCTS

2.01 TOPSOIL MATERIALS

A. Topsoil: Topsoil material shall be fertile, agricultural soil, naturally occurring sandy loam material, friable surface soil without admixtures of undesirable subsoil, refuse, or foreign materials typical for locality. It shall be capable of sustaining vigorous vegetation growth. Topsoil shall be free of subsoil, clay or impurities, coarse gravel, stones larger than one inch in any dimension, plants, Weeds roots, noxious Weeds, tall grass, brush, sticks, stubble or other material which would be detrimental to the proper development of vegetative growth and not be obtained from bogs or marshes. The pH value shall be a minimum 5.4 and maximum 7.0 and conform to the following gradation requirements.

Sieve Sizes	Percentage Passing
1-inch	100%
1/2 inch	95%-100%
No.4	75%-100%
No.10	60%-100%
No.200	10%-60%

2.02 COMPOST MATERIALS

A. Compost: Shall comply with the following requirements.

1. Compost shall meet the definition of "Composted Materials" in WAC 173-350-220 (including contaminant levels and other standards), available online at

   http://apps.leg.wa.gov/wac/default.aspx?cite=173-350-100.

2. Compost shall be produced at a composting facility permitted by the Washington State Department of Ecology in accordance with WAC 173-350-220 requirements, available at:

   http://apps.leg.wa.gov/wac/default.aspx?cite=173-350-220.

   A current list of permitted facilities is available through:

   Composting - Washington State Department of Ecology.

   https://ecology.wa.gov/waste-toxics/reducing-recycling-waste/organics-and-food-waste/managing-organics-compost

3. The compost product shall consist of a minimum of 65 percent by volume from recycled plant waste as defined in WAC 173-350-100 as "Type 1 Feedstocks." A maximum of 35 percent by volume of other approved organic waste as defined in WAC 173-350-100 as "Type 3", including postconsumer food waste, but not including biosolids, may be substituted for recycled plant waste.

4. Compost shall be stable (low oxygen use and CO2 generation) and mature (capable of supporting plant growth) by tests as required below.

   a. Moisture content range: no visible free water or dust produced when handling the material.

   b. Tested in accordance with the U.S. Composting Council "Testing Methods for the Examination of Compost and Composting" (TMECC), as established in the composting council's "Seal of Testing Assurance" (STA) program.

   c. Screened to the size gradations for fine compost under TMECC Test Method 02.02B as required below:

Sieve Sizes	Percentage Passing
1-inch	99%-100%
5/8 inch	90%-100%
¼ inch	40%-90%

   d. pH between 5.5 and 8.0 (TMECC 04.11A) if the pH falls outside of the acceptable range, it may be modified with lime to increase the pH or iron sulfate plus sulfur to lower the pH. The lime or iron sulfate shall be mixed uniformly into the soil prior to use.

   e. Manufactured inert content (plastic, concrete, ceramics, metal, etc.) less that 1% by weight (TMECC 03.08A).

   f. Have organic matter content between 45% and 65% by weight bases as determined by TMECC 05.07A, “Loss on Ignition Organic Matter Method.”

   g. Soluble salt content less than 4.0 mmhos/cm tested in accordance with TMECC 04.10A, “1.5 Slurry Method, Mass Basis.”

   h. Maturity greater than 80% in accordance with TMECC 05.05A, "Germination and Vigor."

   i. Stability of 7 or below in accordance with TMECC 05.08B, "Carbon Dioxide Evolution Rate".

   j. Carbon to nitrogen ratio of less than 25:1 as determined by TMECC 04.01, "Total Carbon" and 04.02D, "Total Kjeldahl Nitrogen". The C:N ratio may be up to 35:1 for plantings composed entirely of Puget Sound lowland native species.

2.03 COMPOST AMENDED TOPSOIL MIXES

A. General: The Compost Amended Topsoil mix product pH shall match the existing soil subgrade pH. Provide detailed recommendations for potential soil amendments such that the Compost Amended Topsoil mix pH matches the underlying topsoil subgrade pH prior to placement.

B. Compost Amended Topsoil Mix #1: The Compost Amended Topsoil mix #1 is a blend of specified topsoil #1 material and compost. The blended mix or the Compost Amended Topsoil mix #1 shall consist of a mixture of 70% topsoil and 30% compost by volume.

2.04 SEED MIXES

A. General: Specified seed mixes shall conform to the standards for “Certified” grade seed or better as outlined by the State of Washington Department of Agriculture “Rules for Seed Certification”, latest edition. Seed shall be furnished in standard containers on which shall be shown the following information:

1. Common and botanical names of seed.
2. Lot number.
3. Net weight.
4. Pure live seed.

B. Seed which has become wet, moldy, or otherwise damaged in transit or storage will not be accepted.

C. Provide seed mix in accordance with the following requirements.

1. Provide erosion control seed mix in accordance with the following requirements:

Erosion Control Seed Mix			
Common Name Scientific Name	% Weight	% Purity	% Germination
Creeping Red Fescue Festuca rubra var. rubra	40 - 50	92	85
Perennial Ryegrass Lolium perenne	40 - 50	98	90
Redtop or Colonial Bentgrass Agrosstis alba or Agrostis capillaris	5 - 10	92	85
No Clover	0		

2.05 ACCESSORIES

A. Fertilizer: Commercial grade; recommended for vegetation establishment; of proportion necessary to eliminate deficiencies of topsoil as indicated in analysis conforming to requirements. Fertilizer shall be a standard commercial grade of organic or inorganic fertilizer. It may be separate or in a mixture containing the percentage of total nitrogen, available phosphoric acid, and water-soluble potash in the amounts specified. All fertilizers shall be furnished in standard unopened containers with weight, name of plant nutrients, and manufacturer’s guaranteed statement of analysis clearly marked, all in accordance with State and Federal laws.

B. Tackifier: Tackifiers shall be organic based, derived from natural plant sources and shall have an MSDS that demonstrates to the satisfaction of the Engineer that the product is not harmful to plants, animals, and aquatic life. The tackifier shall contain no growth or germination-inhibiting materials and shall not reduce infiltration rates. Tackifiers shall hydrate in water and readily blend with other slurry materials requirements and comply with the following requirements:

Properties	Test Method	Requirements
Heavy Metals	EPA 6020B Total Metals	Antimony – < 4 mg/kg Arsenic – < 6 mg/kg Barium – < 80 mg/kg Boron – < 100 mg/kg Cadmium – < 2 mg/kg Chromium – < 2 mg/kg Copper – < 5 mg/kg Lead – < 5 mg/kg Mercury – < 2 mg/kg Nickel – < 2 mg/kg Selenium – < 10 mg/kg Strontium – < 30 mg/kg Zinc – < 5 mg/kg
Solvents	EPA 8260D	Benzene – < 0.03 mg/kg Methylene chloride – < 0.02 mg/kg Naphthalene – < 5 mg/kg Tetrachloroethylene – < 0.05 mg/kg Toluene – < 7 mg/kg Trichloroethylene – < 0.03 mg/kg Xylenes – < 9 mg/kg
Acute Toxicity	EPA-821-R-02-012 Methods for Measuring Acute Toxicity of Effluents. Test leachate from recommended application rate	Four replicates are required with no statistically significant reduction in survival in 100 percent leachate for a Daphnid at 48 hours and

	receiving 2 inches of rainfall per hour using static test for No-Observed-Adverse-Effect Concentration (NOEC).	Oncorhynchus mykiss (rainbow trout) at 96 hours.
Viscosity	ASTM D 2364.Testing shall be performed by an accredited, independent laboratory	4000 cPs minimum

C. Mulch: Mulch shall be a blend of angular, loose, long, thin wood pieces that are frayed, with a high length-to-width ratio, and it shall be derived from native conifer or deciduous trees. The mulch wood strand shall have lengths between 1/16 and 3/4 inch. The mulch shall not contain salt, preservatives, glue, resin, tannin, growth inhibiting agents or other compounds in quantities that would be detrimental to plant life. Sawdust or wood chips or shavings will not be acceptable. Mulch shall conform to the following requirements:

1. Comply with Performance in Protecting Slopes from Rainfall Induced Erosion requirements in ASTM D 6459. Test in one soil type. Soil tested shall be sandy loam as defined by the NRCS Soil Texture Triangle.
2. The maximum C Factor = 0.01 using Revised Universal Soil Loss Equation (RUSLE).

D. Water: Clean, fresh and free of substances or matter capable of inhibiting vigorous growth of grass.

2.06 SOURCE QUALITY CONTROL

A. Analyze the existing common soils at the topsoil subgrade for pH.

B. Analyze Compost Amended Topsoil to ascertain percentage of nitrogen, phosphorus, potash, soluble salt content, organic matter content, and pH value of topsoil. The import topsoil shall match the existing topsoil subgrade pH.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify prepared topsoil subgrade is ready to receive the Work of this section.

3.02 PREPARATION

A. Protect existing facilities.

B. Verify required underground utilities are available, in proper location, and ready for use.

C. Remove foreign materials, weeds and undesirable plants and their roots.

3.03 INSTALLATION

A. Sequencing:

1. The Contractor scarify the existing subgrade located in seeded area prior to placement of topsoil
2. Place Compost Amended Topsoil in these areas immediately. The topsoil subgrade shall not be exposed for more than one day.
3. Install seeding.

B. Placing Compost Amended Topsoil:

1. Place Compost Amended Topsoil at required locations to the depths and cross sectional.
2. Do not place topsoil on muddy or excessively wet subgrade. Place topsoil during dry weather.
3. Do not mix or contaminate the import topsoil with existing site soils prior to placement of the topsoil.
4. Remove existing roots, weeds, rocks, and foreign material while spreading.
5. Fine grade topsoil to eliminate rough or low areas. Maintain profiles and contour of subgrade.
6. The soil shall be in a weed free and bare condition.

C. Seeding/Hydroseeding:

1. The Contractor shall notify the Engineer not less than 48 hours in advance of any seeding operation and shall not begin the Work until areas prepared or designated for seeding have been approved. Following the Engineer's approval, seeding of the approved slopes shall begin immediately.
2. Do not hydroseed or sow seed immediately following rain, when ground is too dry, or when winds are over 12 mph.
3. Seed or seed and fertilizer may be sown by one of the following methods:
   a. An approved hydro seeder that utilizes water as the carrying agent, and maintains continuous agitation through paddle blades. It shall have an operating capacity sufficient to agitate, suspend, and mix into a homogeneous slurry the specified amount of seed and water or other material. Distribution and discharge lines shall be large enough to prevent stoppage and shall be equipped with a set of hydraulic discharge spray nozzles that will provide a uniform distribution of the slurry.
   b. Areas in which the above methods are impractical may be seeded by approved hand methods. When seeding by hand, the seed shall be incorporated into the top ¼ inch of soil by hand raking or other method that is approved by the Engineer.
4. Apply seed at the following rates:

Seed Mix Number	Seeding Rate
Erosion Control seed mix	180 pounds per acre

5. Apply mulch at the following rates:

Seed Mix Number	Mulch Rate
Erosion Control seed mix	3,000 pounds per acre

6. Apply fertilizers at recommended rates. All fertilizers shall not vary the underlying soil subgrade pH.
7. Apply tackifiers with hydro seeder methods at recommended rates. Tackifiers are not required when seed is installed via approved power-drawn drills and seeders.
8. Seed, fertilizer and tackifier may be applied in one application provided that the fertilizer is placed in the hydro seeder tank no more than 1 hour prior to application.
9. Do not seed areas in excess of that which can be covered with erosion control blanket material on same day or unless weather permits with Engineer approval.

10. After application, apply water with fine spray immediately after each area has been mulched. Saturate to 4 inches of soil.
11. Cover required biofiltration swale stormwater treatment facilities and vegetative filter strip seeded areas with erosion control blanket in accordance with Contract Document requirements. Coordinate with Section 01 57 13 – Temporary Erosion and Sediment Control and Construction Stormwater Pollution Prevention requirements.

D. Mulching: Mulch shall be provided with hydro seeder and hand installation methods at the rates indicated herein and shall be spread on seeded areas within 24 hours after seeding. Mulch shall adhere to the soil and create a blanket like mass within 2 hours of application and shall bond with the soil surface to create a continuous, porous, absorbent, and flexible erosion-resistant blanket that allows for seed germination and plant growth.

1. Seed mix areas utilizing hydro seeder installation methods shall apply 25% - 30% of the required mulch with water during the first lift or spray application. The remaining mulch may be mixed in the hydro seeder tank with water, seed, fertilizer, and tackifier to produce one even second lift or spray application over the first lift within the time frame specified herein.

3.04 TOLERANCES

A. Top of Topsoil: Plus or minus 1/2 inch of finish grade.

3.05 PROTECTION OF INSTALLED WORK

A. Prohibit construction traffic over topsoil and seeded areas.

3.06 MAINTENANCE

A. Provide all water needed for establishment and maintenance of vegetated areas.

B. Observe growth of seeded areas for a period of 90 days. If the growth appears healthy and established, then the work will be acceptable. If the seeding does not appear healthy, then the Contractor shall reseed the area at no cost.

C. Water to prevent seed and soil from drying out.

D. Control growth of weeds. Apply herbicides. Remedy damage resulting from improper use of herbicides.

E. Immediately reseed areas showing bare spots.

F. Repair washouts or gullies.

G. Protect seeded areas during maintenance period.

3.07 PROTECTION

A. The Contractor shall protect vegetation located outside of the work area, unless directed by the Engineer to facilitate the Work.

B. If vegetation outside of the work area is damaged or destroyed by construction, the Contractor shall replace it with comparable species and grade as required by the Engineer.

C. Vegetation located within the work area, either alive or dead, shall be removed by the Contractor and disposed of at an approved landfill.

END OF SECTION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Section includes:

1. Storm Drain Utility System Catch Basins, Manholes and Vaults
2. Adjusting existing utility manhole frames and covers
3. Utility Frames and Covers.
4. Utility Structure Adapters
5. Catch Basin Protection Devices

1.02 REFERENCES

A. Washington State Department of Transportation

1. 2026 Standard Specifications for Road, Bridge, and Municipal Construction, publication M41-10.

1.03 SUBMITTALS

A. General: All project utility structures are required to comply with project loading requirements herein, unless specifically exempted.

B. Shop Drawings: Submit Utility Structure shop drawings. The shop drawings shall include detailed calculations (design loads, deflections, bearing requirements), details and shall be stamped by a structural engineer registered in the State of Washington for each utility structure.

1. Provide detailed shop drawings of each utility structure assembly and the components in the assembly for the required installation.
2. Indicate layout and fabrication details.
3. Indicate reinforcing steel bar sizes, spacing’s, locations, bending and cutting schedules, supporting and spacing devices.
4. Indicate pertinent dimensions, openings, methods of construction, types of connections, materials, joint arrangement and details.
5. Indicate grade ring adjustment sections.
6. The shop drawings shall indicate structure identification (names), locations, elevations, sections, piping and conduit penetrations and sizes.

C. Product Data:

1. Submit frames, grates, covers and dimensions for all project metal work.
2. Submit utility structure adapters for storm drain utility structures.
3. Submit ladders and steps.
4. Submit utility structure exterior coatings.
5. Utility structure joint sealants and gaskets.
6. Catch Basin Structure protection devices.
7. Non Shrink Grout.

8. Concrete shall comply with Section 32 13 13 – Concrete Paving requirements unless otherwise specified in the design build calculations/design.

D. Manufacturer's Certificates: Submit Certification of Compliance documents, supporting data, from materials suppliers attesting that provided precast concrete utility structures meet or exceed specification requirements.

1. Submit test report of the exterior coating DFT of each structure.

1.04 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record location of pipe runs, connections, manholes, cleanouts, and invert elevations in accordance with Section 01 71 23 - Field Engineering requirements.

B. Submit utility structure vacuum test logs and results.

1.05 JOB CONDITIONS

A. Utility Structure Design Loading Requirements: All utility structures for the storm drain utility system shall comply with the following design loading requirements:

1. All utility structures and metal work shall be able to withstand industrial vehicular axle loading up of 240 kips, and wheel loading of 125 kips. The maximum industrial vehicle tire pressure is 150 psi.

2. Provide detailed calculations and details stamped by a structural engineer registered in the state of Washington for each utility structure type.

1.06 QUALITY ASSURANCE

A. Obtain precast concrete utility structures from single source.

B. Perform structural design in accordance with ACI 318.

C. Perform Work in accordance with NPCA Quality Control Manual for Precast Plants.

D. Perform Work in accordance with Contract Document requirements.

1.07 DELIVERY, STORAGE AND HANDLING

A. Comply with precast concrete manufacturer's instructions for unloading, storing and moving precast structures. Lift structures from designated lifting points.

B. Do not deliver products until concrete has cured 7 days or attained minimum 80 percent of specified 28 day compressive strength.

C. Store precast concrete structures to prevent damage to Port's property or other public or private property. Repair property damaged from materials storage.

D. Mark each precast structure by indentation or waterproof paint showing date of manufacture, manufacturer, and identifying symbols and numbers shown on Contract Documents to indicate its intended use.

E. Transport and handle precast concrete units with equipment designed to protect units from damage.

F. Do not place concrete units in position to cause overstress, warp or twist.

PART 2 - PRODUCTS

2.01 PRECAST CONCRETE UTILITY STRUCTURES

A. General: Utility Structures shall be reinforced precast concrete in accordance with project utility structure requirements.

1. All pre-cast utility structures shall comply with project design loading requirements specified herein, except for ACB 13.

2. Concrete and reinforcement shall be in accordance with the approved shop drawing requirements.

B. Storm Drain System Utility Structures:

1. Minimum vault type utility structure dimensional requirements are detailed in the Contract Documents. Actual utility structure dimensions shall be provided in the shop drawing submittals.

2. No drain lines for vault type utility structures shall be provided.

3. Catch basin type utility structure dimensional requirements are detailed in the Contract Documents. Actual utility structure dimensions shall be provided in the shop drawing submittals.

4. Utility structure ACB 13 does not need to comply with project loading requirements. ACB 13 shall comply with WSDOT Standard Plan B-10.20-03 and Contract Document dimensional requirements.

2.02 CONFIGURATION

A. Shape: Cylindrical and Rectangular.

B. Clear Inside Dimensions: As indicated on Contract Documents and approved submittals.

C. Clear Cover Opening: As indicated on Contract Documents and approved submittals.

D. Pipe and Conduit Openings: Provide core drill openings as indicated on Contract Documents and approved submittals.

E. Steps and Ladders: Provide Utility Structure steps and ladders in accordance with Contract Document requirements.

2.03 FRAMES AND COVERS

A. General: All utility structure metal work requires a design/submittal/build process. All utility structure metal work shall comply with project loading requirements provided herein.

1. Metal work materials may conform to ASTM A536 ductile, ASTM A48 cast iron or other recognized ASTM requirements provided they comply with project loading requirements.

2. Fabricated steel grates and frames require Engineer approval. Fabricated steel frame and graters require a coating that will withstand industrial traffic wear and corrosion protection that from the weather elements for 30+ years. Fabricated steel frames and covers provided with a hot dipped galvanized protective coating alone is not acceptable.

B. Storm Drain Utility:

1. Metal Work:

a. Round frame and cover types and dimensioning requirements are shown on the Contract Documents. All covers shall be lock type with 5/8 inch diameter stainless steel bolts with ½ inch Allen wrench heads. Solid covers shall be stamped “STORM”.

b. Rectangular inlet grates shall conform to drawing requirements. The frames shall be sized to match the grates. All grates shall be lock type with 5/8 inch diameter stainless steel bolts with ½ inch Allen wrench heads. The inlet grate opening pattern may be herringbone, straight, checkered or other approved pattern.

2. Beehive Grate: Shall comply with Contract Document Drawing requirements.

2.04 ACCESSORIES

A. Non-Shrink Grout: Shall be prepackaged material conforming to Type 2, ASTM C 1107 non-shrink applications, consisting of non-metallic aggregate, cement, water reducing and plasticizing agents capable of developing minimum compressive strength of 2,400 psi in 48 hours, 4,000 psi at 7 days and 7,000 psi in 28 days.

B. Utility Structure Steps:

1. Formed steel reinforced polypropylene rungs.

2. Diameter: 3/4 inch.

3. Width: 12 inches.

4. Spacing: 12 inches on center vertically.

5. Steel reinforced copolymer polypropylene meeting the following specifications:

a. ASTM C478.

b. ASTM C497, Method of test.

c. ASTM D4104, PP0344B33534Z02 copolymer polypropylene.

C. Utility Structure Joint Sealants and Joint Gaskets:

1. Gasket Joints for Utility Structure: ASTM C443; standard oil-resistant rubber gaskets.

2. Joint Sealants: Where preformed rubber gaskets are not available for joints, provide a butyl rubber blended product installed in the tongue and groove joint to provide a watertight structure.

D. Utility Structure Adapters:

1. All utility structures shall be provided with flexible structure adapter in accordance with the following requirements:

a. All storm drain utility structures shall be provided with rubber “Kor-N-Seal” boot with stainless steel band or equal.

E. TESC Storm Drain Utility Protection:

1. Storm Drain Utility structures that are equipped with inlet grates shall be provided with TESC catch basin inlet protection devices as specified in Section 01 57 13 - Temporary Erosion and Sediment Control and Construction Stormwater Pollution Prevention.

F. Utility Structure Coating: The exterior surfaces of all pre-cast concrete utility structures shall be provided with two heavy coats of waterproof coal tar paint, 18 mils total dry film thickness (DFT). The waterproofing material shall be applied by brush or paint spray in accordance with manufacturer's instructions. Allow sufficient drying and curing time in between subsequent coats and prior to installation. The waterproofing material shall be Koppers "Bitumastic Super Service Black", Tnemec "46-450 Heavy Tnemecol" or Porter "Tar Mastic 100" or equal. Provide test reports verifying DFT.

2.05 SOURCE QUALITY CONTROL

A. Allow Engineer witnessing of factory inspections and test at manufacturer's test facility. Notify the Engineer at least seven days before inspections and tests are scheduled.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify items designated (labeled items) are provided at the correct locations.

B. Verify correct size and elevation of excavation.

C. Verify subgrade and bedding is properly prepared, compacted and ready to receive Work of this section.

D. Verify piping connection, size, location and invert elevations.

3.02 PREPARATION

A. Coordinate placement of inlet and outlet pipe or duct sleeves required by other sections.

B. Do not install structures where site conditions induce loads exceeding structural capacity of structures.

C. Ream pipe ends and remove burrs.

D. Remove scale and dirt from components before assembly.

E. Establish invert elevations for each component in system.

F. Inspect precast concrete structures immediately prior to placement in excavation to verify that they are internally clean and free from damage. Remove and replace damaged units.

G. Coordinate with other sections of Work to provide correct size, shape, and location.

3.03 INSTALLATION

A. Excavations for utility structures shall be in accordance with Section 31 20 00 - Earthwork.

B. Set precast structures bearing firmly and fully on utility bedding, compacted in accordance with provisions of Section 31 20 00 – Earthwork.

C. Lift precast concrete structures at lifting points designated by manufacturer.

D. When lowering structures into excavations and joining pipe to units, take precautions to ensure interior of pipeline and structure remains clean.

E. Install precast concrete utility structures to required elevations and alignments. Install utility structures plumb and level, supported at proper grade and alignment.

F. Assemble multi-section structure risers and top sections by lowering each section into the excavation.

1. Clean joint surfaces.
2. Install utility structure components joint seals watertight in accordance with manufacturer's instructions using gasket joints or elastomeric joint sealants.
3. Remove foreign materials from joint surfaces and verify sealing materials are placed properly. Maintain alignment between sections by using guide devices affixed to lower section.

G. Verify installed structures satisfy required alignment and grade.

H. Core drill utility structure openings to receive structure adapters. Do not use hammers or other destructive methods to create openings.

I. Install utility structure adapter. In cases where the utility structure adapter is grouted in place, fill the annular space between the utility structure and the adapter's exterior surface with grout the entire utility structure wall width. Grouting shall occur on both the interior and exterior side of the structure, full circumference around the adapter. Provide a smooth grout finish. All grouting shall be watertight.

J. Connect pipe to structure adapter. Seal watertight. Cut pipe beyond the interior wall surface by 3 inches.

K. Install ladder steps and grout all structure lifting holes watertight.

L. Perform vacuum test prior to commencing backfill operations in the presence of the Engineer.

M. Backfill excavations for utility structures in accordance with Section 31 20 00 – Earthwork requirements.

N. Install reinforced pre-cast concrete circular grade ring adjustment sections between the frame and catch basin utility structure. Provide non-shrink grout between successive layers of grade rings and between the grade rings and the utility structure to provide a watertight seal at the top of the utility structure.

O. Install frame and cover.

3.04 FRAME AND COVER INSTALLATION

A. Install frames on a bed of non-shrink grout. Provide non-shrink grout between the frame and adjustment grade rings. Install frame and cover to required finish grades, level without tipping to required elevations.

B. Install new TESC BMP's in all new catch basin inlet installations in accordance with the manufacturer's instructions after all punchlist work is complete and prior to final completion.

3.05 FIELD QUALITY CONTROL

A. Perform utility structure vacuum test in accordance with ASTM C1244 prior to commencing backfilling operations.

END OF SECTION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Section Includes:

1. Storm drainage piping.
2. Accessories.
3. Pipeline testing, flushing and cleaning.
4. TV inspection of storm drain pipelines.
5. Video-USB Flash Drive taping of pipeline interior.
6. Earthwork for Storm Drain Utility System installation.
7. Utility Structure Work for Storm Drain System utility structures.
8. Temporary East-West Ditch Reroute Pumping Systems.

1.02 SUBMITTALS

A. Product Data: Submit data for pipe materials and accessories.

B. Manufacturer's Installation Instructions: Submit special procedures required to install Products specified.

C. Manufacturer's Certificate: Submit Certification of Compliance documentation that Products meet or exceed specified requirements

D. All Temporary Pumping Systems Work Plan.

1.03 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record location of pipe runs, connections, manholes, cleanouts, and invert elevations in accordance with contract document requirements.

B. Identify and describe discovery of uncharted utilities.

C. Submit pipeline low pressure air test results.

D. Submit pipeline flushing, cleaning and television inspection logs for each section of storm drain pipeline. Include the following as minimum information: stationing and locations, pipe joints, infiltration/inflow defects, cracks, leaks, offset joints, and other information required to assess condition of storm drain.

E. Submit completed USB Flash Drives identified by project name, location, date, property name, and catch basin numbers. USB Flash Drives become property of Engineer.

1.04 QUALITY ASSURANCE

A. Perform Work in accordance with Contract Document requirements.

1.05 FIELD MEASUREMENTS

A. Verify field measurements and elevations.

1.06 JOB CONDITIONS

A. Schedule: Coordinate with project scheduling requirements detailed in Section 01 30 00 – Administrative Requirements.

B. Existing Utilities: Research available information concerning existing utilities in this area in order to prevent damage to same. Repair construction caused damage to utilities and restore to original condition. Should existing utilities be encountered in work, protect such utilities. Do not interrupt utilities serving facilities occupied by Engineer or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated.

1. Notify Engineer not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Engineer's written permission.

PART 2 - PRODUCTS

2.01 STORM DRAINAGE PIPING

A. General: All pipes shall be clearly marked with the manufacturer's name, type, class, and thickness as applicable. Lettering shall be legible and permanent under normal conditions of handling and storage.

B. Corrugated Polypropylene Pipe (CPP) Shall conform to the following requirements:

1. Corrugated polypropylene storm drain pipe shall be a dual wall pipe, having a smooth interior and annular exterior corrugations complying with ASTM F2881 or AASHTO M330. Pipe joints shall be integral bell and spigot.
2. All pipeline joints shall be watertight and comply with ASTM D3212 using elastomeric gaskets conforming to ASTM F477. All gaskets shall be factory installed on the pipe in accordance with the manufacturer's recommendations.
3. Pipe couplings shall be factory injection molded or PVC. Pipe couplings for pipe sizes up to 15 inch in diameter shall be from PVC stock complying with ASTM D3034 and gaskets complying with ASTM F477 requirements. Or pipe couplings for pipe sizes 18 inch in diameter and up shall be from PVC stock complying with ASTM F679 requirements and gaskets complying with ASTM F477 requirements. Pipe couplings shall comply with watertight requirements above.

C. PVC Pipe and Fittings (PVC): PVC pipe shall comply with the following requirements:

1. Solid wall PVC storm drain pipe shall conform to ASTM D3034 SDR 35 for pipe sizes up to 15 inches and ASTM F679 for pipe sizes from 18 to 30 inches. Joints for solid wall PVC pipe shall conform to ASTM D3212 using elastomeric gaskets conforming to ASTM F477.
2. Fittings for solid wall PVC pipe shall be injection molded.

2.02 UTILITY STRUCTURES

A. Catch Basins: Required catch basin type utility structures are specified in Section 33 05 63 – Utility Vaults and Structures.

B. Storm Drain Vaults or Oil Water Separator Vaults: Required storm drain vault type utility structures are specified in Section 33 05 63 – Utility Vaults and Structures.

C. Storm Drain Connections to Utility Structures: Provide a flexible pipeline connection to the utility structure within 2 horizontal feet of the outside wall of the utility structure per drawing requirements unless otherwise detailed on the drawings.

2.03 ACCESSORIES

A. In-Line Check Valve: Shall be WaStop in-line check valve manufactured by Wapro. Provide size to fit the pipeline size indicated on the drawings. All hardware and bands shall be 316 stainless steel. The valve body shall be 316/304 stainless steel with polyurethane membrane material. Provide in-line check valves with either a flanged outlet end or securely fastened to the pipeline interior and can withstand a maximum of 12’ (feet) of differential back pressure without leakage.

2.04 USB FLASH DRIVES

A. USB Flash Drive containing formatted videos.

B. Audio track containing simultaneously recorded narrative commentary and evaluations of electrographer, describing in detail condition of pipeline interior.

2.05 TEMPORARY EAST-WEST DITCH STORMWATER REROUTE PUMPING SYSTEMS

A. Work Schedule: The drawings require a temporary stormwater reroute system installation around the south outfall while construction of the new south outfall work occurs. Provide the required temporary pumping system, the temporary fencing and coffer dam prior to executing the required demolition work. Upon Engineer approval of the temporary pumping system operations, the Contractor may then commence the south storm drain outfall work.

B. The temporary pumping system is expected to convey the existing East-West Ditch flows. The expected flows are listed in the table below:

STORM EVENT	RAINFALL AMOUNT (INCNES)	REQUIRED FLOW (CFS)	REQUIRED FLOW (GPM)
10 YEAR, 24 HOUR	3.1	9.27	4153
2 YEAR, 24 HOUR	2.0	5.73	2567
6 MONTH, 24 HOUR	1.4	3.79	1698

C. The system design or contracted maximum flow is based upon the 10year, 24 hours storm event. The expected flow for a 10 year, 24 hour storm event is 4000± gpm. The Contractor shall be expected to provide up to 4000± gpm at no additional cost to the Port. The Contractor may elect to use several pumps or one big pump to achieve the required pumping.

EQUIPMENT RENTAL FLOW (GPM)	Pump Equipment
4000	8" diesel mobile High Volume Diesel Pumps|Herc 801-1270 OR EQUAL
2500	6" diesel mobile High Volume Diesel Pumps|Herc 801-1250 OR EQUAL
1500	4" diesel mobile High Volume Diesel Pumps|Herc 801-1210 OR EQUAL

PART 3 - EXECUTION

3.01 TEMPORARY EAST-WEST DITCH STORMWATER REROUTE PUMPING SYSTEMS

A. Work Schedule: The drawings require a temporary stormwater Reroute system installation around the south outfall while construction of the new south outfall work occurs. Provide the required temporary pumping system, the temporary fencing and coffer dam prior to executing the required demolition work. Upon Engineer approval of the temporary pumping system operations, the Contractor may then commence the south storm drain outfall work.

B. The temporary pumping system is expected to convey the existing East-West Ditch flows. The expected flows are listed in the table below:

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EQUIPMENT RENTAL FLOW (GPM)	Pump Equipment
4000	8" diesel mobile High Volume Diesel Pumps|Herc 801-1270 OR EQUAL
2500	6" diesel mobile High Volume Diesel Pumps|Herc 801-1250 OR EQUAL
1500	4" diesel mobile High Volume Diesel Pumps|Herc 801-1210 OR EQUAL

D. The actual pumping rate and fuel used will depend on the time of year and the actual rainfall amount.

E. The pumps shall maintain a near dry water level (0-6” depth) in the E-W ditch and provide 1’ of freeboard. Provide all controls and labor required for operation

F. Remove the temporary stormwater reroute system after acceptance of the new south stormwater outfall work.

3.02 GENERAL

A. Conditions: Execute work in orderly and careful manner with due consideration of surrounding areas. Protect adjacent property and improvements and existing utilities from damage and replace portions damaged through this operation

3.03 EXAMINATION

A. Identify required lines, levels, contours and datum locations.

B. Locate, identify, and protect utilities to remain from damage.

C. Verify storm drain utility alignment is ready to receive work and excavations, dimensions, and elevations.

D. Verify location of storm drain pipelines and the respective utility structure locations are correct prior to excavation.

E. Flush and clean pipeline interiors to remove sludge, dirt, sand, stone, grease, and other materials from pipe to ensure clear view of interior conditions.

F. Intercept flushed debris at next downstream manhole by use of weir or screening device. Remove and dispose of debris off site.

3.04 INSTALLATION

A. For the north and south storm drain outfall installations, verify that the steel pile support is installed at the correct elevations per drawing and Section 31 62 16 – Steel Piles requirements. Verify the storm drain outfall rip rap scour apron work is complete in accordance with Section 31 20 00 – Earthwork requirements.

B. Perform excavation in accordance with Section 31 20 00 – Earthwork requirements.

C. 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 according to manufacturer's written instructions for using lubricants and other installation requirements. Install solid wall HDPE pipelines in one continuous length with welded pipeline connections in accordance with manufacturer’s instructions and ASTM F 2620 requirements.

D. Install pipe to slope gradients with maximum variation from indicated slope of 1/8 inch in 10 feet.

E. Install pipe zone bedding and backfill below, around and over the top of pipe in accordance with Specification Section 31 20 00 – Earthwork requirements.

F. Do not displace or damage pipe when compacting.

G. Install catch basin and vault type storm drain utility structures at required locations as the pipeline installation proceeds in accordance with Section 33 05 63 – Utility Vaults and Structures requirements.

H. Install trench backfill to subgrade in accordance with Specification Section 31 20 00 – Earthwork requirements.

I. Install check valve at the storm drain outfall in accordance with manufacturer’s requirements.

J. Provide pipeline testing and TV inspection in accordance with requirements stated herein.

3.05 INSTALLATION TOLERANCES

A. Maximum Vertical Variation From Intended Elevation of Pipeline Invert: 1/4 inch.

B. Maximum Horizontal Offset of Pipe From Indicated Alignment: 1 inch.

3.06 FLUSHING AND TESTING OF STORM DRAIN SYSTEM

A. Flushing: Perform flushing of the pipeline system prior to executing a low pressure air test and TV inspection. Dispose of flushing water in accordance with local regulations.

B. Low Pressure Air Test:

1. The test equipment to be used shall be furnished by the Contractor and shall be inspected and approved by the Engineer prior to use. The Engineer may at any time require a calibration test of gauges or other instrumentation that is incorporated into the test equipment. Calibration tests shall be certified by an independent testing Laboratory.

2. Plugs used to close the pipe for the air test shall be securely braced to prevent the unintentional release of a plug, which can become a high velocity projectile.

3. Gauges, air piping manifold, and valves shall be located at the top of the ground. No one shall be permitted to enter a manhole or catch basin where a plugged pipe is under pressure.

4. Air testing apparatus shall be equipped with a pressure release device, such as a rupture disk or a pressure relief valve, designed to activate when the pressure in the pipe exceeds 2 psig above the required test pressure.
5. If the pipe to be tested is submerged by groundwater, the backpressure on the pipe created by the groundwater submergence shall be determined. All gauge pressures described in the test shall be increased by that amount.
6. Pipes shall be tested from manhole to manhole.
7. Air shall be slowly supplied to the plugged pipe section until the internal air pressure reaches 4 psig. Wait at least 2 minutes to allow for pressure and temperature stabilization to occur within the pipe.
8. When the pressure decreases to 3.5 psig, the air pressure test shall begin. The test shall consist of measuring the time in seconds for the pressure in the pipe to drop from 3.5 psig to 2.5 psig. The pipe shall be considered acceptable if the time in seconds for the pressure drop is equal to or greater than the required time as calculated below:

   K = 0.0444d2L

   C = 0.0003918dL

   If CT <1, then time = KT

   If 1

   If CT > 1.75, then time = KT/1.75

   Where: d = Pipe diameter (inches)

   L = Pipe length (feet)

   K = value for each length of pipe of a specific diameter

   C = value for each length of pipe of a specific diameter

   KT = sum of all K values

   CT = sum of all C values
9. When tests indicate Work does not meet specified requirements, remove work, replace and retest. Leaks and loss in test pressure constitute defects that shall be repaired. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.

3.07 PIPELINE TV INSPECTION

A. Closed-circuit TV Camera System:
   1. Utilize cameras specifically designed and constructed for closed-circuit sewer line inspection. Utilize camera equipment with pan and tilt capability to view each lateral connection at multiple angles.
   2. Utilize camera capable of moving both upstream and downstream; minimum 1,000 feet horizontal distance with one setup; direct reading cable position meter.
B. Pipeline Inspection:
   1. USB Flash Drive video of sections of the installed storm drain pipeline between utility structures.

2. Identify and record locations of defective pipeline sections, including but not limited to flat grades, dips, deflected joints, open joints, broken pipe, protrusions into pipeline, and points of infiltration. Record the locations in horizontal feet from utility structures.
3. The Contractor shall be required, at no expense to the Engineer, to locate and uncover and replace any defective pipeline sections. The Contractor shall re-record the section after replacement of the pipe.

3.08 FIELD QUALITY CONTROL

A. Pass required testing and TV inspection.

B. Punchlists:

1. Complete all work identified in this Section. The Contractor shall provide a punchlist identifying incomplete work. The Contractor shall prepare the punchlist with the Engineer in attendance. The Contractor shall provide all the labor and the tools required to remove utility structure covers during the punchlist walkthrough.
2. After completing all incomplete work identified on the punchlist, the Contractor shall request a back check of the punchlist for final completion acceptance. The Engineer will attend the back check punchlist walkthrough. The Contractor shall provide all the labor and the tools required to remove utility structure covers during the back check punchlist walkthrough. If the work is still not complete and acceptable, repeat the back check punchlist walkthrough process until all identified work is complete and acceptable.

END OF SECTION

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PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. The location and extent of the "Stormwater Treatment" work is indicated on the Drawings. The work includes the requirements for providing and installing all items and components of a completed Stormwater Treatment System.

B. Treatment vault systems shall consist of a precast concrete vault with internal baffle walls access lids and drainage grate, containing filtration media cages, perforated and solid piping.

C. The Contractor shall provide and install treatment vault systems, complete and operable as shown and as specified herein, in accordance with the requirements of the plans and contract documents.

D. Piping.

E. Accessories.

F. Earthwork for Storm Drain Utility System installation.

G. Utility Structure Work for Storm Drain System utility structures.

1.02 SUBMITTALS

A. Product Data: Submit data for pipe materials and accessories.

B. Manufacturer's Installation Instructions: Submit special procedures required to install Products specified.

C. Manufacturer's literature on the components within the treatment vaults, including components used for construction of media cages, piping, and media.

D. Manufacturer's Certificate: Submit Certification of Compliance documentation that Products meet or exceed specified requirements

E. Shop and installation drawings shall include all dimensions, component placement location of piping and vault foundation.

F. Reports of results of required tests by an independent, accredited laboratory demonstrating material conformance to requirements of Part 2 at least 10 Working Days prior to placement of filtration media.

G. Stormwater Treatment Vault Media Samples and Test Results: Provide, without additional cost to the Port, such quantities of materials as may be required by the Engineer for test purposes. Coordinate with the Engineer and provide necessary facilities for sampling and testing of all materials and workmanship. Submit test results for import materials. Tests shall be performed within 30 days of the submission. All material provided and all work performed shall be subject to rigid inspection, and no material shall be delivered to the site until it has been favorably reviewed by the Engineer, or used in the construction work until it has been inspected in the field by the Engineer.

H. A description of the equipment and methods used to mix filtration media.

I. For biochar products other than the approved product identified in Section 2.03 D, the following shall be submitted to the Engineer for approval:

1. A copy of the producer’s current Material Registration Certificate demonstrating compliance with the USDA National Organic Standards (7 CFR Part 205)

2. Reports from an accredited laboratory demonstrating that the biochar product meets all requirements of Section 2.03 D.
3. A description of the equipment and methods used to test Chemical Oxygen Demand (COD) removal capacity, as outlined in Section 2.03 D.

J. The following information about the testing laboratory(ies):
1. Name of laboratory(ies) including contact person(s),
2. Address(es)
3. Phone contact(s)
4. Email address(es);
5. Qualifications of laboratory and personnel including date of current certification by ASTM, AASHTO, or equal.

K. The names, contacts and address of all suppliers of filtration media.

L. If the source of any material changes, including compost stockpile, a new mix design must be submitted

1.03 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record location of pipe runs, connections, manholes, cleanouts, and invert elevations in accordance with Section 01 71 23 - Field Engineering requirements.

B. Identify and describe discovery of uncharted utilities.

1.04 QUALITY ASSURANCE

A. Qualification of Workmen: Employ at least one person who shall be present at all times during execution of this portion of the work, shall have all portions of the Drawings and Specifications applicable to that portion of the contract, shall be thoroughly familiar with the type of materials being installed and the best methods for their installation, and shall direct all work performed under this Section.

B. Codes and Standards: The Contractor shall comply with the applicable provisions of all pertinent codes and regulations. References made herein for manufactured materials such as pipes, fittings, and specialties, refer to designations for the latest edition of materials published by the American Association of State Highway and Transportation Officials (AASHTO), the American Society for Testing Materials (ASTM), the American Public Works Association (APWA) Standard Specification for Municipal Public Works Construction, and the WSDOT/APWA 2023 Standard Specifications for Road, Bridge and Municipal Construction.

C. The quality of materials, the process of manufacture, and the finished sections shall be subject to inspection by the Engineer. Such inspection may be made at the place of manufacture, or on the work site after delivery, or at both places, and the sections shall be subject to rejection at any time if material conditions fail to meet any of the specification requirements, even though sample sections may have been accepted as satisfactory at the place of manufacture. Sections rejected after delivery to the site shall be marked for identification and shall be removed from the site at once. All sections that have been damaged beyond repair during delivery will be rejected and, if already installed, shall be repaired to the Engineer’s acceptance level, if permitted, or removed and replaced, entirely at the manufacturer’s expense.

D. Source Quality Control: Test import materials proposed for use to demonstrate that the materials conform to the specified requirements. Tests shall be performed by an independent accredited testing laboratory.

   All filtration media shall be tested prior to installation for infiltration rate compliance. A.48inch diameter manhole or equivalent watertight container shall be filled 30 inches deep with the respective media and saturated. The test will be performed until 1 hour after steady state head conditions have been achieved, and ponding depth shall not exceed 12 inches. This test shall be applied for each filtration media type, as defined in Part 2. If the media does not yield the infiltration rates as adjusted for the falling head test, the saturated media shall be removed, and additional media shall be added and retested. For every 50 cubic yards of media to be installed in the treatment vaults, a falling head test shall be performed on a representative media sample. The final media installed in the filtration basins shall be from the same batch as the representative sample tested. The falling head tests shall be observed by the Engineer. The adjusted infiltration rates are as follows:

   Filtration Media Mix 12 in/hr adjusted to 24 in/hr

E. Field Quality Control: The Engineer will:

   1. Review materials proposed for use.
   2. Review results of independent testing laboratory tests.
   3. Inspect the empty filtration basins prior to placement of any material.
   4. Inspect all delivered filtration system media and materials prior to placement within the filtration basins.
   5. Stop media delivery or placement if it is determined that the delivered media(s) do(es) not appear to match the submittals, and require sampling and testing of the delivered media before authorizing placement. If testing is required, the Contractor shall be required to demonstrate that the media in question meet the specifications of Part 2. Inspect all media after mixing.

1.05 FIELD MEASUREMENTS

A. Verify field measurements and elevations.

1.06 HANDLING AND DELIVERY

A. Protect all materials from damage during delivery and cover UV sensitive materials if materials will be stored for more than one week. Storage surfaces should be free from dirt, mud and debris.

B. Media shall be stored separately from each other and all other materials.

C. All media shall be protected from all sources of additional moisture, in covered conveyance at the site until incorporated into the work.

1.07 JOB CONDITIONS

A. Schedule: Coordinate with project scheduling requirements detailed in Section 01 32 16 – Construction Progress Schedule

B. Existing Utilities: Research available information concerning existing utilities in this area in order to prevent damage to same. Repair construction caused damage to utilities and restore to original condition. Should existing utilities be encountered in work, protect such utilities. Do not interrupt utilities serving facilities occupied by Engineer or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated.

1. Notify Engineer not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Engineer's written permission.

PART 2 - PRODUCTS

2.01 PRECAST CONCRETE VAULT

A. Storm Drain Vaults: Required storm drain vault type utility structures are specified in Section 33 05 63 – Utility Vaults and Structures. Precast concrete vaults shall be provided according to ASTM C857 and C858. Loading criteria shall meet the requirements of Section 33 05 63 - Utility Vaults and Structures.

B. Vault joint sealant shall be Conseal CS101, ALok Butyl Lock or approved equal.

C. If interior concrete baffle walls are provided, baffle walls shall be sealed to the interior vault walls and floor with a polyurethane construction sealant rated for use below the waterline, SikaFlex 1a, 3M 550 Polyurethane or approved equal. Contractor to provide sealant material and installation unless completed prior to shipment.

D. Metal frame and grate or cover for catch basins and manholes shall be ductile iron of the size and style indicated on the Drawings and capable of supporting the maximum loading requirements of Section 33 05 63 - Utility Vaults and Structures.

E. Steps shall be constructed of copolymer polypropylene conforming to ASTM D4101. Steps shall be driven into preformed or drilled holes once concrete is cured. Steps shall meet the requirements of ASTM C478 and AASHTO M199. The ½ inch Grade 3D60 deformed reinforcing bar shall meet ASTM A615.

F. Ladders shall be constructed of aluminum and steel reinforced copolymer polypropylene conforming to ASTM D4101. Ladder shall bolt in place. Ladder shall meet all ASTM C497 load requirements. Ladders provided upon request or where required.

2.02 TREATMENT VAULT INTERNAL COMPONENTS

A. Media Cages

1. Media cages shall be fabricated from fiberglass reinforced plastic (FRP) grating and slotted channel framing components, UNISTRUT or approved equal.
2. All slotted channel framing components, including channels, brackets and fasteners, shall be supplied by a single approved manufacturer.
3. Slotted channel framing components shall be stainless steel conforming to ASTM A 240, Type 304, or aluminum conforming to ASTM B 221, Type 6063T6.
4. Slotted channel fittings for stainless steel shall be fabricated in conformance with ASTM A 240 and ASTM A 276, Type 304 or Type 316.
5. Slotted channel fittings for aluminum shall be fabricated in conformance with ASTM B 209, Type 1100F or Type 5052H32.

B. Pipe:

1. Perforated pipe shall be SDR 35 conforming to ASTM D3034 with a filtration sock. Perforations shall be ½" in diameter, 5 inches on center and installed at the Class II AASHTO positions. Sock shall meet the requirements of ASTM D6707. Coordinate with Contract Drawing requirements.

C. Fiberglass Reinforced Plastic (FRP) Grating:

1. Manufacture: Grating shall be of a onepiece molded construction with tops and bottoms of bearing bars and cross bars in the same plane. Grating shall have a square mesh pattern providing bidirectional strength. Grating shall be reinforced with continuous pattern of equal number of layers in each direction. The top layer of reinforcement shall be no more than 1/8" below the top surface of the grating to provide maximum stiffness and prevent resin chipping of unreinforced surfaces. Percentage of glass (by weight) shall not exceed 35% to achieve maximum corrosion resistance, and as required to maintain the structural requirements of the Contract.
2. After molding, no dry glass fibers shall be visible on any surface of bearing bars or cross bars. All bars shall be smooth and uniform with no evidence of fiber orientation irregularities, interlaminar voids, porosity, resin rich or resin starved areas.
3. Grating bar intersections are to be filleted to a minimum radius of 1/16" to eliminate local stress concentrations and the possibility of resin cracking at these locations.
4. Fire rating: Grating shall be fire retardant with a tested flame spread rating of 25 or less when tested in accordance with ASTM E 84. Data performed only on the resin shall not be acceptable.
5. Resin system: Manufacturer may be required to submit corrosion data from tests performed on actual grating products in standard chemical environments. Corrosion resistance data of the base resin from the manufacturer is not a true indicator of grating product corrosion resistance and shall not be accepted.
6. Color: Gray
7. Depth: 11/2" with a tolerance of plus or minus 1/16".
8. Mesh Configuration: 2" x 1" with a tolerance of plus or minus 1/16" mesh centerline to centerline
9. Grating shall be designed for a uniform load of 100 psf or concentrated load of 300 lb. Deflection is not to exceed 1/4" or L/D = 180, whichever is less.
10. The manufacturer shall certify that the stiffness of all panels manufactured are never more than 2.5% below the published load deflection values.
11. Substitutions: Other products of equal strength, stiffness, corrosion resistance and overall quality may be submitted with the proper supporting data to the Engineer for approval.

2.03 FILTRATION MEDIA MIX (FMM)

A. Filtration media mix shall consist of a blend of pea gravel, oyster shells and biochar. Components of the mix shall be combined in the following ratio: Filtration Media Mix shall consist of a blend of pea gravel, oyster shells and biochar.

Component	Portion of Mixture

	(By Weight)
Pea Gravel	30%
Oyster Shells	35%
Biochar	35%

B. Pea Gravel shall be as defined in Section 31 05 16 – Aggregates.

C. Oyster Shells: Oyster shells shall be crushed and ground evenly and shall meet the following gradation:

US Sieve Size	Percent Passing (%)
No. 10	100
No. 16	90-100
No. 100	<5

D. BioChar:

1. Provide Black Owl Biochar Environmental Ultra as manufactured by Biochar Supreme or equal.
2. Biochar shall be the result of pyrolysis of 100% clean, unprocessed virgin wood waste.
3. Biochar shall be certified as an organic fertilizer soil amendment in accordance with the USDA National Organic Standards (7 CFR Part 205).
4. Biochar shall have a Butane Activity of at least 13 g/100g in accordance with ASTM D 5742, Standard Test Method for Determination of Butane Activity of Activated Carbon.
5. Biochar shall have a Total Ash content of less than 10% in accordance with ASTM D 1762-84 (750c).
6. Biochar shall have an Organic Carbon content of at least 75% in accordance with Carbon Hydrogen Nitrogen (CHN) by dry combustion test method.
7. Acceptable source for biochar is Biochar Supreme, Everson, WA or equal.

2.04 OTHER COMPONENTS

A. All Contractor provided components shall meet the requirements of this section, the plans, specifications and contract documents. In the case of conflict, the more stringent specification shall apply.

B. Silicone Sealant shall be pure RTV silicone conforming to Federal Specification Number TT S001543A or TT S00230C or Engineer approved.

C. Grout shall be nonshrink grout meeting the requirements of Corps of Engineers CRD C588. Specimens molded, cured and tested in accordance with ASTM C109 shall have minimum compressive strength of 6,200 psi. Grout shall not exhibit visible bleeding.

D. Screen material shall be commercial grade PVC vinyl coated polyester mesh with 20% opening area. Vinyl coated polyester screen shall be polypropylene edge bound with stainless steel grommets at 24 inches on center along all four edges. Vinyl coated polyester screen shall be cut and bound to fit within the media cages without excess material, shall be pulled taught across the top of the filtration media mix, and tied to the media cages at 24" on center using heavy duty cable ties rated for at least 120 pounds

E. Unistrut: All required unistrut, fittings and hardware shall be stainless steel. Unistrut shall be 12 gauge minimum. Coordinate with Contract Drawing requirements.

PART 3 - EXECUTION

3.01 GENERAL

A. Conditions: Execute work in orderly and careful manner with due consideration of surrounding areas. Protect adjacent property and improvements and existing utilities from damage and replace portions damaged through this operation.

3.02 EXAMINATION

A. Identify required lines, levels, contours and datum locations.

B. Locate, identify, and protect utilities to remain from damage.

C. Verify storm drain utility alignment is ready to receive work and excavations, dimensions, and elevations.

D. Verify location of storm drain pipelines and the respective utility structure locations are correct prior to excavation.

E. Flush and clean pipeline interiors to remove sludge, dirt, sand, stone, grease, and other materials from pipe to ensure clear view of interior conditions.

F. Intercept flushed debris at next downstream manhole by use of weir or screening device. Remove and dispose of debris off site.

3.03 INSTALLATION

A. Verify the storm drain system is in conformance with accordance with Section 33 42 00 – Storm Drain Utility System requirements.

B. Perform excavation in accordance with Section 31 20 00 – Earthwork requirements.

C. Install utility vault in accordance with Section 33 05 63 – Utility Vaults and Structures requirements.

D. Install all components within the treatment vaults per plan and specification requirements herein.

E. Treatment Vault installations shall NOT be used for construction stormwater discharges. Provide temporary plugs to prevent stormwater from entering the treatment vault installations until final acceptance.

3.04 INSTALLATION TOLERANCES

A. Maximum Vertical Variation From Intended Elevation of Pipeline Invert: 1/4 inch.

B. Maximum Horizontal Offset of Pipe From Indicated Alignment: 1 inch.

3.05 MEDIA INSTALLATION

A. Grading or placement of aggregates or filtration media within the treatment vaults shall not begin until the area draining to the treatment vaults has been stabilized and authorization is given by the Engineer.

B. Runoff shall not be allowed to enter the treatment vaults until authorization is given by the Engineer.

C. Placement shall not occur if any of the media are wet. The Engineer will have final authority to determine if wet conditions exist.

D. Mixing or placing filtration media shall not be allowed if the area receiving filtration media is wet or saturated or has been subjected to more than ½inch of precipitation within 48hours prior to mixing or placement. The Engineer will have final authority to determine if wet or saturated conditions exist.

E. All filtration media shall be thoroughly mixed to a homogenous consistency before placement.

F. Unless otherwise shown on the drawings, the Contractor shall install the media per the following procedure:

1. Provide FMM (Filtration Media Mix) unistrut framework.
2. Install FRP (Fiberglass Reinforced Plastic) grating.
3. Install the VCP (Vinyl Coated Polyester) screen on the bottom and along the four sides.
4. Install the bottom 2 inches of media.
5. Install the piping.
6. Install the remainder of FMM.
7. Install the top VCP screen.

G. The Contractor shall place all media, using hand tools, unless otherwise approved by the Engineer.

H. Execute required testing.

3.06 FIELD QUALITY CONTROL

A. Pass required testing and inspection.

B. All filtration media shall be tested after installation for infiltration rate compliance and prior to flushing and rinsing. The treatment vault shall be filled with potable water to an elevation the is 1’ above the top of the FMM so that the FMM becomes saturated. The test will be performed until 1 hour after steady state head conditions have been achieved, and ponding depth shall not exceed 12 inches. This test shall be applied for each filtration media type, as defined in Part 2. If the media does not yield the infiltration rates as adjusted for the falling head test, the saturated media shall be removed, and additional media shall be added and retested. For every 50 cubic yards of media to be installed in the treatment vaults, a falling head test shall be performed on a representative media sample. The final media installed in the filtration basins shall be from the same batch as the representative sample tested. The falling head tests shall be observed by the Engineer. The adjusted infiltration rates are as follows:

Filtration Media Mix 12 in/hr adjusted to 24 in/hr

C. Flushing and Rinsing: Flush and rinse the installed FMM until the end product or stormwater discharge becomes clear and is acceptable to the Engineer. The flushed or rinse testing stormwater discharge shall comply with TESC requirements. The Contractor shall provide clean potable water for the flushing and rinsing.

D. Punchlists:

1. Complete all work identified in this Section. The Contractor shall request the Engineer to prepare a punchlist identifying incomplete work. The Contractor shall attend the Engineer punchlist walkthrough, provide all the labor and the tools required to remove utility structure covers during the Engineer punchlist walkthrough.
2. After completing all incomplete work identified on the punchlist, the Contractor shall request the Engineer back check the punchlist for final completion acceptance. The Contractor shall attend the Engineer back check punchlist walkthrough, provide all the labor and the tools required to remove utility structure covers during the Engineer back check punchlist walkthrough. If the work is still not complete and acceptable, repeat the punchlist back check punchlist walkthrough process until all identified work is complete and acceptable.

END OF SECTION

APPENDIX A

INTERIM ACTION WORK PLAN – FORMER ARKEMA MANUFACTURING SITE – AGREED ORDER NO. DE 5668

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

In the Matter of Remedial Action by: Port of Tacoma Arkema 2901 Taylor Way Site Tacoma, WA 98421	FIRST AMENDMENT TO AGREED ORDER No. DE 5668

TO: Port of Tacoma
P.O. Box 1837
Tacoma, WA 98401-1837

I. INTRODUCTION

The State of Washington, Department of Ecology (Ecology) and Port of Tacoma (the Port) entered into Agreed Order No. DE 5668 (the Order) on July 25, 2011. The Order provides for remedial actions to address a release of hazardous substances at the Arkema 2901 Taylor Way Site (the Site). To remediate contamination at the Site, the Order requires the Port to complete a Remedial Investigation, Feasibility Study, Cleanup Action Plan, and Interim Action Work Plan. Cleanup of hazardous substances at the Site is currently underway and the Port is implementing remedial actions required under the Order.

Pursuant to Section VIII.L of the Order, the Parties hereby stipulate to amend the Order to modify Deliverables 14 (Draft Interim Action Work Plan) and 15 (Final Interim Action Work Plan) of the Order's Exhibit B (Scope of Work) and to add a new Exhibit E (Interim Action Schedule of Deliverables) to the Order. Consistent with the provisions of Deliverable 14, Ecology and the Port agree that an interim action to decrease arsenic transport towards surface water and sediments in the Hylebos Waterway is warranted prior to the selection of a final cleanup action.

Deliverable 14 of Exhibit B to the Order is hereby amended to include the following language as an additional, new sentence at the end of the Deliverable:

- The draft interim action work plan shall be consistent with the Interim Action Schedule of Deliverables in Exhibit E of this Order.

Deliverable 15 of Exhibit B to the Order is hereby amended to include the following sentence at the end of the deliverable:

- The final interim action work plan shall be consistent with the Interim Action Schedule of Deliverables in Exhibit E of this Order.

Ecology and the Port also agree to amend the Order to include the following Interim Action Schedule of Deliverables as Exhibit E to the Order:

Exhibit E: Interim Action Schedule of Deliverables

The schedule of deliverables for the interim action described in the Agreed Order Amendment is presented below. If the date for submission of any item or notification required by this Schedule of Deliverables occurs on a weekend, state or federal holiday, the date for submission of that item or notification is extended to the next business day following the weekend or holiday. Where a deliverable due date is triggered by Ecology notification, comments or approval, the starting date for the period shown is the date the party responsible for the deliverable received such notification, comments or approval by certified mail, return receipt requested, or by email. Where triggered by Ecology receipt of a deliverable, the starting date for the period shown is the date Ecology receives the deliverable by certified mail, return receipt requested, or Ecology receipt by email. All final documents shall address Ecology's comments on the draft documents.

1. Tasks	2. Completion Times
Submit 90% construction plans and specifications for barrier wall	Within 120 days after the agreed order amendment effective date
Submit 100% (final) construction plans and specifications for barrier wall	Within 90 days after receipt of Ecology comments on the 90% construction plans and specifications
Begin Contractor procurement for barrier wall	Within 90 days after receiving Ecology approval of the 100% (final) construction plans and specifications
Complete barrier wall construction	Within two dry weather construction seasons following Ecology's approval of the 100% (final) construction plans and specifications

Submit draft barrier wall construction completion report	Within 150 days after completion of barrier wall construction
Submit final barrier wall construction completion report	Within 60 days after receipt of Ecology comments on the draft barrier wall construction completion report
Submit 90% construction plans and specifications for 24-acre asphalt cap	Within 180 days after approval of the final barrier wall construction completion report
Submit 100% (final) construction plans and specifications for 24-acre asphalt cap	Within 120 days after receipt of Ecology comments on the 90% construction plans and specifications
Begin Contractor procurement for 24-acre asphalt cap	Within 90 after receiving Ecology approval of the 100% (final) construction plans and specifications.
Complete 24-acre asphalt cap construction	Within two dry weather construction seasons following completion of the Contractor procurement for 24-acre cap
Submit draft 24-acre asphalt cap construction completion report	Within 150 days after completion of 24-acre asphalt cap construction
Submit final 24-acre asphalt cap construction completion report	Within 60 days after receipt of Ecology comments on the draft 24-acre asphalt cap construction completion report

Finally, Ecology and the Port agree to a minor amendment of Exhibit C of the Order that would provide a more detailed breakdown of the existing schedule of deliverables. Pursuant to Section L of the Order, "project coordinators may verbally agree to minor changes" and "minor changes will be documented in writing by Ecology within seven days of verbal agreement." This amendment to Exhibit C of the Order is a minor change because it does not modify any existing deadlines or deliverables and, instead, merely provides more detail about the steps involved for each deliverable. Therefore, Ecology and the Port agree to amend Exhibit C of the Order to replace the existing schedule of deliverables with the following:

Deliverables/Action	Schedule for Completion
11. PLPs to submit Agency Review Draft FS Report	90 days after receipt of Ecology's approval of asphalt cap construction completion report
12. PLPs to submit Public Review Draft FS Report	30 days after PLPs receive Ecology's comments on Agency Review Draft FS Report
13. PLPs to submit Agency Review Draft Cleanup Action Plan	60 days after PLPs receive Ecology's approval of Public Review Draft FS Report
16. PLPs to submit Final FS Report	30 days after receipt of any final Ecology comments and/or Ecology's approval of Public Review Draft FS Report

This Amendment does not attempt to recite all of the provisions of the Order and any provisions of the Order not specifically changed in this Amendment shall remain in full force and effect. The described in this First Amendment shall take effect after both parties have signed below and upon the effective date provided below.

Effective date of this Amendment: 4/14/2026

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Marian L. Abbett

Marian L. Abbett, PE
Section Manager
Toxics Cleanup Program
Southwest Region Office
Department of Ecology
(360) 489-4569

PORT OF TACOMA

Eric D Johnson

Eric Johnson
Executive Director
Port of Tacoma
(253) 428-8633

The complete IAWP cannot be attached due to file size restriction. Please refer to portoftacom.com/procurement for PA00000403 or refer to

Arkema Inc - (3405)

https://apps.ecology.wa.gov/cleanupsearch/site/3405

APPENDIX B
CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

Construction Stormwater Pollution Prevention Plan (SWPPP) Report

Port of Tacoma

Former ARKEMA Manufacturing Site Interim Action – Site Capping

Prepared For

SDEV25-xxxx, WO25-xxxx,

Project Location

2901 Taylor Way 0321351053

SWPPP Prepared By

Name	Organization	Contact Telephone Number	Email Address
Rick Hand	Sitts & Hill Engineers, Inc.	253-474-9449	rickh@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)
(Insert Date)	(Insert Date)	**Phases 1 - 5**

Date Prepared

12/xx/24

I hereby state that this Construction SWPPP has been prepared by me or under my supervision and meets the standard of care and expertise which is usual and customary in this community for professional engineers. I understand that the City of Tacoma does not and will not assume liability for the sufficiency, suitability, or performance of Construction SWPPP BMPs prepared by me.



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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
Brett Ozolin	Port of Tacoma	One Sitcum Plaza Tacoma, WA 98401	253-241-0207	bozolin @portoftacoma.com

C. Applicant (if different than Property Owner)

Name	Organization	Mailing Address	Contact Telephone Number	Email Address
Trevor Louviere	Dalton Olmsted & Fuglevand	1001 SW Klickitat Way, Suite 2008 Seattle, WA 98134	206-502-1125	tlouviere@dofnw.com

D. Associated Permits

i) Associated City of Tacoma Permit Number(s)

PRE24-0140

ii) Other Federal, State, or Local Associated Permit Types and Numbers

JARPA, NPDES or Washington State DOE CSWGP, City of Tacoma Shoreline Permit, Site Development Permit, Work Order (offsite) Permit

E. Vesting

i) City of Tacoma Stormwater Management Manual Edition Used

2021 Stormwater Management Manual (SWMM)

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 cap and pave 37.3 acres of the 64.8-acre parcel 0321351053, to replace two existing driveway approaches onto Taylor Way and to provide limited utilities. The site is listed on the Department of Ecology's cleanup site 3405 and is under a consent decree order

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 existing project site is presently vacant industrial land in the Port of Tacoma. The site was previously developed and was used to manufacture chlor alkali chemical products between 1950-2000±. There have been a number of companies (Elf Ato Chem, Pennwalt, Arkema) that have been operators on the site. The Port of Tacoma is the official Owner of the property. In 2008±, the Port contracted to deconstruct all buildings, tanks, aerial piped systems, rail and electrical substation facilities. Many of the former building slabs, footings and asphalt areas remain. All drainage facilities have either been decommissioned, plugged and/or abandoned. Refer to Figure 1 for Aerial Photo. The onsite area of the project site is very flat with no existing storm drainage system. The majority of the site runoff stays onsite. The stormwater runoff either ponds onsite, infiltrates, evaporates from the site or sheetflows toward Hylebos Waterway. The offsite runoff sheetflows toward the street gutter and is collected in the public storm drainage system in Taylor Way. Since Taylor Way has a crest (high point) in the middle of the project frontage, the runoff from the north driveway is conveyed to the north and enters marine waters via Lincoln Ave outfall while the runoff from the south driveway is conveyed to the south and enters marine waters via Kaiser ditch

Site is marked as contaminated site. The project site is located in Aquifer Recharge Area and high Liquefaction susceptibility. There are isolated areas of 15%-25%, 25%-40% and over 40% steep slopes located mostly in the shoreline area. Project site is located in three existing (four proposed) Threshold Discharge Areas (discharge points separated by distance larger than ¼ mile) but located in one Watershed (North-East Tacoma), all tributary to Hylebos Waterway. Refer to Appendix A for onsite soil description and Appendix B for Boundary and Topographic Survey Map.

Figure 1 – Aerial Photo



(NearMap, January 2024)

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. Refer to Appendix C for TESC BMPs, Appendix D for TESC Plans and Appendix E for Engineering Calculations.

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.

The BMP(s) proposed to meet this element are:

☐ 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: (Insert justification as to why Element is not required)

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: (Insert justification as to why Element is not required)

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: there are no temporary channels or outlets proposed

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: (Insert description of how element will be addressed)
☒ This Element is not required for this project because: Dewatering is unlikely due to proximity of work to surface

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

The Soils Report, attached here, is also available as a stand-alone document as part of the Permit submittal.

SAGE
GEOTECHNICAL

DRAFT TECHNICAL MEMORANDUM

TO: Trevor Louviere, PE, Project Manager, Dalton, Olmsted & Fuglevand, Inc.

FROM: Calvin McCaughan, PE, and Daniel Simpson, PE

DATE: November 8, 2024

RE: Summary of Geotechnical Engineering Services
Former Arkema Manufacturing Site
Tacoma, Washington
Sage Project No. 046001

INTRODUCTION

At the request of Dalton, Olmsted & Fuglevand, Inc. (DOF, prime engineer), Sage Geotechnical, LLC (Sage) provided geotechnical engineering services to support the design of a vibrating beam containment wall (VBCW) and soil cap for the Former Arkema Manufacturing Site project in Tacoma, Washington (site; Figure 1).

The following services were provided in accordance with the scope outlined in Sage's February 21, 2024, proposal:

- A review of existing subsurface and geotechnical laboratory data, including boring logs prepared by others (see boring locations on Figure 2).
- An analysis of the amount of settlement that may occur following placement of the soil cap.
- An analysis of the VBCW performance during a seismic event.
- An assessment of the impact the VBCW may have on shoreline slope stability.

The conclusions presented in Sage's August 19, 2024, memorandum have been supplemented with the geotechnical recommendations noted in the following section.

NOVEMBER 2024 UPDATE

On October 17, 2024, DOF authorized Sage to develop the following supplemental recommendations (collectively, "site development recommendations"):

- Geotechnical recommendations for earthwork and utilities.
- Pile design recommendations for outfall structures.
- Lateral bearing capacity recommendations for light pole foundations.

The site development recommendations are provided in Attachment 1.

SETTLEMENT ANALYSIS

The site will be filled to an elevation of approximately 22 feet (ft), or to 2 to 8 ft above the existing grade at the proposed VBCW location. Compressible soils at this location may experience consolidation settlement when fill is placed. Sage estimated the magnitude of ground surface settlement and drag loads that could be imposed on the VBCW.

Settlement Calculations

Sage used data generated by DOF[1] and Budinger & Associates, Inc. (geotechnical testing laboratory)[2] to evaluate the potential for soil compression. Based on its evaluation, Sage concluded that the units identified as the Upper Aquitard and Lower Aquitard contain fine-grained, settlement-sensitive soils.

Soils in the Lower Aquitard will likely experience a small to moderate change in vertical effective stress relative to existing stress. Detailed calculations were not performed for each boring location. Instead, a representative thickness of 7 ft, coupled with an average normalized virgin compression index of 0.1, was used to estimate settlement in the Lower Aquitard. Sage estimates that approximately 1 inch of consolidation settlement will occur in the Lower Aquitard.

Sage used the soil conditions reported at each boring location to calculate consolidation settlement in the Upper Aquitard. Budinger & Associates performed three consolidation tests in support of the project; however, two of the tests appear to have been completed on coarse-grained or non-plastic, fine-grained soil.[3] The results of these two tests were disregarded, and the normalized virgin compression index from the third test (0.17) was used to complete the calculations. Settlement calculations for the Upper Aquitard are summarized in Table 1.

The test data indicate that the pre-consolidation pressure is near, or just above, the *in-situ* vertical effective stress. There is no known site history to suggest that alluvial sediments are pre-consolidated. Therefore, the settlement calculations are based on the assumption that soils will behave in accordance with the virgin compression trend.

Settlement Conclusions

Sage recommends assuming an average, sitewide settlement of 6 inches. This quantity should be used to estimate the volume of imported fill. Sage estimates that settlement will be complete 1 to 2 months after the final lift of fill has been placed. The fill elevation should be monitored for several weeks to confirm that settlement has sufficiently decayed.

[1] Boring logs and barrier wall design cross sections.
[2] Soil laboratory data.
[3] Based on the initial void ratio and the change in the void ratio over the stress range of testing.

The settlement calculations in Table 1 are conservative, as the Upper Aquitard appears to contain zones of low-plasticity, fine-grained soils with a compression index that is likely less than that assumed. This variability was not accounted for in the calculation.

Long-term secondary compression may occur. The majority of the site will likely experience less than 1 inch of secondary compression over the next 50 years. If present, isolated pockets of organic-rich waste, soil, or estuarine deposits would increase the potential for secondary compression beyond 1 inch.

Drag Loads

Drag loads, also referred to as negative skin friction, occur on piles or other buried structures when the surrounding soil moves downward. The proposed VBCW could be subject to drag loads caused by consolidation settlement.

The drag load is a function of friction between the *in-situ* soil and the VBCW. Sage understands that the slurry will consist of 5 percent clay, 18 percent granular ground blast furnace slag, and 77 percent water. Sage assumes that the slurry will cure into a material with a consistency similar to soft clay with sand. When estimating the drag load, Sage assumed that the clay would have an internal angle of friction of 22 degrees, and the slurry shear strength would control the drag load.

The drag load is also a function of horizontal stress in the soil. Sage has assumed a horizontal-to-vertical stress ratio of 0.5.

Based on the above parameters, Sage estimates a total drag load of $10H^2$ pounds per foot of wall, where H is the height of the wall. This calculation accounts for both sides of the wall. For example, a 30-ft-deep VBCW would accumulate a drag load of approximately 9,000 pounds per foot of wall. The VBCW cured slurry and native site soils exhibit a similar stiffness; as such, the drag load will likely cause the VBCW to compress with the surrounding soil. The toe of the wall may punch lower in elevation, depending on the toe bearing capacity and wall material shear strength. The total vertical movement of the wall is unlikely to exceed sitewide settlement (6 inches).

SEISMIC ANALYSIS

Sage calculated design-response spectra for three earthquake events: an operational level earthquake (OLE), a contingency level earthquake (CLE), and a design earthquake (DE). Sage's assessment was completed in general accordance with the American Society of Civil Engineers' *Seismic Design of Piers and Wharves* (hereafter, *ASCE 61-14*). Over 50 years, the seismic hazard exceedance probability is 50 percent for the OLE, 10 percent for the CLE, and 2 percent for the DE. These exceedance probabilities correspond to return periods of approximately 75 years for the OL; 500 years for the CLE; and 2,500 years for the DE.

Liquefaction and lateral spreading analyses were also performed for each hazard level. Because seismic analyses were based on guidance in *ASCE 61-14,* the results may not be applicable to structures that will be designed in accordance with *Minimum Design Loads and Associated Criteria for Buildings and Other Structures* (ASCE 2017) and/or the *2021 International Building Code* (ICC 2021). As such, the selected foundation type [for future site redevelopment] should not be based on the ground deformation estimates in this memorandum.

Overall seismic performance was evaluated using subsurface data collected from 15 shallow soil borings advanced by DOF (2023) and five deep soil borings advanced by Landau Associates, Inc. (2009). The approximate locations of the borings are shown on Figure 2.

Seismic Response Spectra

Prior to calculating the design-response spectra, Sage evaluated the seismic site class in accordance with *ASCE 61-14.* The evaluation was completed using a downhole shear wave velocity (Vs) profile measured by cone penetration test (RRI-CPT-168B) and a suspension-logged Vs profile measured in a borehole (RRI-B-167B) near the site (Landau 2009). Both Vs profiles resulted in seismic Site Class E.

Design-response spectra were calculated in general accordance with *ASCE 61-14;* however, the U.S. Geological Survey's 2008 National Seismic Hazard Map (NSHM) was used to determine the seismic parameters for the OLE, CLE, and DE, as *ASCE 61-14* uses an older NSHM that is no longer readily available. As a result, the design-response spectra in Table 2 are generally more intense than those required by *ASCE 61-14.*

Liquefaction Analysis Approach

Grain size and plasticity data typically are used to determine soil liquefaction susceptibility, with low-plasticity soils deemed susceptible to liquefaction and high-plasticity soils not susceptible. Unified Soil Classification System soils with group symbols ending in "H" (i.e., high-plasticity soils, like MH, CH, and OH) and soils classified as "CL" were deemed not susceptible, and all other soils were deemed susceptible. Where Atterberg limits data were available, the susceptibility criteria described above were compared to recommendations by Bray and Sancio (2006) and generally found to be consistent.

Liquefaction triggering is evaluated by comparing the cyclic resistance ratio (strength) to the earthquake cyclic stress ratio (demand). Sage used the empirical procedure proposed by Idriss and Boulanger (2008, updated 2014) to complete a liquefaction triggering analysis.

Liquefaction-induced ground surface settlement and residual soil strength were also computed using the procedure proposed by Idriss and Boulanger (2008, updated 2014). Ground surface settlement at the shallow boring locations was computed by adding the average cumulative settlement from the deep borings at 40 ft (i.e., at the approximate base of the shallow borings).

Lateral Spreading Analysis Approach

Lateral spreading potential was estimated using an empirical Newmark sliding block analysis. First, a limit equilibrium model was developed using Rocscience Slide2 and liquefied (residual) soil strength properties where applicable. Residual strength profiles were prepared for the CLE and DE hazard levels. Sage developed the profiles using subsurface data from the 15 borings that extended approximately 35 to 40 ft below ground surface and the five borings that extended 70 to 80 ft below ground surface. The subsurface data indicate that pockets of liquefiable soil are present in all of the borings; the elevation, composition, and severity of the liquefiable soils vary. Because the lateral spreading failure surfaces are very large (i.e., engage vast areas of soil), the computed residual strengths for all borings were averaged and enveloped by a design profile, as shown on Figure 3. Because the CLE and DE hazard levels have nearly the same residual strengths, only the DE level was modeled to determine the yield acceleration.

The residual strength profile included the lateral extent of the limit-equilibrium model (Figure 4). The limit equilibrium model was developed to compute the magnitude, location, and distribution of seismic yield accelerations and corresponding slide masses (Figure 5).

Once yield accelerations had been calculated, the corresponding lateral spreading horizontal displacements were computed using empirical methods recommended by Bray and Macedo (2019) and Bray et al. (2018). These computations were used to create the lateral spreading contours shown on Figure 2; the contours depict estimated boundaries of equal horizontal displacement.

Seismic Analysis Conclusions

Soil layers in each of the 20 borings are susceptible to liquefaction following a DE or CLE event. Few soil layers are susceptible to liquefaction following an OLE event. The soil residual strength and degree of liquefaction-induced settlement are similar for DE and CLE events. Table 3 includes the estimated liquefaction-induced settlement for each boring location following DE, CLE, and OLE events. Based on these estimates, Sage recommends assuming an average free-field ground surface settlement of 13 inches for the CLE event and 16 inches for the DE event. Sage estimates that, following a DE or CLE event, approximately 13 inches of differential settlement will occur over a horizontal span of 50 ft. The OLE event is not anticipated to cause significant ground surface movement.

Although they have similar yield accelerations, the CLE event will result in less lateral spreading than the DE event, as the CLE event has a smaller seismic demand (i.e., strong ground motion magnitude). The lateral spreading contours shown on Figure 2 can be used to estimate lateral ground movement following a DE or CLE event. The OLE event is not anticipated to cause significant lateral ground movement in the upland portion of the site.

Sage reviewed information regarding an existing sheet pile wall and the proposed VBCW. Both structures are anticipated to have a negligible impact on liquefaction-induced lateral spreading and settlement. During lateral spreading, the sheet pile wall and VBCW will likely deform with the surrounding ground.

SHORELINE SLOPE STABILITY

Approach

Sage evaluated the stability of the segment of shoreline in the vicinity of the proposed VBCW. A typical cross section used for stability analyses is provided on Figure 6. The results of the analyses were used to assess whether ground vibrations caused by VBCW installation could contribute to slope instability.

A vibratory pile hammer, likely an APE Model 150 or comparable, will be used to install the VBCW. A hammer of this size typically vibrates at a frequency of approximately 30 hertz. Peak particle velocities (PPVs) for vibratory pile hammers typically range from 0.1 inches per second to 0.8 inches per second at 25 ft from the pile (Wilson, Ihrig & Associates, Inc. et al. 2012). The slurry pocket around the vibrating beam will likely attenuate vibrations produced by the pile hammer. Therefore, a PPV of 0.45 inches per second at 25 ft is assumed to be representative of VBCW installation.

A pseudo-static slope stability analysis was completed to evaluate the distribution of yield acceleration within the slope (Figure 6). Based on the results of the analysis, the minimum yield acceleration is approximately 0.11g, where “g” stands for units of gravity. The centroid of the slide mass is approximately 100 ft from the proposed VBCW location, and ground vibrations (PPVs) are likely to attenuate by the time they reach the most unstable portion of the slope.

Sage used the Federal Transit Administration’s (2018) proposed vibration-attenuation relationship to estimate a PPV of 0.16 inches per second at the centroid of the critical slip surface.

Given the wide frequency range and unknown amplitude of the ground vibrations, peak ground accelerations could not be calculated directly from the PPV. Instead, Sage reviewed literature on soil slope stability in the presence of controlled blasting (Wong and Pang 2000). Findings show that, for the slope materials, inclination, and PPV indicated, vibration-induced slope instability is unlikely to occur.

Vibrations from VBCW installation could cause soil liquefaction and ground settlement. Soil liquefaction, if any, is likely to be localized to the pile, as PPVs of more than 2 inches per second typically are required to liquefy loose sand when conducting blast-induced liquefaction studies (Ishimwe et al. 2020). Several inches of soil settlement are likely to occur within a horizontal distance of the VBCW that is equal to the beam depth.

Conclusions

Based on the results of its stability analysis, Sage concludes that VBCW installation is unlikely to cause slope instability. Several inches of soil settlement should be anticipated adjacent to the VBCW. During the final design phase, the project design team should discuss settlement monitoring of the sheet pile wall, as VBCW installation could cause the sheet piles to settle. The sheets are unlikely to settle more than the surrounding ground.

USE OF THIS TECHNICAL MEMORANDUM

Sage Geotechnical, LLC has prepared this technical memorandum for the exclusive use of Dalton, Olmsted & Fuglevand, Inc; the Port of Tacoma; and their designated representatives for specific application to the Former Arkema Manufacturing Site project in Tacoma, Washington. No other party is entitled to rely on the information, conclusions, and recommendations included in this document without the express written consent of Sage Geotechnical. Reuse of the information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Sage Geotechnical, shall be at the user's sole risk. Sage Geotechnical warrants that, within the limitations of scope, schedule, and budget, its services have been provided in a manner consistent with that level of skill and care ordinarily exercised by members of the profession currently practicing in the same locality and under similar conditions. Sage Geotechnical makes no other warranty, either express or implied.

CLOSING

We trust that this memorandum provides you with the information needed to proceed with the project. If you have questions or comments, or if we can be of further service, please contact Calvin McCaughan at calvinm@sagegeotechnical.com.

SAGE GEOTECHNICAL, LLC

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Principal Engineer

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Principal Engineer

DCS/MCS/CAM
[HTTPS://SAGEGEOTECHNICAL.SHAREPOINT.COM/SITES/SAGEGEOTECHNICAL/SHARED DOCUMENTS/PROJECTS/046 DALTON OLMSTED FUGLEVAND/R/REVISED REPORT/FORMER ARKEMA MANUFACTURING SITE DRAFT TECHNICAL MEMORANDUM 11.8.2024.DOCX]

Attachments: Figure 1. Vicinity Map
Figure 2. Site Plan
Figure 3. Residual Strength Profiles
Figure 4. Lateral Spreading Profile A
Figure 5. Yield Acceleration Calculation
Figure 6. Shoreline Slope Stability
Table 1. Upper Aquitard Consolidation Settlement Summary
Table 2. Seismic Response Spectra
Table 3. Estimated Liquefaction Settlement
Attachment 1. Site Development Recommendations

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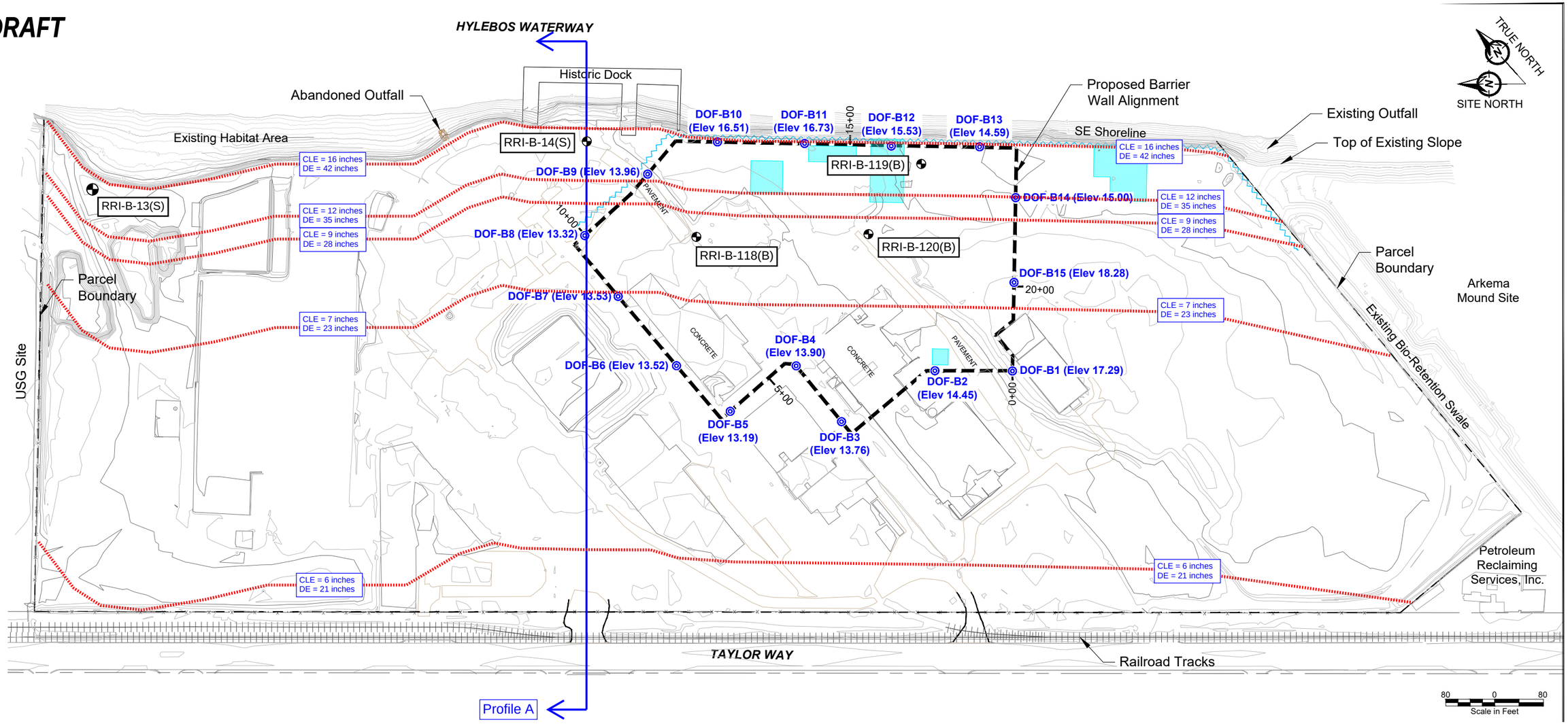
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Vicinity Map	
Former Arkema Manufacturing Site	
Tacoma, Washington	Figure 1

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Legend

- DOF (2023) exploration location and designaton
- Barrier Wall Alignment
- 0+00 Barrier Wall Alignment Stationing
- Parcel Boundary
- Existing Sheet Pile Wall
- Existing Fence
- Thin or Leaky First Aquitard Location
- RRI-B-14(S) Landau (2009) exploration location and designation
- CLE = 6 inches DE = 21 inches Lateral spreading equal-displacement contour

Contingency level earthquake (CLE) and design earthquake (DE) lateral spreading horizontal displacement

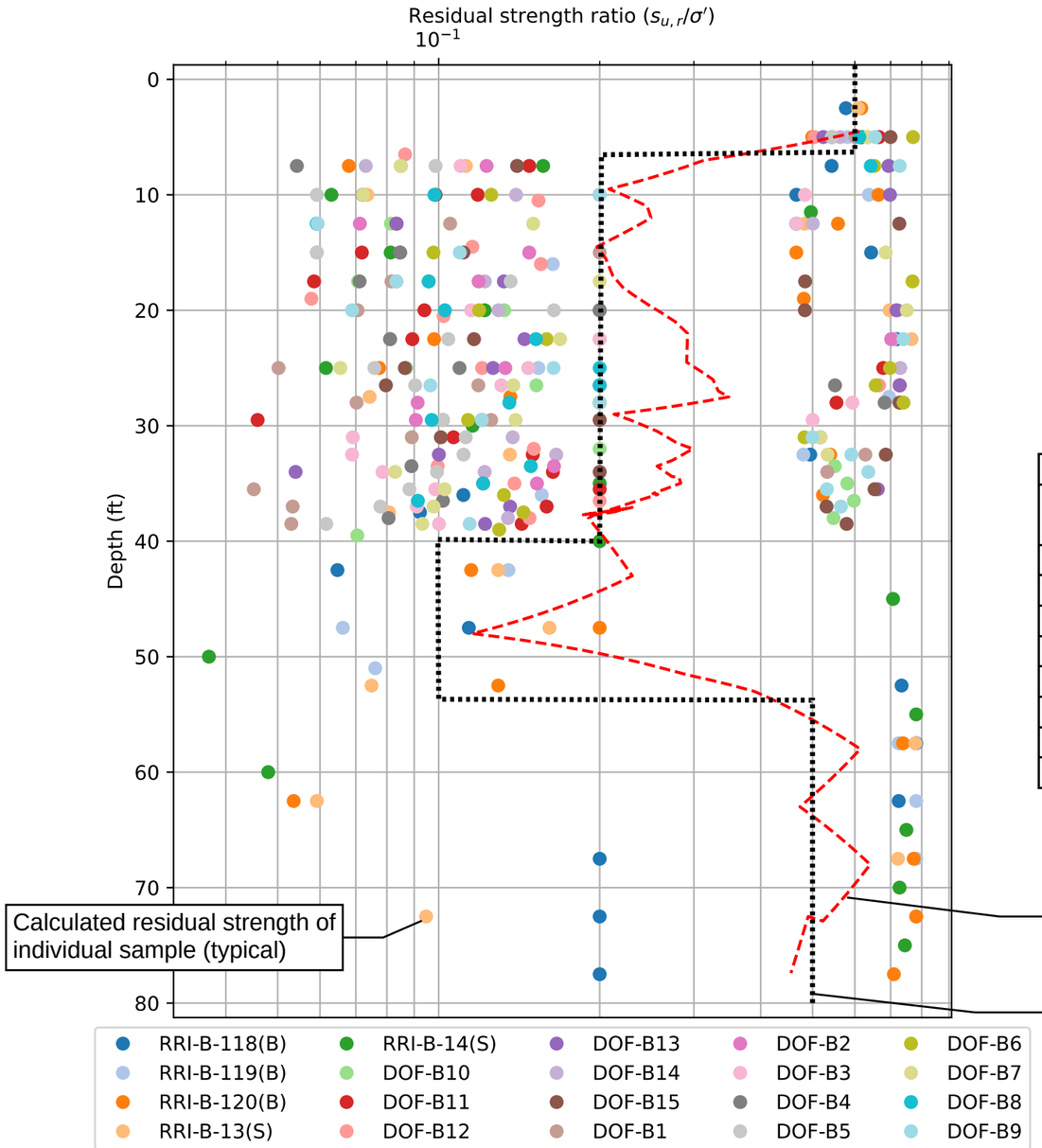
Source: DOF (2023)

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Site Plan	
Former Arkema Manufacturing Site	
Tacoma, Washington	Figure 2

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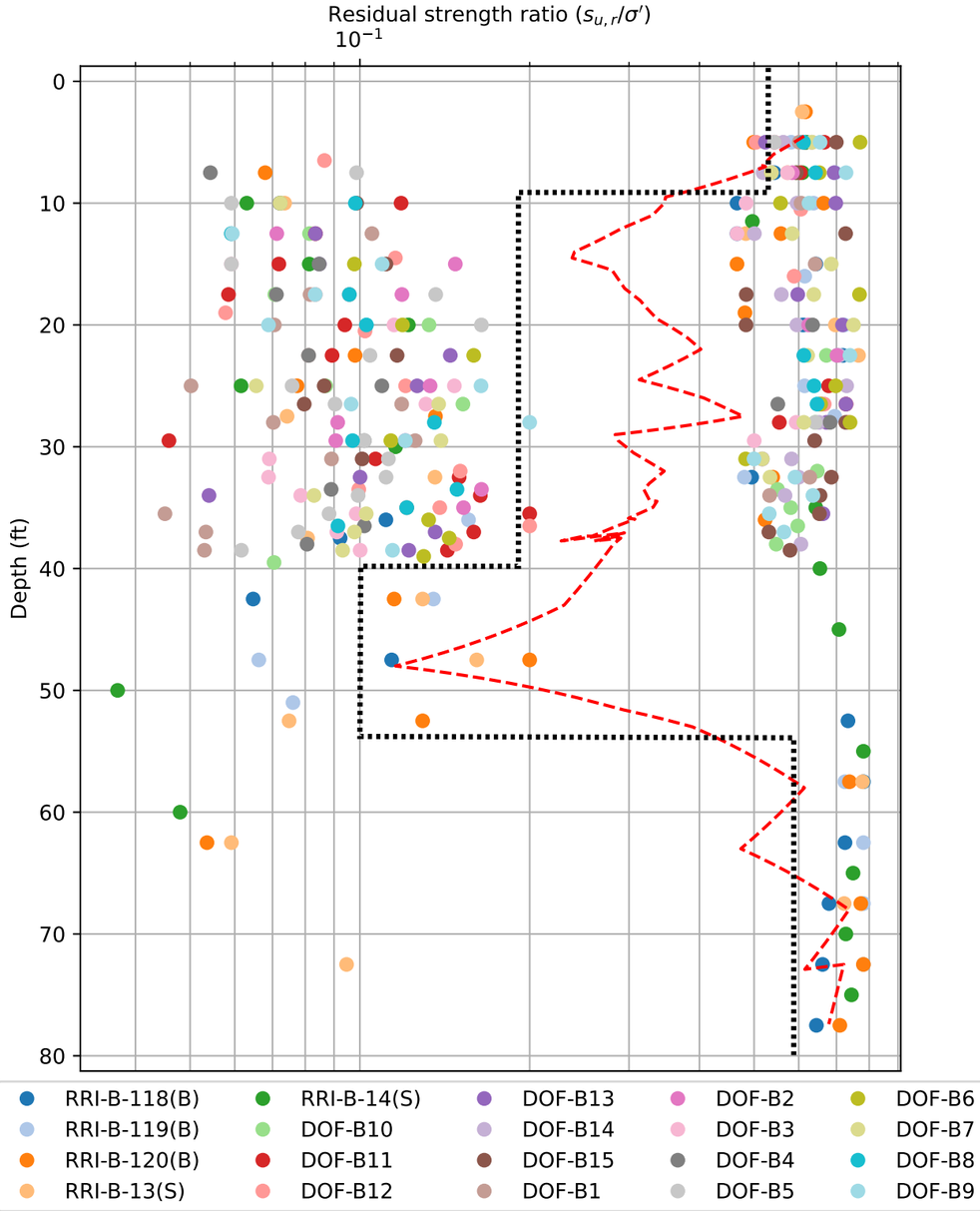
DE



DE	
Depth Below Grade (ft)	Su,r/σ'
0	0.6
7	0.6
7	0.2
40	0.2
40	0.1
54	0.1
54	0.5
80	0.5

CLE	
Depth Below Grade (ft)	Su,r/σ'
0	0.6
10	0.6
10	0.2
40	0.2
40	0.1
54	0.1
54	0.6
80	0.6

CLE

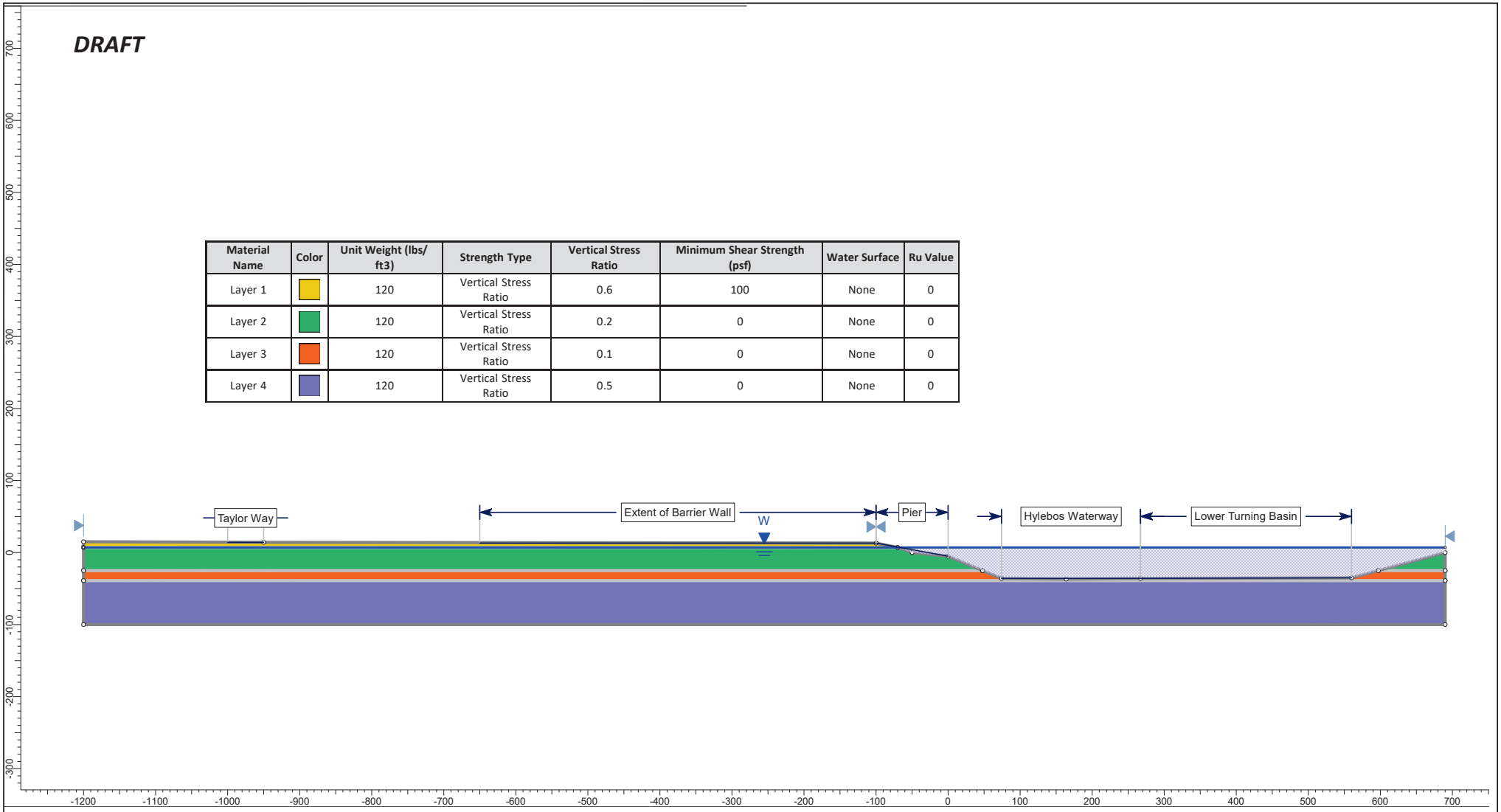


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Residual Strength Profiles	
Former Arkema Manufacturing Site	
Tacoma, Washington	Figure 3

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Material Name	Color	Unit Weight (lbs/ ft3)	Strength Type	Vertical Stress Ratio	Minimum Shear Strength (psf)	Water Surface	Ru Value
Layer 1		120	Vertical Stress Ratio	0.6	100	None	0
Layer 2		120	Vertical Stress Ratio	0.2	0	None	0
Layer 3		120	Vertical Stress Ratio	0.1	0	None	0
Layer 4		120	Vertical Stress Ratio	0.5	0	None	0



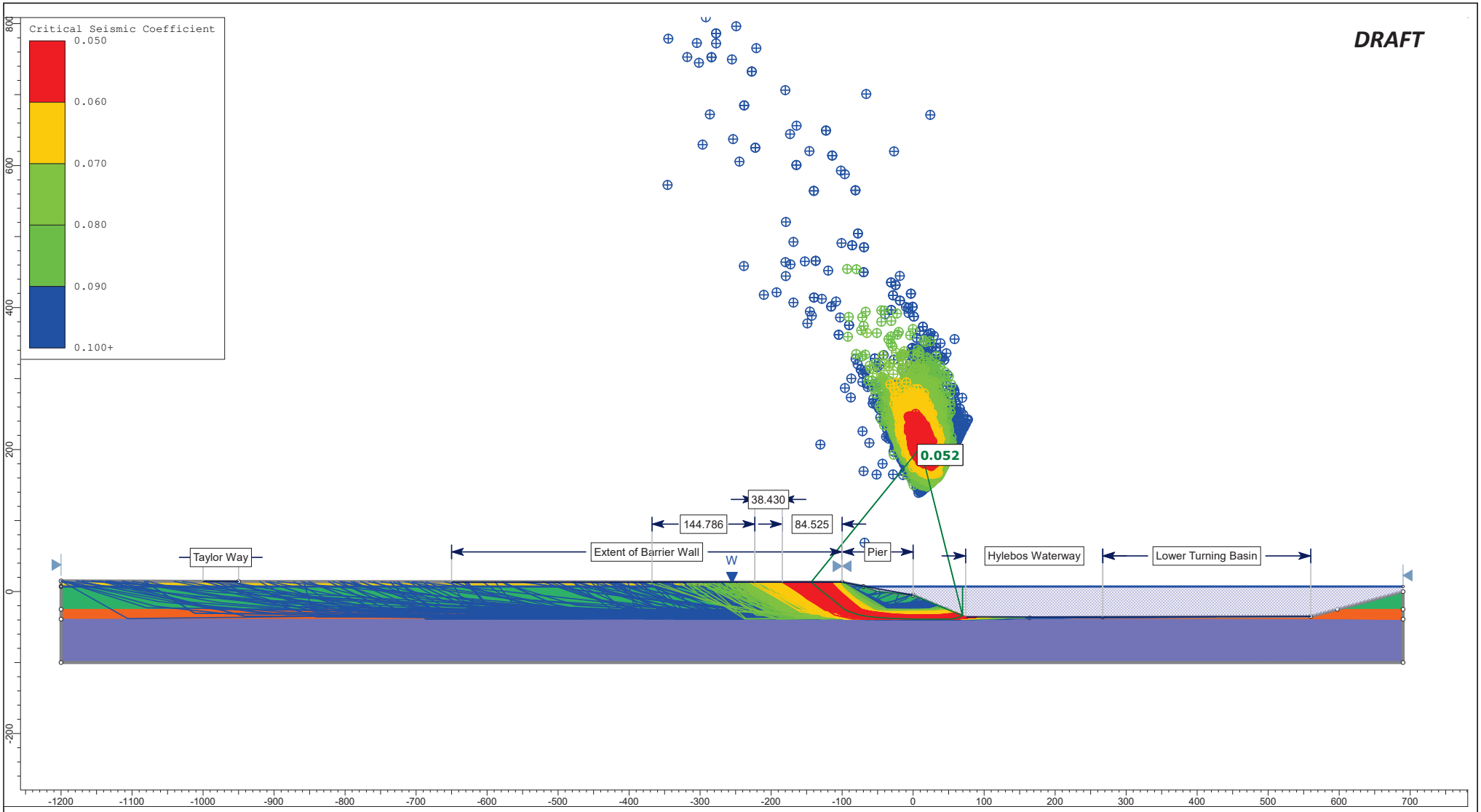
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Lateral Spreading Profile A

Former Arkema Manufacturing Site

Tacoma, Washington

Figure 4

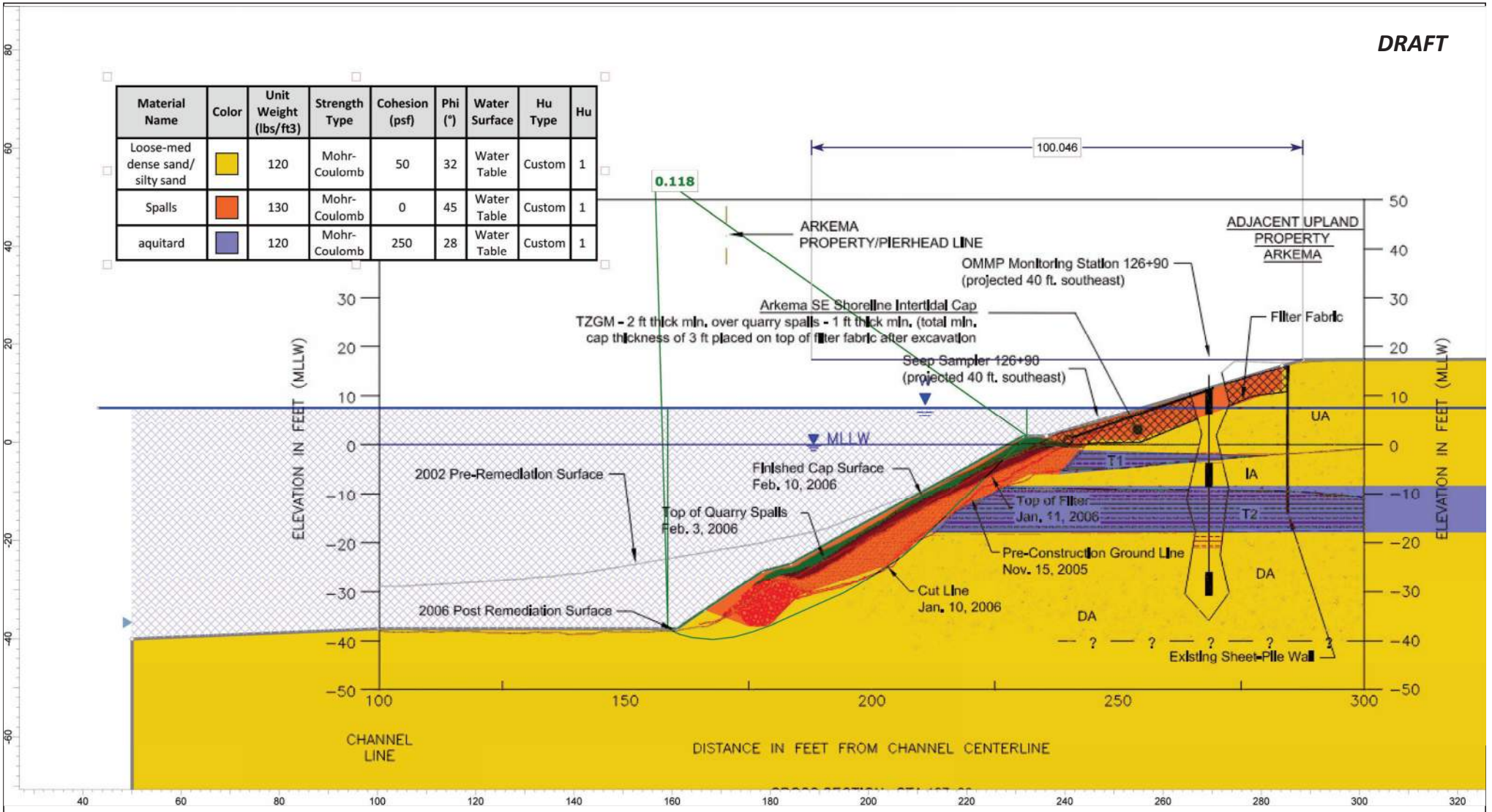


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Yield Acceleration Calculation	
Former Arkema Manufacturing Site	
Tacoma, Washington	Figure 5

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Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (°)	Water Surface	Hu Type	Hu
Loose-med dense sand/ silty sand		120	Mohr-Coulomb	50	32	Water Table	Custom	1
Spalls		130	Mohr-Coulomb	0	45	Water Table	Custom	1
aquitard		120	Mohr-Coulomb	250	28	Water Table	Custom	1



Background image adapted from PGG 2006.

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Shoreline Slope Stability	
Former Arkema Manufacturing Site	
Tacoma, Washington	Figure 6

Table 1.
Upper Aquitard Consolidation Settlement Summary
Former Arkema Manufacturing Site
Tacoma, Washington

Assumed Groundwater Elevation:	10	ft
Assumed ESU2 Normalized Virgin Compression Index, Cc$_\varepsilon$:	0.17	
Assumed Unit Weight of Fill:	130	pcf
Assumed Average Unit Weight of *In-Situ* Soil:	110	pcf

Boring ID	Existing grade (ft)	Finished grade (ft)	Elev. Top of ESU 2 (ft)	Elev. Bottom of ESU2 (ft)	σ'_{vo} @ midpoint of ESU 2 (psf)	$\Delta\sigma$ (psf)	Estimated Primary Consol. Settlement (in.)
DOF-B1	17.5	22	-2.5	-5.5	1491.4	585	0.9
DOF-B2	14.5	22	1.5	-1	959.1	975	1.6
DOF-B3	14	22	3.5	-5	951.7	1040	5.6
DOF-B4	14	22	3.5	-5	951.7	1040	5.6
DOF-B5	14	22	-2	-11.5	1237.3	1040	5.1
DOF-B6	14	22	2	-6	1011.2	1040	5.0
DOF-B7	14	22	2	-6.5	1023.1	1040	5.3
DOF-B8	14.5	22	2.5	-5.5	1042.4	975	4.7
DOF-B9	14.5	22	-4.5	-5.5	1209	975	0.5
DOF-B10	16.5	22	-3	-5	1381.4	715	0.7
DOF-B11	16.5	22	4	-1	1119.6	715	2.2
DOF-B12	15.5	22	0	-4	1176.2	845	1.9
DOF-B13	15	22	3.5	-3.5	1026	910	3.9
DOF-B14	15	22	3.5	-4	1037.9	910	4.2
DOF-B15	18.5	22	3.5	-6	1470.5	455	2.3
Averages			1.16666667	-5			3.3

Notes:

ESU 2 = Upper Aquitard

σ'vo = initial vertical effective stress

Δσ = change in vertical effective stress

Abbreviations and Acronyms:

consol = consolidation

elev. = elevation

ESU = engineering stratigraphic unit

ft = feet

ID = identification

in = inches

pcf = pounds per cubic foot

psf = pounds per square foot

Table 2.
Seismic Response Spectra
Former Arkema Manufacturing Site
Tacoma, Washington

DE (2% in 50 year)	
T (s)	Sa,d (g)
0	0.30912
0.1	0.533976867
0.2	0.758833735
0.20621118	0.7728
0.3	0.7728
0.4	0.7728
0.5	0.7728
0.6	0.7728
0.7	0.7728
0.8	0.7728
0.9	0.7728
1	0.7728
1.031055901	0.7728
1.1	0.724363636
1.2	0.664
1.3	0.612923077
1.4	0.569142857
1.5	0.5312
1.6	0.498
1.7	0.468705882
1.8	0.442666667
1.9	0.419368421
2	0.3984
2.1	0.379428571
2.2	0.362181818
2.3	0.346434783
2.4	0.332
2.5	0.31872
2.6	0.306461538
2.7	0.295111111
2.8	0.284571429
2.9	0.274758621
3	0.2656
3.1	0.257032258
3.2	0.249
3.3	0.241454545
3.4	0.234352941
3.5	0.227657143
3.6	0.221333333
3.7	0.215351351
3.8	0.209684211
3.9	0.204307692
4	0.1992

CLE (10% in 50 year)	
T (s)	Sa,d (g)
0	0.1668
0.1	0.290770295
0.2	0.414740589
0.201822542	0.417
0.3	0.417
0.4	0.417
0.5	0.417
0.6	0.417
0.7	0.417
0.8	0.417
0.9	0.417
1	0.417
1.00911271	0.417
1.1	0.382545455
1.2	0.350666667
1.3	0.323692308
1.4	0.300571429
1.5	0.280533333
1.6	0.263
1.7	0.247529412
1.8	0.233777778
1.9	0.221473684
2	0.2104
2.1	0.200380952
2.2	0.191272727
2.3	0.182956522
2.4	0.175333333
2.5	0.16832
2.6	0.161846154
2.7	0.155851852
2.8	0.150285714
2.9	0.145103448
3	0.140266667
3.1	0.135741935
3.2	0.1315
3.3	0.127515152
3.4	0.123764706
3.5	0.120228571
3.6	0.116888889
3.7	0.11372973
3.8	0.110736842
3.9	0.107897436
4	0.1052

OLE (50% in 50 year)	
T (s)	Sa,d (g)
0	0.06072
0.1	0.110959622
0.181291173	0.1518
0.2	0.1518
0.3	0.1518
0.4	0.1518
0.5	0.1518
0.6	0.1518
0.7	0.1518
0.8	0.1518
0.9	0.1518
0.906455863	0.1518
1	0.1376
1.1	0.125090909
1.2	0.114666667
1.3	0.105846154
1.4	0.098285714
1.5	0.091733333
1.6	0.086
1.7	0.080941176
1.8	0.076444444
1.9	0.072421053
2	0.0688
2.1	0.06552381
2.2	0.062545455
2.3	0.059826087
2.4	0.057333333
2.5	0.05504
2.6	0.052923077
2.7	0.050962963
2.8	0.049142857
2.9	0.047448276
3	0.045866667
3.1	0.044387097
3.2	0.043
3.3	0.04169697
3.4	0.040470588
3.5	0.039314286
3.6	0.038222222
3.7	0.037189189
3.8	0.036210526
3.9	0.035282051
4	0.0344

Table 2.
Seismic Response Spectra
Former Arkema Manufacturing Site
Tacoma, Washington

DE (2% in 50 year)	
T (s)	Sa,d (g)
4.1	0.194341463
4.2	0.189714286
4.3	0.185302326
4.4	0.181090909
4.5	0.177066667
4.6	0.173217391
4.7	0.169531915
4.8	0.166
4.9	0.162612245
5	0.15936

CLE (10% in 50 year)	
T (s)	Sa,d (g)
4.1	0.102634146
4.2	0.100190476
4.3	0.097860465
4.4	0.095636364
4.5	0.093511111
4.6	0.091478261
4.7	0.089531915
4.8	0.087666667
4.9	0.085877551
5	0.08416

OLE (50% in 50 year)	
T (s)	Sa,d (g)
4.1	0.033560976
4.2	0.032761905
4.3	0.032
4.4	0.031272727
4.5	0.030577778
4.6	0.029913043
4.7	0.029276596
4.8	0.028666667
4.9	0.028081633
5	0.02752

Abbreviations and Acronyms:

CLE = contingency level earthquake

DE = design earthquake

OLE = operational level earthquake

Sa,d (g) = design spectral acceleration at T

T (s) = period in seconds

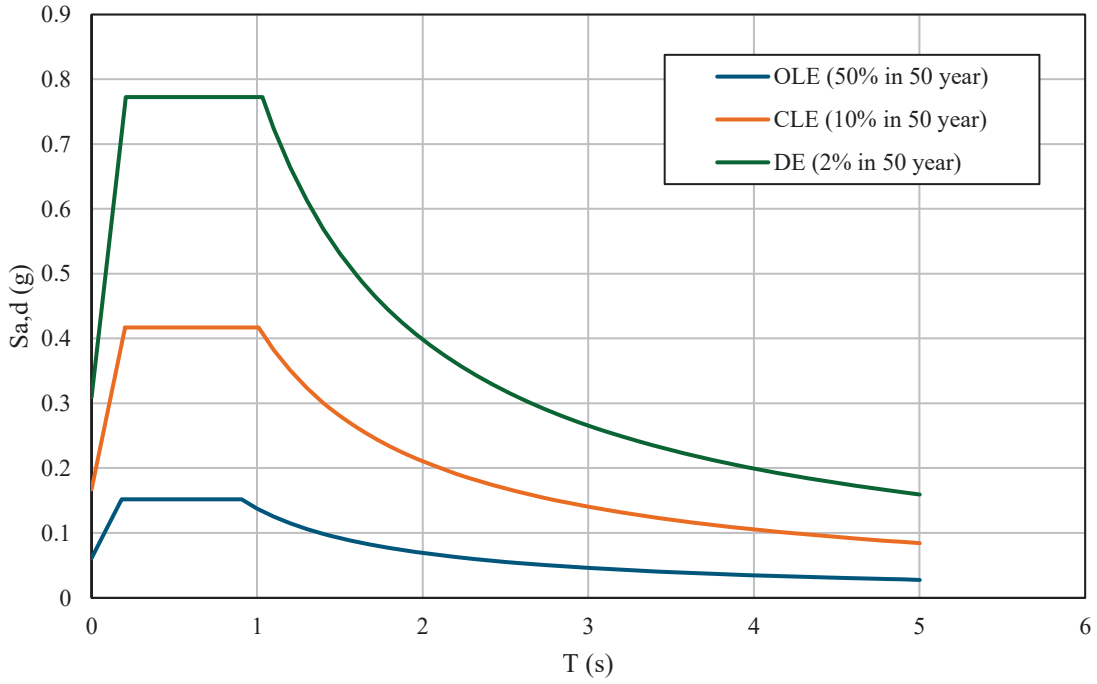


Table 3.
Estimated Liquefaction Settlement
Former Arkema Manufacturing Site
Tacoma, Washington

Boring Name	Estimated Settlement (in.)		
	DE	CLE	OLE
RRI-B-118(B)	8	6	< 0.5
RRI-B-119(B)	11.5	8	< 0.5
RRI-B-120(B)	12	8.5	< 0.5
RRI-B-13(S)	20	18	< 0.5
RRI-B-14(S)	18	16	< 0.5
DOF-B10	16	12.5	< 0.5
DOF-B11	18	16	< 0.5
DOF-B12	17	12	< 0.5
DOF-B13	15	13	< 0.5
DOF-B14	14	8	< 0.5
DOF-B15	14	11.5	< 0.5
DOF-B1	19	17	< 0.5
DOF-B2	15.5	12.5	< 0.5
DOF-B3	17	15	< 0.5
DOF-B4	19.5	19.5	< 0.5
DOF-B5	21	19	< 0.5
DOF-B6	14.5	12	< 0.5
DOF-B7	15	12	< 0.5
DOF-B8	18	15	< 0.5
DOF-B9	15.5	13.5	< 0.5
Average	**16**	**13**	**N/A**
Min	**8**	**6**	**N/A**
Max	**21**	**19.5**	**N/A**

Abbreviations and Acronyms:

DE = design earthquake
CLE = contingency level earthquake
in = inches
max = maximum
min = minimum
N/A = not applicable
OLE = operational level earthquake

ATTACHMENT 1

Site Development Recommendations

ATTACHMENT 1.
SITE DEVELOPMENT RECOMMENDATIONS

Conditions Review Summary

The site will be filled to an elevation of approximately 22 feet (ft), or to 2 to 8 ft above the existing grade at the proposed vibrating beam containment wall location. Gravel Borrow will be used to raise site grades. The pavement sections shown on the current design drawings (i.e., 8 inches of hot-mix asphalt over 16 inches of Crushed Surfacing Base Course) will be supported by the Gravel Borrow.

Filling will be completed in phases over 10 years or fewer.

The site may experience up to 6 inches of consolidation settlement; settlement is likely to occur in the 2 months following filling. Please note that Sage's settlement estimates are likely conservative.

Granular fill soils (sand, silty sand, and Gravel Borrow) will be encountered in most of the proposed earthwork and utility excavations. Fine-grained soils are likely to be encountered in excavations that extend below elevation 8 ft; this likelihood increases with depth.

The site has a high water table that can fluctuate with season and tide.

Conclusions Summary

Neither soil preloading nor ground improvement is necessary to mitigate consolidation settlement associated with the proposed regrading activities/soil cap placement. These measures are not warranted because the estimated settlement period is short; the compressible soil layers are thin (and will be overlain by 10 to 15 ft of granular soil); and the site has been developed (i.e., pre-loaded) previously.

Sage should be contacted if development plans change to include buildings or defined container-stacking areas, as soil preloading could be advantageous to both.

Before pavement sections are constructed, mass grading (with Gravel Borrow) should be placed 3 inches high, then cut or topped off after a 1- to 2-month settlement period.

Sage recommends that settlement-sensitive wet gravity utilities are installed after filling. If this is not feasible, the design team may consider updating the project plans so the first phase of filling includes fill placement above wet utility corridors. Additionally, flexible pipe connections should be considered for settlement-sensitive utilities.

Given the groundwater conditions previously documented at the site, Sage recommends that underground utilities and buried structures (e.g., vaults, manholes, etc.) are designed to

withstand buoyancy. The water table should be assumed to be coincident with the finished ground surface.

Recommendations

Earthwork

Subgrade Preparation

After it has been cleared and stripped, the exposed subgrade should be compacted with a large, vibratory roller. Before structural fill is placed, the prepared subgrade should be proof rolled in the presence of a qualified civil or geotechnical engineer, who is familiar with the site and can check for soft/disturbed areas. Areas of limited access can be evaluated with a steel T-probe. If probing or proof-rolling reveals loose and/or disturbed soils, the upper 1 ft of subgrade should be scarified; moisture-conditioned; and compacted to a firm, unyielding condition. Alternatively, unsuitable subgrade soils may be overexcavated and replaced with compacted structural fill, as directed by the engineer.

Wet Weather Earthwork

Moisture-sensitive, near-surface soils may contain up to 20 percent fines. These soils can become unstable if earthwork construction is completed during the wet season (i.e., October through April). Bids for site-grading operations should be based on the time of year construction will occur.

Wet weather earthwork will necessitate soil overexcavation or stabilization. Stabilization may be achieved with quarry spall working surfaces, covered soil stockpiles, and runoff collection and controls. The severity of construction disturbance will depend, in part, on the contractor's efforts to protect moisture-sensitive site soils.

If wet weather construction is anticipated, the fines content of the Gravel Borrow should be less than 5 percent by weight of the fraction passing the ¾-inch sieve. This requirement should be incorporated into the project plans and specifications and clearly stated on the bid documents.

Structural Fill

Gravel Borrow, as described in Section 9-03.14(1) of the Washington State Department of Transportation's 2024 *Standard Specifications for Road, Bridge, and Municipal Construction* (hereinafter, *2024 WSDOT Standard Specifications*), is a suitable source of import structural fill. During periods of wet weather, the fines content should not exceed 5 percent, based on the minus ¾-inch fraction.

Structural fill should be placed and compacted in accordance with the requirements in Section 2-03.3(14)C, Method C of the *2024 WSDOT Standard Specifications.*

Each layer of structural fill should be compacted to at least 95 percent of the maximum dry density, determined in accordance with the compaction control tests in Section 2-03.3(14)D of the *2024 WSDOT Standard Specifications.* Alternatively, the maximum dry density can be determined using ASTM International standard test method D1557, *Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3)).*

Temporary Excavations and Shoring

Utility excavations may extend below the water table. The excavations should be shored or laid back and dewatered before backfill or piping is placed. Trench boxes or sheet systems are feasible shoring methods.

The soil parameters in Table 1 can be used as a guide for preliminary design of temporary shoring systems. The contractor should be responsible for selecting the final shoring design parameters. Shoring design shall be prepared by a civil or structural engineer licensed in the State of Washington and reviewed by the owner's engineer prior to acceptance.

Table 1. Idealized Soil Parameters for Design of Temporary Shoring

Soil Unit	Typical Elevation Range (ft)	Moist Unit Weight (pcf)	Cohesion (psf)	Internal Angle of Friction (degrees)
New Fill	17–22	135	0	36
Existing Fill	8–17	120	0	32
Silt	<8	105	0	28

Note: Hydrostatic pressure should be added where appropriate.
ft = feet
pcf = pounds per cubic foot
psf = pounds per square foot

The contractor should be responsible for shoring and excavation stability; shoring and excavation should comply with the safety standards in Chapter 296-155 of the Washington Administrative Code (WAC). The site is underlain by Type C soils (WAC 296-155-664), and temporary slopes should be no steeper than 1.5 horizontal to 1 vertical. Flatter slopes may be required below groundwater. The contractor should be responsible for maintaining the stability of temporary slopes.

Dewatering

Dewatering should be used to lower water levels to 2 ft below the base of construction excavations. The contractor should select, design, and implement the dewatering system.

Underground Utilities and Utility Structures

Pipe Foundation Support, Pipe Zone Bedding, and Trench Backfill

The utility details shown on the current project drawings are consistent with Sage's geotechnical recommendations. Utility and utility structure excavations that extend below elevation 8 ft are more likely than shallower excavations to require subgrade improvements to amend soft soil conditions. To account for potential soft soil conditions, Sage recommends that a new detail for deep trenches is created or that Detail C2.1-8 is amended to include the following:

Where directed by the engineer, subgrade improvements (along utility trench bottoms) should consist of Quarry Spalls that conform to the requirements in Section 9-13.1(5) of the 2024 WSDOT Standard Specifications. *An excavator bucket should be used to push the Quarry Spalls into the soft subgrade. Vibratory compaction should be avoided. Class A Foundation Material should be placed between the Quarry Spalls and the overlying pipe bedding. The Class A Foundation material should conform to the requirements in Section 9-03.17 of the* 2024 WSDOT Standard Specifications.

Lateral Earth Pressures

Sage recommends assuming a design groundwater elevation equal to the finished ground surface. Lateral earth pressures acting on the sides of below-grade structures can be computed using an equivalent fluid density of 82 pounds per cubic foot (pcf) for active conditions and 95 pcf for at-rest conditions. The active and at-rest pressures include hydrostatic pressure.

The design of subsurface walls should account for lateral pressures exerted by adjacent surcharge loads. For uniform surcharge pressures, uniformly distributed lateral pressures of 0.44 times the surcharge pressure should be added for non-yielding walls.

Buoyancy Considerations

Buried structures should be evaluated for global uplift and structural capacity. When developing buoyancy calculations, Sage recommends assuming that the water table could rise to ground surface.

Buoyant forces can be resisted by skin friction along the edges of the structure (Rs), by the weight of soil over footings (Rw), and by the weight of the structure itself. Sage should be contacted if additional resistance is required. Buoyancy can be computed in accordance with Diagram 1 and the equations that follow.

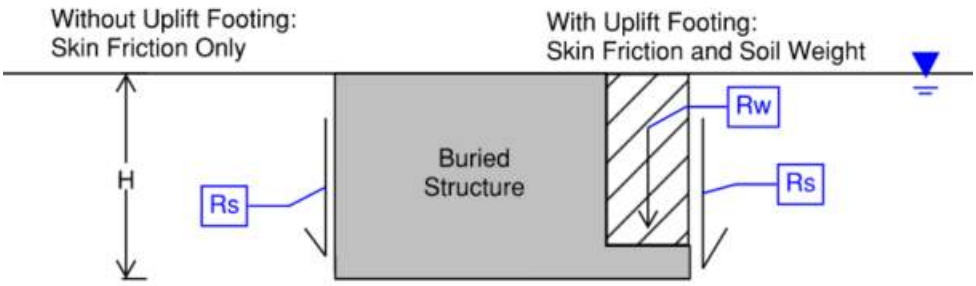


Diagram 1. Buried structure uplift resistance.

With:

$Rs = 2.2H^2\ lbs\ per\ foot\ perimeter.$

$Rw = 73\ pcf * H * (uplift\ footing\ area).$

Buoyancy may be a concern for buried utility pipes if the water table rises above the crown of the pipe when the pipe is not full. The weight of the pipe and the overlying soil, W_s (pounds), will provide resistance to buoyant forces. If the water table rises to ground surface, the weight of the soil along a 1-ft length of pipe can be interpreted as:

$W_s = \gamma * H * D$ (McGrath 1998),

where:

γ = buoyant unit weight of trench backfill (73 pcf).

H = distance from the ground surface to the crown of the pipe in feet.

D = diameter of the pipe in feet.

Light Pole Foundations

Light pole foundations should be designed in accordance with the manufacturer's recommendations. Sage recommends placing at least 6 inches of compacted crushed gravel or controlled density fill beneath the foundations.

Sage recommends an allowable soil bearing pressure (vertical) of 1,000 pounds per square foot (psf) for foundations established below elevation 10 ft, and 2,000 psf for foundations established above elevation 10 ft. This allowable soil bearing pressure applies to long-term dead and live loads, exclusive of the weight of the footing and any overlying backfill.

Sage recommends an allowable lateral bearing resistance of 1,000 psf below elevation 8 ft, and 2,500 psf above elevation 8 ft. Lateral bearing resistances were developed in accordance with Section 17.2.1 of the 2023 *Geotechnical Design Manual* (WSDOT 2022).

Pile Foundations (Stormwater Outfall)

Driven pile foundations for stormwater outfall structures are shown on Sheet C2.12. Based on conversations with Sitts & Hill Engineers, Inc. (project structural engineer), Sage understands that current project plans include 12-inch-diameter pipe piles with a required (allowable) capacity of 100 kips.

Sage analyzed axial pile capacities and reviewed subsurface conditions pertinent to pile design and installation. Based on its findings, Sage recommends that the following information is incorporated into the project plans and specifications:

- Pipe piles shall be open-ended and 12 inches in diameter with a nominal (ultimate) capacity of 180 kips.
- Pile driving shall be completed in accordance with Section 6-05 of the *2024 WSDOT Standard Specifications.*
- North outfall – Minimum tip elevation: -35 ft, estimated tip elevation: -70 ft, overdriving allowance: 0 kips.
- South outfall: Minimum tip elevation: -35 ft, estimated tip elevation: -60 ft, overdriving allowance: 0 kips.

References

ASTM. 2024. *Volume 04.08: Soil and Rock (I): D420–D5876/D5876m.* ASTM International.

LNI. 2020. Construction Work. Chapter 296-155 WAC; Part N. Excavation, Trenching, and Shoring. Washington State Department of Labor and Industries. Effective October.

McGrath, T.J. 1998. "Calculating Loads on Buried Culverts Based on Pipe Hoop Stiffness." Presented at the 1999 TRB Annual Meeting in Washington, D.C.

WSDOT. 2023. *M41-10: Standard Specifications for Road, Bridge, and Municipal Construction.* 2024 Edition. Washington State Department of Transportation.

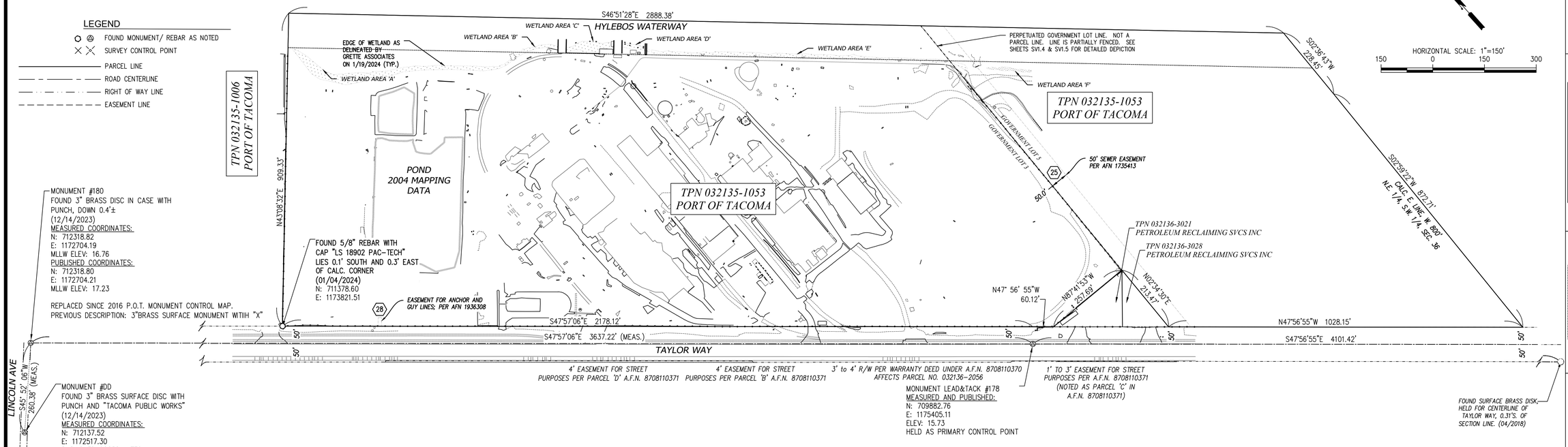
WSDOT. 2022. *M46-03: Geotechnical Design Manual.* Washington State Department of Transportation. February 10.

B. Boundary and Topographic Survey Map

.

TOPOGRAPHIC SURVEY

SCALE: 1" = 150'

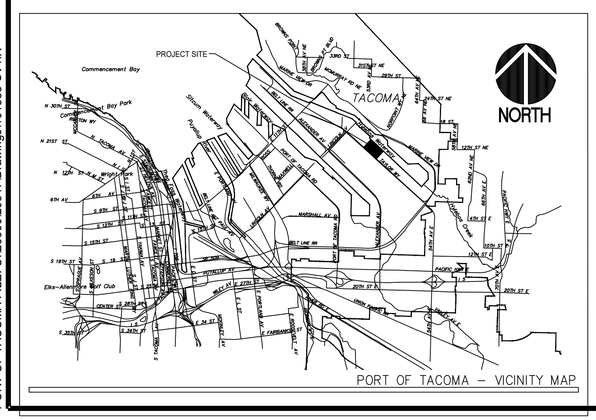


LEGAL DESCRIPTION

(PER SPECIAL WARRANTY DEED UNDER A.F.N. 200705310863)

BEGINNING AT A POINT WHERE THE NORTHERLY RIGHT OF WAY LINE OF TAYLOR WAY EXTENSION INTERSECTS THE EAST LINE OF THE WEST 800 FEET OF THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 36, TOWNSHIP 21 NORTH, RANGE 3 EAST OF THE WILLAMETTE MERIDIAN;
THENCE NORTHWESTERLY ALONG SAID NORTHERLY RIGHT OF WAY LINE OF TAYLOR WAY EXTENSION TO INTERSECT THE WEST LINE OF SAID NORTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 36;
THENCE NORTH ALONG SAID WEST LINE TO THE NORTH LINE OF SAID SOUTHWEST QUARTER OF SECTION 36;
THENCE WEST ALONG SAID NORTH LINE OF THE SOUTHWEST QUARTER OF SECTION 36 TO THE SOUTHWEST CORNER OF THE EAST HALF OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER OF SAID SECTION 36;
THENCE NORTH ALONG THE WEST LINE OF SAID EAST HALF OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER TO INTERSECT THE NORTHERLY RIGHT OF WAY LINE OF TAYLOR WAY;
THENCE NORTHWESTERLY ALONG THE AFORESAID NORTHERLY RIGHT OF WAY LINE OF TAYLOR WAY TO THE MOST SOUTHERLY CORNER OF THAT CERTAIN TRACT OF LAND LOCATED IN THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 35, TOWNSHIP 21 NORTH, RANGE 3 EAST OF THE WILLAMETTE MERIDIAN CONVEYED TO AMERICAN ROCK WOOL CORP., AN INDIANA CORPORATION, BY DEED RECORDED JANUARY 27, 1956 UNDER PIERCE COUNTY AUDITOR'S FEE NUMBER 1745522;
THENCE NORTH 41°45'14" EAST ALONG THE EASTERLY LINE OF SAID AMERICAN ROCK WOOL TRACT, 908.23 FEET TO THE SOUTHWESTERLY LINE OF THE HYLEBOS CREEK WATERWAY;
THENCE SOUTH 48°14'46" EAST ALONG THE SOUTHWESTERLY LINE OF SAID WATERWAY TO INTERSECT THE EAST LINE OF THE WEST 800 FEET OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SAID SECTION 36;
THENCE SOUTH ALONG SAID EAST LINE AND THE EAST LINE OF THE WEST 800 FEET OF THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SAID SECTION 36 TO THE POINT OF BEGINNING.

EXCEPT ANY PORTION THEREOF LYING WITHIN TAYLOR WAY AND TAYLOR WAY EXTENSION.



NOTES

1. EQUIPMENT USED: CARLSON CR2+ ROBOTIC TOTAL STATION AND 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 DECEMBER 2023 THROUGH MARCH 2024, UNDER SITTS & HILL PROJECT NUMBER 20347.
5. UTILITIES AS SHOWN HEREON ARE BASED ON FIELD SURVEY OBSERVATION OF UTILITY LOCATE SERVICES PERFORMED BY MOUNTAIN VIEW LOCATING SERVICES, LLC. IN JANUARY 2024 FOR THIS SURVEY. THIS HAS BEEN SUPPLEMENTED BY PUBLIC RECORDS INFORMATION PROVIDED BY CITY OF TACOMA DART GIS AND BY RECORD LINES FROM SITTS AND HILL PROJECT NUMBER 17695 COMPLETED IN MARCH AND APRIL OF 2018. 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.
6. 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.
7. WETLANDS FLAGS WERE LOCATED BY SITTS AND HILL AS DELINEATED BY GRETTE ASSOCIATES IN THE FIELD ON 01/19/2024. THESE AREAS ARE SHOWN WITH SPECIFIC HATCHING AND SYMBOLS AS IDENTIFIED IN THE LEGEND.
8. MUCH OF THE SITE WAS UNDER STANDING WATER OR ICE AT THE TIME OF SURVEY. THESE AREAS ARE SHOWN WITH SPECIFIC HATCHING AS IDENTIFIED IN THE LEGEND. FEATURES AND EDGES OF IMPERVIOUS SURFACES WERE LOCATED WHERE OBSERVABLE, HOWEVER ADDITIONAL IMPROVEMENTS AND IMPERVIOUS SURFACES MAY EXIST IN THESE AREAS.
9. EDGES OF IMPERVIOUS SURFACES ON SITE REFLECT WHAT WAS OBSERVABLE AND EXPOSED AT THE TIME OF SURVEY. TRUE EDGES MAY BE BURIED UNDER SOIL AND DEBRIS.
10. DATA FROM SITTS & HILL PROJECT NUMBER 10992, COMPLETED IN 2004 WAS USED TO SUPPLEMENT THIS SURVEY. SPECIFICALLY THE APPROXIMATE LOCATION OF THE SHEARWALL (SHEET PILE WALL) LOCATED AT THE SOUTHERLY END OF THE SITE NEAR THE HYLEBOS WATERWAY WAS EXTRACTED FROM THE 2004 SURVEY AND IS SHOWN HEREON, AND NOTED AS SUCH. ALSO, POINT DATA OF GRADE ELEVATIONS WITHIN THE LIMITS OF THE TWO PONDS AT THE NORTHERLY PORTION OF THE SITE WERE INPUT TO PRODUCE MORE ACCURATE CONTOURS. THE LIMITS OF THIS DATA FROM THE 2004 EFFORT IS SHOWN WITH A THICK, SHADED LINE AND LABELED HEREON.

SCHEDULE B EXCEPTIONS

PER CHICAGO TITLE INSURANCE COMPANY OF WASHINGTON, COMMITMENT NUMBER 240759-TC, DATED 03/13/2024

* 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 THE MAPPING LIMITS OF THE SUBJECT PROPERTY

EXCEPTION NUMBER	AFN	DESCRIPTION
1***	200903105001	COVENANTS, CONDITIONS, RESTRICTIONS, ETC. CONTAINED WITHIN RECORD OF SURVEY; SURVEY SUPERCEDES AFN 200901265003; SURVEY CONTAINS REFERENCES TO SEVERAL EASEMENTS AFFECTING THE SUBJECT PARCEL, INCLUDING NO. 25 AND NO. 28, WHICH AFFECT THE MAPPING AREA (SEE BELOW)
5		PENDING RESPONSE FROM TITLE COMPANY
6		PENDING RESPONSE FROM TITLE COMPANY
8***	8707280239	COVENANTS, CONDITIONS, RESTRICTIONS, ETC. CONTAINED WITHIN RECORD OF SURVEY; SURVEY DEPICTS TWO EASEMENTS NOTED WITHIN THIS TITLE COMMITMENT; SEE SCHEDULE 'B' EXCEPTIONS 24, AND 25 NOTED HEREON.
9***	9604170418	COVENANTS, CONDITIONS, RESTRICTIONS, ETC. CONTAINED WITHIN RECORD OF SURVEY;
15		PENDING RESPONSE FROM TITLE COMPANY ON NO. 5 AND NO. 6
16***	9909145004	RIGHTS, INTERESTS, CLAIMS, ETC. CONTAINED WITHIN RECORD OF SURVEY;
17***	200212115004	RIGHTS, INTERESTS, CLAIMS, ETC. CONTAINED WITHIN RECORD OF SURVEY;
22**	N/A	NOTE REGARDING EASEMENT IN FAVOR OF PUGET SOUND POWER & LIGHT COMPANY AS DISCLOSED BY THE PIERCE COUNTY ASSESSOR'S MAP; NOTHING SHOWN HEREON.
23**	1234107	EASEMENT FOR USES AND ENTRY TO WATERWAYS; GRANTED TO: UNITED STATES OF AMERICA; 06/15/1938; EASEMENT DESCRIPTION IS SEMI-LEGIBLE; IT APPEARS TO DESCRIBE THE AFFECTED AREA AS BEING NORTH AND EAST OF THE HYLEBOS WATERWAY, IN WHICH CASE IT WOULD NOT AFFECT THE SUBJECT PARCEL OR MAPPING AREA
⟨24⟩	1460103	EASEMENT FOR ANCHORS AND GUY LINES; THREE AREAS ARE DESCRIBED; ONE LIES SOUTH OF TAYLOR WAY AND THE SUBJECT PARCEL 'B' AND IS NOT SHOWN HEREON; THE SECOND LIES SOUTH OF TAYLOR WAY BUT ADJACENT TO THE R-O-W MAPPING LIMITS OF THIS PROJECT, AND IS SHOWN HEREON; THE THIRD LIES WITHIN THE SUBJECT PARCEL 'B', BUT OUTSIDE THE MAPPING LIMITS AND IS NOT SHOWN HEREON
⟨25⟩	1735413	DEED; GRANTOR: OHIO FERRO-ALLOYS CORPORATION; GRANTEE: MILWAUKEE BOOM COMPANY; CONTAINS REFERENCE TO EASEMENT AFN 1460103 (SCHEDULE 'B' ITEM NO. 24) AS WELL AS AN EASEMENT FOR SEWER LINE AND APPURTENANCES; SEWER EASEMENT AFFECTS SUBJECT PARCEL 'B', AND LIES ADJACENT TO THE MAPPING LIMITS; SHOWN HEREON.
⟨28⟩	1936308	EASEMENT FOR ANCHOR AND GUY WIRES; GRANTOR: PENNSALT CHEMICALS CORPORATION; GRANTEE; CITY OF TACOMA; 09/06/1961; AFFECTS SUBJECT PARCEL 'B' AND LIES WITHIN THE MAPPING LIMITS; SHOWN HEREON.
30***	8707230359	NOTICE OF CONSENT DECREE ENTERED IN CAUSE NUMBER 87-2-01198-1 BETWEEN THE STATE OF WASHINGTON DEPARTMENT OF ECOLOGY AND PENNWALT CORPORATION; 07/23/1987; THE AREA DESCRIBED IN THE INSTRUMENT INCLUDES THE EAST 800 FEET OF SUBJECT PARCEL 'B', AND LIES ADJACENT TO THE EASTERLY EXTENTS OF THE MAPPING LIMITS.
31***	8707230360	NOTICE OF CONSENT DECREE ENTERED IN CAUSE NUMBER 87-2-01199-0 BETWEEN THE STATE OF WASHINGTON DEPARTMENT OF ECOLOGY AND PENNWALT CORPORATION; 07/23/1987; ALL BUT THE EASTERLY 800 FEET OF SUBJECT PARCEL 'B', AND THE ENTIRETY OF THE MAPPING LIMITS LIE WITHIN THE SUBJECT AREA DESCRIBED WITHIN THE INSTRUMENT;
⟨32⟩	8708170385	EASEMENT FOR ANCHORS AND GUY WIRES; INCLUDES DESCRIPTION OF EASEMENTS FOR POWER LINES; GRANTOR: PENNWALT CORPORATION; GRANTEE: CITY OF TACOMA; JULY 16, 1987; EASEMENT AREAS DO NOT LIE WITHIN THE SUBJECT PARCEL 'B', BUT ACROSS TAYLOR WAY, ADJACENT TO THE SOUTHERLY EXTENTS OF THE ROW MAPPING LIMITS.
34***	200205291520	NOTICE REGARDING SEDIMENT REMEDIATION; SITE ADDRESS: 2901 TAYLOR WAY; NOTHING SHOWN HEREON
37***	201608240220	COVENANTS, CONDITIONS, RESTRICTIONS ETC. FOR ENVIRONMENTAL COVENANT (SUPERSEDING AFN 9302020332); LEGAL DESCRIPTION DESCRIBES ALL OF SUBJECT PARCEL 'B'; NOTHING SHOWN HEREON
41**	1440041	NOTE REGARDING EXCEPTIONS AND RESERVATIONS, CONTAINED IN DEED; ALSO MODIFIED AFN 1869995; DEED AFN 1440041 IS PARTIALLY ILLEGIBLE, MAY DESCRIBE PORTIONS OF OR NEAR THE SUBJECT PARCEL 'B' AND/OR MAPPING LIMITS.
50***	200205291519	NOTICE REGARDING SEDIMENT REMEDIATION; SITE ADDRESS: 3009 TAYLOR WAY; NOTHING SHOWN HEREON

HORIZONTAL DATUM

WASHINGTON STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD 83/2011
(PER PORT OF TACOMA SURVEY CONTROL MAP – 2016)

P.O.T. MONUMENT #178
DESCRIPTION: LEAD AND TACK FOUND IN THE NORTHEAST GUTTER OF TAYLOR WAY.
PUBLISHED COORDINATES
N: 709882.76
E: 1175405.11

P.O.T. MONUMENT #'DD'
DESCRIPTION: 3" SURFACE BRASS MONUMENT WITH PUNCH AND "TACOMA PUBLIC WORKS" FOUND IN CENTERLINE OF LINCOLN AVE, APPROX. 260' SOUTHWEST OF CENTERLINE INTERSECTION WITH TAYLOR WAY.
PUBLISHED COORDINATES
N: 712137.47
E: 1172517.33

VERTICAL DATUM

MLLW (PER PORT OF TACOMA SURVEY CONTROL MAP, DATED 2016)

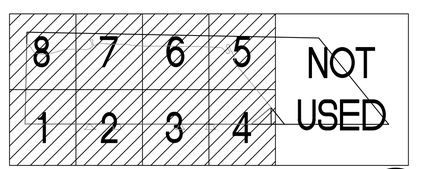
P.O.T. MONUMENT #178
DESCRIPTION: LEAD AND TACK FOUND IN THE NORTHEAST GUTTER OF TAYLOR WAY.
PUBLISHED COORDINATES
N: 709882.76
E: 1175405.11
MLLW ELEV.: 15.73

TO CONVERT TO NGVD29 VALUES, REDUCE ALL ELEVATIONS BY 5.96 FEET (–5.96)

TO CONVERT TO NAVD88 VALUES, REDUCE ALL ELEVATIONS BY 2.46 FEET (–2.46)

SITE DATA

TAX PARCEL NO. 0321351053
ADDRESS: 2901 TAYLOR WAY



KEY PLAN

SCALE: NTS

NORTH

Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 | (253)383-5841

sitts & hill
CIVIL | STRUCTURAL | ARCHITECTURAL | SURVEY
615 CENTER STREET | TACOMA, WA. 98409
PHONE: (253) 474-9449 | FAX: (253) 474-0153
WWW.SITTSHILL.COM

MARK:	REVISION:	BY:	APPR:	DATE:
DS				12/13/24
CHECKED BY	DATE			
DS				12/13/24
DIRECTOR_ENG.	DATE	PROJ. ENGR		DATE
APPROVED:		PRINTED BY: srebrob Dec 04, 2024		

PRELIMINARY
STEVEN R. SCHILLING
STATE OF WASHINGTON
18589
REGISTERED PROFESSIONAL LAND SURVEYOR

ARKEMA MANUFACTURING AREA
INTERIM ACTION - SITE CAPPING
TOPOGRAPHIC SURVEY

PORT ADDRESS: ONE SITCUM PLAZA
TACOMA, WA 98401-1837

CONT/CONS:	072075	TOWNSHIP: 21 NORTH	RANGE: 3 EAST	SECTION: 36
M. ID:	101585.01	DAT-HRZ: WA83/2011	VERT: MLLW 15.73' @ POT MON #178	
PHASE:	70%	PARCEL: 0321351053	DRAWING SCALE: AS NOTED	

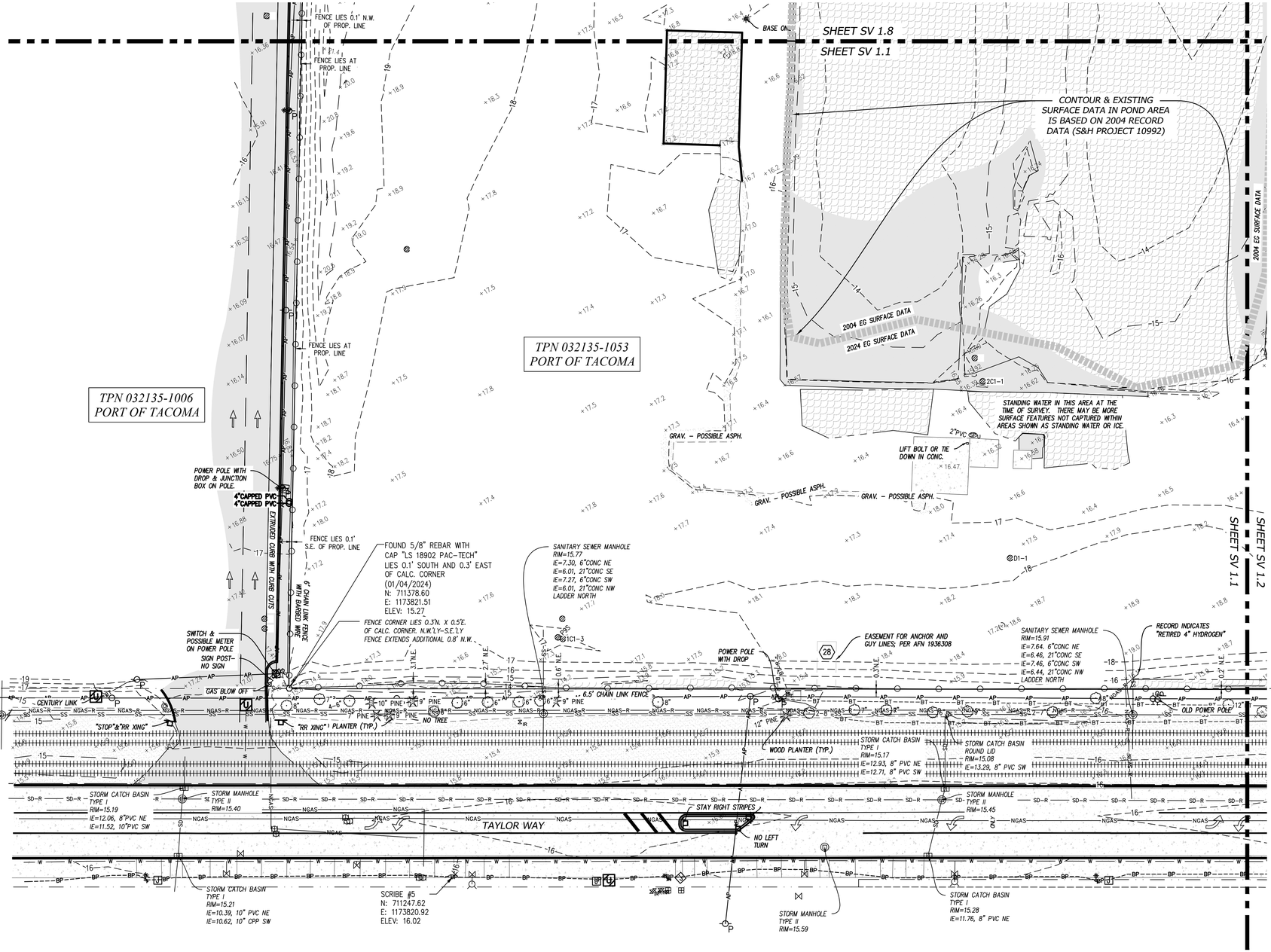
6698
SV1.0
SH # 5 OF 83

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BINDING EDGE

PORT OF TACOMA FILE: O:\20300\20347\Drawings\101585-SV1.X

BINDING EDGE



TOPOGRAPHIC SURVEY - AREA 1

SCALE: 1" = 30'

HORIZONTAL SCALE: 1"=30'

30 0 30 60

LEGEND

- FOUND MONUMENT/ REBAR AS NOTED
- SURVEY CONTROL POINT
- SANITARY SEWER MANHOLE
- UTILITY CLEAN OUT
- STORM MANHOLE
- STORM CATCH BASIN
- STORM CULVERT
- WATER MANHOLE
- WATER VALVE
- WATER METER
- FIRE HYDRANT
- IRRIGATION CONTROL VALVE
- GAS VALVE
- GAS RISER
- POWER METER
- POWER CABINET
- UTILITY POLE
- UTILITY POLE WITH DROP(S)
- GUY ANCHOR
- JUNCTION BOX
- POWER VAULT
- LIGHT POLE
- TELECOM RISER
- TELECOM VAULT
- TELECOM JUNCTION BOX
- UTILITY VAULT
- UTILITY MANHOLE
- UNKNOWN STAND PIPE
- UNKNOWN VALVE
- UNKNOWN RISER
- COLUMN
- BOLLARD
- SIGN
- MAILBOX
- ECOLOGY BLOCK
- RAILROAD SWITCH
- MONITORING WELL
- PILE
- WETLAND FLAG
- TPN TAX PARCEL NUMBER
- X.XN.E. DISTANCE AND DIRECTION OF NOTED OBJECT FROM PROPERTY LINE
- (25) SCHED. B EXCEPTION NUMBER

- PARCEL LINE
- ROAD CENTERLINE
- RIGHT OF WAY LINE
- EASEMENT LINE
- STORM DRAIN LINE
- RECORD STORM LINE
- SANITARY SEWER LINE
- RECORD SANITARY LINE
- BURIED WATER LINE
- RECORD WATER LINE
- BURIED GAS LINE
- RECORD GAS LINE
- BURIED POWER LINE
- RECORD BURIED POWER
- OVERHEAD POWER LINE
- BURIED TELECOM LINE
- RECORD TELECOM LINE
- CHAIN LINK FENCE
- RAILROAD TRACKS
- WETLAND DELINEATION

- ASPHALT SURFACE
- CONCRETE SURFACE
- GRAVEL SURFACE
- RIP-RAP SURFACE
- AREA OF STANDING WATER/ ICE AT TIME OF SURVEY
- WETLAND AREA

8	7	6	5	NOT USED
1	2	3	4	

KEY PLAN

SCALE: NTS

NORTH

Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

sitts&hill
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615 CENTER STREET | TACOMA, WA 98409
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NOT FOR CONSTRUCTION
JOSHUA B. SCHILLING
STATE OF WASHINGTON
22858
REGISTERED
PROFESSIONAL LAND SURVEYOR

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CHECKED BY: DS	12/13/24
DIRECTOR_ENG.:	DATE
PROJ. ENGR:	DATE
PRINTED BY: srebrob	Dec 04, 2024
PORT ADDRESS: ONE SITCUM PLAZA	
TACOMA, WA 98401-1837	

APPROVED:

ARKEMA MANUFACTURING AREA
INTERIM ACTION - SITE CAPPING
TOPOGRAPHIC SURVEY - AREA 1

TOWNSHIP: 21 NORTH	RANGE: 3 EAST	SECTION: 36	
DAT–HRZ: WA83/2011	VERT: MLLW 15.73' @ POT MON #178		
PARCEL: 0321351053	DRAWING SCALE: AS NOTED		

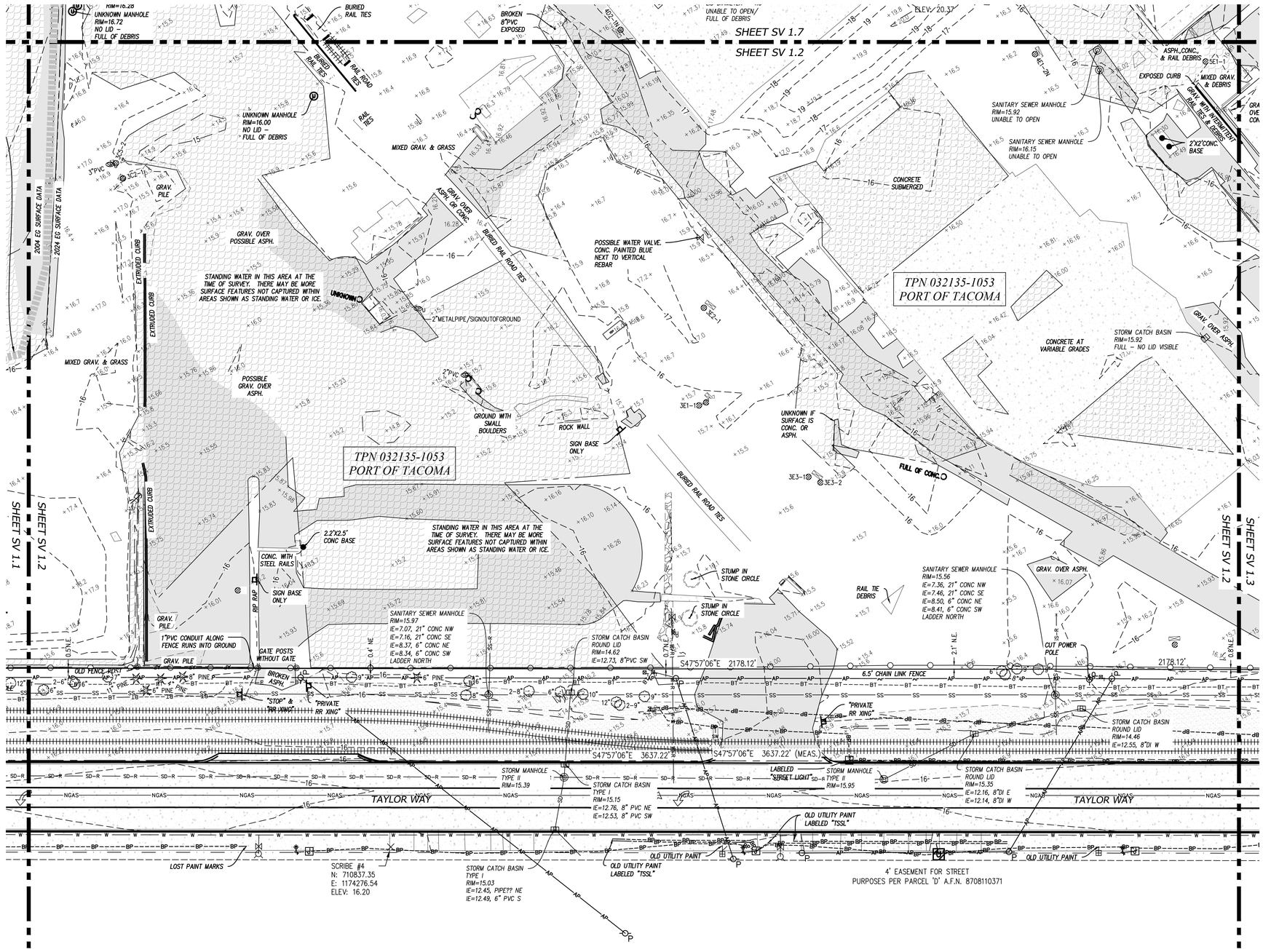
6698
SV1.1
SH # 6 OF 83

CONT/CONS:	072075
M. ID:	101585.01
PHASE:	70%

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PORT OF TACOMA FILE: O:\20300\20347\Drawings\101585-SV1.X

BINDING EDGE



TOPOGRAPHIC SURVEY - AREA 2

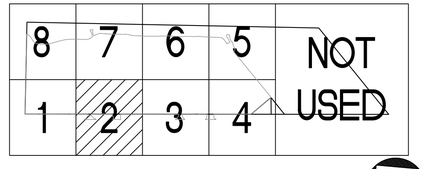
SCALE: 1" = 30'

HORIZONTAL SCALE: 1"=30'

30 0 30 60

LEGEND

FOUND MONUMENT/ REBAR AS NOTED	PARCEL LINE
SURVEY CONTROL POINT	ROAD CENTERLINE
SANITARY SEWER MANHOLE	RIGHT OF WAY LINE
UTILITY CLEAN OUT	EASEMENT LINE
STORM MANHOLE	STORM DRAIN LINE
STORM CATCH BASIN	RECORD STORM LINE
STORM CULVERT	SANITARY SEWER LINE
WATER MANHOLE	RECORD SANITARY LINE
WATER VALVE	BURIED WATER LINE
WATER METER	RECORD WATER LINE
FIRE HYDRANT	BURIED GAS LINE
IRRIGATION CONTROL VALVE	RECORD GAS LINE
GAS VALVE	BURIED POWER LINE
GAS RISER	RECORD BURIED POWER
POWER METER	OVERHEAD POWER LINE
POWER CABINET	BURIED TELECOM LINE
UTILITY POLE	RECORD TELECOM LINE
UTILITY POLE WITH DROP(S)	CHAIN LINK FENCE
GUY ANCHOR	RAILROAD TRACKS
JUNCTION BOX	WETLAND DELINEATION
POWER VAULT	ASPHALT SURFACE
LIGHT POLE	CONCRETE SURFACE
TELECOM RISER	GRAVEL SURFACE
TELECOM VAULT	RIP-RAP SURFACE
TELECOM JUNCTION BOX	AREA OF STANDING WATER/ ICE AT TIME OF SURVEY
UTILITY VAULT	WETLAND AREA
UTILITY MANHOLE	
UNKNOWN STAND PIPE	
UNKNOWN VALVE	
UNKNOWN RISER	
COLUMN	
BOLLARD	
SIGN	
MAILBOX	
ECOLOGY BLOCK	
RAILROAD SWITCH	
MONITORING WELL	
PILE	
WETLAND FLAG	
TPN TAX PARCEL NUMBER	
X.X'N.E. DISTANCE AND DIRECTION OF NOTED OBJECT FROM PROPERTY LINE	
25 SCHED. B EXCEPTION NUMBER	



KEY PLAN

SCALE: NTS

NORTH

Port of Tacoma
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CLAIRE SCHILLING
STATE OF WASHINGTON
19589
REGISTERED PROFESSIONAL LAND SURVEYOR

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DS	12/13/24		
DIRECTOR ENG.	DATE	PROJ. ENGR	DATE

APPROVED:

ARKEMA MANUFACTURING AREA

INTERIM ACTION - SITE CAPPING

TOPOGRAPHIC SURVEY - AREA 2

CONT/CONS:	072075	TOWNSHIP: 21 NORTH	RANGE: 3 EAST
M. ID:	101585.01	DAT-HRZ: WA83/2011	VERT: MLLW 15.73' @ POT MON #178
PHASE:	70%	PARCEL:	0321351053

SECTION: 36
PRINTED BY: srebrob Dec 04, 2024
PORT ADDRESS:ONE SITCUM PLAZA
DRAWING SCALE: AS NOTED
TACOMA, WA 98401-1837

6698

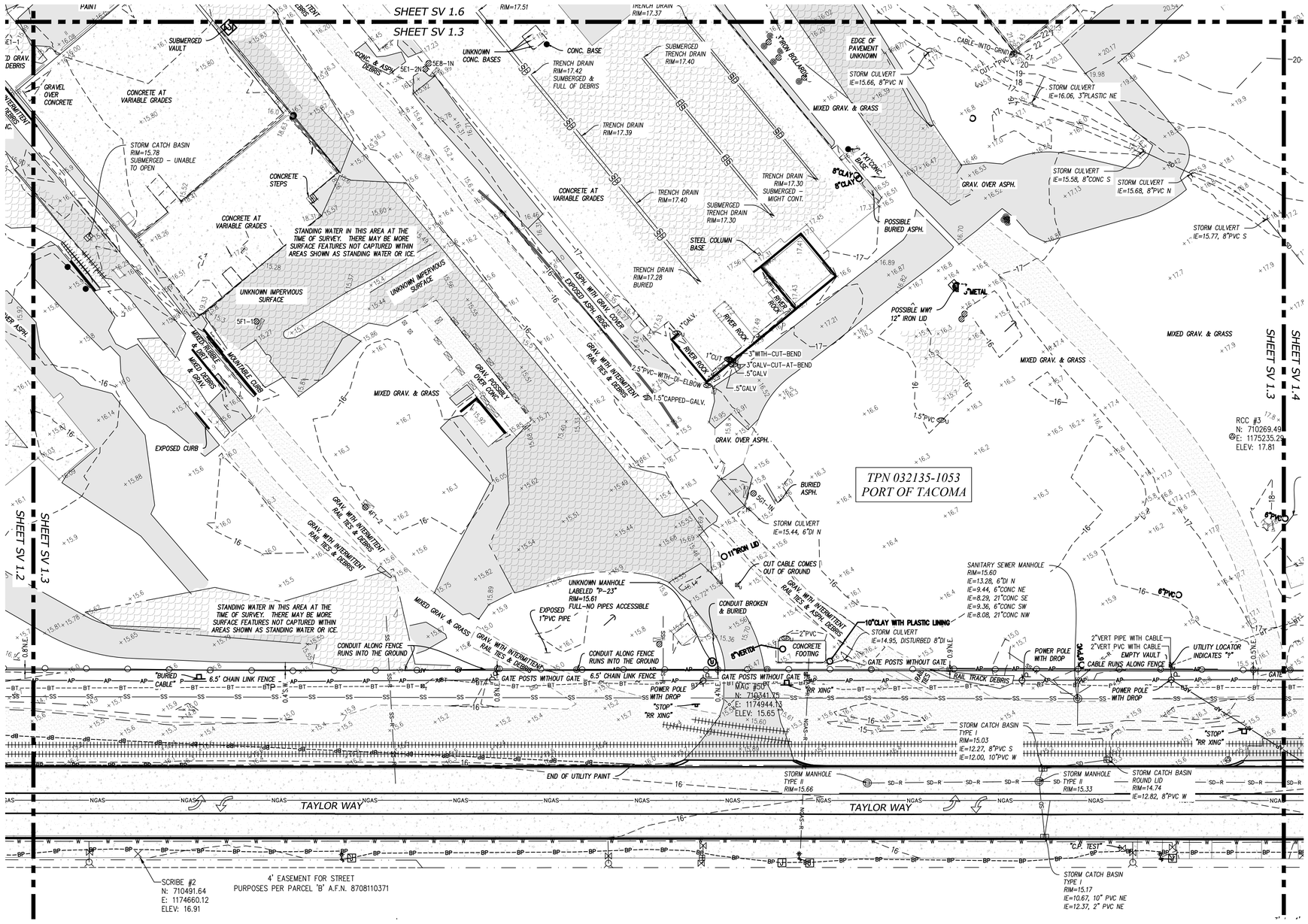
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SH # 7 OF 83

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BINDING EDGE



TOPOGRAPHIC SURVEY - AREA 3

SCALE: 1" = 30'

HORIZONTAL SCALE: 1"=30'

30 0 30 60

LEGEND

- FOUND MONUMENT/ REBAR AS NOTED
- SURVEY CONTROL POINT
- SANITARY SEWER MANHOLE
- UTILITY CLEAN OUT
- STORM MANHOLE
- STORM CATCH BASIN
- STORM CULVERT
- WATER MANHOLE
- WATER VALVE
- WATER METER
- FIRE HYDRANT
- IRRIGATION CONTROL VALVE
- GAS VALVE
- GAS RISER
- POWER METER
- POWER CABINET
- UTILITY POLE
- UTILITY POLE WITH DROP(S)
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- UTILITY MANHOLE
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- UNKNOWN VALVE
- UNKNOWN RISER
- COLUMN
- BOLLARD
- SIGN
- MAILBOX
- ECOLOGY BLOCK
- RAILROAD SWITCH
- MONITORING WELL
- PILE
- WETLAND FLAG
- TPN TAX PARCEL NUMBER
- X.X'N.E. DISTANCE AND DIRECTION OF NOTED OBJECT FROM PROPERTY LINE
- 25 SCHED. B EXCEPTION NUMBER

- PARCEL LINE
- ROAD CENTERLINE
- RIGHT OF WAY LINE
- EASEMENT LINE
- STORM DRAIN LINE
- RECORD STORM LINE
- SANITARY SEWER LINE
- RECORD SANITARY LINE
- BURIED WATER LINE
- RECORD WATER LINE
- BURIED GAS LINE
- RECORD GAS LINE
- BURIED POWER LINE
- RECORD BURIED POWER
- OVERHEAD POWER LINE
- BURIED TELECOM LINE
- RECORD TELECOM LINE
- CHAIN LINK FENCE
- RAILROAD TRACKS
- WETLAND DELINEATION
- ASPHALT SURFACE
- CONCRETE SURFACE
- GRAVEL SURFACE
- RIP-RAP SURFACE
- AREA OF STANDING WATER/ ICE AT TIME OF SURVEY
- WETLAND AREA

8 7 6 5 NOT USED
1 2 3 4

KEY PLAN

SCALE: NTS

NORTH

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STEVEN R. SCHILLING
STATE OF WASHINGTON
21868
REGISTERED
PROFESSIONAL LAND SURVEYOR

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CHECKED BY	DATE		
DS	12/13/24		
PROJ. ENGR	DATE		

APPROVED:

DIRECTOR ENG. DATE

PRINTED BY: srebrob Dec 04, 2024

PORT ADDRESS: ONE SITCUM PLAZA

TACOMA, WA 98401-1837

ARKEMA MANUFACTURING AREA

INTERIM ACTION - SITE CAPPING

TOPOGRAPHIC SURVEY - AREA 3

TOWNSHIP: 21 NORTH | RANGE: 3 EAST | SECTION: 36

DAT–HRZ: WA83/2011 | VERT: MLLW 15.73' @ POT MON #178

DRAWING SCALE: AS NOTED

PARCEL: 0321351053

CONT/CONS: 072075

M. ID: 101585.01

PHASE: 70%

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SV1.3

SH # 8 OF 83

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BINDING EDGE

SHEET SV 1.5

SHEET SV 1.4

SHEET SV 1.3

SHEET SV 1.4

TPN 032135-1053
PORT OF TACOMA

TPN 032135-1053
PORT OF TACOMA

MIXED GRAV. & GRASS

MIXED GRAV. & GRASS

DOMED POWER POLE

STORM CULVERT
IE=15.51, 8"PVC N

POSSIBLE STORM CULVERT
IE=17.04, 6"PVC

CUT CABLE COMES OUT OF GROUND

APPROX. RECORD LOCATION OF SEWER MANHOLE NOT FOUND DURING SURVEY (BASED ON GIS)

GRAV. ACCESS ROAD

GRAV. ACCESS ROAD MIXED GRAV. & GRASS

DISTURBED

PERPETUATED GOVERNMENT LOT LINE. NOT A PARCEL LINE.

WITHOUT GATE

7 CHAIN LINK FENCE

50' SEWER EASEMENT PER AFN 1735413

FALLING FENCE POLE

FENCE LIES 0.1'S. X 2.2'W. OF PROPERTY CORNER

FACE OF RETAINING WALL LIES 0.9'N. OF PROPERTY LINE

EXISTING CONTAINER BUILDINGS

GRAV. & GRASS DITCH

ECOLOGY BLOCK WALL

WALL CORNER LIES 1.3'N. OF PROPERTY LINE

METAL PLANK

FENCE CORNER LIES 0.6'N. X 0.6'E. OF PROPERTY CORNER

BOULDERS (TYP.)

CONDUIT ALONG WALL RUNS INTO GROUND

FACE OF RETAINING WALL LIES 1.5'N. OF PROPERTY LINE

EXISTING PORTABLE BUILDING

"BURIED GAS PIPELINE"

SANITARY SEWER MANHOLE
RIM=15.67
IE=9.03, 21"CONC SE
IE=8.82, 21"CONC NW
IE=10.12, 6"CONC SW
IE=10.12, 6"CONC NE
LADDER SE

POWER POLE WITH DROP

TPN 032136-3021
PETROLEUM RECLAIMING SVCS INC

TPN 032136-3028
PETROLEUM RECLAIMING SVCS INC

N57°41'53"W 25/69

N02°34'30"E 213.47'

STORM CULVERT
IE=14.01, 8"PVC

STORM CULVERT
IE=13.74, 8"PVC

STORM CULVERT
IE=13.74, 8"PVC

GRAV. ACCESS ROAD

6.5' CHAIN LINK FENCE

6.5' CHAIN LINK FENCE

6' CHAIN LINK FENCE WITH BARBED WIRE

6' CHAIN LINK FENCE WITH BARBED WIRE

RAIL DEBRIS

"RR XING"

3"X3" POST 5.5'TALL

FENCE CORNER LIES 0.3'S. X 0.1'E. OF PROPERTY CORNER

GRAV. OVER ASPH?

"RR XING"

"STOP" "RR XING"

APPROX. EDGE OF ASPH.

"STOP" "RR XING"

APPROX. EDGE OF ASPH.

"RR XING"

13" PINE

14" PINE

11" PINE

SANITARY SEWER MANHOLE
RIM=15.51
IE=9.34, 21"CONC NW
IE=9.45, 21"CONC SE
IE=10.73, 6"CONC NE
IE=10.76, 6"CONC SW
LADDER SE

STORM CATCH BASIN
ROUND 18"DIA. LID
RIM=15.22
IE=13.29, 8"PVC SE

STORM CATCH BASIN
TYPE I
RIM=15.49
IE=12.80, 8" PVC N
IE=12.52, 10" PVC SW

STORM MANHOLE
TYPE II
RIM=15.85

STORM CATCH BASIN
TYPE II
RIM=15.63
IE=9.63, 10" PVC NE
LADDER SOUTH

STORM CATCH BASIN
TYPE I
RIM=14.87
IE=12.24, 8" PVC SW
IE=12.34, 8" PVC SE

STORM MANHOLE
TYPE II
RIM=15.21

STORM CATCH BASIN
TYPE I
RIM=14.77
IE=11.49, 8" PVC NE

STORM CATCH BASIN
ROUND LID
RIM=14.56
FULL OF DEBRIS
PIPES NOT VISIBLE OR ACCESSIBLE

UTILITIES CONTINUE

TAYLOR WAY

TAYLOR WAY

TAYLOR WAY

SCRIBE #1
N: 710080.81
E: 1175115.18
ELEV: 16.26

3' to 4' R/W PER WARRANTY DEED UNDER A.F.N. 8708110370
AFFECTS PARCEL NO. 032136-2056

MON LEAD&TACK #178
N: 709882.76
E: 1175405.11
ELEV: 15.73

1' TO 3' EASEMENT FOR STREET PURPOSES PER A.F.N. 8708110371
(NOTED AS PARCEL 'C' IN A.F.N. 8708110371)

SCRIBE #9
N: 709745.89
E: 1175487.77
ELEV: 16.43

POWER POLE WITH DROP

HORIZONTAL SCALE: 1"=30'
30 0 30 60

TOPOGRAPHIC SURVEY - AREA 4

SCALE: 1" = 30'

LEGEND

- FOUND MONUMENT/ REBAR AS NOTED
- SURVEY CONTROL POINT
- SANITARY SEWER MANHOLE
- UTILITY CLEAN OUT
- STORM MANHOLE
- STORM CATCH BASIN
- STORM CULVERT
- WATER MANHOLE
- WATER VALVE
- WATER METER
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- PILE
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- WETLAND DELINEATION
- ASPHALT SURFACE
- CONCRETE SURFACE
- GRAVEL SURFACE
- RIP-RAP SURFACE
- AREA OF STANDING WATER/ ICE AT TIME OF SURVEY
- WETLAND AREA

8	7	6	5	NOT USED
1	2	3	4	

KEY PLAN

SCALE: NTS

NORTH

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WWW.SITTSHILL.COM

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JESSE SCHILLING
STATE OF WASHINGTON
19589
REGISTERED
LAND SURVEYOR
PROFESSIONAL ENGINEER

APPROVED:

DIRECTOR ENG. DATE

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DS	PROJ. ENGR	12/13/24

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PORT ADDRESS:ONE SITCUM PLAZA
TACOMA, WA 98401-1837

ARKEMA MANUFACTURING AREA
INTERIM ACTION - SITE CAPPING
TOPOGRAPHIC SURVEY - AREA 4

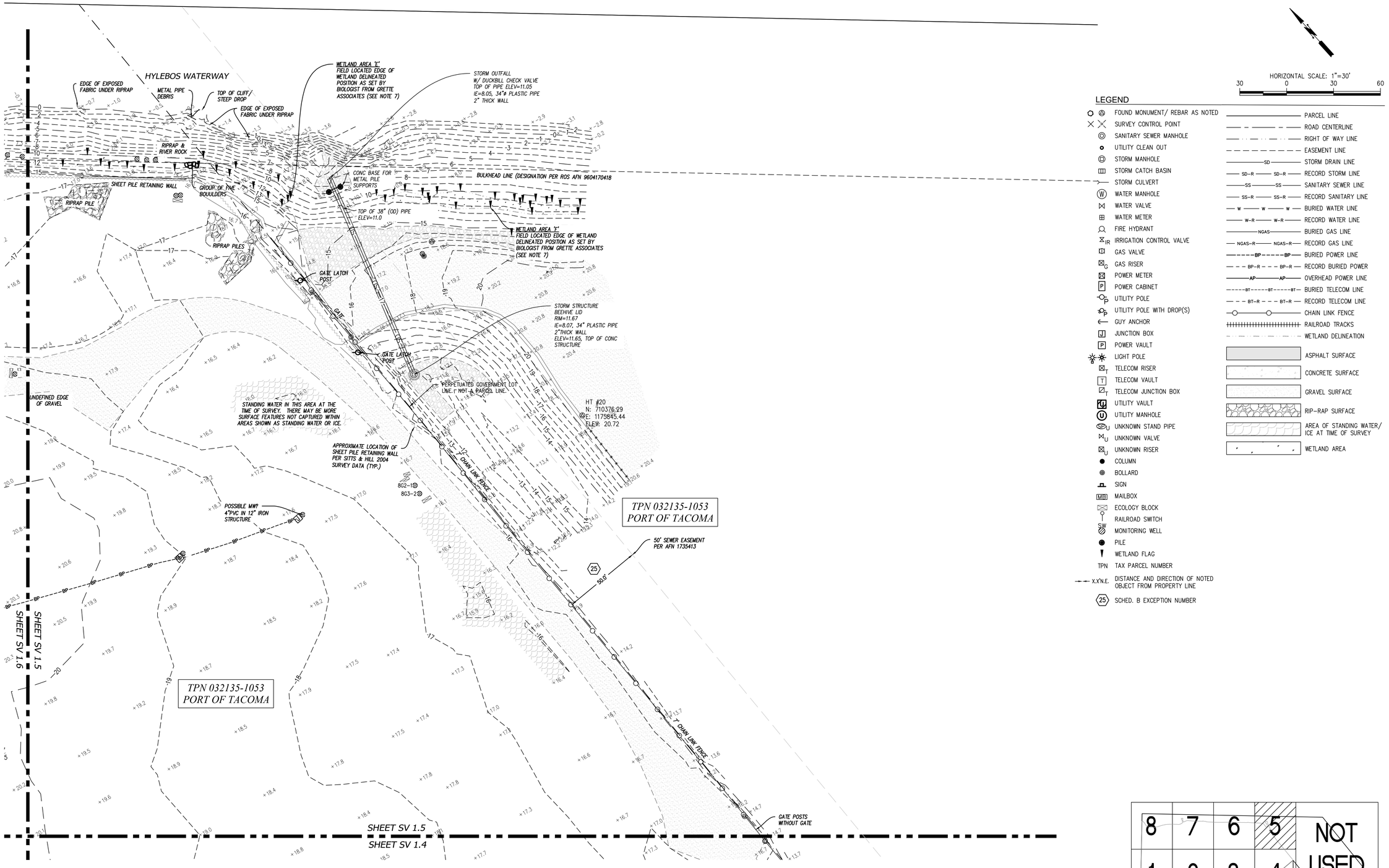
CONT/CONS:	072075	TOWNSHIP: 21 NORTH	RANGE: 3 EAST | SECTION: 36
M. ID:	101585.01	DAT–HRZ: WA83/2011	VERT: MLLW 15.73' @ POT MON #178
PHASE:	70%	PARCEL: 0321351053	DRAWING SCALE: AS NOTED

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SV1.4
SH # 9 OF 83

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BINDING EDGE



TOPOGRAPHIC SURVEY - AREA 5

SCALE: 1" = 30'

HORIZONTAL SCALE: 1"=30'

30 0 30 60

LEGEND

- FOUND MONUMENT/ REBAR AS NOTED
- SURVEY CONTROL POINT
- SANITARY SEWER MANHOLE
- UTILITY CLEAN OUT
- STORM MANHOLE
- STORM CATCH BASIN
- STORM CULVERT
- WATER MANHOLE
- WATER VALVE
- WATER METER
- FIRE HYDRANT
- IRRIGATION CONTROL VALVE
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- TPN TAX PARCEL NUMBER
- X.X'N.E. DISTANCE AND DIRECTION OF NOTED OBJECT FROM PROPERTY LINE
- (25) SCHED. B EXCEPTION NUMBER

- PARCEL LINE
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- WETLAND AREA

8 7 6 5 NOT USED
1 2 3 4

KEY PLAN

SCALE: NTS

NORTH

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WWW.SITTSHILL.COM

MARK:	REVISION:	BY:	APPR:	DATE:

PRELIMINARY
CHRISTOPHER B. SCHILLING
STATE OF WASHINGTON
16838
REGISTERED LAND SURVEYOR
PROFESSIONAL LAND SURVEYOR

DS	12/13/24	DS	12/13/24
CHECKED BY	DATE	PROJ. ENGR	DATE

srebrob Dec 04, 2024

APPROVED:

DIRECTOR ENG. DATE

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PORT ADDRESS: ONE SITCUM PLAZA
TACOMA, WA 98401-1837

ARKEMA MANUFACTURING AREA

INTERIM ACTION - SITE CAPPING

TOPOGRAPHIC SURVEY - AREA 5

CONT/CONS:	072075	TOWNSHIP: 21 NORTH	RANGE: 3 EAST
M. ID:	101585.01	DAT-HRZ: WA83/2011	VERT: MLLW 15.73' @ POT MON #178
PHASE:	70%	PARCEL: 0321351053	DRAWING SCALE: AS NOTED

SECTION: 36

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SV1.5

SH # 10 OF 83

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BINDING EDGE

WETLAND AREA 'E'
FIELD LOCATED EDGE OF WETLAND DELINEATED POSITION AS SET BY BIOLOGIST FROM GRETTE ASSOCIATES (SEE NOTE 7)

HYLEBOS WATERWAY

BULKHEAD LINE (DESIGNATION PER ROS AFN 9604170418

HT #11
N: 710899.17
E: 1175500.21
ELEV: 16.96

HT #10
N: 710478.77
E: 1175405.75
ELEV: 20.49

TPN 032135-1053
PORT OF TACOMA

APPROXIMATE LOCATION OF SHEET PILE RETAINING WALL PER SITTS & HILL 2004 SURVEY DATA (TYP.)

STORM CATCH BASIN TYPE I – SOLID LID RIM=18.27 IE=15.02, 4"PVC NW IE=14.97, 4"PVC SE BOTH PIPES SUBMERGED

SANITARY SEWER MANHOLE "P–5" RIM=16.28 FULL OF MUD

UNKNOWN MANHOLE RIM=16.18 NO LID – BURIED & SUBMERGED

WATER MANHOLE RIM=18.43 5.25" PLASTIC LID

STORM MANHOLE TYPE II RIM=20.80 ELEV=19.00, TOP 4" VERTICAL CAPPED PVC

EMPTY VAULT

POSSIBLE STORM CATCH BASIN RIM=16.60 PLASTIC GRATE, FULL OF WATER ELEV.=16.15 TOP 3"VERT. PVC IE=13.43 IE/TOP MUCK, 3" VERT. PVC ELEV.=15.59 TOP DEBRIS

STORM CATCH BASIN RIM=16.60 FULL OF GRASS

UNKNOWN MANHOLE RIM=16.73 NO LID – FULL OF WATER & DEBRIS

UNKNOWN MANHOLE 5"BURIED PLASTIC LID RIM=19.56 LABELED "DB–3" UNABLE TO OPEN

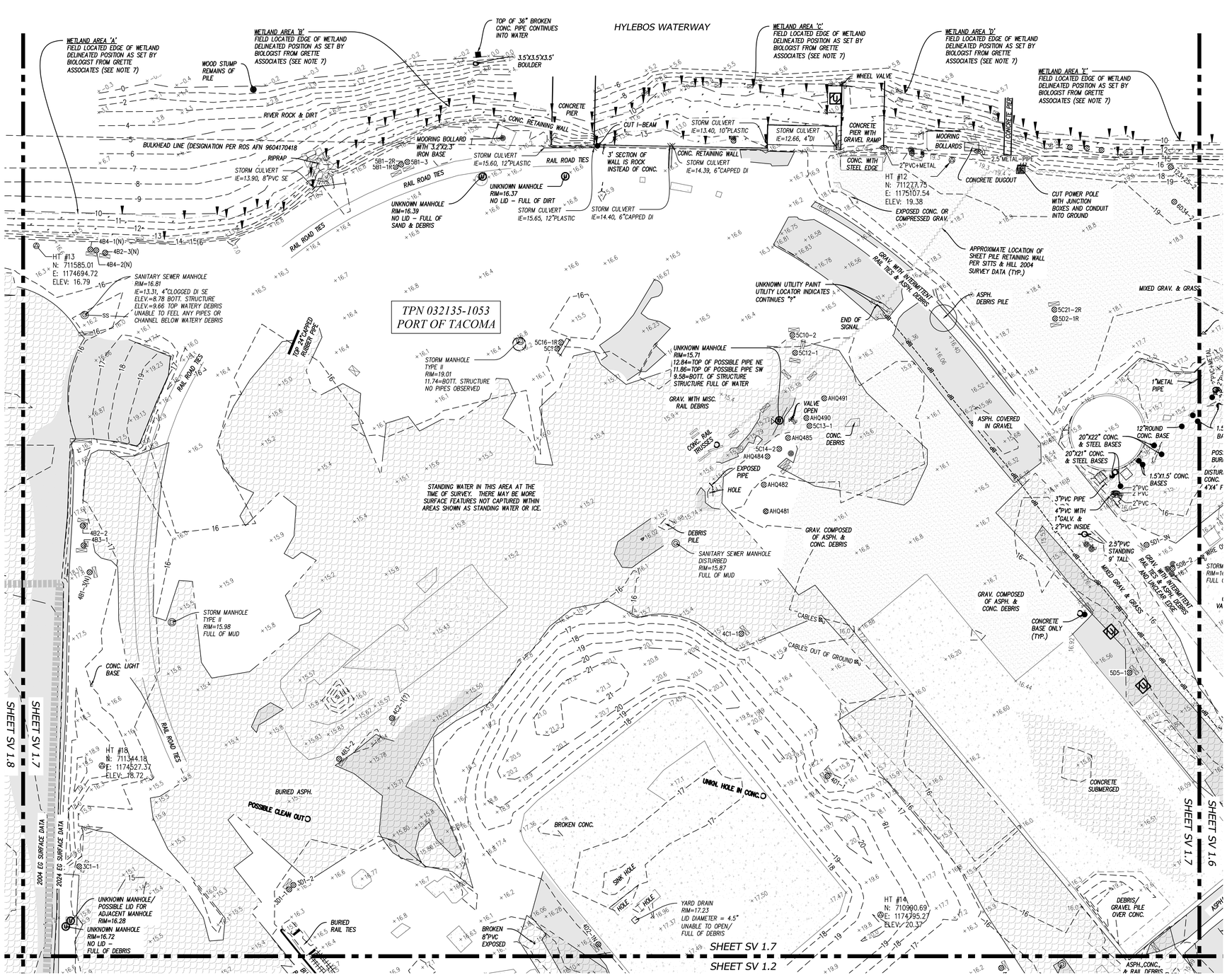
SANITARY SEWER MANHOLE RIM=17.84 UNABLE TO OPEN – LID WEDGED SHUT

UNKNOWN MANHOLE 6.7" DIAMETER GRATE OVER PLASTIC STRUCTURE RIM=16.96 FULL OF DEBRIS & VEGETATION

STORM CULVERT IE=17.95, 6"DI S
STORM CULVERT IE=17.94, 6"DI S
STORM CULVERT IE=18.46, 6"DI N
STORM CULVERT IE=18.43, 6"DI N
STORM CULVERT IE=19.35, 6"DI N
STORM CULVERT IE=16.94, 1"PVC S

2"PVC PIPE
6"PVC PIPE
4"PVC PIPE
3"PLASTIC PIPE
1.5"GALV. PIPE
1.3"X1.3"CONCRETE BASE ONLY (TYP.)
CONC. BASE ONLY (TYP.)
1"X1"CONC. BASES WITHOUT COLUMNS (TYP.)
CONC. BASES WITHOUT COLUMNS (TYP.)
1.5"X1.5" CONC. BASES (TYP.)
4"X4" CONC. BASE IN 4'X4' FOOTING
CENTER OF 4 VERT. PIPES
CENTER OF 8–3"METAL PIPES
2 PIPES
5 PIPES
6 PIPES
2 PIPES
STEEL BASE OF REMOVED COLUMN?
STEEL PLATE
BURIED STEEL PLATE
BURIED SHEET PILE WALL EXPOSED
PLYWOOD
.5"PVC SPU
TEE POST
2.5"METAL PIPE CONTINUES UNDER GROUND
3"METAL
3"METAL
SWITCH
SWITCH
SWITCH
CONDUIT–OUT–OF–GROUND
CONDUIT+WIRES
1"PVC+WIRES
1"PVC+WIRES
PVC&METAL PIPES & CABLES
PVC&METAL+CABLE
PVC&METAL+CABLE
POWER PAINT
POSSIBLE BURIED CONC.
DISTURBED CONC.
WIRE OUT OF GROUND
CABLES OUT OF GROUND
JUNCTION BOX ON MW
PILE OF SMALL BOULDERS
GRAV. MOUND
DIRT STORAGE
16"METAL BOLLARDS
JERSEY BARRIER
ECOLOGY BLOCKS WITH BOULDERS
BOULDERS
BROKEN "NO TRESSPASSING"
HAND RAIL GUARD
CONC. STEPS
CONC. STEPS
CONC. CONTINUES
CONCRETE AT VARIABLE GRADES
CONCRETE AT VARIABLE GRADES
CONCRETE AT VARIABLE GRADES
MIXED GRAV. & GRASS
MIXED GRAV. & GRASS
MIXED GRAV. & GRASS
MIXED GRAV. & GRASS
MIXED GRAV. & GRASS
MIXED GRAV. & GRASS
MIXED GRAV. & GRASS
MIXED GRAV. & GRASS
GRASS
GRAV. ACCESS ROAD
GRAV. ACCESS ROAD
GRAV. WITH INTERMITENT RAIL TIES & DEBRIS
GRAV. WITH INTERMITENT RAIL TIES & DEBRIS
GRAV. WITH INTERMITENT RAIL TIES & DEBRIS
LOOSE GRAV./DIRT
LOOSE GRAV./DIRT
ASPH. WITH GRAV. COVER
ASPH. EDGE COVERED IN GRAV.
ASPHALT WITH ASPH. DEBRIS
ASPH. DEBRIS PILE
UNKNOWN UTILITY PAINT
STEEL PLATE
STEEL PLATE
STEEL PLATE

BINDING EDGE



TOPOGRAPHIC SURVEY - AREA 7

SCALE: 1" = 30'

HORIZONTAL SCALE: 1"=30'

30 0 30 60

LEGEND

- FOUND MONUMENT/ REBAR AS NOTED
- SURVEY CONTROL POINT
- SANITARY SEWER MANHOLE
- UTILITY CLEAN OUT
- STORM MANHOLE
- STORM CATCH BASIN
- STORM CULVERT
- WATER MANHOLE
- WATER VALVE
- WATER METER
- FIRE HYDRANT
- IRRIGATION CONTROL VALVE
- GAS VALVE
- GAS RISER
- POWER METER
- POWER CABINET
- UTILITY POLE
- UTILITY POLE WITH DROP(S)
- GUY ANCHOR
- JUNCTION BOX
- POWER VAULT
- LIGHT POLE
- TELECOM RISER
- TELECOM VAULT
- TELECOM JUNCTION BOX
- UTILITY VAULT
- UTILITY MANHOLE
- UNKNOWN STAND PIPE
- UNKNOWN VALVE
- UNKNOWN RISER
- COLUMN
- BOLLARD
- SIGN
- MAILBOX
- ECOLOGY BLOCK
- RAILROAD SWITCH
- MONITORING WELL
- PILE
- WETLAND FLAG
- TPN TAX PARCEL NUMBER
- X.X'N.E. DISTANCE AND DIRECTION OF NOTED OBJECT FROM PROPERTY LINE
- 25 SCHED. B EXCEPTION NUMBER

- PARCEL LINE
- ROAD CENTERLINE
- RIGHT OF WAY LINE
- EASEMENT LINE
- STORM DRAIN LINE
- RECORD STORM LINE
- SANITARY SEWER LINE
- RECORD SANITARY LINE
- BURIED WATER LINE
- RECORD WATER LINE
- BURIED GAS LINE
- RECORD GAS LINE
- BURIED POWER LINE
- RECORD BURIED POWER
- OVERHEAD POWER LINE
- BURIED TELECOM LINE
- RECORD TELECOM LINE
- CHAIN LINK FENCE
- RAILROAD TRACKS
- WETLAND DELINEATION
- ASPHALT SURFACE
- CONCRETE SURFACE
- GRAVEL SURFACE
- RIP-RAP SURFACE
- AREA OF STANDING WATER/ ICE AT TIME OF SURVEY
- WETLAND AREA

8 7 6 5 NOT USED
1 2 3 4

KEY PLAN

SCALE: NTS

NORTH

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) 474-0153
WWW.SITTSHILL.COM

MARK:	REVISION:	BY:	APPR:	DATE:

PRELIMINARY
NOT FOR CONSTRUCTION
CHRISTINE SCHILLING
STATE OF WASHINGTON
21858
REGISTERED LAND SURVEYOR
PROFESSIONAL LAND SURVEYOR

APPROVED: DS 12/13/24

CHECKED BY DATE DS 12/13/24

DIRECTOR ENG. DATE PROJ. ENGR DATE

PRINTED BY: srebrob Dec 04, 2024

PORT ADDRESS:ONE SITCUM PLAZA TACOMA, WA 98401-1837

DRAWING SCALE: AS NOTED

ARKEMA MANUFACTURING AREA

INTERIM ACTION - SITE CAPPING

TOPOGRAPHIC SURVEY - AREA 7

6698

SV1.7

SH # 12 OF 83

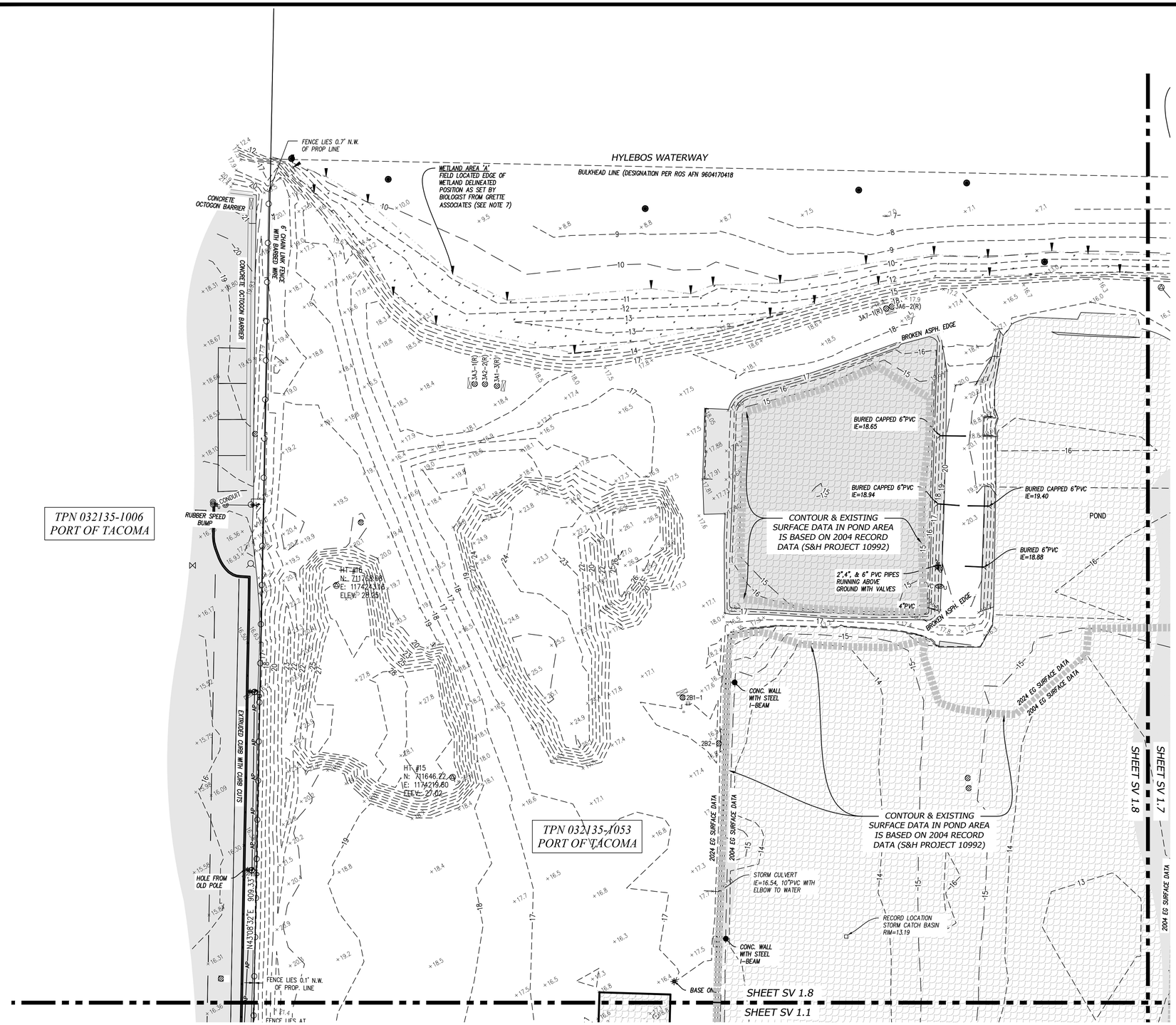
CONT/CONS:	072075	TOWNSHIP: 21 NORTH	RANGE: 3 EAST
M. ID:	101585.01	DAT–HRZ: WA83/2011	VERT: MLLW 15.73' @ POT MON #178
PHASE:	70%	PARCEL: 0321351053	DRAWING SCALE: AS NOTED

SECTION: 36

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PORT OF TACOMA FILE: O:\2030020347\Drawings\101585-SV1.X

BINDING EDGE



TOPOGRAPHIC SURVEY - AREA 8

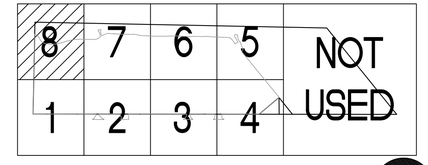
SCALE: 1" = 30'

HORIZONTAL SCALE: 1"=30'

30 0 30 60

LEGEND

FOUND MONUMENT/ REBAR AS NOTED	PARCEL LINE
SURVEY CONTROL POINT	ROAD CENTERLINE
SANITARY SEWER MANHOLE	RIGHT OF WAY LINE
UTILITY CLEAN OUT	EASEMENT LINE
STORM MANHOLE	STORM DRAIN LINE
STORM CATCH BASIN	RECORD STORM LINE
STORM CULVERT	SANITARY SEWER LINE
WATER MANHOLE	RECORD SANITARY LINE
WATER VALVE	BURIED WATER LINE
WATER METER	RECORD WATER LINE
FIRE HYDRANT	BURIED GAS LINE
IRRIGATION CONTROL VALVE	RECORD GAS LINE
GAS VALVE	BURIED POWER LINE
GAS RISER	RECORD BURIED POWER
POWER METER	OVERHEAD POWER LINE
POWER CABINET	BURIED TELECOM LINE
UTILITY POLE	RECORD TELECOM LINE
UTILITY POLE WITH DROP(S)	CHAIN LINK FENCE
GUY ANCHOR	RAILROAD TRACKS
JUNCTION BOX	WETLAND DELINEATION
POWER VAULT	ASPHALT SURFACE
LIGHT POLE	CONCRETE SURFACE
TELECOM RISER	GRAVEL SURFACE
TELECOM VAULT	RIP-RAP SURFACE
TELECOM JUNCTION BOX	AREA OF STANDING WATER/ ICE AT TIME OF SURVEY
UTILITY VAULT	WETLAND AREA
UTILITY MANHOLE	
UNKNOWN STAND PIPE	
UNKNOWN VALVE	
UNKNOWN RISER	
COLUMN	
BOLLARD	
SIGN	
MAILBOX	
ECOLOGY BLOCK	
RAILROAD SWITCH	
MONITORING WELL	
PILE	
WETLAND FLAG	
TPN TAX PARCEL NUMBER	
X.X'N.E. DISTANCE AND DIRECTION OF NOTED OBJECT FROM PROPERTY LINE	
25 SCHED. B EXCEPTION NUMBER	



KEY PLAN

SCALE: NTS

NORTH

Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

sitts&hill
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MARK:	REVISION:	BY:	APPR:	DATE:

PRELIMINARY

CHRISTINE SCHILLING
STATE OF WASHINGTON
16858
REGISTERED PROFESSIONAL LAND SURVEYOR

APPROVED:

DIRECTOR, ENG.	DATE	DS	12/13/24
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PRINTED BY: srebrob Dec 04, 2024		CHECKED BY	DATE
PORT ADDRESS: ONE SITCUM PLAZA			
TACOMA, WA 98401-1837			

ARKEMA MANUFACTURING AREA

INTERIM ACTION - SITE CAPPING

TOPOGRAPHIC SURVEY - AREA 8

CONT/CONS: 072075	TOWNSHIP: 21 NORTH	RANGE: 3 EAST	SECTION: 36
M. ID: 101585.01	DAT–HRZ: WA83/2011	VERT: MLLW 15.73' @ POT MON #178	
PHASE: 70%	PARCEL: 0321351053	DRAWING SCALE: AS NOTED	

6698

SV1.8

SH # 13 OF 83

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C. 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.

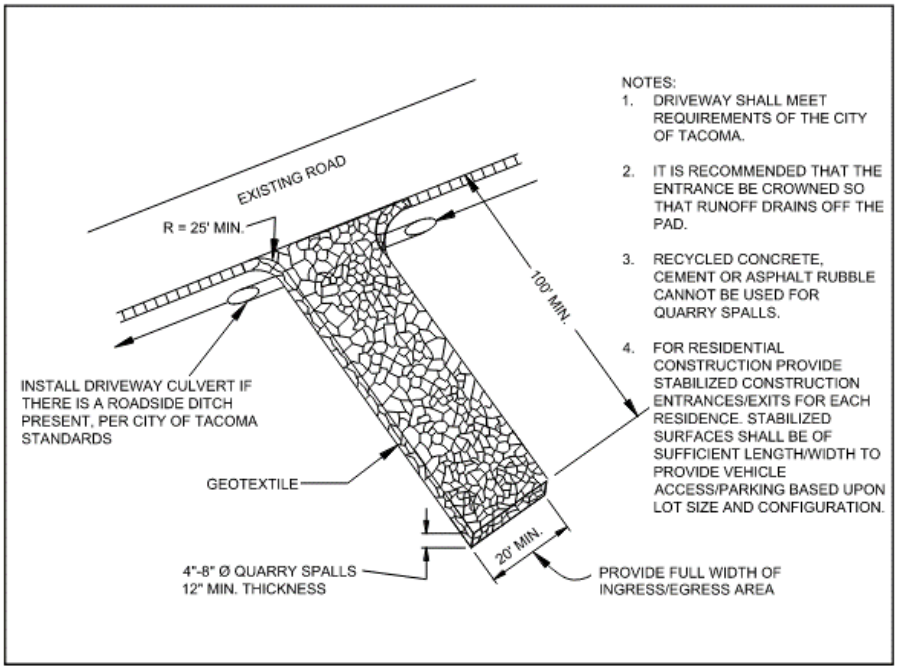


Figure 3 - 1: Stabilized Construction Entrance

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.

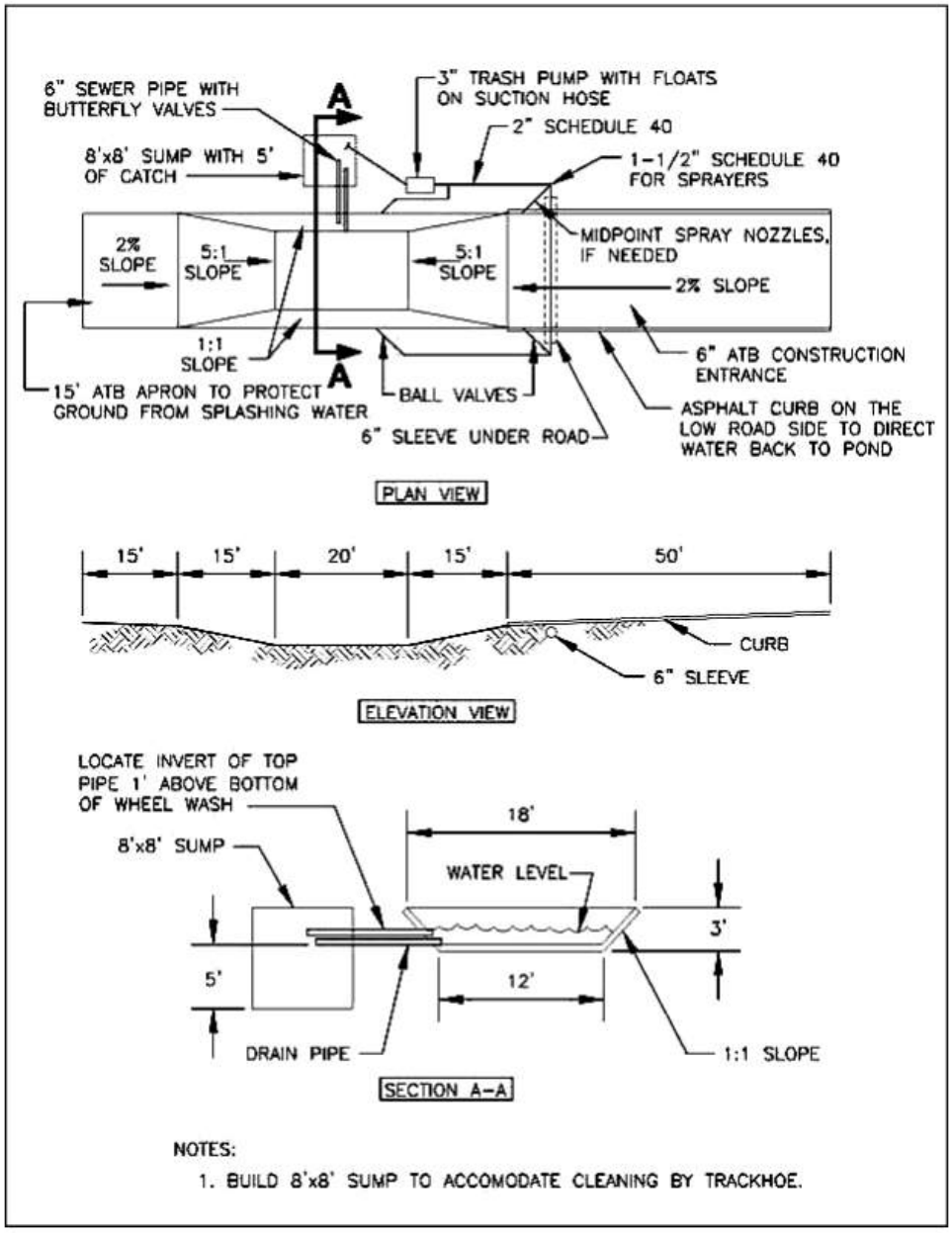


Figure 3 - 2: Wheel Wash

1.7 BMP C120: Temporary and Permanent Seeding

1.7.1 Purpose

Seeding reduces erosion by stabilizing exposed soils. A well-established vegetative cover is one of the most effective methods of reducing erosion.

1.7.2 Conditions of Use

- Seeding may be used throughout the project on disturbed areas that have reached final grade or that will remain unworked.
- Channels that will be vegetated should be installed before major earthwork and hydroseeded with a Bonded Fiber Matrix. The vegetation should be well established (i.e., 75 percent cover) before water is allowed to flow in the ditch. With channels that will have high flows, install erosion control blankets over the hydroseed. If vegetation cannot be established from seed before water is allowed in the ditch, sod should be installed in the bottom of the ditch over hydromulch and blankets.
- Seed detention ponds as required.
- Mulch is required at all times because it protects seeds from heat, moisture loss, and transport due to runoff.

  Mulch can be applied on top of the seed or simultaneously by hydroseeding. See BMP C121: Mulching for specifications.

- All disturbed areas shall be reviewed in late August to early September and all seeding shall be completed by the end of September. Otherwise, vegetation will not establish itself enough to provide more than average protection.
- At final site stabilization, seed and mulch all disturbed areas not otherwise vegetated or stabilized.

1.7.3 Design and Installation Specifications

- Seed during seasons most conducive to plant growth.
  - The optimum seeding windows for western Washington are April 1 through June 30 and September 1 through October 1.
  - Seeding that occurs between July 1 and August 30 will require irrigation until 75 percent grass cover is established.
  - Seeding that occurs between October 1 and March 30 will require a mulch or an erosion control blanket until 75 percent grass cover is established.
- To prevent seed from being washed away, confirm that all required surface water control measures have been installed.
- The seedbed should be firm and rough. All soil should be roughened no matter what the slope. If compaction is required for engineering purposes, track walk slopes before seeding. Backblading or smoothing of slopes greater than 4:1 is not allowed if they are to be seeded.
- New and more effective restoration-based landscape practices rely on deeper incorporation than that provided by a simple single-pass rototilling treatment. Wherever practical, the subgrade should be initially ripped to improve long-term permeability, infiltration, and water inflow qualities. At a minimum for permanent areas, use soil

amendments to achieve organic matter and permeability performance defined in engineered soil/landscape systems. For systems that are deeper than 8 inches, complete the rototilling process in multiple lifts, or prepare the soil system properly and then place it to achieve the specified depth.

- The use of fertilizers is discouraged. Fertilizers should only be used where necessary to ensure growth. Amending soils per BMP L613: Post-Construction Soil Quality and Depth should be considered (and may be required for permanent lawn and landscaped areas) as the first measure for ensuring vegetation growth. If fertilization is necessary, naturally-derived fertilizers should be chosen over chemically-derived fertilizers. Apply fertilizers per manufacturer's direction. Always use slow-release fertilizers.
- Hydroseed applications shall include a minimum of 1,500 pounds per acre of mulch with 3 percent tackifier. See BMP C121: Mulching for specifications.
- On steep slopes, Bonded Fiber Matrix (BFM) or Mechanically Bonded Fiber Matrix (MBFM) products should be used. BFM/MBFM products are applied at a minimum rate of 3,000 pounds per acre of mulch with approximately 10 percent tackifier. Application is made so that a minimum of 95 percent soil coverage is achieved. Numerous products are available commercially and should be installed per manufacturer's instructions. Most products require 24-36 hours to cure before a rainfall and cannot be installed on wet or saturated soils. Generally, these products come in 40-50 pound bags and include all necessary ingredients except for seed and fertilizer.
- BFMs and MBFMs have some advantages over blankets:
  - No surface preparation required;
  - Can be installed via helicopter in remote areas;
  - On slopes steeper than 2.5:1, blanket installers may need to be roped and harnessed for safety;
- In most cases, the shear strength of blankets is not a factor when used on slopes, only when used in channels. BFMs and MBFMs are good alternatives to blankets in most situations where vegetation establishment is the goal.
- When installing seed via hydroseeding operations, only about 1/3 of the seed actually ends up in contact with the soil surface. This reduces the ability to establish a good stand of grass quickly. One way to overcome this is to increase seed quantities by up to 50 percent.
- Vegetation establishment can also be enhanced by dividing the hydromulch operation into two phases:
  - Phase 1- Install all seed and fertilizer with 25-30 percent mulch and tackifier onto soil in the first lift;
  - Phase 2- Install the rest of the mulch and tackifier over the first lift.
- An alternative is to install the mulch, seed, fertilizer, and tackifier in one lift. Then, spread or blow straw over the top of the hydromulch at a rate of about 800-1000 pounds per acre. Hold straw in place with a standard tackifier. Both of these approaches will increase cost moderately but will greatly improve and enhance vegetative establishment. The increased cost may be offset by the reduced need for:
  - Irrigation
  - Reapplication of mulch
  - Repair of failed slope surfaces

  - This technique works with standard hydromulch (1,500 pounds per acre minimum) and BFM/MBFMs (3,000 pounds per acre minimum).

- Provide a healthy topsoil to areas to be permanently landscaped. This will reduce the need for fertilizers, improve overall topsoil quality, provide for better vegetal health and vitality, improve hydrologic characteristics, and reduce the need for irrigation. See the Post-Construction Soil Quality and Depth BMP in Volume 4 for more information. Compost shall meet specification in A900: Compost. City of Tacoma Tagro Potting Soil can be used as an alternative to the compost component. Areas that will be seeded only and not landscaped may need compost or meal-based mulch included in the hydroseed in order to establish vegetation. Replace native topsoil on the disturbed soil surface before application.
- Seed that is installed as a temporary measure may be installed by hand if it will be covered by straw, mulch, or topsoil. Seed that is installed as a permanent measure may be installed by hand on small areas (usually less than 1 acre) that will be covered with mulch, topsoil, or erosion blankets.
- Unless otherwise stated, seed mixes shall be applied at a rate of 120 pounds per acre. This rate may be reduced is soil amendments of slow-release fertilizers are used.
- See Table 3 - 2: Standard Temporary Erosion Control Seed Mix to Table 3 - 8: Native Wet Biofiltration Swale Seed Mix for recommended seed mixes. Seed mixes are also shown in A1000: Vegetation. Seed mix should be chosen based upon location, exposure, soil type, slope, and expected foot traffic. Alternative seed mixes may be used provided justification is provided for their use.
  - Table 3 - 2: Standard Temporary Erosion Control Seed Mix is a standard mix where only temporary vegetative cover is required.

Table 3 - 2: Standard Temporary Erosion Control Seed Mix

Scientific Name	Common Name	Percent By Weight
Festuca rubra var. commutata	Chewings fescue	40
Lolium perenne	perennial rye	40
Agrostis capillaris	colonial bentgrass	10
Trifolium repens	white Dutch clover	10

  - Table 3 - 3: Native Temporary Erosion Control Seed Mix is a mix made from native species that can be used where only temporary vegetative cover is required.

Table 3 - 3: Native Temporary Erosion Control Seed Mix

Scientific Name	Common Name	Percent By Weight
Bromus carinatus	California brome	25
Deschampsia caespitosa	Tufted hairgrass	15
Festuca rubra	native red fescue	20
Hordeum brachyantherum	meadow barley	40

- Table 3 - 4: Landscaping Seed Mix is a mix appropriate as a final vegetative cover for lawn areas.

Table 3 - 4: Landscaping Seed Mix

Scientific Name	Common Name	Percent By Weight
Lolium perenne	perennial rye	70
Festuca rubra var. commutata	Chewings fescue	30

- Table 3 - 5: Low Growing Turf Seed Mix is a mix appropriate for dry situations and requires little maintenance once established.

Table 3 - 5: Low Growing Turf Seed Mix

Scientific Name	Common Name	Percent By Weight
Festuca arundinaceae	dwarf tall fescue	45
Lolium perenne var. barclay	dwarf perennial rye	30
Festuca rubra	red fescue	20
Agrostis capillaris	colonial bentgrass	5

- Table 3 - 6: Native Meadow Seed Mix is a mix recommended for areas that will be maintained infrequently or not at all and where native plant colonization is desirable.

Table 3 - 6: Native Meadow Seed Mix

Scientific Name	Common Name	Percent By Weight
grasses		
Bromus carinatus	California brome	30
Deschampsia caespitosa	tufted hairgrass	10
Elymus glaucus	blue wildrye	10
Festuca roemerii	Roemer's fescue	20
perennials		
Achillea millefolium	yarrow	5
Eriophyllum lanatum	Oregon sunshine	5
Eschscholzia californica	California poppy	3

Scientific Name	Common Name	Percent By Weight
Lupinus bicolor	bicolor lupine	6
Solidago canadensis	Canada goldenrod	3
annuals		
Clarkia amoena	farewell to spring	5
Gilia capitata	globe gilia	3

- Table 3 - 7: Native Basic Biofiltration Swale Seed Mix represents a mix appropriate for intermittently wet areas.

Table 3 - 7: Native Basic Biofiltration Swale Seed Mix

Scientific Name	Common Name	Percent by Weight
Beckmannia syzigachne	American slough grass	5
Danthonia californica	California oat grass	5
Deschampsia caespitosa	tufted hairgrass	15
Elymus glaucus	blue wildrye	30
Glyceria occidentalis	western mannagrass	15
Hordeum brachyantherum	meadow barley	30

- Table 3 - 8: Native Wet Biofiltration Swale Seed Mix represents a mix appropriate for wet areas that are not regulated wetlands.
  - Apply this mix at a rate of 60 pounds per acre.

Table 3 - 8: Native Wet Biofiltration Swale Seed Mix

Scientific Name	Common Name	Percent by Weight
Beckmannia syzigachne	American slough grass	10
Carex obnupta	lough sledge	40
Carex stipata	beaked sedge	5
Eleocharis palustris	common spikerush	5
Glyceria occidentalis	western mannagrass	20
Juncus patens	spreading rush	15
Scirpus microcarpus	small-fruited bullrush	5

1.7.4 Maintenance Standards

- Reseed any seeded areas that fail to establish at least 75 percent cover within 6 weeks from the initial seeding (100 percent cover for areas that receive sheet or concentrated flows). If reseeding is ineffective, use an alternate method, such as sodding, mulching, or nets/blankets. If winter weather prevents adequate grass growth, this time limit may be relaxed at the discretion of the City.
- After adequate cover is achieved, reseed and protect with mulch any areas that experience erosion. If the erosion problem is stormwater and surface water related, the problem shall be fixed and the eroded area reseeded and protected by mulch.
- Water seeded areas if necessary. Watering shall not cause runoff.

1.8 BMP C121: Mulching

1.8.1 Purpose

The purpose of mulching soils is to provide immediate temporary protection from erosion. Mulch also enhances plant establishment by conserving moisture, holding fertilizer, seed, and topsoil in place, and moderating soil temperatures. Only the most common types are discussed in this section.

1.8.2 Conditions of Use

As a temporary cover measure, mulch should be used:

- On disturbed areas that require cover measures for less than 30 days.
- As a cover for seed.
- During the wet season on slopes steeper than 3H:1V with more than 10 feet of vertical relief.
- Mulch may be applied at any time of the year and must be refreshed periodically.
- Tackifiers shall be plant-based, such as guar or alpha plantago, or chemical-based such as poly-acrylamide or polymers.
- Install mulch or tackifier products per manufacturer's recommendations.

1.8.3 Design and Installation Specifications

- Mulch shall be compost, chipped site vegetation, hydro-mulch, wood-based mulch or wood straw, wood strand mulch, or straw. See Table 3 - 9: Mulch Standards and Guidelines for specifications, application rates, and additional information.
- A minimum of 2" of mulch is required. Increase the mulch thickness until the ground is 95% covered (not visible under the mulch). Thickness may need to increase for disturbed areas in or near sensitive or other areas susceptible to erosion.
- Mulch used within the ordinary high-water mark of surface waters should be selected to minimize potential flotation of organic matter. Compost has a higher specific gravities (densities) than straw, wood, or chipped material.

1.8.4 Maintenance Standards

- The thickness of the cover must be maintained.
- Remulch and/or protect with a net or blanket any areas that experience erosion. If the erosion problem is stormwater and surface water related, then fix the problem and remulch the eroded area.

Table 3 - 9: Mulch Standards and Guidelines

Compost

- Compost shall:
  - Meet the definition for "composted material" per WAC 173-350-100 and comply with standards in WAC 173-350-220, except the feedstock may contain biosolids or manure feedstocks.
  - Be coarse compost meeting the following size gradations (by dry weight) when tested in accordance with the U.S. Composting Council "Test Methods for the Examination of Compost and Composting" (TMECC) Test Method 02.02-B.

Sieve Size	Minimum Percent Passing
3"	100
1"	90
3/4"	70
¼"	40

  - Have no visible water or dust during handling.
  - Have soil organic matter content of 40% to 65%.
  - Have a carbon to nitrogen ratio below 25:1. Carbon to nitrogen ratio may be as high as 35:1 for plantings composed entirely of plants native to the Puget Sound Lowlands region.
  - Be applied a minimum of 2" thick (~100 tons/acre) though thicker application rates may provide more effective control.
- Do not use near wetlands or phosphorus impaired waterbodies.
- Compost can be later tilled into soils to help meet the requirements of BMP L613: Post-Construction Soil Quality and Depth as required per Minimum Requirement #5.

Compost specifications are also contained in A900: Compost.

Chipped Site Vegetation

- Chipped site vegetation shall:
  - Have an average size of 2-4" with gradations from fine to 6" in length for texture, variation, and interlocking properties.
  - Be applied a minimum of 2" thick.
- Do not apply on slopes greater than 10%.
- Do not use within 200 feet of surface waterbodies.

Using chipped site vegetation is a cost-effective way to dispose of debris associated with clearing and grubbing material. The decomposition of the chipped vegetation may help impart nutrients for grass establishment.

Table 3 - 9: Mulch Standards and Guidelines

Hydro-mulch
• Hydro-mulch shall: ◦ Be applied with seed and tackifier. • May be applied without seed and tackifier if application rate is doubled. ◦ Have no growth inhibiting factors. ◦ Have fibers less than ¾" in length to ensure machinery does not clog. Be applied at 35-45 pounds per 1,000 sf or 1500-2000 pounds per acre with a hydromulcher.
Wood-based Mulch or Wood Straw
• Wood-based mulch or straw mulch shall: ◦ Have no visible water or dust during handling. ◦ Be purchased from a supplier with a Solid Waste Handling Permit or a supplier that is exempt from solid waste regulations. ◦ Be applied 2" thick (~100 tons/acre) • Wood-based mulch or wood straw is often called "hog" or "hogged fuel". The preparation of wood-based mulch typically does not account for weed seed control so the inclusion of weed plants or seeds should be monitored and minimized or prevented during application.
Wood Strand Mulch
• Wood strand mulch shall be: ◦ A blend of loose long, thin wood pieces derived from native conifers or deciduous trees with high length-width ratio. ◦ A minimum of 95% of the wood strand shall have lengths between 2" and 10" with a width and thickness between 1/16" and 3/8". ◦ Free of resin, tannin, or other compounds that are detrimental to plant establishment and growth. ◦ Applied 2" thick. Do not use sawdust or wood shavings.
Straw
• Straw shall be: ◦ Air-dried. ◦ Free from undesirable seed and coarse material. ◦ Applied 2"-3" thick (5 bales per 1000 ft^2 or 2-3 tons per acre) • Thickness may be reduced by half when used with seeding. • Hand-application requires a greater thickness than blown straw to ensure required coverage. ◦ Held in place by crimping, using a tackifier, or covering with netting. Blown straw shall be held in place using a tackifier. • Although straw can be cost-effect, straw can introduce and/or encourage weed species and has no long-term benefits so should only be used when other materials are unavailable. Do not used within the ordinary high-water elevation of surface waters (due to flotation).

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.

1.19 BMP C151: Concrete Handling

1.19.1 Purpose

Concrete work can generate process water and slurry that contain fine particles and high pH, both of which can violate water quality standards in the receiving water. Concrete spillage or concrete discharge to waters of the State is prohibited. Use this BMP to minimize and eliminate concrete, concrete process water, and concrete slurry from entering waters of the State.

1.19.2 Conditions of Use

Utilize these management practices any time concrete is used.

Concrete construction projects include, but are not limited to, the following:

- Curbs
- Sidewalks
- Roads
- Bridges
- Foundations
- Floors
- Runways

Disposal options for concrete, in order of preference are:

1. Offsite disposal
2. Concrete washout areas
3. De minimus washout to formed areas awaiting concrete

1.19.3 Design and Installation Specifications

- Wash concrete truck drums at an approved offsite location or in designated concrete washout areas only.
  - Return unused concrete remaining in the truck and pump to the originating batch plant for recycling. Do not dump excess concrete onsite, except in designated concrete washout areas as allowed in BMP C154: Concrete Washout Area.
- Do not wash out concrete trucks onto the ground (including formed areas awaiting concrete), or into the stormwater conveyance system, open ditches, streets, or streams.
- Wash small concrete handling equipment (e.g. hand tools, screeds, shovels, rakes, floats, trowels, and wheelbarrows) into designated concrete washout areas or into formed areas awaiting concrete pour.
- At no time shall concrete be washed off into the footprint of an area where an infiltration feature will be installed.
- Wash equipment difficult to move, such as concrete paving machines, in areas that do not directly drain to natural or constructed stormwater conveyance or potential infiltration areas.

- Do not allow washwater from areas, such as concrete aggregate driveways, to discharge directly (without detention or treatment) to natural or constructed stormwater conveyances.
- Contain washwater and leftover product in a lined container when no designated concrete washout areas (or formed areas, allowed as described above) are available. Dispose of contained concrete and concrete washwater (process water) properly. Always use forms or solid barriers for concrete pours within 15-feet of surface waters.
- Refer to BMP C252: Treating and Disposing of High pH Water and BMP C253: Portable Sediment Tank for pH adjustment requirements.
- Refer to the Construction Stormwater General Permit for pH monitoring requirements if the project involves one of the following activities:
  - Significant concrete work (as defined in the Construction Stormwatwer General Permit).
  - The use of engineered soils amended with (but not limited to) Portland cement-treated base, cement kiln dust or fly ash.
  - Discharging stormwater to segments of water bodies on the 303(d) list (Category 5) for high pH.

1.19.4 Maintenance Standards

Containers shall be checked for holes in the liner daily during concrete pours and repaired the same day.

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.

1.25 BMP C200: Interceptor Dike and Swale

1.25.1 Purpose

Provide a dike or swale, at the top or base of a disturbed slope or along the perimeter of a disturbed construction area to convey stormwater. Use the dike and/or swale to intercept the runoff from unprotected areas and direct it to areas where erosion can be controlled. This can prevent runoff from entering the work area or sediment-laden runoff from leaving the construction site.

1.25.2 Conditions of Use

Where the runoff from an exposed site or disturbed slope must be conveyed to an erosion control facility that can safely convey the stormwater.

- Locate upslope of a construction site to prevent runoff from entering disturbed area.
- When placed horizontally across a disturbed slope, it reduces the amount and velocity of runoff flowing down the slope.
- Locate downslope to collect runoff from a disturbed area and direct it to a sediment basin.

1.25.3 Design and Installation Specifications

- Stabilize dike and/or swale and channel with temporary or permanent vegetation or other channel protection during construction.
- Steep grades require channel protection and check dams.
- Channel requires a positive grade to allow stormwater and surface water to drain; steeper grades require channel protection and check dams.
- Review construction for areas where overtopping may occur.
- Should be used at the top of new fill before vegetation is established.
- May be used as a permanent diversion channel to carry the runoff.
- Sub-basin tributary area should be one acre or less.
- Design capacity for 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.

    Design for worst-case land cover conditions.

    For permanent facilities, design capacity per Volume 4.

Interceptor Dikes

Interceptor dikes shall meet the following criteria:

Top Width	2 feet minimum.
Height	1.5 feet minimum on berm.
Side Slope	2:1 or flatter.
Grade	Depends on topography, however, dike system minimum is 0.5% and maximum is 1%
Compaction	Minimum of 90 percent ASTM D698 standard proctor.

Horizontal Spacing of Interceptor Dikes:

Average Slope	Slope Percent	Flowpath Length
20H:1V or less	3-5%	300 feet
(10 to 20)H:1V	5-10%	200 feet
(4 to 10)H:1V	10-25%	100 feet
(2 to 4)H:1V	25-50%	50 feet

Stabilization depends on velocity and reach.

Slopes <5%	Seed and mulch applied within 5 days of dike construction (see BMP C121: Mulching).
Slopes 5 - 40%	Dependent on runoff velocities and dike materials. Stabilization should be done immediately using either sod or riprap or other measures to avoid erosion. See Volume 5, Section 4.3: Open Channel Specifications for additional guidance on channel protection.

- The upslope side of the dike shall be graded to ensure stormwater and surface water reach the dike outlet. No erosion shall occur at the outlet. Provide energy dissipation measures as necessary. Sediment-laden runoff must be released through a sediment trapping facility.
- Minimize construction traffic over temporary dikes. Use temporary cross culverts for channel crossing.

Interceptor Swales

Interceptor swales shall meet the following criteria: **Maintenance Standards**

Bottom Width	2 feet minimum; the bottom shall be level.
Depth	1-foot minimum.
Side Slope	2H:1V or flatter
Grade	Maximum 5 percent, and be graded to ensure stormwater and surface water reach a suitable outlet (such as a sediment pond).
Stabilization	Seed as per BMP C120: Temporary and Permanent Seeding, or BMP C202: Rip Rap Channel Lining, 12 inches thick of riprap pressed into the bank and extending at least 8 inches vertical from the bottom.

- Inspect diversion dikes and interceptor swales once a week and after every rainfall. Immediately remove sediment from the flow area.
- Repair damage caused by construction traffic or other activity before the end of each working day.
- Check outlets and make timely repairs as needed to avoid gully formation. When the area below the temporary diversion dike is permanently stabilized, remove the dike and fill and stabilize the channel to blend with the natural surface.

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.

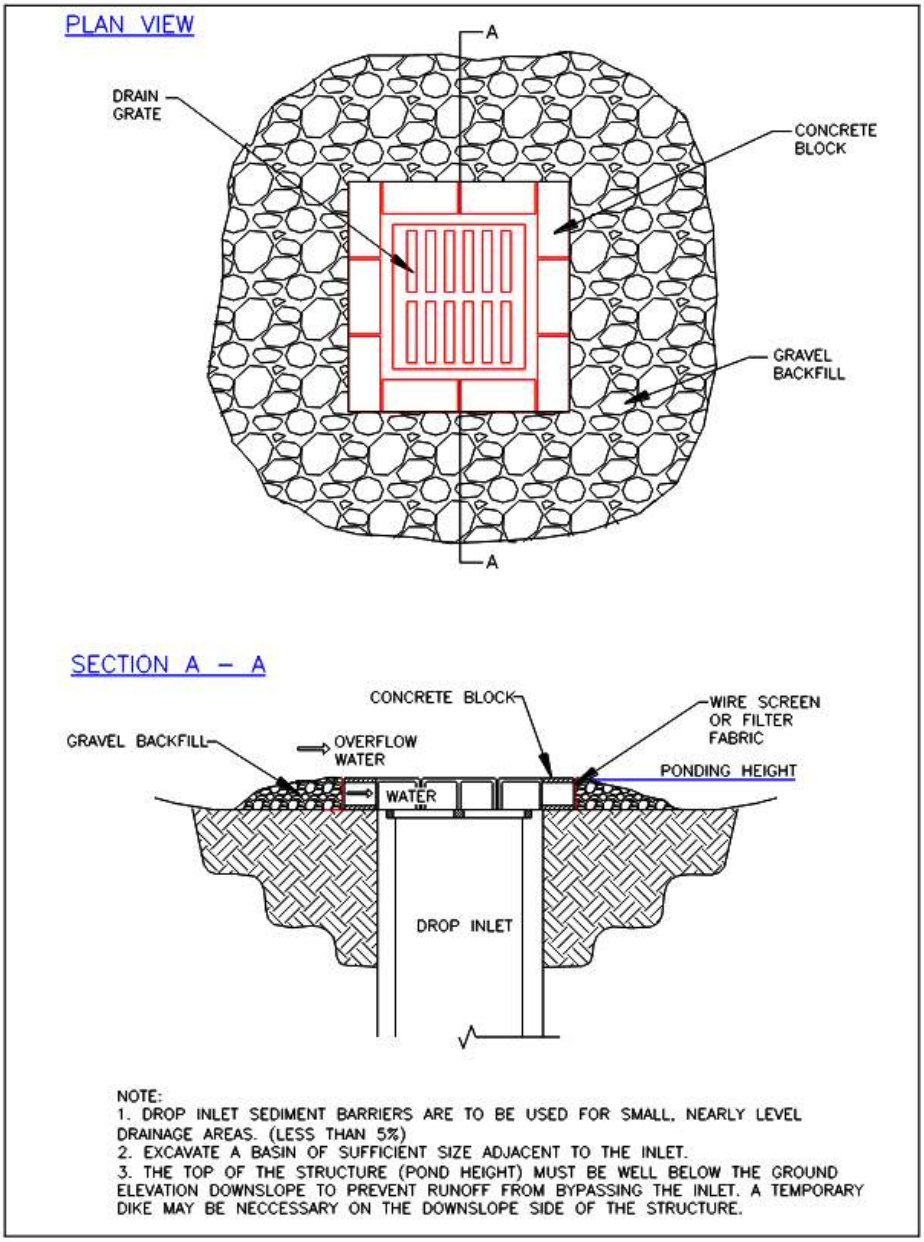


Figure 3 - 17: Drop Inlet with Block and Gravel Filter

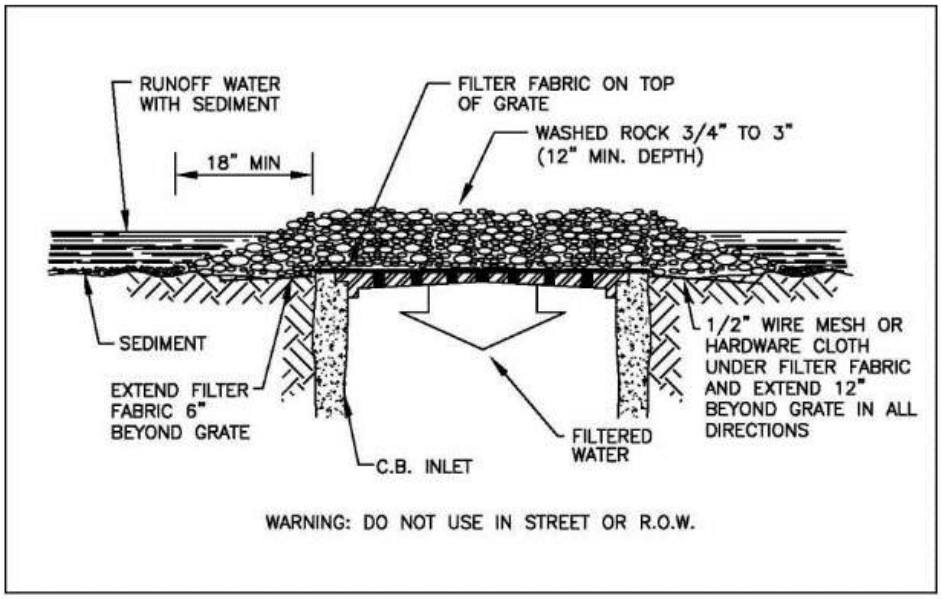
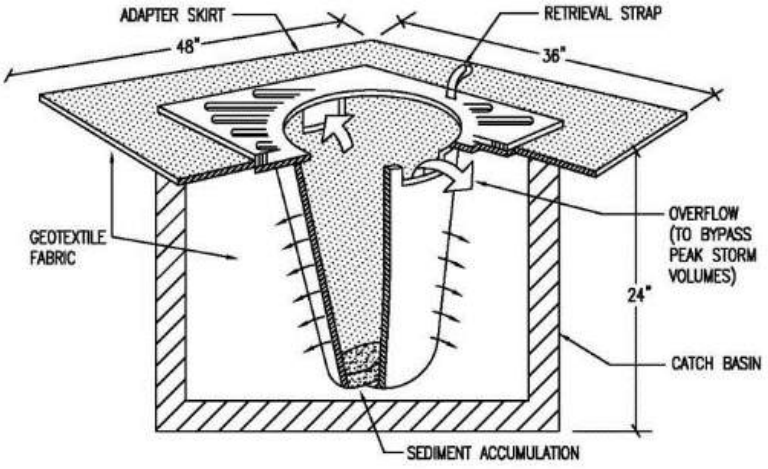


Figure 3 - 18: Gravel and Wire Mesh Filter



INLET PROTECTION NOTES:

1. FILTERS SHALL BE INSPECTED AFTER EACH STORM EVENT AND CLEANED OR REPLACED WHEN 1/3 FULL.

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.

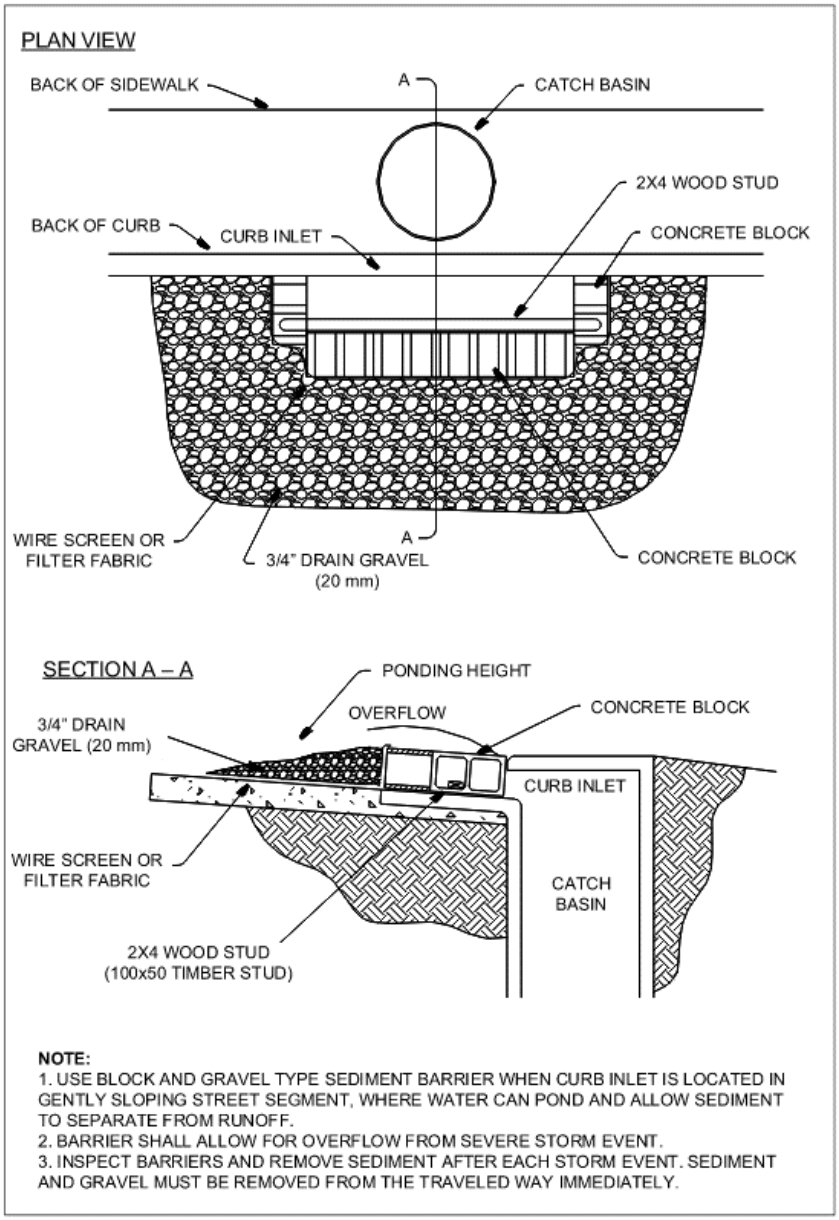


Figure 3 - 20: Block and Gravel Curb Inlet Protection

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.

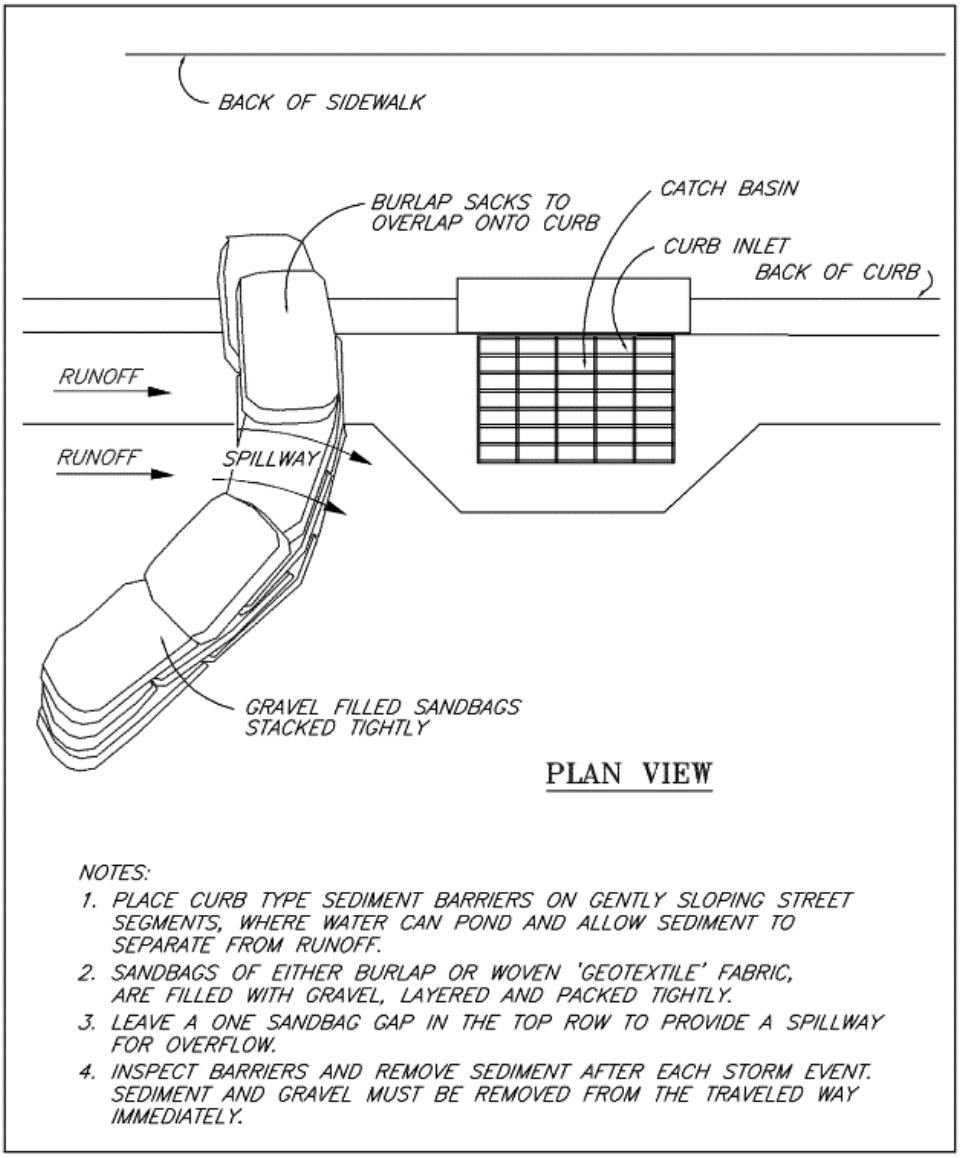


Figure 3 - 21: Curb and Gutter Sediment Barrier

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.

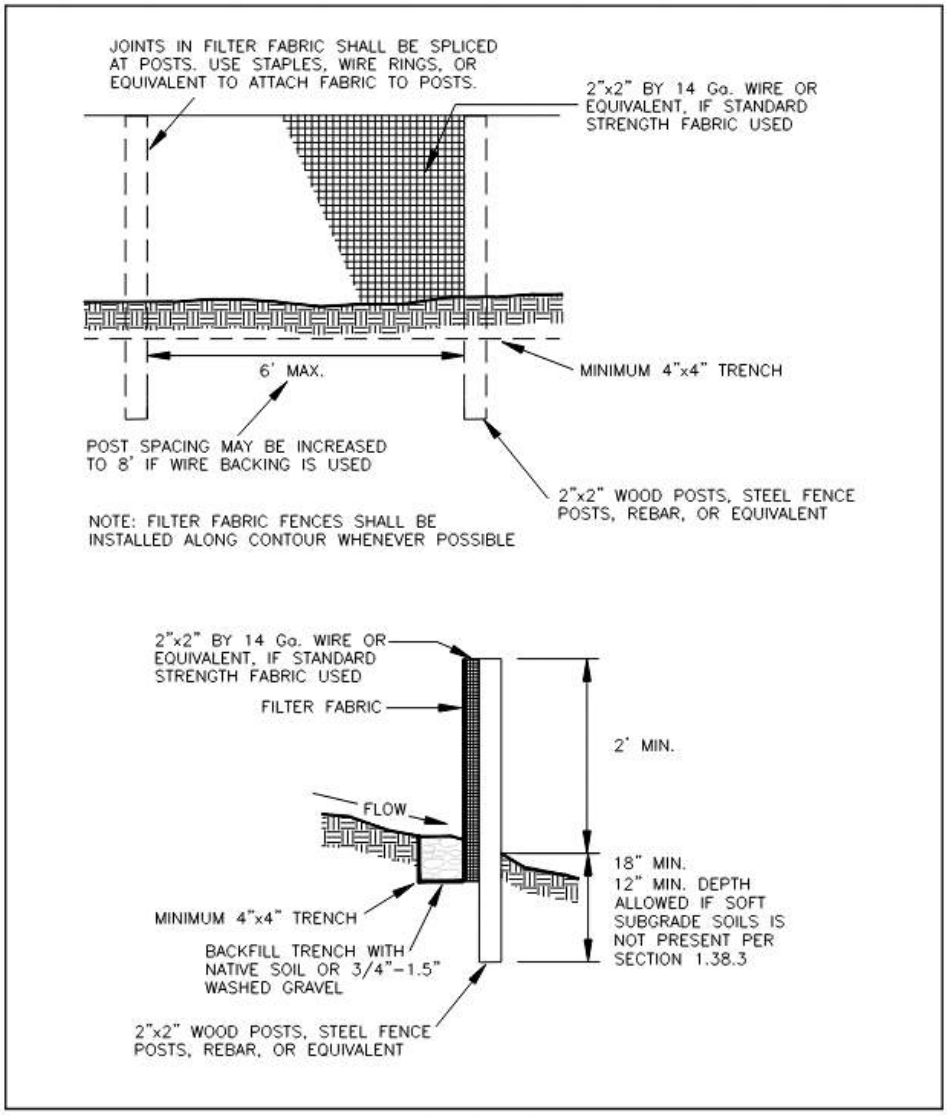


Figure 3 - 23: Silt Fence

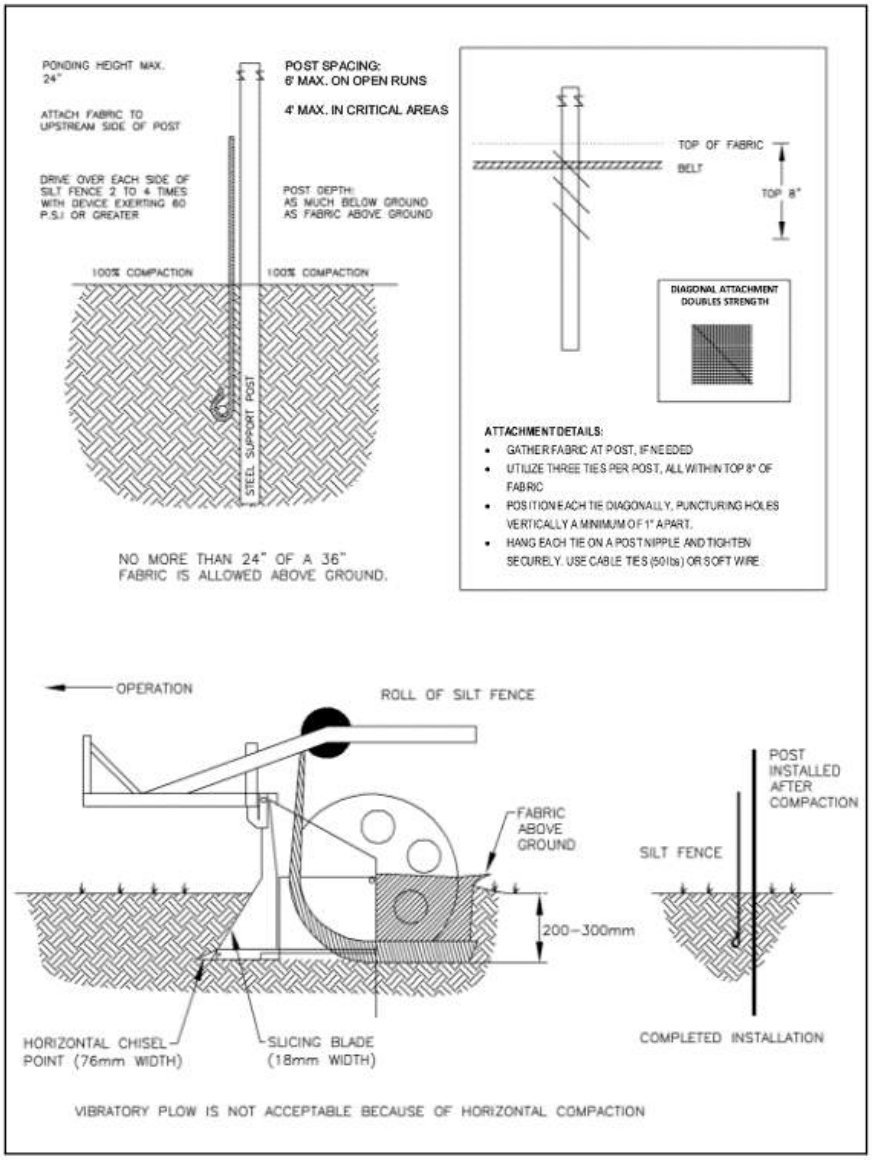


Figure 3 - 24: Silt Fence Installation by Slicing

1.43 BMP C241: Temporary Sediment Pond

1.43.1 Purpose

Sediment ponds remove sediment from runoff originating from disturbed areas of the site. Sediment ponds are typically designed to remove sediment no smaller than medium silt (0.02 mm). Consequently, they usually reduce turbidity only slightly.

1.43.2 Conditions of Use

- Prior to leaving a construction site, dirty stormwater must pass through a sediment pond or other appropriate sediment removal best management practice.
- Use a sediment pond where the contributing area is 3 acres or more. Ponds must be used in conjunction with erosion control practices to reduce the amount of sediment flowing into the basin.

1.43.3 Design and Installation Specifications

- Only install sediment basins on sites where failure of the structure would not result in loss of life, damage to homes or buildings, or interruption of use or service of public roads or utilities. Also, sediment traps and ponds are attractive to children and can be very dangerous. Compliance with local ordinances regarding health and safety must be addressed. If fencing of the pond is required, show the type of fence and its location on the ESC plan.
- Structures having a maximum storage capacity at the top of the dam of 10 acre-feet (435,600 cubic feet) or more are subject to the Washington Dam Safety Regulations (Chapter 173-175 WAC).
- See Figure 3 - 29: Sediment Pond, Figure 3 - 30: Sediment Pond Cross Section and Figure 3 - 31: Sediment Pond Riser Detail for details.
- If permanent detention facilities are part of the project, they may be used for sediment retention. The surface area requirements of the sediment basin must be met. This may require enlarging the permanent basin to comply with the surface area requirements. If a permanent control structure is used, it may be advisable to partially restrict the lower orifice with gravel to increase residence time while still allowing dewatering of the basin.
- Use of infiltration facilities for sedimentation basins during construction tends to clog the soils and reduce their capacity to infiltrate. If infiltration facilities are to be used, the sides and bottom of the facility must only be rough excavated to a minimum of 2 feet above final grade. Final grading of the infiltration facility shall occur only when all contributing areas are fully stabilized. The infiltration pretreatment facility should be fully constructed and used with the sedimentation basin to help prevent clogging.

Determining Pond Geometry

- Determine the required surface area at the top of the riser pipe with the equation:

  (Equation 3 - 4)

  $$SA = \frac{2 \times Q_2}{0.00096} \text{ OR}$$

  SA= 2080 (Q_2)

  Where:

  SA = Design surface area, in square feet, of the sediment trap measured at the invert of the weir.

  Q_2= Design inflow, in cubic feet per second, is the peak volumetric flowrate from the contributing area calculated using a 10-minute timestep from a Type 1A, 2-year, 24-hour frequency storm using a single even model. A type 1A, 10-year, 24-hour frequency storm (Q10) shall be used in the calculation if the project size, expected timing and duration of construction, or downstream conditions warrant a higher level of protection. If no hydrologic analysis is required, the Rational Method may be used.

  Alternatively, Q_2 = Design inflow (cfs) is the 2-year return period flowrate, indicated by an Ecology-approved continuous simulation model, using an 15-minute timestep. Use the 10-year return period flowrate (Q10) in the calculation if the project size, expected timing and duration of construction, or downstream conditions warrant a higher level of protection.

- See BMP C240: Sediment Trap for more information on the derivation of the surface area calculation.
- The basic geometry of the pond can now be determined using the following design criteria:
  - Required surface area SA (from the equation above) at top of riser.
  - Minimum 3.5-foot depth from top of riser to bottom of pond.
  - Maximum 3H:1V interior side slopes and maximum 2H:1V exterior slopes. The interior slopes can be increased to a maximum of 2H:1V if fencing is provided at or above the maximum water surface.
  - One foot of freeboard between the top of the riser and the crest of the emergency spillway.
  - Flat bottom.
  - Minimum 1-foot deep spillway.
  - Length-to-width ratio between 3:1 and 6:1.

Sizing of Discharge Mechanisms

The outlet for the basin consists of a combination of principal and emergency spillways. These outlets must pass the peak volumetric flowrate expected from the contributing area for a Type 1A, 100-year, 24-hour frequency storm. If, due to site conditions and basin geometry, a separate emergency spillway is not feasible, the principal spillway must pass the entire peak volumetric flowrate expected from Type 1A, 100-year, 24-hour frequency storm. However, an attempt to provide a separate emergency spillway should always be made. Base the calculations on the site conditions during construction. The flow through the dewatering orifice cannot be utilized when calculating the 100-year storm elevation because of its potential to become clogged; therefore, available spillway storage must begin at the principal spillway riser crest.

The principal spillway designed by the procedures contained in this standard will result in some reduction in the peak volumetric flowrate. However, the riser outlet design will not adequately control flowrates as required to meet Minimum Requirement #7 - Flow Control. The size of the basin, the expected life of the construction project, the anticipated downstream effects, and the anticipated weather conditions during construction should be considered to determine the need of additional discharge control.

Principal Spillway: Determine the required diameter for the principal spillway (riser pipe). The diameter shall be the minimum necessary to pass the peak volumetric flowrate calculated using a 10-minute timestep from a Type 1A, 10-year, 24-hour frequency storm using a single event model for the developed condition or the 10-year return period flowrate, indicated by an Ecology-approved continuous simulation model, using a 15-minute timestep. Use Figure 3 - 32: Riser Inflow Curves to determine this diameter (h = 1-foot).

Note: A permanent control structure may be used instead of a temporary riser.

Emergency Overflow Spillway: Size and design the emergency overflow spillway per A600: Emergency Overflow Spillway.

Dewatering Orifice: Determine the size of the dewatering orifice(s) (minimum 1-inch diameter) using a modified version of the discharge equation for a vertical orifice and a basic equation for the area of a circular orifice. Determine the required area of the orifice with the following equation:

(Equation 3 - 5)

$$A_o = \frac{A_s (2h)^{0.5}}{0.6\text{x}3600Tg^{0.5}}$$

Where:

Ao = orifice area (square feet)

As = pond surface area (square feet)

h = head of water above orifice (height of riser in feet)

T = dewatering time (24 hours)

g = acceleration of gravity (32.2 feet per second squared)

D = orifice diameter (inches)

Convert the required surface area to the required diameter D of the orifice:

(Equation 3 - 6)

$$D = 24\text{x}\sqrt{\frac{A_o}{\pi}} = 13.54\text{x}\sqrt{A_o}$$

The vertical, perforated tubing connected to the dewatering orifice must be at least 2 inches larger in diameter than the orifice to improve flow characteristics. The size and number of perforations in the tubing shall be large enough so the tubing does not restrict flow. The orifice shall control the flowrate.

Additional Design Specifications

The **pond shall be divided** into two roughly equal volume cells by a permeable divider that will reduce turbulence while allowing movement of water between cells. The divider shall be at least one-half the height of the riser and a minimum of one foot below the top of the riser. Wire-backed, 2- to 3-foot high, extra strength filter fabric supported by treated 4"x4"s can be used as a divider. If the pond is more than 6 feet deep, a different mechanism must be proposed. A riprap embankment is one acceptable method of separation for deeper ponds. Other designs that satisfy the intent of this provision are allowed as long as the divider is permeable, structurally sound, and designed to prevent erosion under or around the barrier.

To aid in determining sediment depth, prominently mark **one-foot intervals** on the riser.

If an **embankment height** of more than 6 feet is proposed, the pond must comply with the criteria contained in Volume 4 regarding dam safety for detention BMPs.

The most common structural failure of sedimentation basins is caused by piping. Piping refers to two phenomena: (1) water seeping through fine-grained soil, eroding the soil grain by grain and forming pipes or tunnels and (2) water under pressure flowing upward through a granular soil with a head of sufficient magnitude to cause soil grains to lose contact and capability for support.

The most critical construction sequences to prevent piping will be:

- Tight connections between the riser and barrel and other pipe connections.
- Adequate anchoring of the riser.
- Proper soil compaction of the embankment and riser footing.
- Proper construction of anti-seep devices.

1.43.4 Maintenance Standards

- Remove sediment from the pond when it reaches 1–foot in depth.
- Repair any damage to the pond embankments or slopes.

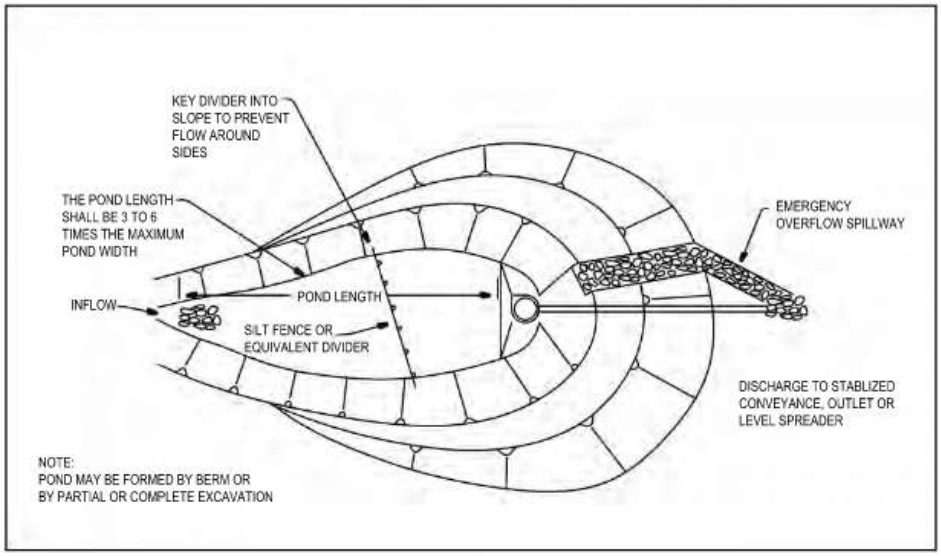


Figure 3 - 29: Sediment Pond

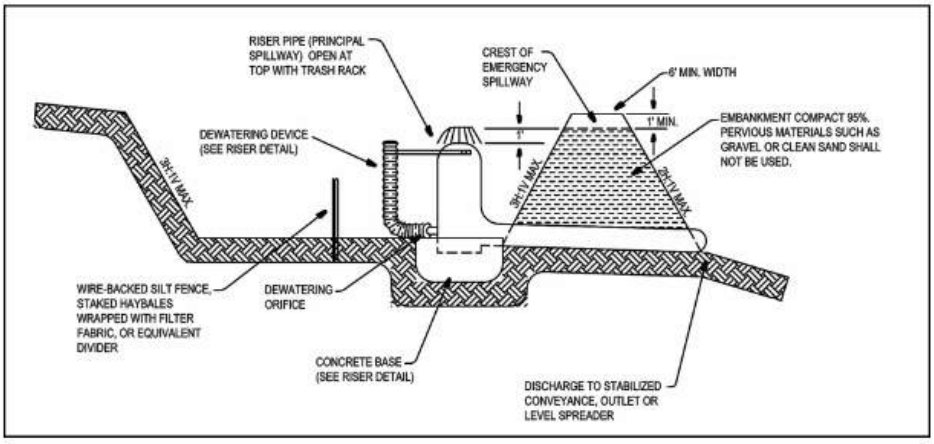


Figure 3 - 30: Sediment Pond Cross Section

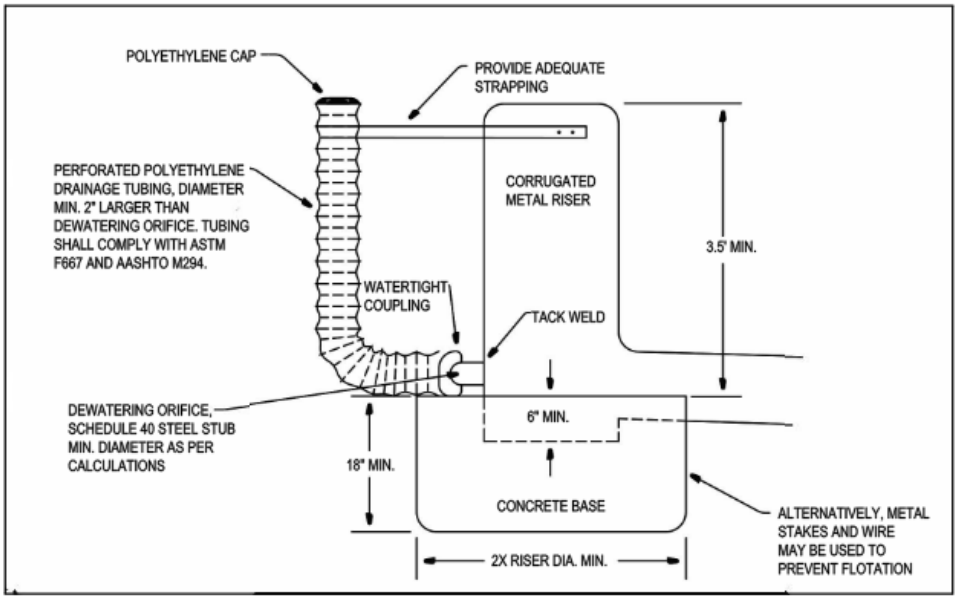


Figure 3 - 31: Sediment Pond Riser Detail

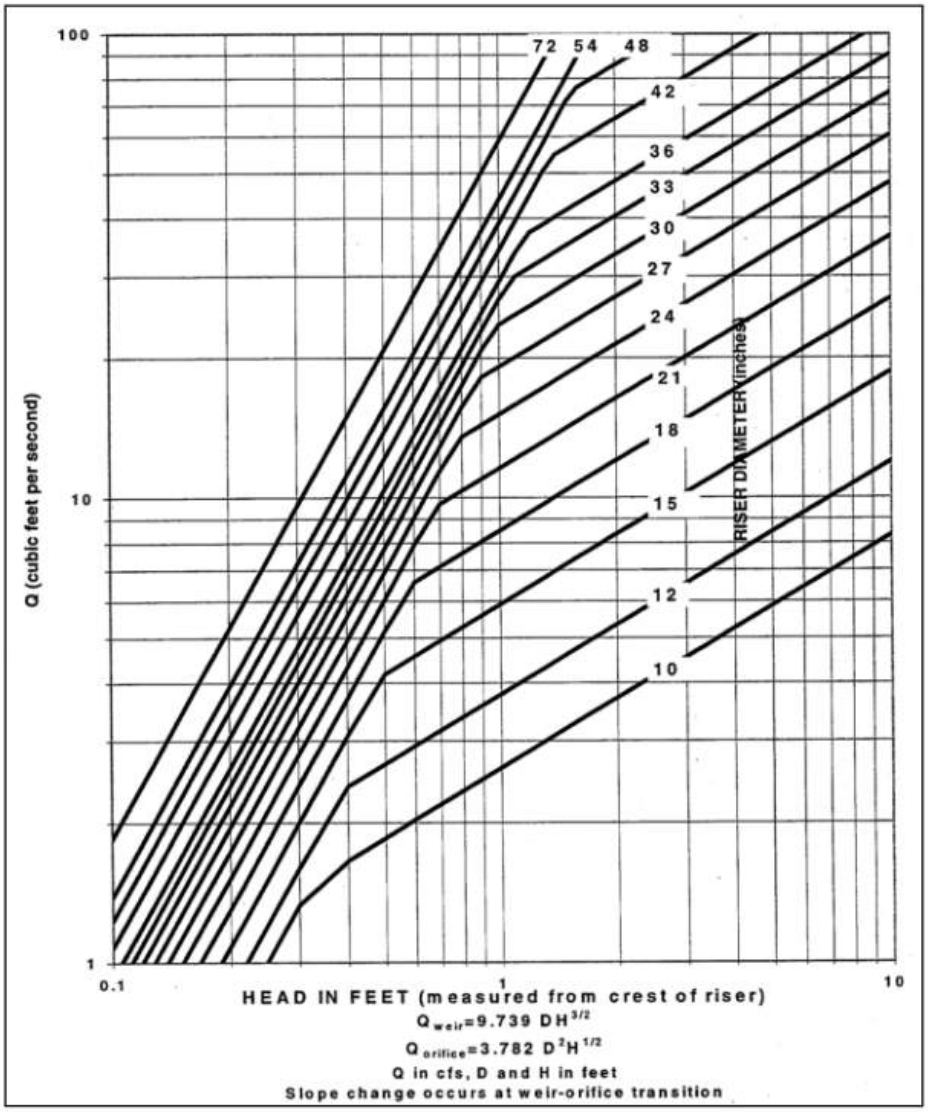


Figure 3 - 32: Riser Inflow Curves

D. Temporary Erosion and Sediment Control Plans

BINDING EDGE

PHASING LEGEND

- PHASE 1 – BARRIER WALL INSTALLATION
- PHASE 1 – WORK LIMITS
- PHASE 2
- PHASE 3
- PHASE 4
- PHASE 5

PHASING DESCRIPTION

DEMOLITION

GENERAL: PROJECT DEMOLITION PHASING SHALL BE AS FOLLOWS:
ALL IDENTIFIED PHASE 1 – 5 DEMOLITION WORK (EXCEPTING SPECIFIC WORK) SHALL BE PERFORMED UNDER ONE CONSTRUCTION CONTRACT, THE CURRENT PLANS. SEE PLANS FOR DETAILS.

PROJECT OFFSITE WORK SHALL BE CONSIDERED IN PHASE 2 & 3 WORK SCOPE.

PHASES 1 – 3: PROVIDE REQUIRED DEMOLITION WORK IDENTIFIED IN THE RESPECTIVE PHASED WORK AREAS. SEE PLANS FOR DETAILS.

PHASE 4: PROVIDE REQUIRED DEMOLITION WORK IDENTIFIED IN THE RESPECTIVE PHASED WORK AREAS. SEE PLANS FOR DETAILS.

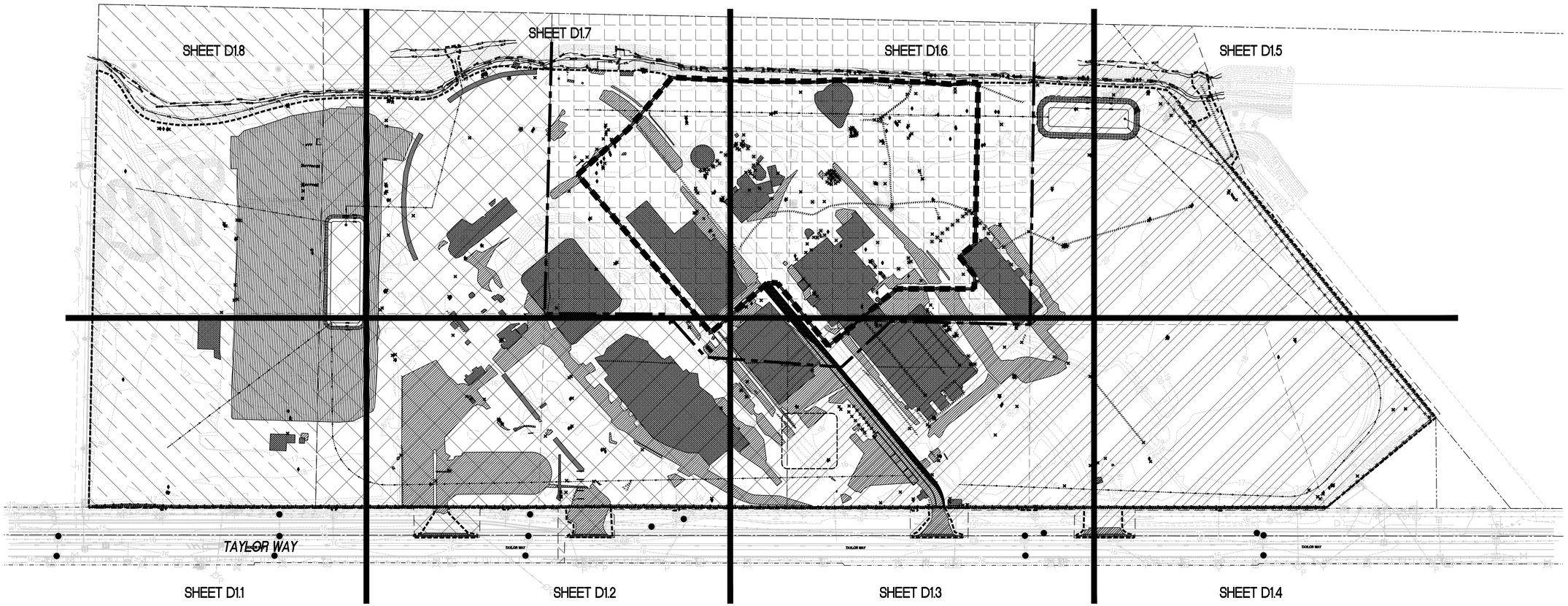
PHASE 5: NO DEMOLITION WORK IS ANTICIPATED AT THIS TIME. IF THERE IS DEMOLITION WORK, IT WILL BE IDENTIFIED AT THE FUTURE TIME.

TEMPORARY EROSION AND SEDIMENT CONTROL (TESC)

GENERAL: NO TESC PROJECT PHASING IS IDENTIFIED.
THE TESC WORK SCOPE REQUIRED FOR PHASE 1 – 5 WORK AREAS SHALL BE PERFORMED UNDER ONE CONSTRUCTION CONTRACT. ALL TESC MEASURES SHOWN ON THE PLANS ARE APPLICABLE TO THE CURRENT PROJECT. SEE PLANS FOR DETAILS.

PROJECT OFFSITE WORK SHALL BE CONSIDERED IN PHASE 2 & 3 WORK SCOPE.

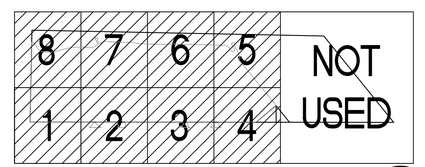
PHASE 4 AND 5 TESC SCOPE OF WORK AND TESC MEASURES SHALL BE IDENTIFIED AND PERFORMED UNDER FUTURE SEPARATE CONTRACTS.



OVERALL TESC AND DEMOLITION PLAN
SCALE: 1" = 100'

HORIZONTAL SCALE: 1"=100'
100 0 100 200

NORTH



KEY PLAN
SCALE: NTS

NORTH

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MARK:	REVISION:	BY:	APPR:	DATE:

RICHARD C. HAND — STATE OF WASHINGTON — 20778 — REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY
SIGNATURE DATE

APPROVED:

ARKEMA MANUFACTURING AREA
INTERIM ACTION - SITE CAPPING
OVERALL TESC AND DEMOLITION PLAN

RCH	12/13/24	RCH	12/13/24
CHECKED BY	DATE	PROJ. ENGR	DATE
DIRECTOR_ENG.	DATE	PRINTED BY: srebrob Dec 05, 2024	
PORT ADDRESS:ONE SITCUM PLAZA			
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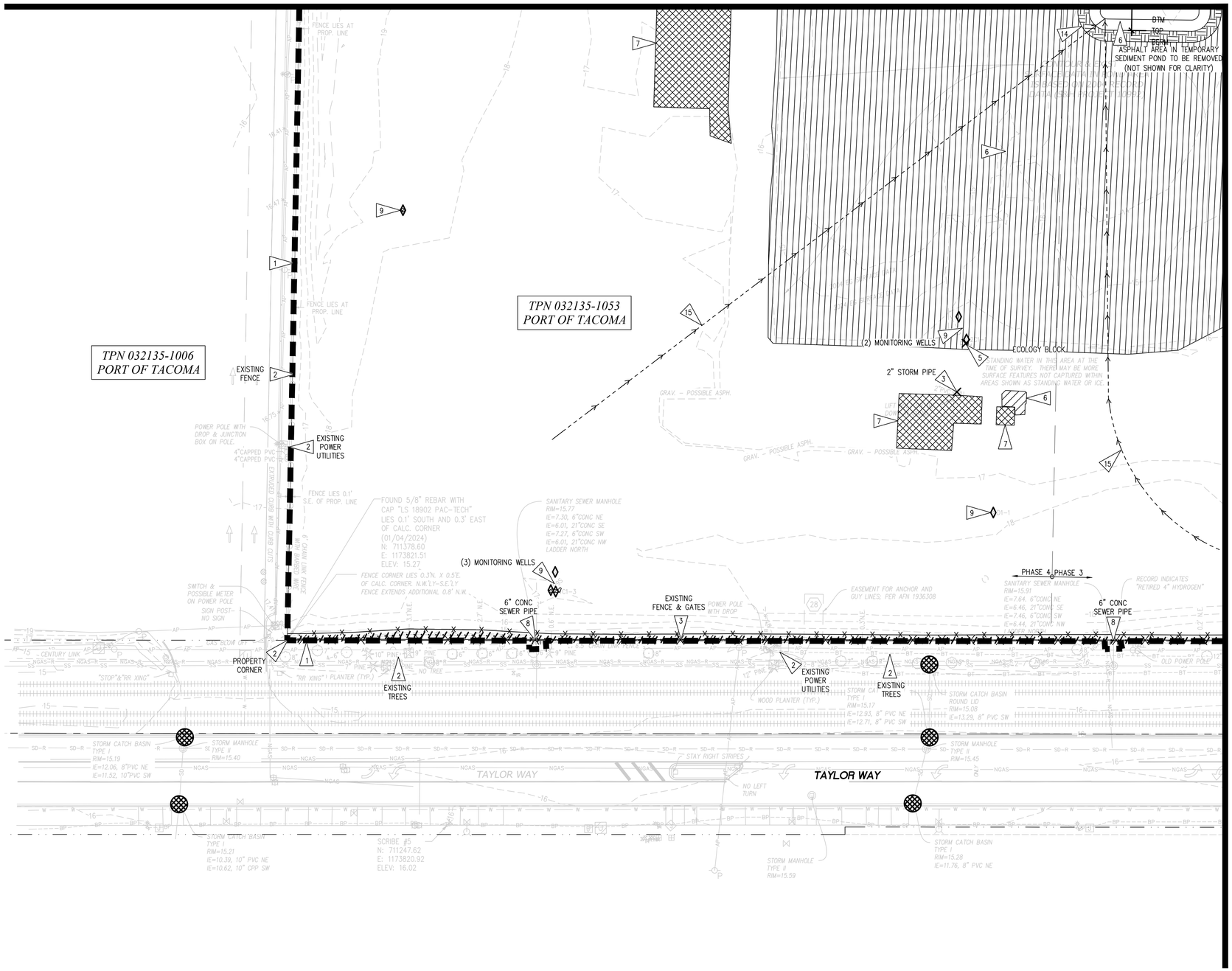
CONT/CONS:	072075	TOWNSHIP: 21 NORTH	RANGE: 3 EAST
M. ID:	101585.01	DAT–HRZ: WA83/2011	VERT: MLLW 15.73' @ POT_MON #178
PHASE:	70%	PARCEL: 0321351053	DRAWING SCALE: AS NOTED

6698
D1.0
SH # 15 OF 83

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BINDING EDGE



LEGEND

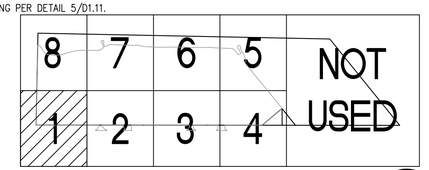
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13. REMOVE AND REUSE EXISTING RIP RAP MATERIAL.
14. SEDIMENT POND PER DETAIL 7,8,9 AND 10/D1.11.
15. INTERCEPTOR SWALE PER DETAIL 6/D1.11.
16. POTENTIAL STOCKPILE AREA. PROTECT WITH SEEDING PER SEEDING NOTES ON D1.10 AND OR PLASTIC COVERING PER DETAIL 5/D1.11.



KEY PLAN
SCALE: NTS

NORTH

TESC AND DEMOLITION PLAN - AREA 1
SCALE: 1" = 30'

HORIZONTAL SCALE: 1"=30'
30 0 30 60

NORTH

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PRELIMINARY — NOT FOR CONSTRUCTION

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PROJ. ENGR	DATE	PRINTED BY: srebrob Dec 04, 2024		
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TACOMA, WA 98401–1837				

ARKEMA MANUFACTURING AREA
INTERIM ACTION - SITE CAPPING
TESC AND DEMOLITION PLAN - AREA 1

TOWNSHIP: 21 NORTH	RANGE: 3 EAST	SECTION: 36	
DAT–HRZ: WA83/2011	VERT: MLLW 15.73' @ POT MON #178		
PARCEL: 0321351053	DRAWING SCALE: AS NOTED		

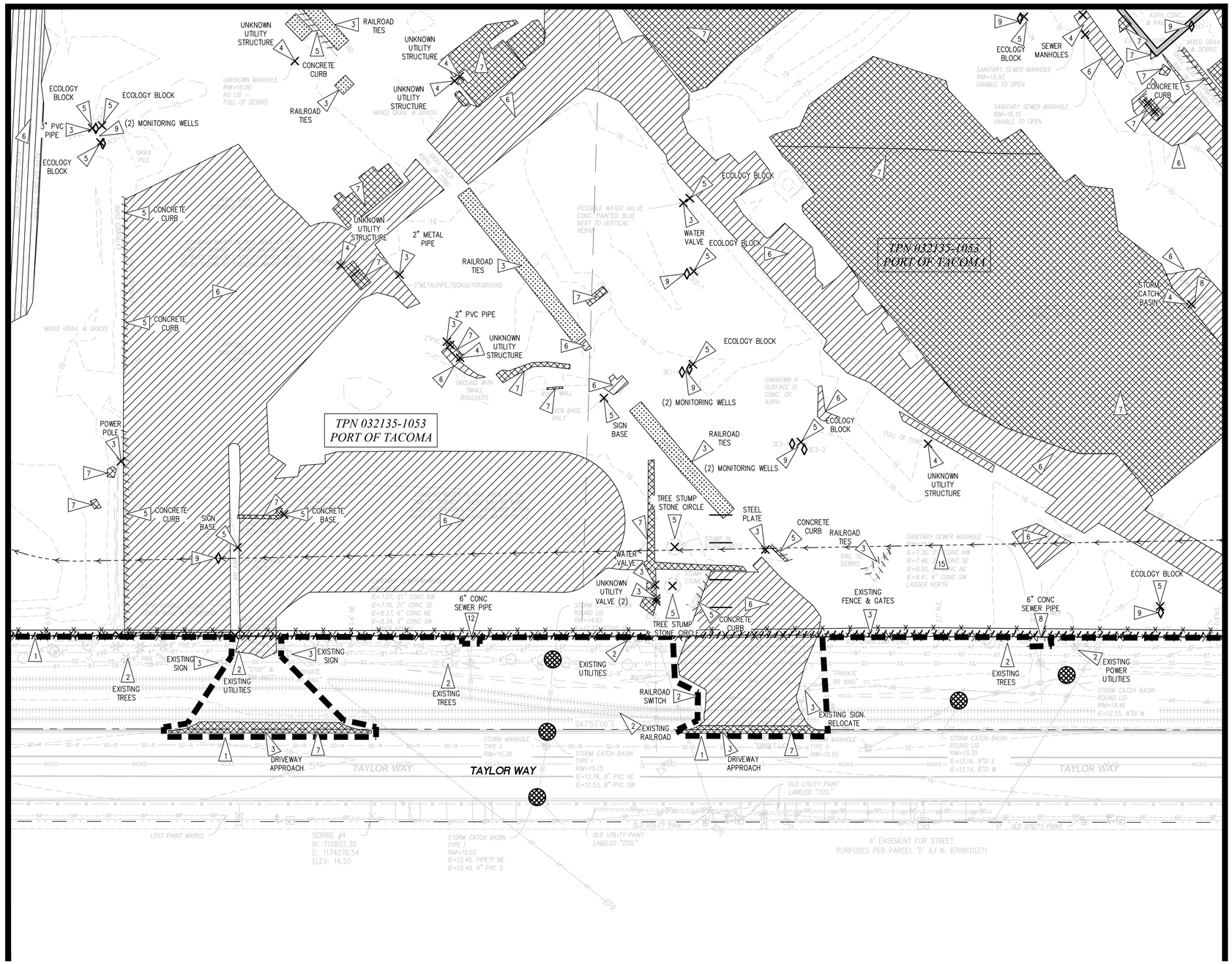
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BINDING EDGE

MATCHLINE SEE SHEET D1.7



MATCHLINE SEE SHEET D1.1

MATCHLINE SEE SHEET D1.3

TESC AND DEMOLITION PLAN - AREA 2

SCALE: 1" = 30'

HORIZONTAL SCALE: 1"=30'

30 0 30 60

NORTH

LEGEND

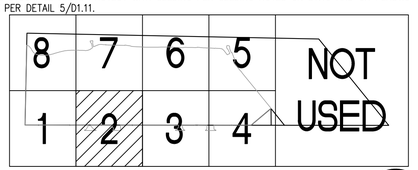
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KEY PLAN

SCALE: NTS

NORTH

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TACOMA, WA 98401-1837

ARKEMA MANUFACTURING AREA
INTERIM ACTION - SITE CAPPING
TESC AND DEMOLITION PLAN - AREA 2

CONT/CONS: 072075	TOWNSHIP: 21 NORTH	RANGE: 3 EAST	SECTION: 36
M. ID: 101585.01	DAT–HRZ: WA83/2011	VERT: MLLW 15.73' @ POT MON #178	
PHASE: 70%	PARCEL: 0321351053	DRAWING SCALE: AS NOTED	

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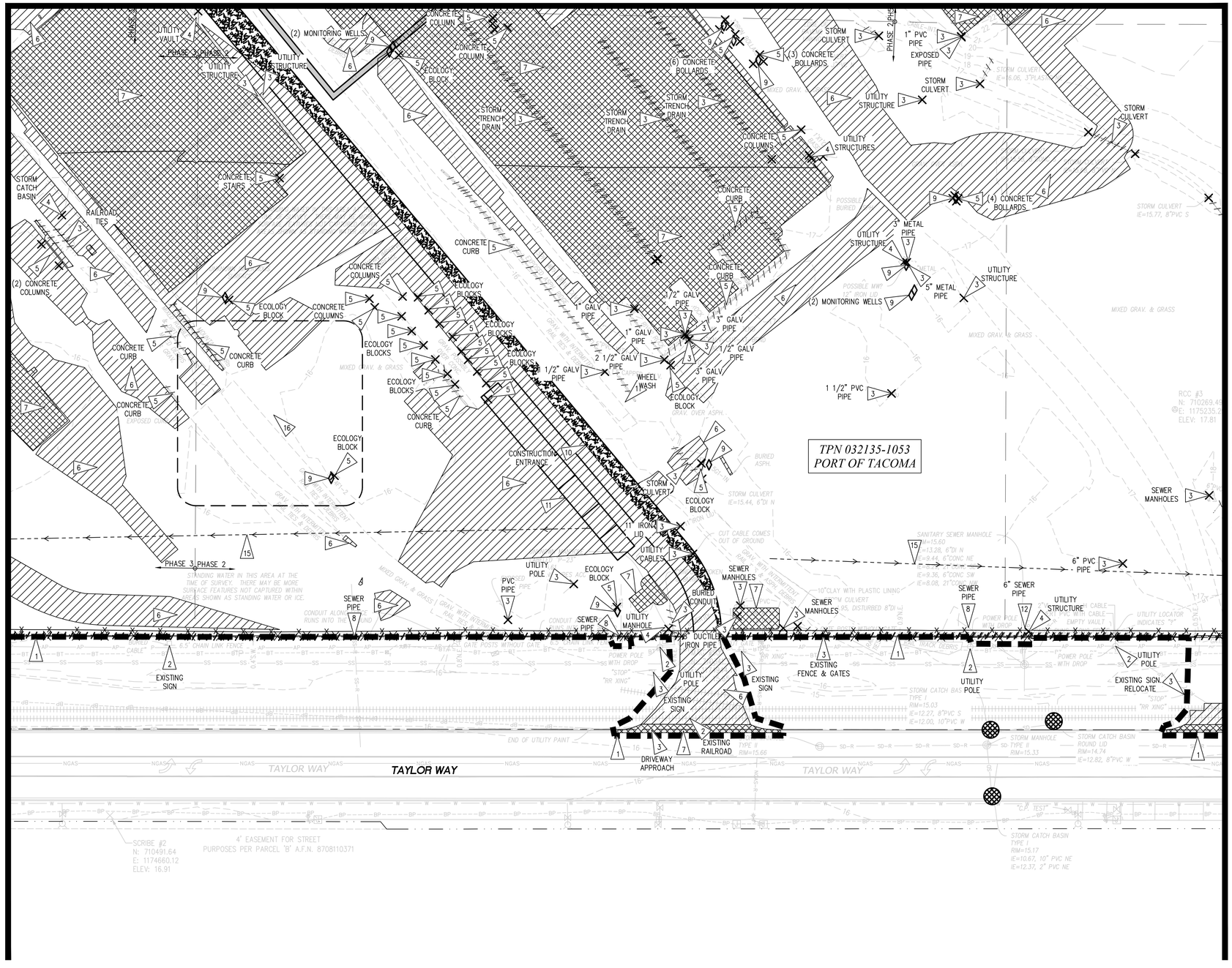
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BINDING EDGE

MATCHLINE SEE SHEET D1.2

MATCHLINE SEE SHEET D1.6

MATCHLINE SEE SHEET D1.4



LEGEND

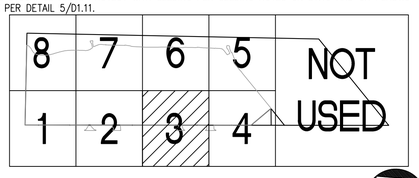
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KEY PLAN
SCALE: NTS

NORTH

TESC AND DEMOLITION PLAN - AREA 3
SCALE: 1" = 30'

HORIZONTAL SCALE: 1"=30'
30 0 30 60

NORTH

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RICHARD C. HANDY — STATE OF WASHINGTON — 20780 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY — NOT FOR CONSTRUCTION

RCH	12/13/24	
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PROJ. ENGR	DATE	

APPROVED:

DIRECTOR ENG. DATE

PRINTED BY: srebrob Dec 04, 2024
PORT ADDRESS: ONE SITCUM PLAZA
TACOMA, WA 98401-1837

ARKEMA MANUFACTURING AREA
INTERIM ACTION - SITE CAPPING
TESC AND DEMOLITION PLAN - AREA 3

TOWNSHIP: 21 NORTH	RANGE: 3 EAST	SECTION: 36	
DAT–HRZ: WA83/2011	VERT: MLLW 15.73' @ POT MON #178		
PARCEL: 0321351053	DRAWING SCALE: AS NOTED		

6698
D1.3
SH # 17 OF 83

CONT/CONS:	072075
M. ID:	101585.01
PHASE:	70%

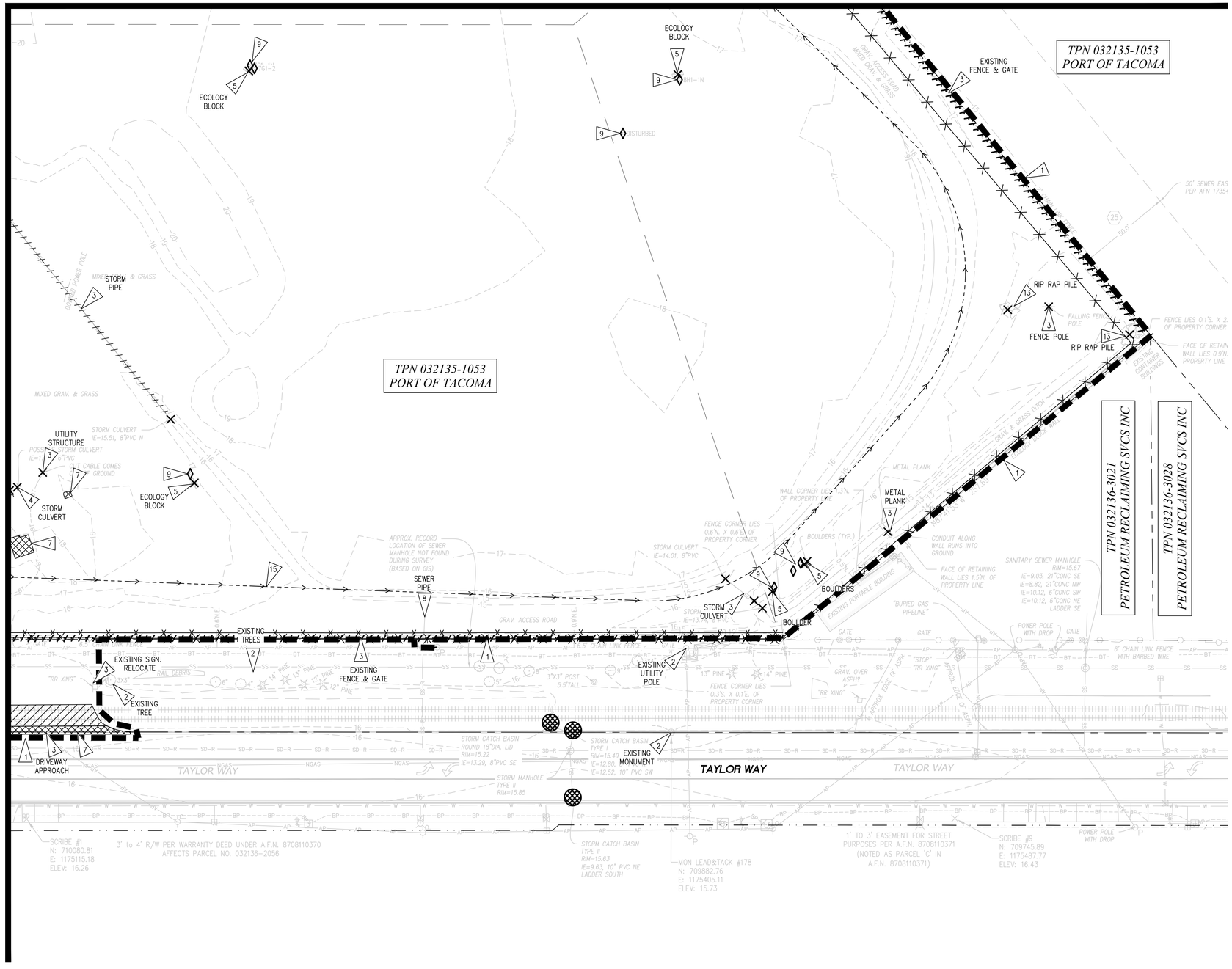
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PORT OF TACOMA FILE: O:\20300\20347\Drawings\101585-D1.X

BINDING EDGE

MATCHLINE SEE SHEET D1.3

MATCHLINE SEE SHEET D1.5



TESC AND DEMOLITION PLAN - AREA 4

SCALE: 1" = 30'

HORIZONTAL SCALE: 1"=30'

30 0 30 60

NORTH

LEGEND

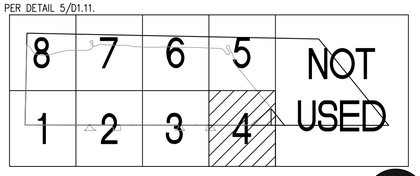
- CATCH BASIN PROTECTION, PER DETAIL 1/D1.11
- SILT FENCE, PER DETAIL 2/D1.11
- CONVEYANCE DITCH, PER DETAIL 6/D1.11
- CLEARING AND GRUBBING LIMITS
- BARRIER WALL, FOR COORDINATION PURPOSES ONLY
- DEMOLITION, AS NOTED
- CONCRETE DEMOLITION
- ASPHALT DEMOLITION
- RAILROAD DEMOLITION
- SEDIMENT POND, PER DETAIL 7,8,9 & 10/D1.11
- CONSTRUCTION ENTRANCE OR RIP RAP
- WHEEL WASH, AREA
- DEMOLITION, AS NOTED
- MONITORING WELL
- STOCKPILE

GENERAL NOTES

1. SEE SHEET G1.X FOR PROJECT NOTES.
2. SEE SHEETS D1.9 – D1.11 FOR EROSION CONTROL AND DEMOLITIONS NOTES AND DETAILS.
3. EXISTING UTILITIES HAVE BEEN SHOWN IN THEIR APPROXIMATE LOCATIONS WHERE KNOWN BASED ON FIELD SURVEY PERFORMED BY SITTS & HILL ENGINEERS, INC FROM DECEMBER 2023 THROUGH FEBRUARY 2024. OTHER EXISTING BURIED UTILITIES MAY EXIST THAT ARE NOT SHOW THESE PLANS. THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES AND HAVE THEIR LOCATION MARKED ON THE GROUND PRIOR TO CONSTRUCTION.
4. BOUNDARY AND TOPOGRAPHIC INFORMATION SHOWN ON THE SITE WAS PREPARED AND PROVIDED BY SITTS & HILL ENGINEERS, INC. SEE SURVEY SHEETS INCLUDED WITH THIS PLAN SET FOR ADDITIONAL INFORMATION, INCLUDING HORIZONTAL AND VERTICAL DATUM.
5. CONTRACTOR SHALL DESIGNATE A WASHINGTON DEPARTMENT OF ECOLOGY CERTIFIED EROSION AND SEDIMENT CONTROL LEAD–PERSON, AND SHALL COMPLY WITH THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARED FOR THIS PROJECT.
6. THE CONTRACTOR CAN USE THE EXISTING FENCE AS SILT FENCE PER DETAIL 2/D1.11 PRIOR TO DEMOLITION OR THE CONTRACTOR CAN INSTALL TEMPORARY FENCING AROUND WORK AREA, AS NECESSARY TO MAINTAIN A SECURE SITE.
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10. THE CONTRACTOR SHALL PRESERVE TREES AND VEGETATION, AS REQUIRED ON THE LANDSCAPING PLANS.

KEY NOTES

1. CLEARING AND GRUBBING LIMITS.
2. PROTECT EXISTING FEATURE, AS NOTED.
3. REMOVE/DEMOLISH EXISTING FEATURE, AS NOTED, AND DISPOSE OF OFFSITE.
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8. CAP/PLUG EXISTING UTILITY ENDS AT PROPERTY LINE AND ABANDON UTILITY.
9. EXISTING MONITORING WELL STATUS TO BE DETERMINED AT A LATER DATE (ABANDON OR REMAIN).
10. CONSTRUCTION ENTRANCE TO BE FROM RUBBLIZED CONCRETE PER DETAIL 3/D1.11.
11. CONSTRUCTION ENTRANCE WHEEL WASH PER DETAIL 4/D1.11.
12. PROVIDE 6" CLEANOUT CONNECTION PER DETAIL 5/U1.9.
13. REMOVE AND REUSE EXISTING RIP RAP MATERIAL.
14. SEDIMENT POND PER DETAIL 7,8,9 AND 10/D1.11.
15. INTERCEPTOR SWALE PER DETAIL 6/D1.11.
16. POTENTIAL STOCKPILE AREA. PROTECT WITH SEEDING PER SEEDING NOTES ON D1.10 AND OR PLASTIC COVERING PER DETAIL 5/D1.11.



KEY PLAN

SCALE: NTS

NORTH

Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

sitts&hill
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413 CENTER STREET | TACOMA, WA. 98409
PHONE: (253) 474-9449 | FAX: (253) 474-9703
WWW.SITTSHILL.COM

MARK:	REVISION:	BY:	APPR:	DATE:

RICHARD C. HANDY — STATE OF WASHINGTON — 20780 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY — NOT FOR CONSTRUCTION

APPROVED:			
DIRECTOR_ENG.	DATE	RCH	12/13/24
PRINTED BY:	srebrob	Dec 04, 2024	
PORT ADDRESS:	ONE SITCUM PLAZA		
	TACOMA, WA 98401–1837		
DRAWING SCALE:	AS NOTED		

ARKEMA MANUFACTURING AREA
INTERIM ACTION - SITE CAPPING
TESC AND DEMOLITION PLAN - AREA 4

TOWNSHIP: 21 NORTH	RANGE: 3 EAST	SECTION: 36	
DAT–HR2: WA83/2011	VERT: MLLW 15.73' @ POT MON #178		
PARCEL: 0321351053			

DESIGNED BY	RCH	12/13/24	
CHECKED BY	RCH	12/13/24	

6698
D1.4
SH # 18 OF 83

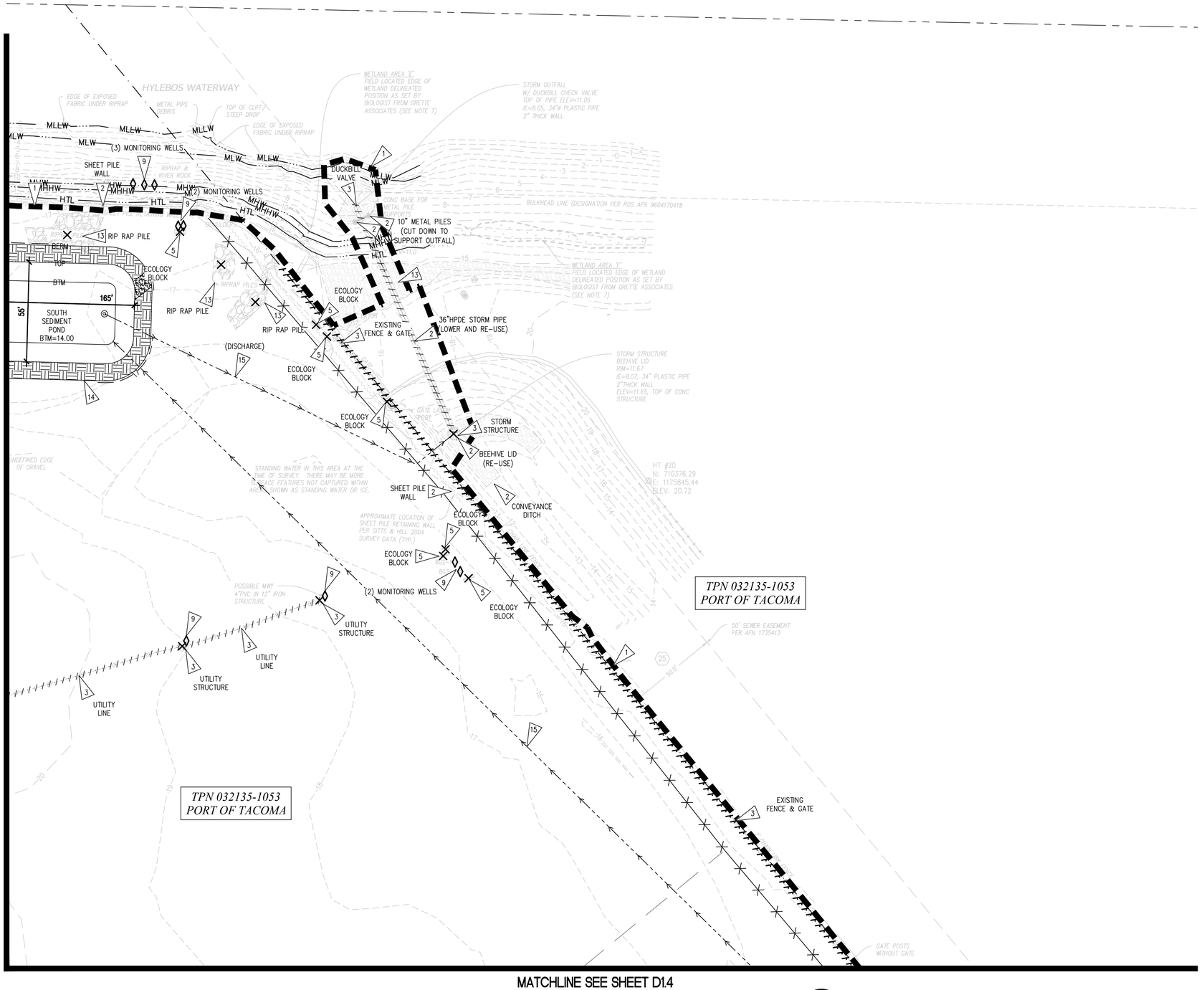
CONT/CONS:	072075		
M. ID:	101585.01		
PHASE:	70%		

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BINDING EDGE

MATCHLINE SEE SHEET D1.6



MATCHLINE SEE SHEET D1.4

TESC AND DEMOLITION PLAN - AREA 5

SCALE: 1" = 30'

HORIZONTAL SCALE: 1"=30'

30 0 30 60

NORTH

LEGEND

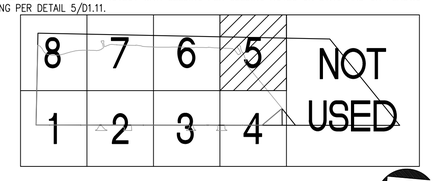
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KEY PLAN

SCALE: NTS

NORTH

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MARK:	REVISION:	BY:	APPR:	DATE:

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RCH	12/13/24	RCH	12/13/24
CHECKED BY	DATE	PROJ. ENGR	DATE

APPROVED:

DIRECTOR ENG. DATE

PRINTED BY: srebrob Dec 04, 2024

PORT ADDRESS:ONE SITCUM PLAZA

TACOMA, WA 98401–1837

ARKEMA MANUFACTURING AREA

INTERIM ACTION - SITE CAPPING

TESC AND DEMOLITION PLAN - AREA 5

TOWNSHIP: 21 NORTH	RANGE: 3 EAST	SECTION: 36	
DAT–HRZ: WA83/2011	VERT: MLLW 15.73' @ POT MON #178		
PARCEL: 0321351053	DRAWING SCALE: AS NOTED		

6698

D1.5

SH # 19 OF 83

CONT/CONS: 072075

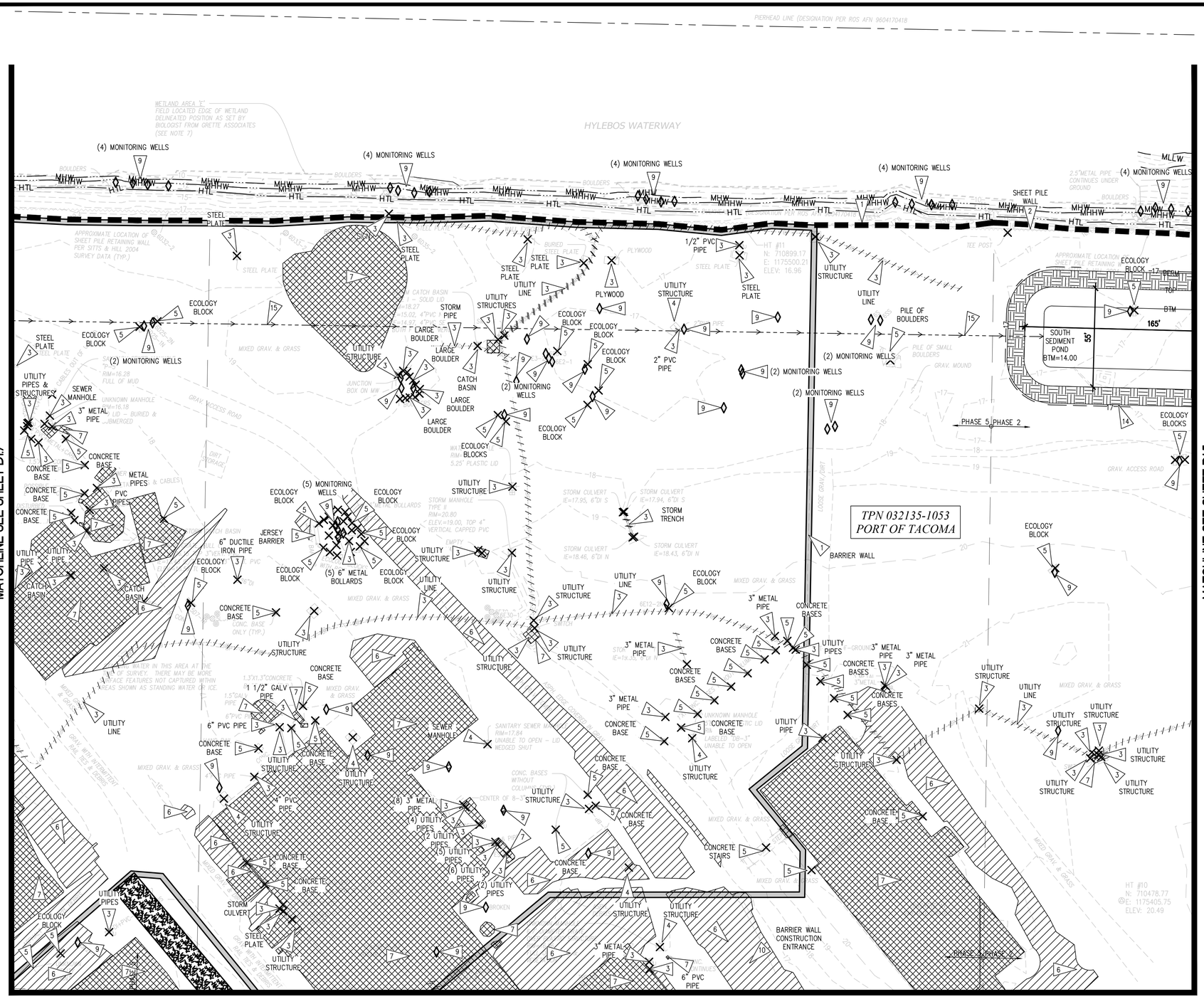
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BINDING EDGE



MATCHLINE SEE SHEET D1.7

MATCHLINE SEE SHEET D1.5

MATCHLINE SEE SHEET D1.3

TESC AND DEMOLITION PLAN - AREA 6

SCALE: 1" = 30'

HORIZONTAL SCALE: 1"=30'

30 0 30 60

NORTH

LEGEND

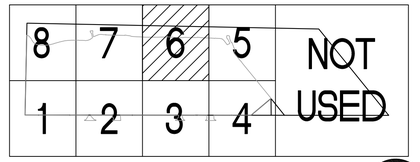
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16. POTENTIAL STOCKPILE AREA. PROTECT WITH SEEDING PER SEEDING NOTES ON D1.10 AND OR PLASTIC



KEY PLAN

SCALE: NTS

NORTH

Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

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MARK:	REVISION:	BY:	APPR:	DATE:

RICHARD C. HANDY — STATE OF WASHINGTON — 20780 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY — NOT FOR CONSTRUCTION

CHECKED BY	RCH	12/13/24	DATE
PROJ. ENGR	RCH	12/13/24	DATE
PRINTED BY:	srebrob	Dec 04, 2024	
PORT ADDRESS:	ONE SITCUM PLAZA		
PORT MON #178	TACOMA, WA 98401–1837		
DRAWING SCALE:	AS NOTED		

APPROVED: DIRECTOR ENG. DATE

ARKEMA MANUFACTURING AREA

INTERIM ACTION - SITE CAPPING

TESC AND DEMOLITION PLAN - AREA 6

TOWNSHIP: 21 NORTH	RANGE: 3 EAST	SECTION: 36	
DAT–HRZ: WA83/2011	VERT: MLLW 15.73' @ POT MON #178		
PARCEL: 0321351053			

6698

D1.6

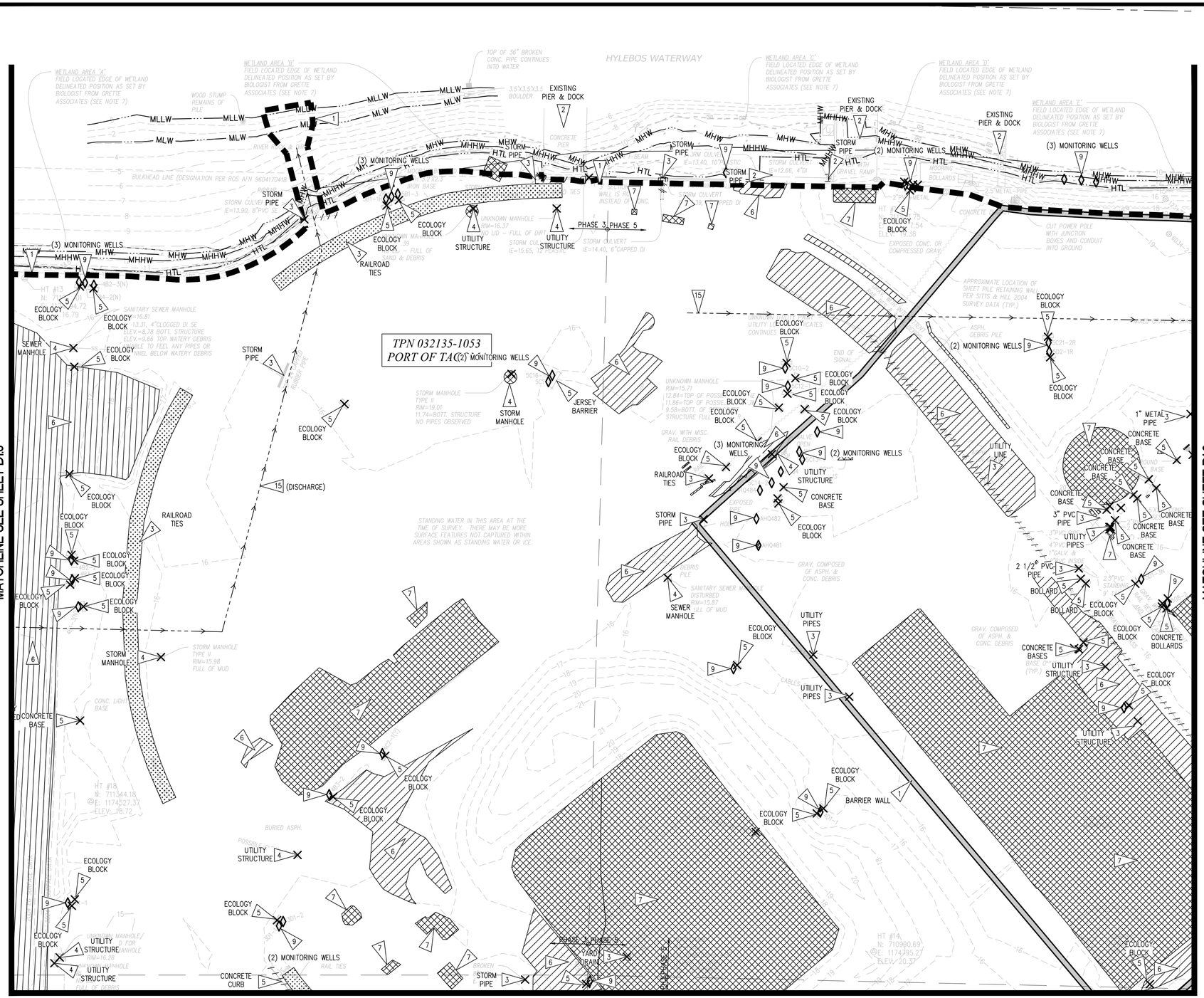
SH # 20 OF 83

CONT/CONS:	072075
M. ID:	101585.01
PHASE:	70%

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BINDING EDGE



TESC AND DEMOLITION PLAN - AREA 7

SCALE: 1" = 30'

HORIZONTAL SCALE: 1"=30'

30 0 30 60

NORTH

LEGEND

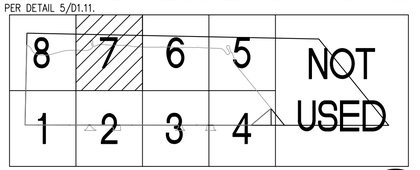
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8. CAP/PLUG EXISTING UTILITY ENDS AT PROPERTY LINE AND ABANDON UTILITY.
9. EXISTING MONITORING WELL STATUS TO BE DETERMINED AT A LATER DATE (ABANDON OR REMAIN).
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15. INTERCEPTOR SWALE PER DETAIL 6/D1.11.
16. POTENTIAL STOCKPILE AREA. PROTECT WITH SEEDING PER SEEDING NOTES ON D1.10 AND OR PLASTIC COVERING PER DETAIL 5/D1.11.



KEY PLAN

SCALE: NTS

NORTH

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MARK:	REVISION:	BY:	APPR:	DATE:

RICHARD C. HAND — STATE OF WASHINGTON — 20780 — REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY — NOT FOR CONSTRUCTION

RCH	12/13/24	RCH	12/13/24
CHECKED BY	DATE	PROJ. ENGR	DATE

APPROVED:

DIRECTOR, ENG. DATE

PRINTED BY: srebrob Dec 04, 2024

PORT ADDRESS: ONE SITCUM PLAZA

TACOMA, WA 98401–1837

ARKEMA MANUFACTURING AREA

INTERIM ACTION - SITE CAPPING

TESC AND DEMOLITION PLAN - AREA 7

CONT/CONS:	072075	TOWNSHIP: 21 NORTH	RANGE: 3 EAST	SECTION: 36
M. ID:	101585.01	DAT–HRZ: WA83/2011	VERT: MLLW 15.73' @ POT MON #178	
PHASE:	70%	PARCEL: 0321351053	DRAWING SCALE: AS NOTED	

6698

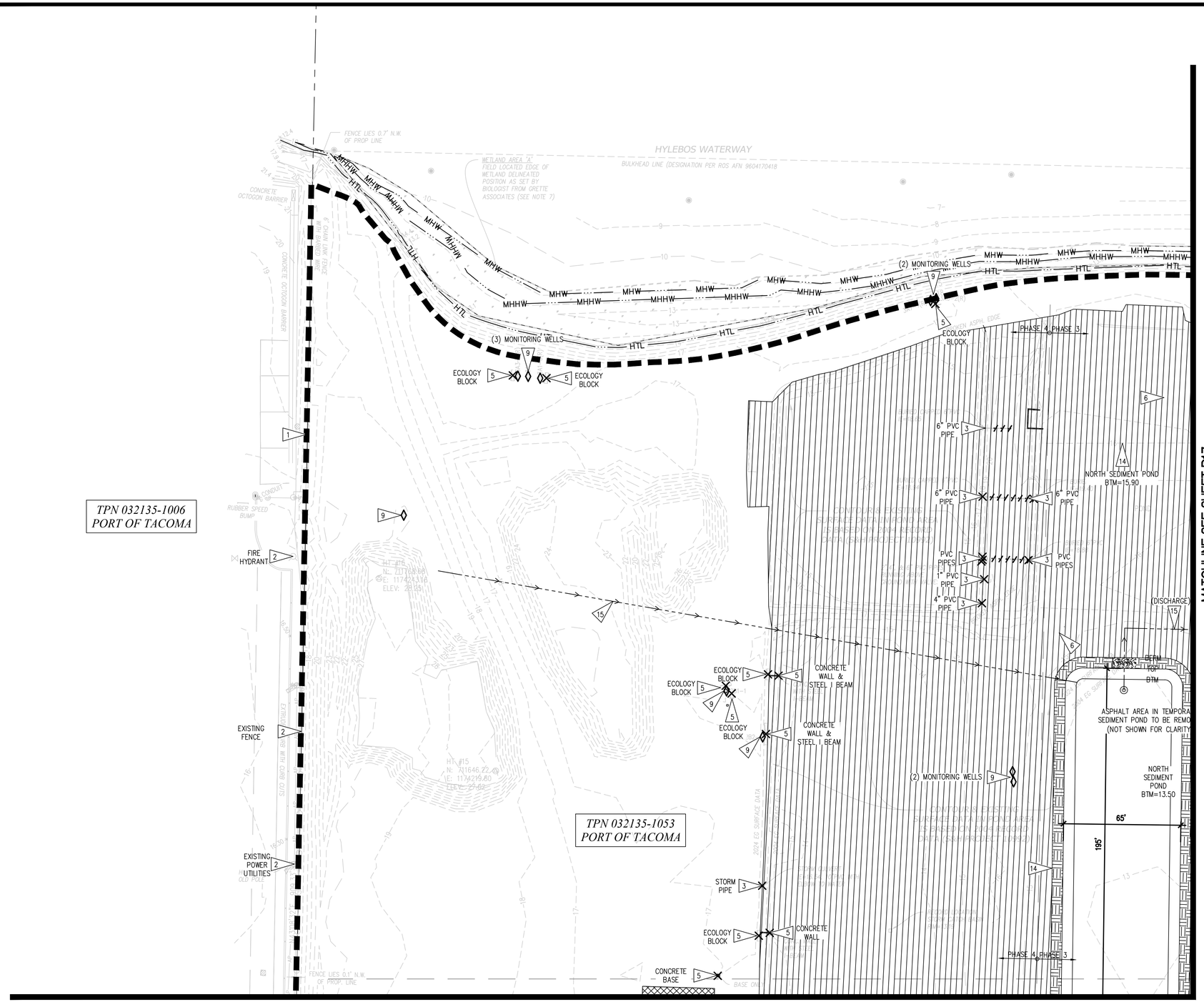
D1.7

SH # 21 OF 83

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BINDING EDGE



TESC AND DEMOLITION PLAN - AREA 8

SCALE: 1" = 30'

HORIZONTAL SCALE: 1"=30'

30 0 30 60

NORTH

LEGEND

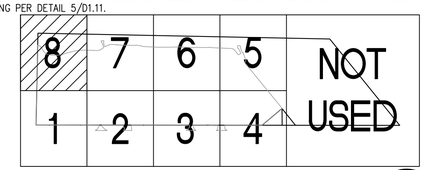
- CATCH BASIN PROTECTION, PER DETAIL 1/D1.11
- SILT FENCE, PER DETAIL 2/D1.11
- CONVEYANCE DITCH, PER DETAIL 6/D1.11
- CLEARING AND GRUBBING LIMITS
- BARRIER WALL, FOR COORDINATION PURPOSES ONLY
- DEMOLITION, AS NOTED
- CONCRETE DEMOLITION
- ASPHALT DEMOLITION
- RAILROAD DEMOLITION
- SEDIMENT POND, PER DETAIL 7,8,9 & 10/D1.11
- CONSTRUCTION ENTRANCE OR RIP RAP
- WHEEL WASH, AREA
- DEMOLITION, AS NOTED
- MONITORING WELL
- STOCKPILE

GENERAL NOTES

1. SEE SHEET G1.X FOR PROJECT NOTES.
2. SEE SHEETS D1.9 – D1.11 FOR EROSION CONTROL AND DEMOLITIONS NOTES AND DETAILS.
3. EXISTING UTILITIES HAVE BEEN SHOWN IN THEIR APPROXIMATE LOCATIONS WHERE KNOWN BASED ON FIELD SURVEY PERFORMED BY SITTS & HILL ENGINEERS, INC FROM DECEMBER 2023 THROUGH FEBRUARY 2024. OTHER EXISTING BURIED UTILITIES MAY EXIST THAT ARE NOT SHOW THESE PLANS. THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES AND HAVE THEIR LOCATION MARKED ON THE GROUND PRIOR TO CONSTRUCTION.
4. BOUNDARY AND TOPOGRAPHIC INFORMATION SHOWN ON THE SITE WAS PREPARED AND PROVIDED BY SITTS & HILL ENGINEERS, INC. SEE SURVEY SHEETS INCLUDED WITH THIS PLAN SET FOR ADDITIONAL INFORMATION, INCLUDING HORIZONTAL AND VERTICAL DATUM.
5. CONTRACTOR SHALL DESIGNATE A WASHINGTON DEPARTMENT OF ECOLOGY CERTIFIED EROSION AND SEDIMENT CONTROL LEAD–PERSON, AND SHALL COMPLY WITH THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARED FOR THIS PROJECT.
6. THE CONTRACTOR CAN USE THE EXISTING FENCE AS SILT FENCE PER DETAIL 2/D1.11 PRIOR TO DEMOLITION OR THE CONTRACTOR CAN INSTALL TEMPORARY FENCING AROUND WORK AREA, AS NECESSARY TO MAINTAIN A SECURE SITE.
7. CONTRACTOR TO PROTECT EXISTING FEATURES BEYOND THE DEMOLITION AND CLEARING LIMITS AND REPAIR ANY DAMAGE AT NO ADDITIONAL COST TO THE OWNER.
8. THE CONSTRUCTION ENTRANCES SHALL BE FROM EXISTING GRAVEL AND ASPHALT SURFACES FROM TAYLOR WAY. THE CONTRACTOR SHALL INSTALL A CONSTRUCTION ENTRANCE PER 3/D1.11. REFER TO SEPARATE WORK ORDER PLANS FOR WORK IN THE PUBLIC ROW (TAYLOR WAY).
9. THE CONTRACTOR SHALL SWEEP EXISTING PAVEMENTS TO REMAIN, AS NECESSARY TO KEEP THEM IN A SEDIMENT FREE CONDITION AND AS NECESSARY TO PREVENT TRACK–OUT ONTO ADJACENT PAVEMENTS WITHIN THE RIGHT–OF–WAY.
10. THE CONTRACTOR SHALL PRESERVE TREES AND VEGETATION, AS REQUIRED ON THE LANDSCAPING PLANS.

KEY NOTES

1. CLEARING AND GRUBBING LIMITS.
2. PROTECT EXISTING FEATURE, AS NOTED.
3. REMOVE/DEMOLISH EXISTING FEATURE, AS NOTED, AND DISPOSE OF OFFSITE.
4. REMOVE TOP OF EXISTING STRUCTURE, INCLUDING THE STRUCTURE FLAT TOP OR CONE SECTION AND RUBBLIZE CONCRETE ONSITE. ABANDON BASE OF EXISTING STRUCTURE.
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BINDING EDGE

CITY OF TACOMA STANDARD NOTES FOR TESC PLANS

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.

DEFINITIONS

DEMOLISH: CAREFULLY REMOVE EXISTING ITEM AS INDICATED AND LEGALLY DISPOSE OF SAME OFFSITE.

REUSE/RELOCATE: CAREFULLY REMOVE EXISTING ITEM, INTACT, AS INDICATED, TEMPORARILY STORE (IF NECESSARY) AND PROTECT (FOR REINSTALLATION, INTACT, AS INDICATED).

SALVAGE: CAREFULLY REMOVE EXISTING ITEM, INTACT, AS INDICATED, AND DELIVER TO OWNER/OTHER, INTACT, AS INSTRUCTED.

PROTECT: LEAVE EXISTING ITEM IN PLACE, INTACT, AS INDICATED, AND PROTECT FROM DAMAGE. THIS IS PART OF EXISTING-TO-REMAIN AND IS SPECIFICALLY NOTED ONLY FOR CLARIFICATION PURPOSES.

NOTE: THE CONTRACTOR SHALL VISIT THE SITE TO PERFORM A THOROUGH WALK THROUGH TO EXAMINE ALL ITEMS TO BE "DEMOLISHED," "REUSE/RELOCATED", "SALVAGED" OR "SAVED". ALL ITEMS SHALL BE INCLUDED IN THE CONTRACTORS SCOPE OF WORK AND BID.

DEMOLITION NOTES

1. REMOVE ALL DELETERIOUS MATERIAL FOUND ON-SITE INCLUDING VEGETATION, SCRAP WOOD, TRASH, ETC. AND DISPOSE OF AT AN APPROVED OFF-SITE LOCATION.

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. PUBLIC SAFETY AND TRAFFIC CONTROL SHALL BE PROVIDED IN ACCORDANCE WITH COUNTY AND STATE AND LOCAL REQUIREMENTS. SAFE VEHICULAR AND PEDESTRIAN ACCESS SHALL BE PROVIDED AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL TRAFFIC CONTROL SIGNS.

4. ALL AREAS TO BE GRADED SHALL BE CLEARED OF SURFACE DELETERIOUS MATTER INCLUDING ANY DEBRIS, TREES AND ASSOCIATED STUMPS/ROOTS AND UNDERBRUSH.

POLLUTION PREVENTION NOTES

1. EQUIPMENT LUBRICATION AND FUELING OPERATIONS SHALL OCCUR AT APPROVED LOCATIONS.

2. PREVENT OILS AND FUELS FROM ENTERING THE STORM DRAINAGE SYSTEM WITH PROPER CONTAINMENT DEVICES.

3. ACCESS TO CONSTRUCTION IS VIA ADJACENT EXISTING PAVED STREETS. SWEEP DIRT FROM PAVING DAILY OR AS NEEDED. THE INTENT IS TO PREVENT DIRT AND DEBRIS FROM VEHICLES AND EQUIPMENT FROM BEING DEPOSITED ON CITY STREET PAVEMENT.

4. SPILL CLEANUP PROCEDURES SHALL BE POSTED ON-SITE. IN CASE OF A SPILL THAT MAY ENTER GROUNDWATER, SURFACE WATER, OR STORM DRAIN SYSTEM, CONTACT THE DIVISION OF EMERGENCY MANAGEMENT AT (800) 258-5990. SPILLS SHALL BE CLEANED UP IMMEDIATELY AND CONTAMINATED MATERIAL DISPOSED OF PROPERLY.

5. THE CONTRACTOR SHALL PREVENT ALL MATERIAL USED OR GENERATED ON-SITE FROM ENTERING THE STORM DRAINAGE SYSTEM. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATE CONTAINMENT/SEPARATION ALL TIMES. ALL STORMWATER POLLUTION PREVENTION MEASURES SHALL BE COORDINATED WITH ENGINEER REPRESENTATIVE TO ENSURE COMPLIANCE WITH APPLICABLE STORMWATER PERMITS. CONTACT ANITA FICHTHORN AT (253) 830-5379 A MINIMUM OF TWO (2) WEEKS PRIOR TO THE START OF CONSTRUCTION.

6. THE CONTRACTOR SHALL CONDUCT A DAILY STORMWATER / ENVIRONMENTAL INSPECTION OF THE CONSTRUCTION SITE. SCOPE OF THE INSPECTION WILL BE COORDINATED WITH THE ENGINEER REPRESENTATIVE CONTACT ANITA FICHTHORN AT (253) 830-5379.

7. THE CONTRACTOR SHALL FOLLOW ALL ENVIRONMENTAL AND OTHER REQUIREMENTS AS DEFINED IN THE PROJECT SWPPP.

8. THE CONTRACTOR SHALL SUBMIT DOCUMENTATION SUPPORTING THE CURRENT CERTIFICATION OF THE CONTRACTOR'S DESIGNATED CERTIFIED EROSION AND SEDIMENT CONTROL LEAD (CESCL). THE DOCUMENT SHALL CONTAIN AT A MINIMUM THE FOLLOWING INFORMATION: NAME CESCL NUMBER, AND EXPIRATION DATE.

9. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL A SAMPLE OF THE SITE LOG BOOK TO BE USED ON THE PROJECT FOR MAINTAINING EROSION CONTROL INSPECTION, OBSERVATION, CHECKLIST, AND CORRECTION REPORTS. UPON APPROVAL THE CONTRACTOR SHALL KEEP AND MAINTAIN THE SITE LOG BOOK ON-SITE DURING CONSTRUCTION.

10. CHECKLIST AND MAINTENANCE INFORMATION SHALL BE KEPT IN THE SITE LOG BOOK (MAINTAINED BY THE CESCL DESIGNATED BY THE CONTRACTOR) AND BE AVAILABLE FOR REVIEW BY THE ENGINEER AND/OR GOVERNING AGENCY.

11. THE CONTRACTOR SHALL SUBMIT A COPY OF ALL RECENT INSPECTION, OBSERVATION, CHECKLIST, AND CORRECTION REPORTS TO THE ENGINEER.

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. TOPSOIL SHALL NOT BE PLACED WHILE IN A FROZEN OR MUDDY CONDITION, 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.

TOPSOIL STOCKPILE NOTES

1. SIDE SLOPES OF THE STOCKPILE SHALL NOT EXCEED 2H:1V

2. BETWEEN OCTOBER 01 AND APRIL 30:

   2.1. AN INTERCEPTOR DIKE WITH GRAVEL OUTLET AND SILT FENCE SHALL SURROUND ALL TOPSOIL.

   2.2. WITHIN 2 DAYS, COMPLETE EROSION CONTROL SEEDING OR COVERING STOCKPILES WITH CLEAR PLASTIC, OR OTHER MULCHING MATERIALS.

3. BETWEEN MAY 01 AND SEPTEMBER 30:

   3.1. AN INTERCEPTOR DIKE WITH GRAVEL OUTLET AND SILT FENCE SHALL SURROUND ALL TOPSOIL IF THE STOCKPILE WILL REMAIN IN PLACE FOR A LONGER PERIOD OF TIME THAN ACTIVE CONSTRUCTION GRADING.

   3.2. WITHIN 7 DAYS, COMPLETE EROSION CONTROL SEEDING, OR COVERING STOCKPILES WITH CLEAR PLASTIC, OR OTHER MULCHING MATERIALS.

4. WHEN NATIVE TOPSOIL IS TO BE STOCKPILED AND REUSED THE FOLLOWING SHOULD APPLY TO ENSURE THAT THE MYCORRHIZAL BACTERIAL, EARTHWORMS, AND OTHER BENEFICIAL ORGANISMS WILL NOT BE DESTROYED:

   4.1. RE-INSTALL TOPSOIL WITHIN 4-6 WEEKS

   4.2. DO NOT ALLOW THE SATURATION OF TOPSOIL WITH WATER

   4.3. DO NOT USE PLASTIC COVERING.

PLASTIC COVERING NOTES

1. PLASTIC SHEETING SHALL HAVE A MINIMUM THICKNESS OF 6 MILS AND SHALL MEET THE REQUIREMENTS OF THE STATE 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.

CATCH BASIN 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 BOWHEAD STREAMGUARD CATCH BASIN INSERT #3003, ADVANCED ENVIRONMENTAL SOLUTIONS DRAINGUARD CATCH BASIN FILTER INSERT #11091U, OR APPROVED EQUAL.

4. CATCH BASIN INSERTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

5. CATCH BASIN INSERTS SHALL BE REMOVED FOLLOWING COMPLETION OF CONSTRUCTION AND STABILIZATION OF ALL CLEARED AREAS.

CONSTRUCTION ENTRANCE NOTES

1. MATERIAL SHALL BE 4-INCH TO 8-INCH QUARRY SPALLS AND MAY BE TOP-DRESSED WITH 1-INCH TO 3-INCH ROCK. (STATE STANDARD SPECIFICATIONS, SECTION 8-15.)

2. THE ROCK PAD SHALL BE AT LEAST 12 INCHES THICK AND 50 FEET LONG WIDTH SHALL BE THE FULL WIDTH OF THE VEHICLE INGRESS AND EGRESS AREA.

3. ADDITIONAL ROCK SHALL BE ADDED PERIODICALLY TO MAINTAIN PROPER FUNCTION OF THE PAD.

4. IF THE PAD DOES NOT ADEQUATELY REMOVE THE MUD FROM THE VEHICLE WHEELS, THE WHEELS SHALL BE HOSED OFF BEFORE THE VEHICLE ENTERS A PAVED STREET. THE WASHING SHALL BE DONE ON AN AREA COVERED WITH CRUSHED ROCK AND WASH WATER SHALL DRAIN TO A SEDIMENT RETENTION FACILITY OR THROUGH A SILT FENCE.

SILT FENCE NOTES

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 GROUND 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. DO NOT INSTALL BELOW AN OUTLET PIPE OR WEIR.

11. DO NOT DRIVE OVER OR FILL OVER SILT FENCES.

12. PLACE 1' OF 3/4" - 1-1/2" WASHED ROCK OR PEA-GRAVEL ON BOTH SIDES OF FENCE TO CREATE A BEVEL SHAPE.

13. 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.

TEMPORARY DIKES AND SWALES NOTES

1. SEED AND MULCH SHALL BE APPLIED WITHIN FIVE DAYS OF DIKE CONSTRUCTION (SEE SEEDING NOTE).

2. THE UPSLOPE SIDE OF THE DIKE SHALL PROVIDE POSITIVE DRAINAGE TO THE DIKE OUTLET.

3. NO EROSION SHALL OCCUR AT THE DIKE OUTLET. PROVIDE ENERGY DISSIPATION MEASURES AS NECESSARY.

4. SEDIMENT LADEN RUNOFF MUST BE RELEASED THROUGH A SEDIMENT TRAPPING FACILITY SUCH AS A POND, TRAP OR SILT FENCE AS APPROPRIATE TO DRAINAGE AREA SIZE.

CONTRACTOR TESC AND SWPPP RESPONSIBILITIES

1. THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH THE CONSTRUCTION STORMWATER PROVISIONS OF THE NPDES CONSTRUCTION STORMWATER PERMIT. UPON EXECUTION OF THIS CONTRACT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION STORMWATER ACTIVITIES ASSOCIATED WITH THIS PROJECT FOR THE DURATION OF THE CONTRACT. THE CONTRACTOR SHALL ALSO PROVIDE THE REQUIRED CERTIFIED PERSONNEL TO COMPLETE THE WORK.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE REQUIRED SOURCE CONTROL MEASURES, BEST MANAGEMENT PRACTICES (BMP'S), AND STORMWATER TREATMENT MEASURES SUCH THAT THE STORMWATER DISCHARGE FROM THE SITE COMPLIES WITH THE CONSTRUCTION STORMWATER PROVISIONS OF THE CONSTRUCTION STORMWATER NPDES PERMIT. THIS INCLUDES EXECUTION OF THE STORMWATER POLLUTION PREVENTION PLAN, SOURCE CONTROLS, BMP AND STORMWATER TREATMENT MEASURES, REQUIRED DEPARTMENT OF ECOLOGY INSPECTIONS, MONITORING, TESTING AND RECORD KEEPING, AND MAINTENANCE WORK AS REQUIRED TO ENSURE THAT ALL STORMWATER PROTECTION MEASURES REMAIN OPERATIONAL AND FUNCTIONAL.

SEEDING NOTES

1. SEED MIXTURES SHALL BE PER THE "SEED MIXTURE FOR EROSION CONTROL" TABLE BELOW, AND SHALL BE APPLIED AT THE RATE OF 120 LB. PER ACRE.

2. SEED BEDS PLANTED BETWEEN MAY 1 AND OCTOBER 31 WILL REQUIRE IRRIGATION AND OTHER MAINTENANCE AS NECESSARY TO FOSTER AND PROTECT THE ROOT STRUCTURE.

3. FOR SEED BEDS PLANTED BETWEEN OCTOBER 31 AND APRIL 30, ARMORING OF THE SEED BED WILL BE NECESSARY (E.G. GEOTEXTILES, JUTE MAT, CLEAR PLASTIC COVERING).

4. BEFORE SEEDING, INSTALL NEEDED SURFACE RUNOFF CONTROL MEASURES SUCH AS GRADIENT TERRACES, INTERCEPTOR DIKES, SWALES, LEVEL SPREADERS, AND SEDIMENT BASINS.

5. THE SEED BED SHALL BE FIRM WITH A FAIRLY FINE SURFACE, FOLLOWING SURFACE ROUGHENING. PERFORM ALL OPERATIONS ACROSS OR AT RIGHT ANGLES TO THE SLOPE.

6. FERTILIZERS ARE TO BE USED ACCORDING TO SUPPLIERS RECOMMENDATIONS. AMOUNTS USED SHOULD BE MINIMIZED, ESPECIALLY ADJACENT TO WATER BODIES AND WETLANDS.

7. SEED SHALL NOT BE USED IN AREAS SUBJECT TO WEAR BY CONSTRUCTION TRAFFIC.

8. APPLICABLE IN AREAS OF 10% OR LESS SLOPE FOR A MAXIMUM HORIZONTAL DISTANCE OF 100 FEET. IN STEEPER AREAS (>10% SLOPE), USE MULCH, NETTING, OR OTHER TREATMENTS SPECIFICALLY DESIGNED FOR STEEPER AND LONGER SLOPES.

SEED MIXTURE FOR EROSION CONTROL

NAME	PROPORTIONS BY WEIGHT	PERCENT PURITY	PERCENT GERMINATION
CHEWING OR ANNUAL BLUE GRASS (FESTUCA RUBRA VAR. COMMUTATA OR POA ANNA)	45%	98%	90%
PERENNIAL RYE (LOLIUM PERENNE)	50%	98%	90%
REDTOP (AGROSTIS ALBA) OR COLONIAL BENTGRASS (AGROSTIS TENUIS)	5%	92%	85%

MULCHING NOTES

1. MULCH MATERIALS USED SHALL BE STRAW OR WOOD CELLULOSE FIBERS, AND SHALL BE APPLIED PER THE SPECIFICATIONS.

2. MULCH SHALL BE APPLIED IN ALL AREAS WITH EXPOSED SLOPES GREATER THAN 2:1.

3. MULCHING SHALL BE USED IMMEDIATELY AFTER SEEDING OR IN AREAS WHICH CANNOT BE SEEDED BECAUSE OF THE SEASON.

4. ALL AREAS NEEDING MULCH SHALL BE COVERED BY NOVEMBER 1. THE CONTRACTOR SHALL REMOVE WOOD FIBER CELLULOSE UPON FINAL PROJECT COMPLETION (IF USED) UNLESS DIRECTED OTHERWISE BY THE ENGINEER.

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PROJ. ENGR	DATE	

APPROVED:

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PRINTED BY: srebrob Dec 04, 2024

PORT ADDRESS: ONE SITCUM PLAZA
TACOMA, WA 98401-1837

DRAWING SCALE: AS NOTED

ARKEMA MANUFACTURING AREA
INTERIM ACTION - SITE CAPPING
TESC AND DEMOLITION NOTES 1

TOWNSHIP: 21 NORTH | RANGE: 3 EAST | SECTION: 36
DAT-HRZ: WA83/2011 | VERT: MLLW 15.73' @ POT MON #178

PARCEL: 0321351053

6698
D1.9
SH # 23 OF 83

CONT/CONS: 072075
M. ID: 101585.01
PHASE: 70%

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BINDING EDGE

SEASONAL LIMITATIONS ON CONSTRUCTION ACTIVITIES

THE FOLLOWING SHALL BE ADHERED TO ON ALL CONSTRUCTION SITES WITH EROSIVE SOILS AND/OR A GRADIENT OF GREATER THAN TWO PERCENT FOR LIMITING EXPOSED SOILS TO EROSIVE PROCESSES.

OCTOBER 1ST TO APRIL 30TH (WET SEASON)

ON SITES WHERE UNINTERRUPTED CONSTRUCTION ACTIVITY IS IN PROGRESS, THE CLEARING OF LAND, INCLUDING THE REMOVAL OF EXISTING VEGETATION OR OTHER GROUND COVER, SHALL BE LIMITED TO ONLY AS MUCH LAND AREA AS CAN BE COVERED OR STABILIZED WITHIN 24 HOURS IN THE EVENT A MAJOR STORM IS PREDICTED AND/OR EROSION/SEDIMENT TRANSPORT OFFSITE IS OBSERVED.

ADDITIONALLY, ALL CLEARED OR DISTURBED AREAS WILL RECEIVE APPROPRIATE PROTECTIVE COVER OR BE OTHERWISE STABILIZED (SUCH AS MULCHING, NETTING, PLASTIC SHEETING, EROSION BLANKETS, FREE DRAINING MATERIAL, ETC....) WITHIN FIVE DAYS AFTER HAVING BEEN CLEARED OR OTHERWISE DISTURBED IF NOT BEING ACTIVELY WORKED. FILTER FABRIC FENCING, SEDIMENT TRAPS, SEDIMENT PONDS, ETC..., WILL NOT BE VIEWED AS ADEQUATE COVER IN AND OF THEMSELVES. IN THE EVENT THAT ANY LAND AREA NOT BEING ACTIVELY WORKED REMAINS UNPROTECTED OR HAS NOT BEEN APPROPRIATELY STABILIZED FIVE DAYS AFTER HAVING BEEN CLEARED, ALL CONSTRUCTION ACTIVITY ON THE SITE, EXCEPT FOR APPROVED EROSION AND SEDIMENTATION CONTROL ACTIVITY, SHALL IMMEDIATELY CEASE UNTIL SUCH A TIME AS SAID LAND HAS BEEN APPROPRIATELY PROTECTED OR STABILIZED.

THE CONTRACTOR SHALL AT ALL TIMES HAVE AVAILABLE FOR THE PROJECT SUFFICIENT QUANTITIES OF PROTECTIVE COVERING MATERIALS TO IMMEDIATELY STABILIZE ALL DISTURBED AREAS IN CASE THE ENGINEER OR CITY DIRECTS THEM TO COVER DUE TO OBSERVED MIGRATION OF SOILS OR INCLEMENT WEATHER.

MAY 1ST TO SEPTEMBER 30TH (DRY SEASON)

THE CLEARING OF LAND, INCLUDING THE REMOVAL OF EXISTING VEGETATION OR OTHER GROUND COVER, MUST BE LIMITED TO ONLY AS MUCH LAND AREA AS CAN RECEIVE APPROPRIATE PROTECTIVE COVER OR BE OTHERWISE STABILIZED AFTER HAVING BEEN CLEARED OR OTHERWISE DISTURBED BY NO LATER THAN SEPTEMBER 30TH OF A GIVEN YEAR. UNLESS IMMEDIATE STABILIZATION IS SPECIFIED IN THE EROSION AND SEDIMENTATION CONTROL PLAN, ALL AREAS CLEARED OR OTHERWISE DISTURBED MUST BE APPROPRIATELY STABILIZED THROUGH THE USE OF MULCHING, NETTING, PLASTIC SHEETING, EROSION BLANKETS, FREE DRAINING MATERIALS, ETC..., BY SEPTEMBER 30TH.

UNLESS OTHERWISE APPROVED BY THE COUNTY, SEEDING, FERTILIZING AND MULCHING OR CLEARED OR OTHERWISE DISTURBED AREAS SHALL BE PERFORMED DURING THE FOLLOWING PERIODS: MARCH 1ST THROUGH MAY 15TH AND AUGUST 15TH THROUGH OCTOBER 1ST. SEEDING AFTER OCTOBER 1ST WILL BE DONE WHEN PHYSICAL COMPLETION OF THE PROJECT IS IMMINENT AND THE ENVIRONMENTAL CONDITIONS ARE CONDUCIVE TO SATISFACTORY GROWTH. IN THE EVENT THAT PROJECT STABILIZATION IS NOT POSSIBLE, AN ALTERNATIVE METHOD OF GROUND COVER (SUCH AS MULCHING, NETTING, PLASTIC SHEETING, EROSION BLANKETS, ETC....) MUST BE INSTALLED BY NO LATER THAN SEPTEMBER 30TH

IN THE EVENT THAT CONSTRUCTION ACTIVITIES OR OTHER SITE DEVELOPMENT ACTIVITIES ARE DISCONTINUED FOR FOUR CONSECUTIVE DAYS OR MORE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSPECTION OF ALL EROSION AND SEDIMENTATION CONTROL FACILITIES IMMEDIATELY AFTER STORM EVENTS AND AT LEAST ONCE EVERY WEEK. THE CONTRACTOR SHALL BE RESPONSIBLE TO THE MAINTENANCE AND REPAIR OF ALL EROSION AND SEDIMENTATION CONTROL FACILITIES.

THE CONTRACTOR SHALL PROVIDE MATERIALS ONSITE READILY AVAILABLE TO IMMEDIATELY STABILIZE DENUDED AREAS DURING PERIODS OF INCLEMENT WEATHER WHICH RESULT IN EROSION AND SEDIMENT TRANSPORT OFFSITE.

THE CONTRACTOR SHALL ENSURE THE PROPER CONTINUED FUNCTIONING OF THE ESC FACILITIES BY PROMPT CLEANING AND MAINTENANCE AFTER EACH EROSION AND SEDIMENT PRODUCING RAINFALL EVENT.

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SH # 24 OF 83

ARKEMA MANUFACTURING AREA

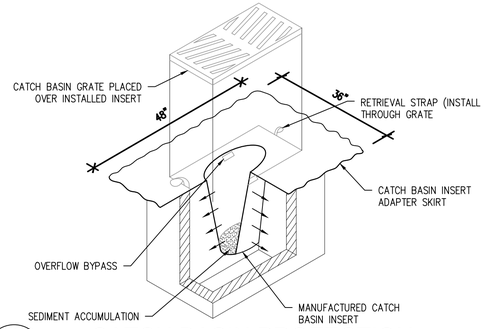
INTERIM ACTION - SITE CAPPING

TESC AND DEMOLITION NOTES 2

CONT/CONS:	072075	TOWNSHIP: 21 NORTH	RANGE: 3 EAST | SECTION: 36
M. ID:	101585.01	DAT-HRZ: WA83/2011	VERT: MLLW 15.73' @ POT MON #178
PHASE:	70%	PARCEL: 0321351053	DRAWING SCALE: AS NOTED

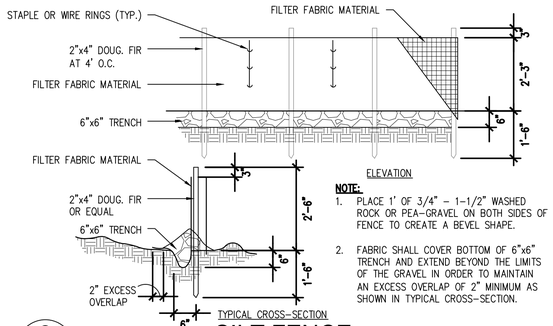
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1 CATCH BASIN PROTECTION
D1.1-8

SCALE: NTS

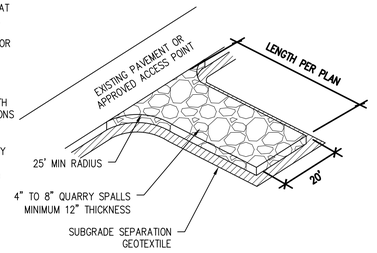


NOTE:
1. PLACE 1' OF 3/4" – 1-1/2" WASHED ROCK OR PEA-GRAVEL ON BOTH SIDES OF FENCE TO CREATE A BEVEL SHAPE.
2. FABRIC SHALL COVER BOTTOM OF 6"x6" TRENCH AND EXTEND BEYOND THE LIMITS OF THE GRAVEL IN ORDER TO MAINTAIN AN EXCESS OVERLAP OF 2" MINIMUM AS SHOWN IN TYPICAL CROSS-SECTION.

2 SILT FENCE
D1.1-8

SCALE: NTS

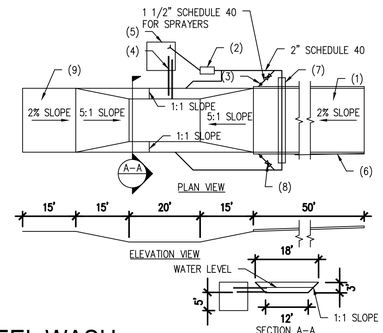
NOTES:
1. DRIVEWAY SHALL MEET REQUIREMENTS OF THE CITY OF TACOMA.
2. IT IS RECOMMENDED THAT THE ENTRANCE IS CROWNED SO THAT RUNOFF DRAINS OFF THE PAD.
3. RECYCLED CONCRETE CEMENT OR ASPHALT RUBBLE CANNOT BE USED FOR QUARRY SPALLS.
4. NON-WOVEN SEPARATION GEOTEXTILE SHALL COMPLY WITH WSDOT STANDARD SPECIFICATIONS 9-33.2(1), TABLE 3.
5. QUARRY SPALLS SHALL COMPLY WITH WSDOT STANDARD SPECIFICATIONS 9-13.1(1) AND 9-13.1(5).



3 TESC CONSTRUCTION ENTRANCE
D1.1-8

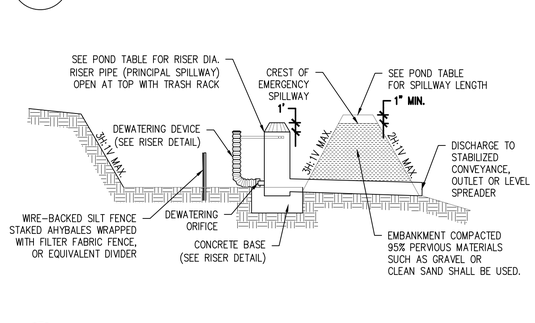
SCALE: NTS

NOTES:
1. EXISTING ASPHALT SURFACE SHALL BE USED AS CONSTRUCTION ENTRANCE.
2. 3-INCH TRASH PUMP WITH FLOATS ON THE SUCTION HOSE.
3. MIDPOINT SPRAY NOZZLES, IF NEEDED.
4. 6-INCH SEWER PIPE WITH BUTTERFLY VALVES. BOTTOM ONE IS A DRAIN. LOCATE TOP PIPE'S INVERT 1 FOOT ABOVE BOTTOM OF WHEEL WASH.
5. 8 FOOT x 8 FOOT SUMP WITH 5 FEET OF CATCH.
6. SUMP TO BE PUMP WHEN FULL TO TEMPORARY SEDIMENT POND.
7. ASPHALT CURB ON THE LOW ROAD SIDE TO DIRECT WATER BACK TO POND.
8. 6-INCH SLEEVE UNDER ROAD.
9. BALL VALVES.
10. 15 FOOT ATB APRON TO PROTECT GROUND FROM SPLASHING WATER.



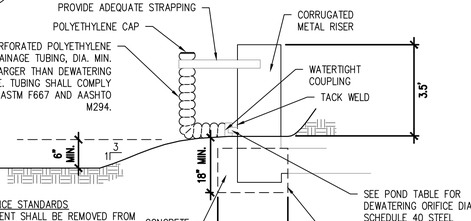
4 WHEEL WASH
D1.1-8

SCALE: NTS



5 PLASTIC COVERINGS
D1.1-8

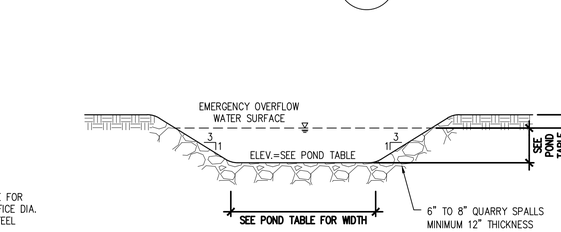
SCALE: NTS



6 TEMPORARY CONVEYANCE DITCH
D1.1-8

SCALE: NTS

NOTE
POND MAY BE FORMED BY BERM OR BY PARTIAL OR COMPLETE EXCAVATION



7 TEMPORARY SEDIMENT POND
D1.1-8

SCALE: NTS

NORTH POND			
LENGTH	195'	OVERFLOW HEIGHT	0.5'
WIDTH	65'	ORIFICE DIA.	5"
SIDE SLOPES	3:1	SPILLWAY WIDTH	13'
RISER HIEGHT	3.5'	POND BOTTOM ELEV.	13.50

SOUTH POND			
LENGTH	165'	OVERFLOW HEIGHT	0.5'
WIDTH	55'	ORIFICE DIA.	4"
SIDE SLOPES	3:1	SPILLWAY WIDTH	8.50'
RISER HIEGHT	3.5'	POND BOTTOM ELEV.	14.00

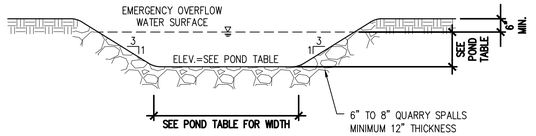
8 SEDIMENT POND CROSS SECTION
D1.1-8

SCALE: NTS

MAINTENANCE STANDARDS
1. SEDIMENT SHALL BE REMOVED FROM THE POND WHEN IT REACHES 0.5' IN DEPTH.
2. ANY DAMAGE TO THE POND EMBANKMENTS OR SLOPES SHALL BE REPAIRED.

9 RISER OUTLET
D1.1-8

SCALE: N.T.S



10 EMERGENCY OVERFLOW SPILLWAY
D1.1-8

SCALE: NTS

BINDING EDGE

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TACOMA, WA 98401-1837

ARKEMA MANUFACTURING AREA
INTERIM ACTION - SITE CAPPING
TESC AND DEMOLITION DETIALS

CONT/CONS:	072075	TOWNSHIP: 21 NORTH	RANGE: 3 EAST
M. ID:	101585.01	DAT-HRZ: WA83/2011	VERT: MLLW 15.73' @ POT MON #178
PHASE:	70%	PARCEL: 0321351053	DRAWING SCALE: AS NOTED

SECTION: 36

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E. Engineering Calculations

TESC North Basin - Sediment Pond

Step 1: Determine the required surface area of the Sediment Pond.

Surface Area = 2080 * Q_2 (Per 2019 DOE SWMM, Vol II, Chapter 3, pg. 389)

Q_2 = 5.89 CFS (Q_2 is obtained from WWHM, per 2019 DOE SWMM, Vol II, Chapter 3, pg. 384)

Surface Area = 2080 * 5.89 cfs
= **12,252 SF**

Step 2: Determine the required diameter for principal spillway.

Per 2019 DOE SWMM, (Vol II, Chapter 3, pg. 390),the required diameter for the principal spillway (riser pipe). The diameter shall be the minimum necessary to pass the peak volumetric flow rate using a 15-minute time step from a Type 1A, 10-year, 24-hour frequency storm for the developed condition.

Q_{10} = 9.52 cfs (Q_{10} is obtained from WHMM, per 2019 DOE SWMM, Vol II, Chapter 3, pg. 390)

Using Figure II – 3.31: Riser Inflow Curves (2019 DOE SWMM, Vol II, Chapter 3, pg. 395) and h = 1 feet, a 21" diameter pipe will adequately pass Q_{10}.

Q_{10} = 9.52 cfs < $Q_{21\ pipe}$ ±15 cfs **OK**

Step 3: Determine the Emergency Overflow Spillway width.

Per 2019 DOE SWMM, (Vol V, Chapter 12, pg. 981), To find width L for the weir section, the equation is rearranged to use the computed Q_{100} and trial values of H (0.2 feet minimum):

$$L = \left[\frac{Q_{100}}{(3.21 * h^{1.5}}\right] - 2.4 * h \text{ (or 6 feet minimum)}$$

Where H = height of water over weir (ft) (minimum 0.2 feet)
L = length of weir (ft)

Q_{100} = 15.17 cfs (Q_{100} is obtained from WWHM, per 2019 DOE SWMM, Vol V, Chapter 12, pg. 981)

$$L = \left[\frac{15.17}{(3.21 * (0.5)^{1.5}}\right] - 2.4 * (0.5)$$

$L = 12.17\ feet$
$\boldsymbol{L = 13\ feet}$

Step 4: Determine the required diameter of the Dewatering Orifice.

Per 2019 DOE SWMM (Vol II, Chapter 3, pg. 390)

$$A_0 = \frac{A_s\,(2h)^{0.5}}{0.6*3600Tg^{0.5}}$$

$$D = 24 * \sqrt{\frac{A_0}{\pi}} = 13.54 * \sqrt{A_0}$$

Where A_0 = orifice area (square feet)
A_s = pond surface area (square feet)
h = head of water above orifice (height of riser in feet)
T = dewatering time (24 hours)
g = acceleration of gravity (32.2 feet/second^2)

$$A_0 = \frac{12252*(2(3.5))^{0.5}}{0.6*3600*(24)*(32.2)^{0.5}}$$

$$A_0 = 0.1101\ ft^2$$

$$D = 13.54 * \sqrt{0.1101}$$

$$D = 4.49\ in$$

Use 5" diameter dewatering orifice.

NORTH POND ANALYSIS RESULTS

Stream Protection Duration

Predeveloped Landuse Totals for POC #1
Total Pervious Area:21.4
Total Impervious Area:0

Mitigated Landuse Totals for POC #1
Total Pervious Area:5.2
Total Impervious Area:16.2

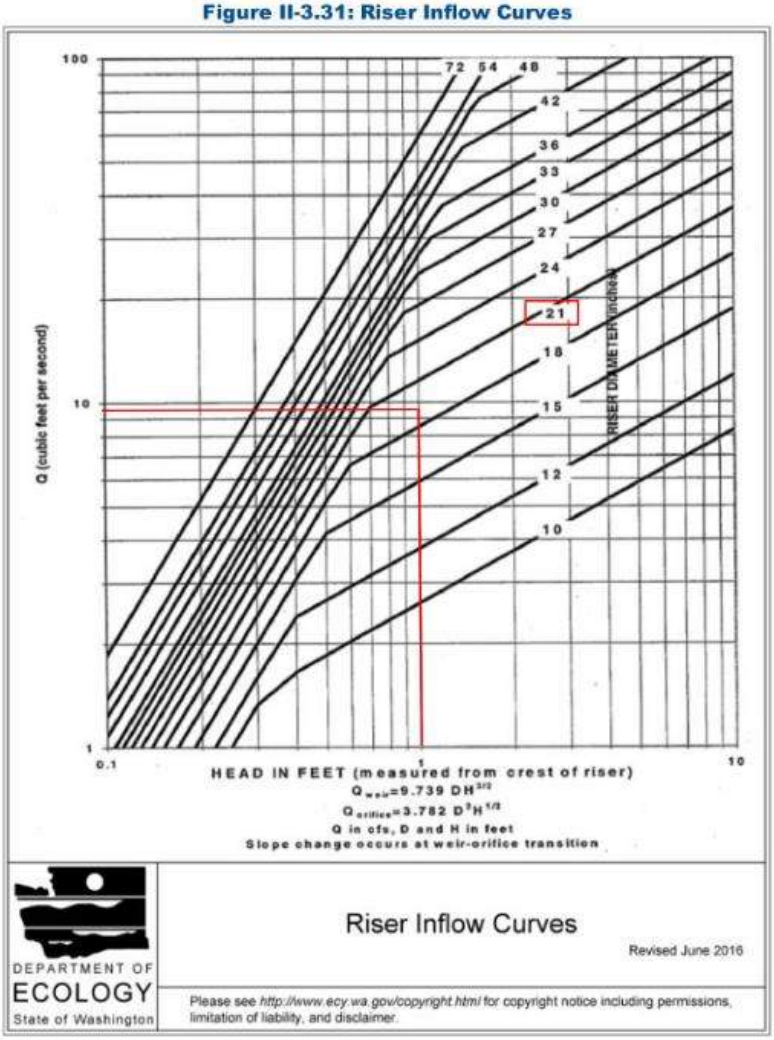
Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.450958
5 year	0.701558
10 year	0.837724
25 year	0.976316
50 year	1.058692
100 year	1.126429

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	5.885221
5 year	7.981799
10 year	9.51779
25 year	11.63351
50 year	13.341146
100 year	15.165397

Figure II-3.31: Riser Inflow Curves



TESC South Basin - Sediment Pond

Step 1: Determine the required surface area of the Sediment Pond.

Surface Area = 2080 * Q_2 (Per 2019 DOE SWMM, Vol II, Chapter 3, pg. 389)

Q_2 = 4.20 CFS (Q_2 is obtained from WWHM, per 2019 DOE SWMM, Vol II, Chapter 3, pg. 384)

Surface Area = 2080 * 4.20 cfs
= **8,736 SF**

Step 2: Determine the required diameter for principal spillway.

Per 2019 DOE SWMM, (Vol II, Chapter 3, pg. 390),the required diameter for the principal spillway (riser pipe). The diameter shall be the minimum necessary to pass the peak volumetric flow rate using a 15-minute time step from a Type 1A, 10-year, 24-hour frequency storm for the developed condition.

Q_{10} = 6.85 cfs (Q_{10} is obtained from WHMM, per 2019 DOE SWMM, Vol II, Chapter 3, pg. 390)

Using Figure II – 3.31: Riser Inflow Curves (2019 DOE SWMM, Vol II, Chapter 3, pg. 395) and h = 1 feet, a 18" diameter pipe will adequately pass Q_{10}.

Q_{10} = 6.85 cfs < $Q_{18\ pipe}$ 8.5 cfs **OK**

Step 3: Determine the Emergency Overflow Spillway width.

Per 2019 DOE SWMM, (Vol V, Chapter 12, pg. 981), To find width L for the weir section, the equation is rearranged to use the computed Q_{100} and trial values of H (0.2 feet minimum):

$$L = \left[\frac{Q_{100}}{(3.21 * h^{1.5})}\right] - 2.4 * h \text{ (or 6 feet minimum)}$$

Where H = height of water over weir (ft) (minimum 0.2 feet)
L = length of weir (ft)

Q_{100} = 11.00 cfs (Q_{100} is obtained from WWHM, per 2019 DOE SWMM, Vol V, Chapter 12, pg. 981)

$$L = \left[\frac{11}{(3.21 * (0.5)^{1.5}}\right] - 2.4 * (0.5)$$

$L = 8.49\ feet$
$\boldsymbol{L = 8.5\ feet}$

Step 4: Determine the required diameter of the Dewatering Orifice.

Per 2019 DOE SWMM (Vol II, Chapter 3, pg. 390)

$$A_0 = \frac{A_S\,(2h)^{0.5}}{0.6*3600Tg^{0.5}}$$

$$D = 24 * \sqrt{\frac{A_0}{\pi}} = 13.54 * \sqrt{A_0}$$

Where A_0 = orifice area (square feet)
A_s = pond surface area (square feet)
h = head of water above orifice (height of riser in feet)
T = dewatering time (24 hours)
g = acceleration of gravity (32.2 feet/second^2)

$$A_0 = \frac{8736*(2(3.5))^{0.5}}{0.6*3600*(24)*(32.2)^{0.5}}$$

$$A_0 = 0.0786\ ft^2$$

$$D = 13.54 * \sqrt{0.0786}$$

$$D = 3.80\ in$$

Use 4" diameter dewatering orifice.

SOUTH POND ANALYSIS RESULTS

Stream Protection Duration

Predeveloped Landuse Totals for POC #1
Total Pervious Area:16.6
Total Impervious Area:0

Mitigated Landuse Totals for POC #1
Total Pervious Area:5.2
Total Impervious Area:11.4

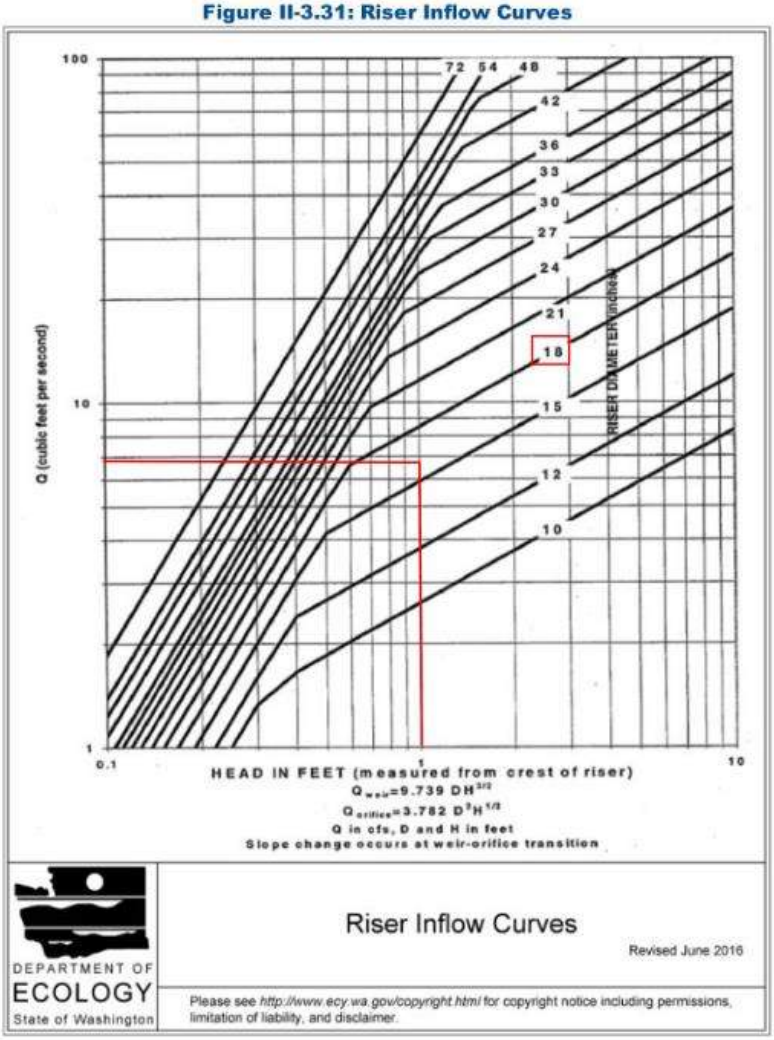
Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.349808
5 year	0.544199
10 year	0.649823
25 year	0.75733
50 year	0.821229
100 year	0.873772

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	4.203359
5 year	5.728452
10 year	6.849947
25 year	8.399375
50 year	9.653271
100 year	10.995615

Figure II-3.31: Riser Inflow Curves



APPENDIX C – PERMITS

Construction Stormwater General Permit WAR315655, Issued April 29, 2026

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:	**WAR315655**
Site Name:	**Arkema Interim Action - Phase 1 Containment Wall**
Location:	**2901 Taylor Way**
	Tacoma, WA **County: Pierce**
Disturbed Acres:	**23.5**

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

Army Corps Nationwide Permit Nos. 7 - NWS-2024-787-WRD, Issued February 28, 2025

From: Rettmann, Mark
To: Ozolin, Brett
Subject: FW: Extension Request for NWS-2024-787-WRD (Arkema Manufacturing Site Interim Action - Outfalls)
Date: Wednesday, December 17, 2025 1:42:14 PM
Attachments: image001.png

FYI

From: Simmons, Leeann W CIV USARMY (USA) <LeeAnn.W.Simmons@usace.army.mil>
Sent: Wednesday, October 29, 2025 3:16 PM
To: Rettmann, Mark <MRettmann@portoftacoma.com>
Subject: RE: Extension Request for NWS-2024-787-WRD (Arkema Manufacturing Site Interim Action - Outfalls)

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.

Based on the current schedule for the referenced NW pemit, you have Corps approval to continue work until March 14, 2027. This extension applies provided work is subject to the terms and conditions of the enclosed NWP.

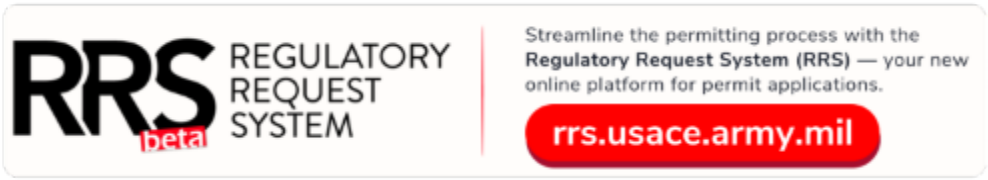
VR,

LeeAnn Simmons
Senior Project Manager, Biologist
Port of Seattle WRDA, Port of Tacoma WRDA
U.S. Army Corps of Engineers, Regulatory | Seattle District

Address:
4735 East Marginal Way South, Building 1202
Seattle, Washington 98134-2388

Corps Website: http://www.nws.usace.army.mil/

Let us know how we're doing: https://regulatory.ops.usace.army.mil/customer-service-survey/



From: Rettmann, Mark <MRettmann@portoftacoma.com>
Sent: Monday, October 27, 2025 5:45 PM
To: Simmons, Leeann W CIV USARMY (USA) <LeeAnn.W.Simmons@usace.army.mil>
Subject: [Non-DoD Source] Extension Request for NWS-2024-787-WRD (Arkema Manufacturing Site Interim Action - Outfalls)

Hello LeeAnn,

The above permit states the following:

- *Our verification of this NWP authorization is valid until March 14, 2026, unless the NWP is modified, reissued, or revoked prior to that date. If the authorized work for the NWP authorization has not been completed by that date and you have commenced or are under contract to commence this activity before March 14, 2026, you will have until March 14, 2027, to complete the activity under the enclosed terms and conditions of this NWP*.

Below is our current progress and schedule:

- Progressing design, contract documents, and Ecology documents
- Seeking final Ecology approval for the work (approved interim action work plan and agreed order amendment)
- Seeking Commission approval for construction and signing the agreed order amendment on ~11/6/25
- Advertising for bid ~2/1/26
- Open bids ~3/11/26

We have a very tight schedule leading up to the March 14, 2026 deadline. If we don't get an extension we'll have to reapply for the permit which as you know may delay us 4-6 or more months and may jeopardize our in-water work window. An extension would reduce risk in our project schedule and potential compliance with the Ecology cleanup.

Can I please get a permit extension based on our current progress and planned activities?

Let me know if you have any questions or would like to discuss further.
Regards,
Mark

Mark Rettmann
Sr. Environmental Program Manager, Permitting & Habitat Development
PORT OF TACOMA

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SEATTLE DISTRICT
4735 EAST MARGINAL WAY SOUTH, BLDG 1202
SEATTLE, WA 98134-2388

Regulatory Branch February 28, 2025

Mr. Mark Rettmann
Port of Tacoma
1 Sitcum Way
Tacoma, WA 98401

Reference: NWS-2024-787-WRD
Port of Tacoma
(Arkema Manufacturing Site Interim Action - Outfalls)

Dear Mr. Rettmann:

We have reviewed your application to discharge up to 156 cubic yards of fill to construct two stormwater outfalls for the purpose of remediation of the Arkema Manufacturing Site, impacting 1,845-square feet of the West Hylebos Waterway at Tacoma, Pierce County, Washington. Based on the information you provided to us, Nationwide Permit (NWP) 7, *Outfall Structures and Associated Intake Structures* (Federal Register December 27, 2021, Vol. 86, No. 245), authorizes your proposal as depicted on the enclosed drawings dated July 10, 2024.

In order for this authorization to be valid, you must ensure the work is performed in accordance with the enclosed *NWP 7, Terms and Conditions* and the following special conditions:

a. The permittee must install and maintain sediment and erosion controls during construction at the site until all disturbed soils have been revegetated or otherwise stabilized.

b. In order to meet the requirements of the Endangered Species Act (ESA) and the Magnuson Stevens Fishery Conservation and Management Act (MSA), you must implement and abide by the applicable terms and conditions to implement the reasonable and prudent measures that are associated with “incidental take” and the applicable Essential Fish Habitat Conservation Recommendations as set forth in the Salish Sea Nearshore Programmatic (SSNP) Biological Opinion (BO) (National Marine Fisheries Service (NMFS) Reference Number WCRO-2019-04086) dated June 29, 2022, and U.S. Fish and Wildlife Service (USFWS) Reference Number

FWS/R1/2022-0048454 dated July 29, 2022). The specific General Construction Measures, Project Design Criteria, Essential Fish Habitat Conservation Measures, and monitoring and/or reporting requirements applicable to this permit are identified in the enclosed *Notification Summary Sheet* dated October 29, 2024 (NMFS Reference Number WCRO-2019-04086-7955). The BO is available on the U.S. Army Corps of Engineers (Corps) website (https://www.nws.usace.army.mil/Missions/Civil-Works/Regulatory/Permit-Guidebook/Endangered-Species/). You must provide the Corps and NMFS the information requested in the enclosed Notification Summary Sheet. All information must prominently display the reference number NWS-2024-787-WRD. Failure to comply with these requirements constitutes non-compliance with the ESA and your Corps permit. The NMFS and USFWS is the appropriate authority to determine compliance with the terms and conditions of their BO and with the ESA. If you cannot comply with the terms and conditions of this programmatic consultation, you must, prior to commencing construction, contact the Corps, Seattle District, Regulatory Branch for an individual consultation in accordance with the requirements of the ESA and/or the MSA.

c. In order to meet the requirements of the Endangered Species Act you may conduct the authorized activities waterward of the highest astronomical tide line (13.65 feet MLLW datum) from Jul 15th through February 15th in any year this permit is valid. You shall not conduct work authorized by this permit from February 16th through July 14th in any year this permit is valid.

d. By accepting this permit, the permittee agrees to accept such potential liability for response costs, response activity and natural resource damages as the permittee would have under the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. 9601 et seq. (CERCLA) or the Model Toxics Control Act, R.C.W. 70.105 (MTCA) absent the issuance of this permit. Further, the permittee agrees that this permit does not provide the permittee with any defense from liability under the CERCLA or the MTCA. Additionally, the permittee shall be financially responsible for any incremental response costs attributable under CERCLA or MTCA to the permittee's activities under this permit.

e. No material staging or stockpiling is allowed within 30 feet of the top of bank adjacent to the environmental cap.

f. Visual and photographic monitoring of the environmental cap will occur before and after the completion of construction to ensure that cap integrity is maintained. A short memo with photolog documenting to condition of the environmental cap will be provided to the Environmental Protection Agency (EPA) and Corps at the completion of construction. Provide documentation to the Corps Regulatory PM LeeAnn Simmons,

leeann.w.simmons@usace.army.mil and EPA RPM Carolyn Huynh, huynh.carolyn@epa.gov and Sarah Burgess, burgess.sarah@epa.gov.

g. The applicant shall provide the EPA with a 7-day notice prior to the start of construction. Provide notification to EPA RPM Carolyn Huynh, huynh.carolyn@epa.gov and Sarah Burgess, burgess.sarah@epa.gov.

We have reviewed your project pursuant to the requirements of the Endangered Species Act, the Magnuson-Stevens Fishery Conservation and Management Act and the National Historic Preservation Act. We have determined this project complies with the requirements of these laws provided you comply with all of the permit general and special conditions.

Please note that National General Condition 21, *Discovery of Previously Unknown Remains and Artifacts*, found in the *Nationwide Permit Terms and Conditions* enclosure, details procedures that must be followed should an inadvertent discovery occur.

The authorized work complies with the Washington State Department of Ecology's (Ecology) Water Quality Certification (WQC) requirements and Coastal Zone Management (CZM) consistency determination decision for this NWP. No further coordination with Ecology for WQC and CZM is required.

You have not requested a jurisdictional determination for this proposed project. If you believe the U.S. Army Corps of Engineers does not have jurisdiction over all or portions of your project you may request a preliminary or approved jurisdictional determination (JD). If one is requested, please be aware that we may require the submittal of additional information to complete the JD and work authorized in this letter may not occur until the JD has been completed.

Our verification of this NWP authorization is valid until March 14, 2026, unless the NWP is modified, reissued, or revoked prior to that date. If the authorized work for the NWP authorization has not been completed by that date and you have commenced or are under contract to commence this activity before March 14, 2026, you will have until March 14, 2027, to complete the activity under the enclosed terms and conditions of this NWP. Failure to comply with all terms and conditions of this NWP verification invalidates this authorization and could result in a violation of Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act. You must also obtain all local, State, and other Federal permits that apply to this project.

Upon completing the authorized work, you must fill out and return the enclosed *Certificate of Compliance with Department of the Army Permit*. All compliance reports

should be submitted to the U.S. Army Corps of Engineers, Seattle District, Regulatory Branch electronically at nws.compliance@usace.army.mil. Thank you for your cooperation during the permitting process. We are interested in your experience with our Regulatory Program and encourage you to complete a customer service survey. Referenced documents and information about our program are available on our website at www.nws.usace.army.mil, select “Regulatory Permit Information.” If you have any questions, please contact Ms. LeeAnn Simmons at leeann.w.simmons@usace.army.mil or (206) 764-3420.

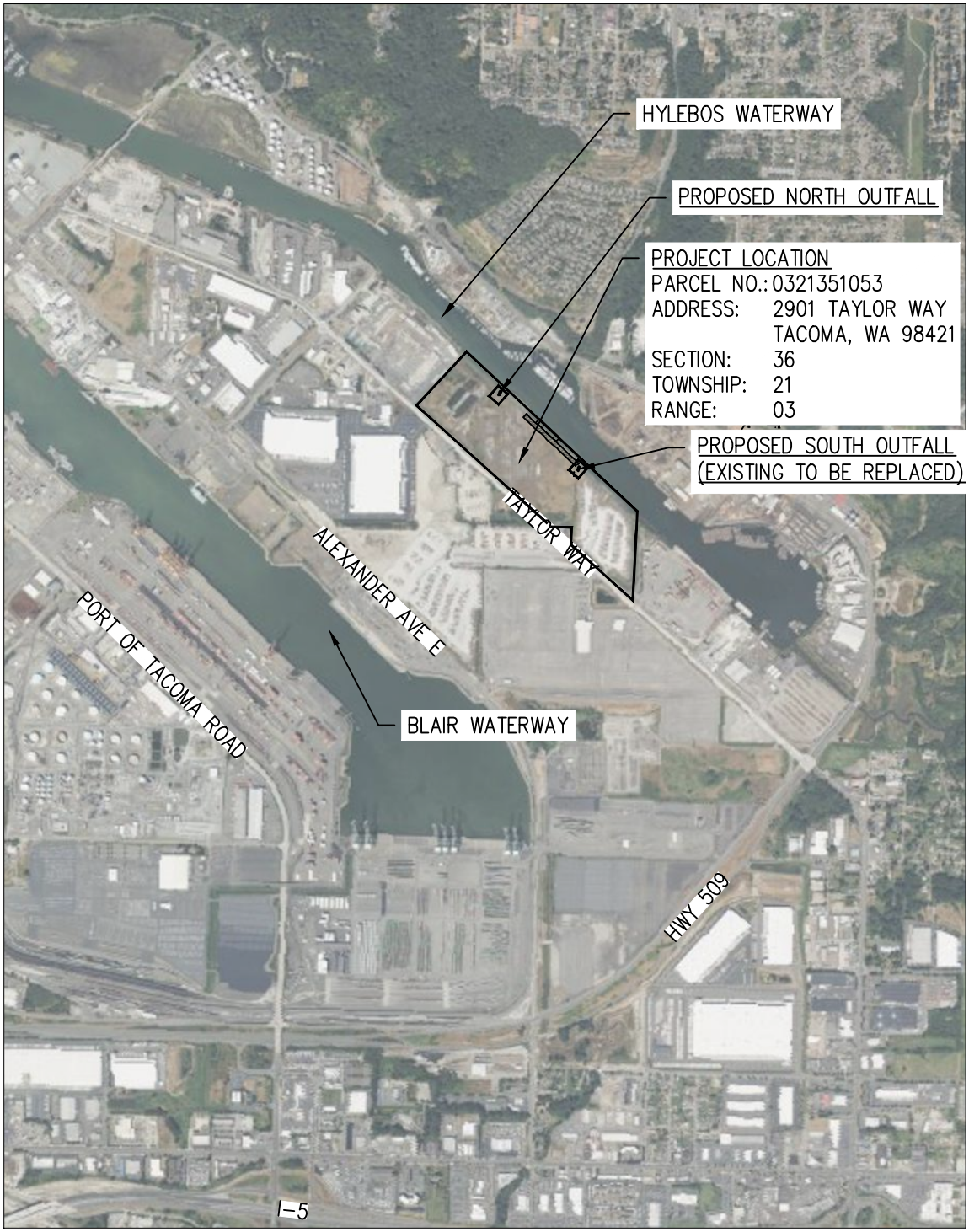
Sincerely,

Jenae Churchill

Jenae Churchill, Section Chief
Regulatory Branch

Enclosures

cc:
Ecology (ecyrefedpermits@ecy.wa.gov)
NMFS (consultationupdates.wcr@noaa.gov)



VICINITY MAP

SCALE: HORIZ: 1"=2000'

NORTH

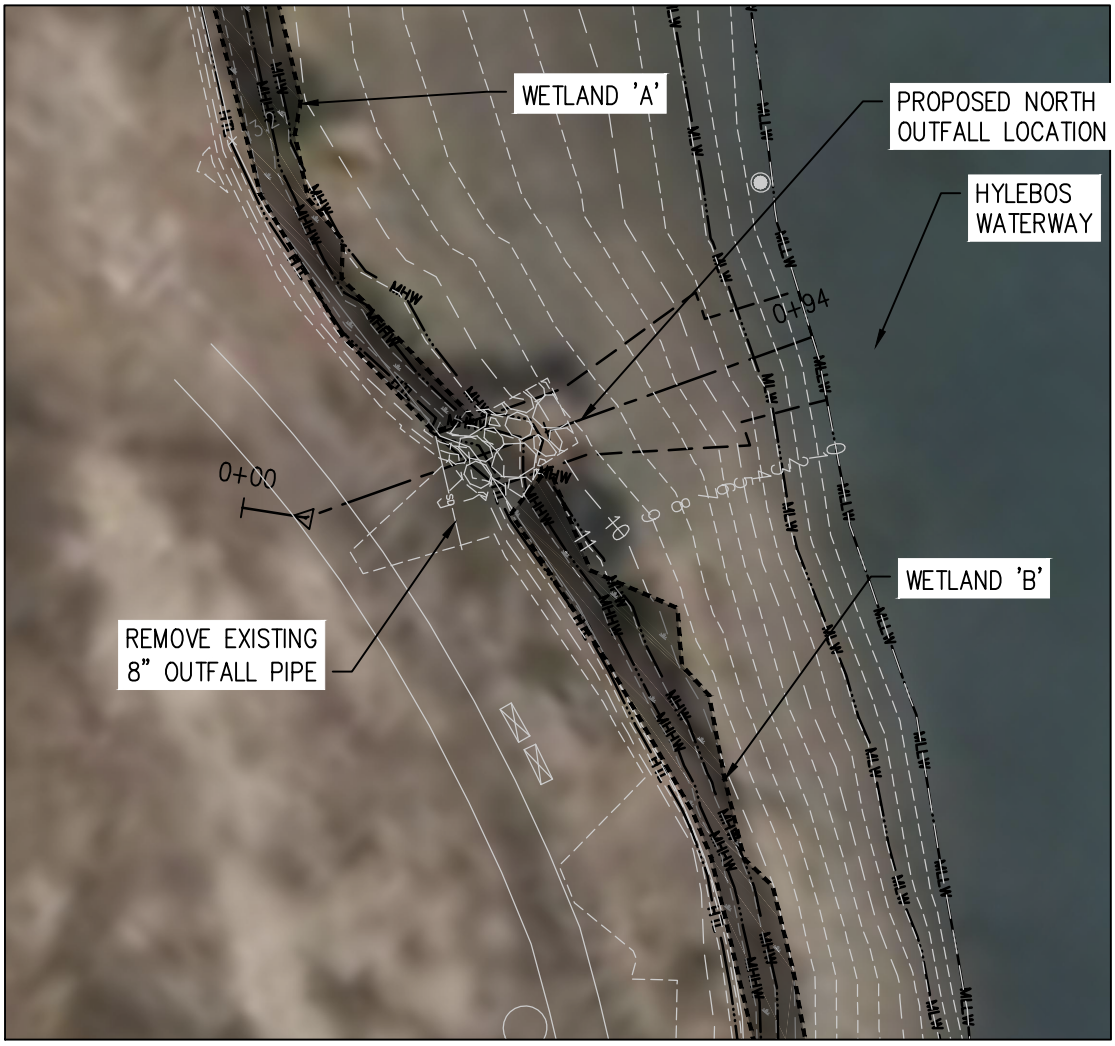
HORIZONTAL SCALE: 1"=2000'

2000 0 2000 4000

USACE REFERENCE: TBD	LOCATION: 2901 TAYLOR WAY TACOMA, WA 98421 (APN 0321351053)	PROPOSED PROJECT: ARKEMA MANUFACTURING SITE INTERIM ACTION - OUTFALLS
APPLICANT: PORT OF TACOMA	LAT/LONG: 47° 16' 1" N 122° 22' 25" W	IN: HYLEBOS WATERWAY
ADJACENT PROPERTY OWNERS: 1) PORT OF TACOMA	PAGE: 1 OF 7 DATE: JULY 10, 2024	NEAR/AT: TACOMA COUNTY: PIERCE STATE: WA

File: O:\20300\20347\Drawings\Exhibits\JARPA\101585 - JARPA

NWS-2024-787-WRD



NORTH OUTFALL EXISTING PLAN

SCALE: HORIZ: 1"=30'

TIDAL DATUM:
BASED ON NOAA VDATUM
VER 4.21, IN US FEET.
HTL/OHW DELINEATED USING
USACE & WDFW GUIDANCE.
(PORT OF TACOMA 2022)

LEVELS:	MLLW	NAVD88
HAT:	+13.91'	+11.35'
OHW:	+13.50'	+10.94'
HTL:	+13.50'	+10.94'
MHHW:	+11.80'	+9.24'
MHW:	+10.92'	+8.36'
MLW:	+2.85'	+0.29'
MLLW:	+0.00'	−2.56'

LEGEND

HIGH TIDE LINE	HTL
MEAN HIGHER HIGH WATER	MHHW
MEAN HIGH WATER	MHW
MEAN LOW WATER	MLW
MEAN LOWER LOW WATER	MLLW

NORTH

HORIZONTAL SCALE: 1"=30'

30 0 30 60

USACE REFERENCE: TBD

APPLICANT: PORT OF TACOMA

ADJACENT PROPERTY OWNERS:
1) PORT OF TACOMA

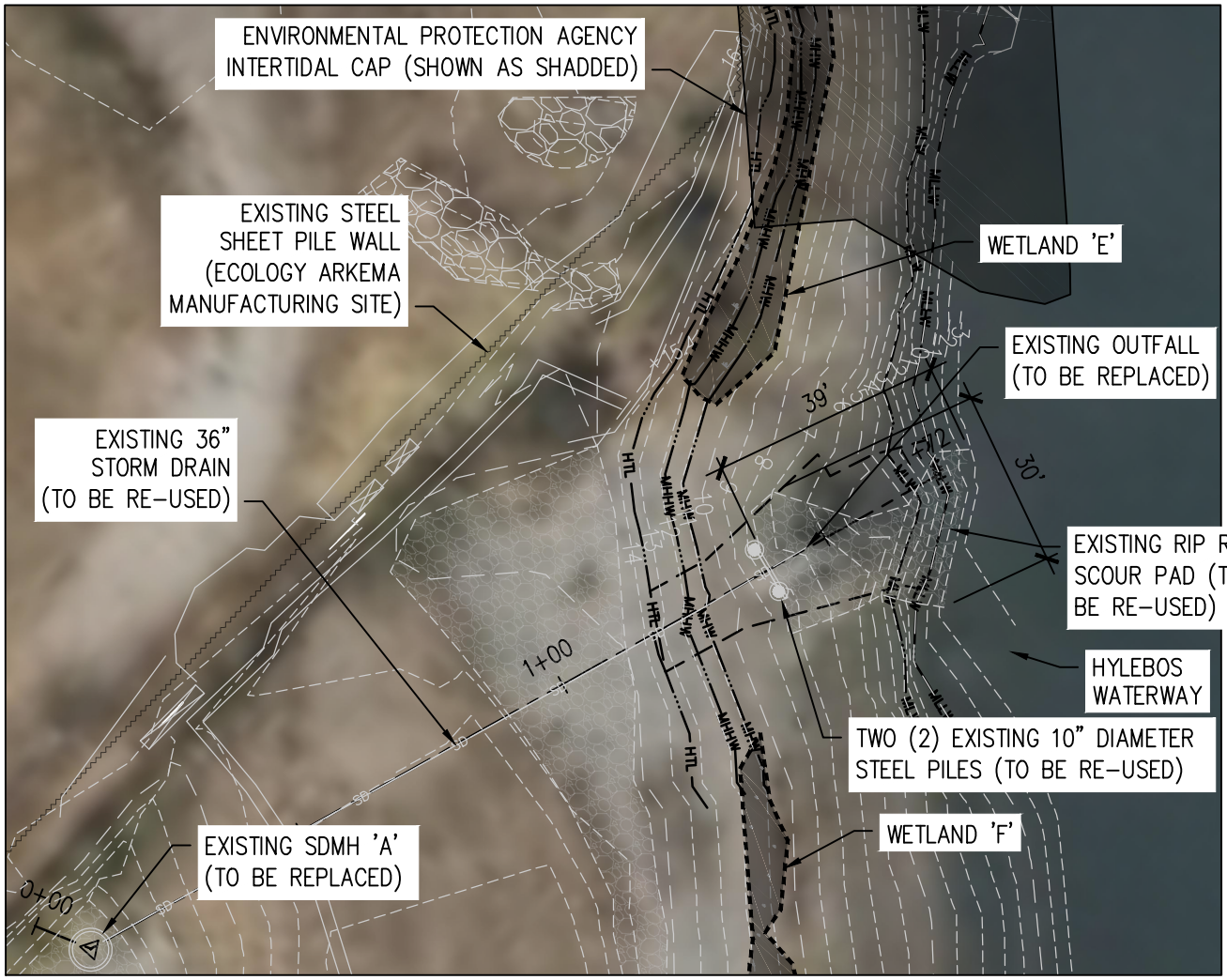
LOCATION: 2901 TAYLOR WAY TACOMA, WA 98421
(APN 0321351053)

LAT/LONG: 47° 16' 1" N
122° 22' 25" W

PAGE: 2 OF 7 DATE: JULY 10, 2024

PROPOSED PROJECT:
ARKEMA MANUFACTURING SITE INTERIM ACTION
- OUTFALLS
IN: HYLEBOS WATERWAY
NEAR/AT: TACOMA
COUNTY: PIERCE
STATE: WA

File: O:\20300\20347\Drawings\Exhibits\JARPA\101585 - JARPA



SOUTH OUTFALL EXISTING PLAN

SCALE: HORIZ: 1"=30'

TIDAL DATUM:
BASED ON NOAA VDATUM VER 4.21, IN US FEET.
HTL/OHW DELINEATED USING USACE & WDFW GUIDANCE.
(PORT OF TACOMA 2022)

LEVELS:	MLLW	NAVD88
HAT:	+13.91'	+11.35'
OHW:	+13.50'	+10.94'
HTL:	+13.50'	+10.94'
MHHW:	+11.80'	+9.24'
MHW:	+10.92'	+8.36'
MLW:	+2.85'	+0.29'
MLLW:	+0.00'	−2.56'

LEGEND

HIGH TIDE LINE	HTL
MEAN HIGHER HIGH WATER	MHHW
MEAN HIGH WATER	MHW
MEAN LOW WATER	MLW
MEAN LOWER LOW WATER	MLLW

NORTH

HORIZONTAL SCALE: 1"=30'

30 0 30 60

USACE REFERENCE: TBD

APPLICANT: PORT OF TACOMA

ADJACENT PROPERTY OWNERS:
1) PORT OF TACOMA

LOCATION: 2901 TAYLOR WAY TACOMA, WA 98421 (APN 0321351053)

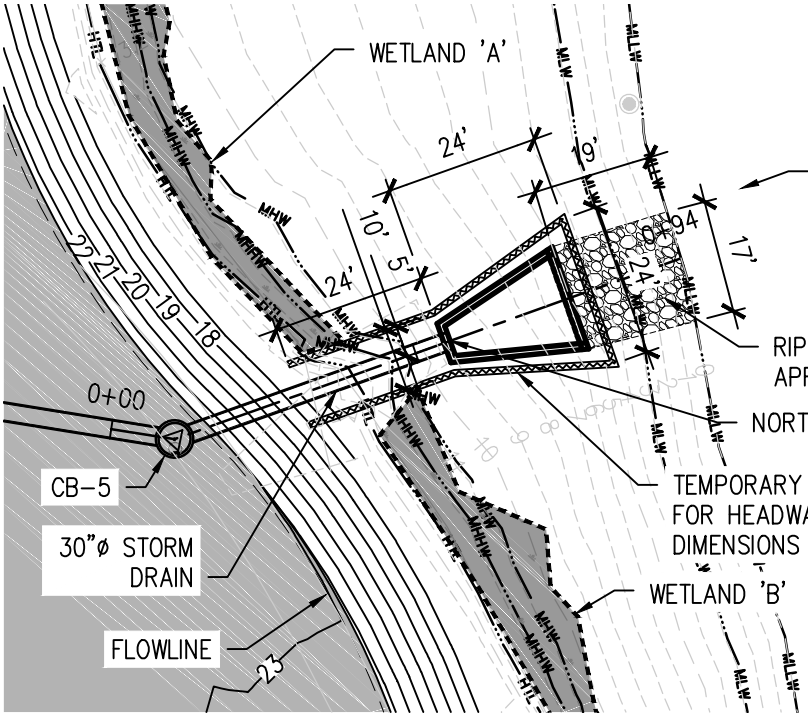
LAT/LONG: 47° 16' 1" N
122° 22' 25" W

PAGE: 3 OF 7 DATE: JULY 10, 2024

PROPOSED PROJECT:
ARKEMA MANUFACTURING SITE INTERIM ACTION - OUTFALLS
IN: HYLEBOS WATERWAY
NEAR/AT: TACOMA
COUNTY: PIERCE
STATE: WA

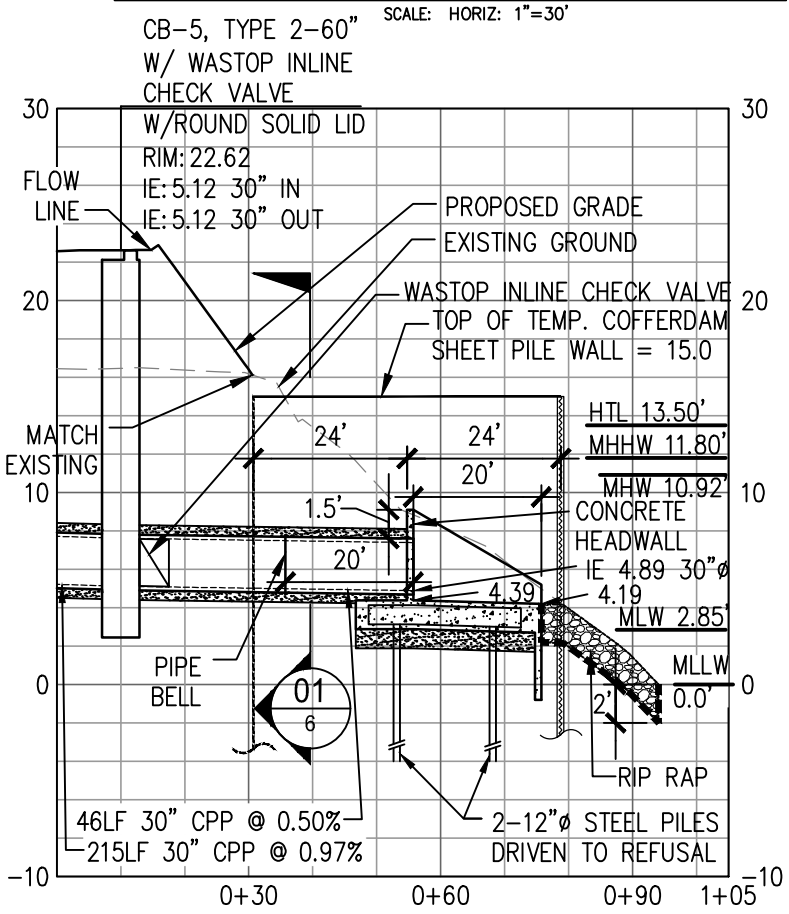
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NWS-2024-787-WRD



NORTH OUTFALL PROPOSED PLAN

SCALE: HORIZ: 1"=30'



NORTH OUTFALL PROPOSED SECTION

SCALE: HORIZ: 1"=30'; VERT: 1"=10'

LEVELS:	MLLW	NAVD88
HAT:	+13.91'	+11.35'
OHW:	+13.50'	+10.94'
HTL:	+13.50'	+10.94'
MHHW:	+11.80'	+9.24'
MHW:	+10.92'	+8.36'
MLW:	+2.85'	+0.29'
MLLW:	+0.00'	-2.56'

LEGEND

- HIGH TIDE LINE (HTL)
- MEAN HIGHER HIGH WATER (MHHW)
- MEAN HIGH WATER (MHW)
- MEAN LOW WATER (MLW)
- MEAN LOWER LOW WATER (MLLW)
- PROPOSED STORM DRAIN
- PROPOSED RIP RAP
- PROPOSED CRUSHED SURFACING BASE COURSE
- PROPOSED ASPHALT SURFACING
- PROPOSED CONCRETE
- PROPOSED GEOTEXTILE (UNDER RIP RAP)
- TEMPORARY COFFERDAM SHEET PILE WALL
- EXISTING CONTOUR (10)
- PROPOSED CONTOUR (20)

HORIZONTAL SCALE: 1"=30'

30 0 30 60

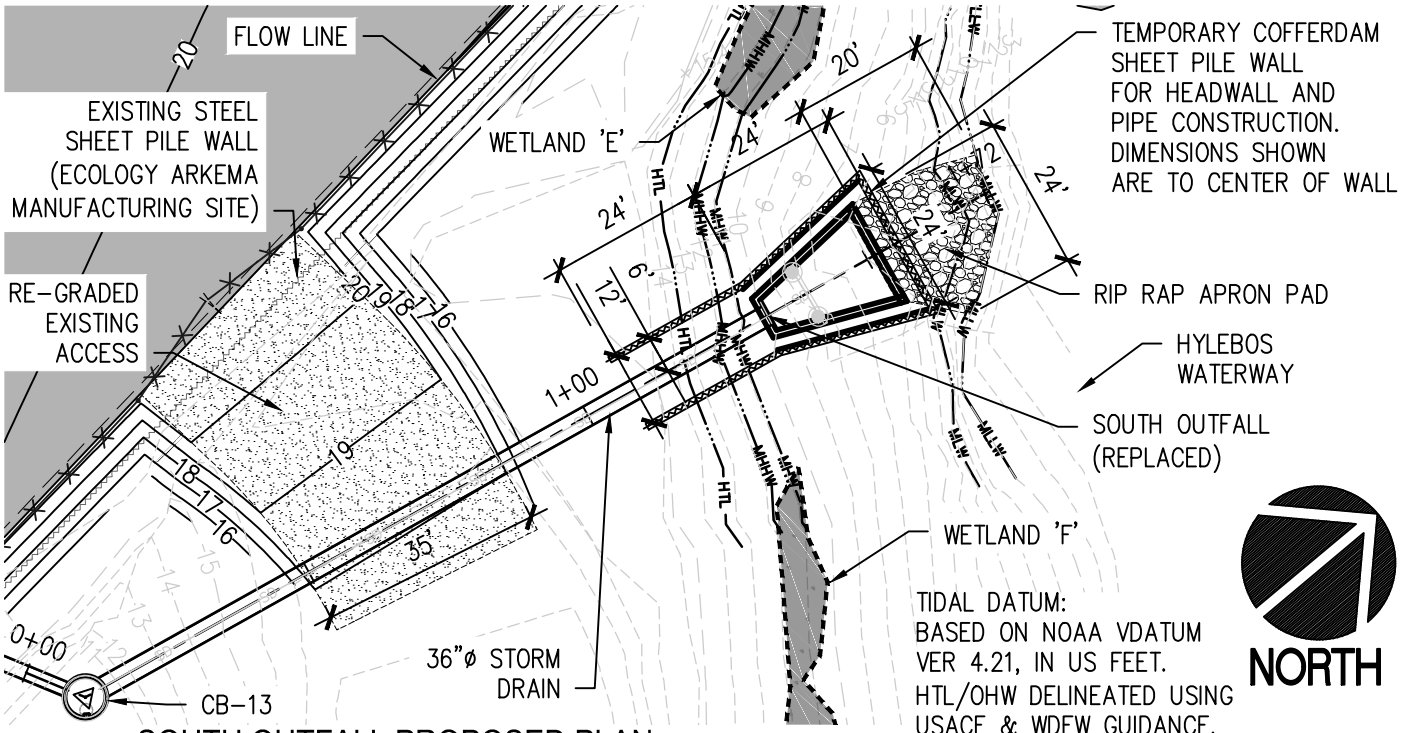
VERTICAL SCALE: 1"=10'

10 0 10 20

USACE REFERENCE: TBD	LOCATION: 2901 TAYLOR WAY TACOMA, WA 98421 (APN 0321351053)	PROPOSED PROJECT: ARKEMA MANUFACTURING SITE INTERIM ACTION - OUTFALLS	
APPLICANT: PORT OF TACOMA	LAT/LONG: 47° 16' 1" N 122° 22' 25" W	IN: HYLEBOS WATERWAY	
ADJACENT PROPERTY OWNERS: 1) PORT OF TACOMA	PAGE: 4 OF 7 DATE: JULY 10, 2024	NEAR/AT: TACOMA	
		COUNTY: PIERCE	
		STATE: WA	

File: O:\20300\20347\Drawings\Exhibits\JARPA\101585 - JARPA

NWS-2024-787-WRD

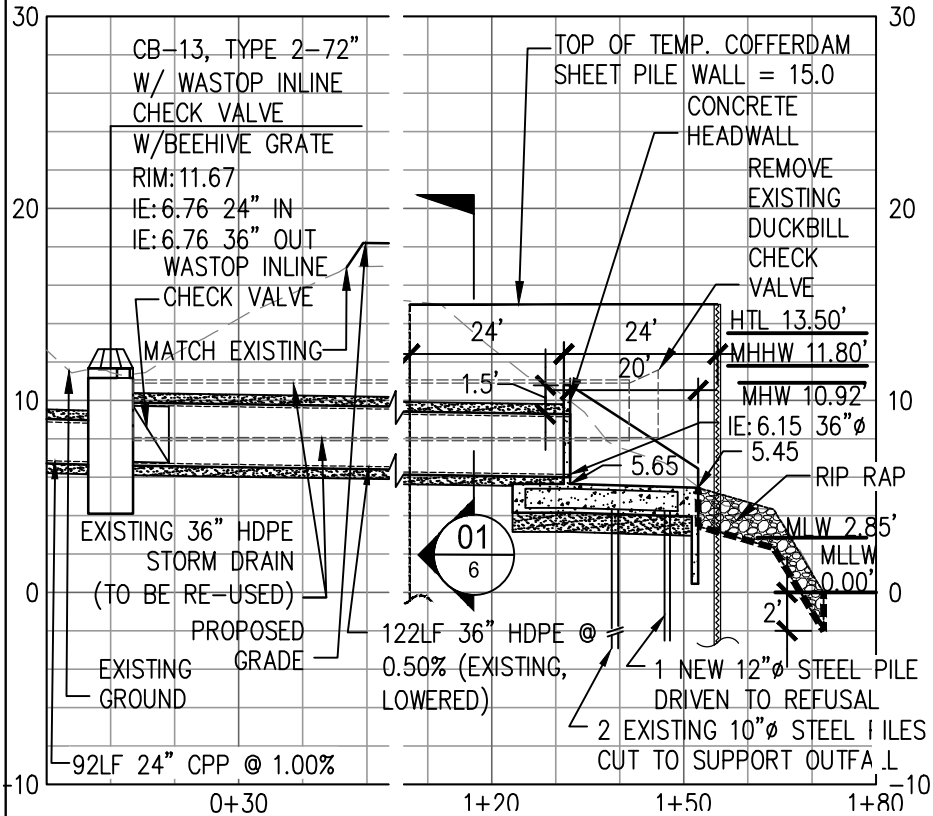


SOUTH OUTFALL PROPOSED PLAN

SCALE: HORIZ: 1"=30'

TIDAL DATUM:
BASED ON NOAA VDATUM VER 4.21, IN US FEET.
HTL/OHW DELINEATED USING USACE & WDFW GUIDANCE.
(PORT OF TACOMA 2022)

LEVELS:	MLLW	NAVD88
HAT:	+13.91'	+11.35'
OHW:	+13.50'	+10.94'
HTL:	+13.50'	+10.94'
MHHW:	+11.80'	+9.24'
MHW:	+10.92'	+8.36'
MLW:	+2.85'	+0.29'
MLLW:	+0.00'	-2.56'



LEGEND

- HIGH TIDE LINE — HTL
- MEAN HIGHER HIGH WATER — MHHW
- MEAN HIGH WATER — MHW
- MEAN LOW WATER — MLW
- MEAN LOWER LOW WATER — MLLW
- PROPOSED STORM DRAIN
- PROPOSED RIP RAP
- PROPOSED CRUSHED SURFACING BASE COURSE
- PROPOSED ASPHALT SURFACING
- PROPOSED CONCRETE
- PROPOSED GEOTEXTILE (UNDER RIP RAP)
- TEMPORARY COFFERDAM SHEET PILE WALL
- EXISTING CONTOUR — 10
- PROPOSED CONTOUR — 20

HORIZONTAL SCALE: 1"=30'

VERTICAL SCALE: 1"=10'

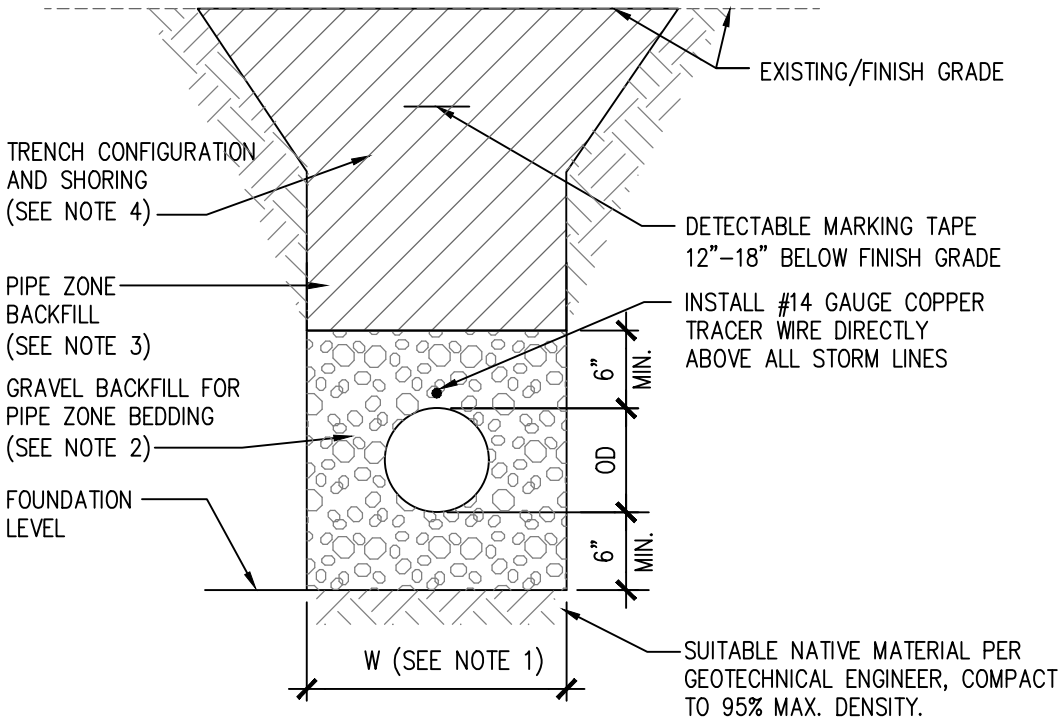
SOUTH OUTFALL PROPOSED SECTION

SCALE: HORIZ: 1"=30'; VERT: 1"=10'

USACE REFERENCE: TBD	LOCATION: 2901 TAYLOR WAY TACOMA, WA 98421 (APN 0321351053)	PROPOSED PROJECT: ARKEMA MANUFACTURING SITE INTERIM ACTION - OUTFALLS	
APPLICANT: PORT OF TACOMA	LAT/LONG: 47° 16' 1" N 122° 22' 25" W	IN: HYLEBOS WATERWAY	
ADJACENT PROPERTY OWNERS: 1) PORT OF TACOMA	PAGE: 5 OF 7 DATE: JULY 10, 2024	NEAR/AT: TACOMA	
		COUNTY: PIERCE	
		STATE: WA	

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NWS-2024-787-WRD



NOTES:

1) TRENCH WIDTH SHALL BE AS SPECIFIED IN SECTION 2–09.4 (1.5XID)+18" OF WSDOT STANDARD SPECIFICATIONS 36":72" WIDE.

2) GRAVEL BACKFILL FOR PIPE ZONE BEDDING SHALL BE IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATIONS SECTION 9–03.9(3), CRUSHED SURFACING BASE COURSE.

3) PIPE ZONE BACKFILL SHALL BE WITH NATIVE SOILS AND COMPACTED TO 90% MAXIMUM DENSITY.

4) TRENCH CONFIGURATION AND SHORING SHALL COMPLY WITH WAC 296–155 PART N, EXCAVATION, TRENCHING AND SHORING REQUIREMENTS.

5) NON–WOVEN GEOTEXTILE SEPARATION FABRIC SHALL COMPLY WITH WSDOT STANDARD SPECIFICATIONS 9–33.2(1), TABLE 3. SEE PAGES 4 AND 5 FOR PLACEMENT UNDER QUARRY SPALL APRON PADS.

6) QUARRY SPALLS SHALL COMPLY WITH WSDOT STANDARD SPECIFICATIONS 9–13.1(1) AND 9–13.1(5). SEE PAGES 4 AND 5 FOR PLACEMENT NEAR HEADWALL.

01 OUTFALL PIPE SECTION

4,5

SCALE: NTS

USACE REFERENCE: TBD APPLICANT: PORT OF TACOMA ADJACENT PROPERTY OWNERS: 1) PORT OF TACOMA	LOCATION: 2901 TAYLOR WAY TACOMA, WA 98421 (APN 0321351053) LAT/LONG: 47° 16' 1" N 122° 22' 25" W PAGE: 6 OF 7 DATE: JULY 10, 2024	PROPOSED PROJECT: ARKEMA MANUFACTURING SITE INTERIM ACTION - OUTFALLS IN: HYLEBOS WATERWAY NEAR/AT: TACOMA COUNTY: PIERCE STATE: WA

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PROPOSED AREAS (SF) AND VOLUMES IN CUBIC YARDS (CY)
WATERWARD FROM HTL/OHW (13.50' MLLW OR 10.94' NAVD88) LINE:

	NORTH OUTFALL	SOUTH OUTFALL	TOTAL
1) PIPE BEDDING (CSBC)	6 CY	9 CY	15 CY
2) CSBC AT HEADWALLS	11 CY	11 CY	22 CY
3) RIP RAP APRON PAD	24 CY	27 CY	51 CY
4) HEADWALL AREA (FOOTPRINT)	246 SF	256 SF	502 SF
5) RIP RAP PAD AREA	315 SF	366 SF	681 SF
6) NATIVE MATERIAL TO BE RE-USED (BACKFILL) ABOVE PIPE BEDDING	26 CY	12 CY	37 CY
7) TOTAL CUT VOLUME (REMOVAL) OF NATIVE MATERIAL (NECESSARY FOR PLACEMENT OF PIPES, BEDDING, HEADWALLS, CSBC, RIP RAP PADS)	104 CY	89 CY	193 CY
8) EXCESS NATIVE MATERIAL	78 CY	77 CY	155 CY
9) WORK AREA	900 SF	945 SF	1845 SF
10) EXCAVATION VOLUME WITHIN WETLAND AREA	0 CY	0 CY	0 CY
11) EXCAVATION VOLUME WITHIN INTERTIDAL CAP AREA	0 CY	0 CY	0 CY

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USACE REFERENCE: TBD

APPLICANT: PORT OF TACOMA

ADJACENT PROPERTY OWNERS:
1) PORT OF TACOMA

LOCATION: 2901 TAYLOR WAY TACOMA, WA 98421 (APN 0321351053)

LAT/LONG: 47° 16' 1" N
122° 22' 25" W

 DATE: JULY 10, 2024

PROPOSED PROJECT:
ARKEMA MANUFACTURING SITE INTERIM ACTION - OUTFALLS
IN: HYLEBOS WATERWAY
NEAR/AT: TACOMA
COUNTY: PIERCE
STATE: WA

US Army Corps of Engineers
Seattle District

NATIONWIDE PERMIT 7
Terms and Conditions

2021 NWPs - Final 41; Effective Date: February 25, 2022
amended with RGCs 10-14 June 28, 2024

A. Description of Authorized Activities
B. U.S. Army Corps of Engineers (Corps) National General Conditions for All Final 41 NWPs
C. Seattle District Regional General Conditions
D. Seattle District Regional Specific Conditions for this Nationwide Permit (NWP)
E. 401 Water Quality Certification (401 WQC) for this NWP
F. Coastal Zone Management Consistency Response for this NWP

In addition to any special condition that may be required on a case-by-case basis by the District Engineer, the following terms and conditions must be met, as applicable, for a Nationwide Permit (NWP) authorization to be valid in Washington State.

A. DESCRIPTION OF AUTHORIZED ACTIVITIES

7. Outfall Structures and Associated Intake Structures. Activities related to the construction or modification of outfall structures and associated intake structures, where the effluent from the outfall is authorized, conditionally authorized, or specifically exempted by, or otherwise in compliance with regulations issued under the National Pollutant Discharge Elimination System Program (Section 402 of the Clean Water Act). The construction of intake structures is not authorized by this NWP unless they are directly associated with an authorized outfall structure.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 32.) (Authorities: Sections 10 and 404)

B. CORPS NATIONAL GENERAL CONDITIONS FOR ALL 2021 NWPs - FINAL 41

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Structures and Fills. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of "effects of the action" for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding "activities that are reasonably certain to occur" and "consequences caused by the proposed action."

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such

designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.nmfs.noaa.gov/pr/species/esa/ respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:
(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.
(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____
(Transferee)

_____
(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification. (a) *Timing*. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification*: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) (i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.

(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river

is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification*: The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination*: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

C. SEATTLE DISTRICT REGIONAL GENERAL CONDITIONS: The following conditions apply to the 2021 NWPs - Final 41 NWPs for the Seattle District in Washington State, as applicable.

RGC 1, Project Drawings
Drawings must be submitted with a pre-construction notification (PCN). Drawings must provide a clear understanding of the proposed project, and how waters of the United States will be affected. Drawings must be originals and not reduced copies of large-scale plans. Engineering drawings are not required. Existing and proposed site conditions (manmade and landscape features) must be drawn to scale.

RGC 2, Aquatic Resources Requiring Special Protection
A PCN is required for activities resulting in a loss of waters of the United States in wetlands in dunal systems along the Washington coast, mature forested wetlands, bogs and peatlands, aspen-dominated wetlands, alkali wetlands, vernal pools, camas prairie wetlands, estuarine wetlands, and wetlands in coastal lagoons.

RGC 3, New Bank Stabilization in Tidal Waters of Puget Sound
Activities involving new bank stabilization in tidal waters in Water Resource Inventory Areas (WRIAs) 8, 9, 10, 11, and 12 (within the areas identified on Figures 1a through 1e) cannot be authorized by NWP.

RGC 4, Commencement Bay
No permanent losses of wetlands or mudflats within the Commencement Bay Study Area may be authorized by any NWP (see Figure 2).

RGC 5, Bank Stabilization
All projects including new or maintenance bank stabilization activities in waters of the United States where salmonid species are present or could be present, requires PCN to the U.S. Army Corps of Engineers (Corps) (see NWP general condition 32).

For new bank stabilization projects only, the following must be submitted to the Corps:

a. The cause of the erosion and the distance of any existing structures from the area(s) being stabilized.

b. The type and length of existing bank stabilization within 300 feet of the proposed project.

c. A description of current conditions and expected post-project conditions in the waterbody.

d. A statement describing how the project incorporates elements avoiding and minimizing adverse environmental effects to the aquatic environment and nearshore riparian area, including vegetation impacts in the waterbody.

In addition to a. through d., the results from any relevant geotechnical investigations can be submitted with the PCN if it describes current or expected conditions in the waterbody.

RGC 6, Crossings of Waters of the United States
Any project including installing, replacing, or modifying crossings of waters of the United States, such as culverts or bridges, requires submittal of a PCN to the U.S. Army Corps of Engineers (see NWP general condition 32).

If a culvert is proposed to cross waters of the U.S. where salmonid species are present or could be present, the project must apply the stream simulation design method from the Washington Department of Fish and Wildlife located in the Water Crossing Design Guidelines (2013), or a design method which provides passage at all life stages at all flows where the salmonid species would naturally seek passage. If the stream simulation design method is not applied for a culvert where salmonid species are present or could be present, the applicant must provide a rationale in the PCN sufficient to establish one of the following:

a. The existence of extraordinary site conditions.

b. How the proposed design will provide equivalent or better fish passage and fisheries habitat benefits than the stream simulation design method.

Culverts installed under emergency authorization that do not meet the above design criteria will be required to meet the above design criteria to receive an after-the-fact nationwide permit verification.

RGC 7, Stream Loss
A PCN is required for all activities that result in the loss of any linear feet of streams.

RGC 8, Construction Boundaries
Permittees must clearly mark all construction area boundaries within waters of the United States before beginning work on projects that involve grading or placement of fill. Boundary markers and/or construction fencing must be maintained and clearly visible for the duration of construction. Permittees should avoid and minimize removal of native vegetation (including submerged aquatic vegetation) to the maximum extent possible.

RGC 9, ESA Reporting to NMFS
For any nationwide permit that may affect threatened or endangered species:

Incidents where any individuals of fish species, marine mammals and/or sea turtles listed by National Oceanic and Atmospheric Administration Fisheries, National Marine Fisheries Service (NMFS) under the Endangered Species Act appear to be injured or killed as a result of discharges of dredged or fill material into waters of the U.S. or structures or work in navigable waters of the U.S. authorized by this Nationwide Permit verification shall be reported to NMFS, Office of Protected Resources at (301) 713-1401 and the Regulatory Office of the Seattle District of the U.S. Army Corps of Engineers at (206) 764-3495. The finder should leave the animal alone, make note of any circumstances likely causing the death or injury, note the location and number of individuals involved and, if possible, take photographs. Adult animals should not be disturbed unless circumstances arise where they are obviously injured or killed by discharge exposure or some unnatural cause. The finder may be asked to carry out instructions provided by the NMFS to collect specimens or take other measures to ensure that evidence intrinsic to the specimen is preserved.

RGC 10, Limitations on New Bank Stabilization Within the Salish Sea
The length of new bank stabilization within waters of the U.S., including new bank stabilization associated with maintenance activities that would expand previously authorized armoring length, cannot exceed 50 linear feet within the Salish Sea under any NWP.

RGC 11, Effects to Forage Fish Spawning Beaches, Drift Cells, and Feeder Bluffs)
No NWP activity can:

a. cause more than minimal adverse effects to forage fish spawning beaches or drift cells; or

b. prevent the functioning of feeder bluffs, including more than minimal adverse effects to sediment recruitment, transport, or deposition.

This regional general condition applies to all NWP activities within the Salish Sea. Information regarding the location of forage fish spawning beaches is available on the Washington Department of Fish and Wildlife's (WDFW) Forage Fish Spawning Map at https://wdfw.maps.arcgis.com/home/webmap/viewer.html?webmap=19b8f74e2d41470cbd80b1af8dedd6b3. Information regarding the location and movement of drift cells, shoreline stability, and coastal landforms, to include feeder bluffs, is available at the Washington State Department of Ecology's Coastal Atlas Map website: https://apps.ecology.wa.gov/coastalatlasmap. These maps are resources that can be used to help identify the location of forage fish spawning beaches, drift cells, and feeder bluffs; they are not a substitute for site-specific data. Information about forage fish, their spawning habitats, and spawning behavior are available through the WDFW. Additional information about the importance of

these species as prey species for Endangered Species Act listed salmonids can be found on the National Marine Fisheries Service website.

RGC 12, Bank Stabilization Design Considerations
Bank stabilization activities, including maintenance activities, shall utilize living shorelines, vegetative stabilization, bioengineering, including but not limited to large woody material with intact root wads, and other soft bank stabilization approaches to the maximum practicable extent before considering hard bank stabilization methods such as bulkheads and rock revetments.

RGC 13, PCNs for Activities in Areas Where There May Be Treaty-Reserved Tribal Rights
To ensure compliance with General Condition 17, Tribal Rights, a pre-construction notification (PCN) is required for all NWPs associated with structures or fills in areas where Tribes have retained via treaty the right to fish in their usual and accustomed grounds and stations.

RGC 14, Maintenance of Existing Bank Stabilization Structures and Fills
(Applicable to NWP 3, Maintenance Activities) Maintenance of existing bank stabilization structures that expand the existing structure's footprint or dimensions either waterward, vertically, or linearly along the shoreline within the geographic jurisdiction of the U.S. Army Corps of Engineers are not eligible for NWP 3.

D. SEATTLE DISTRICT REGIONAL SPECIFIC CONDITIONS FOR THIS NWP: None

E. 401 WATER QUALITY CERTIFICATION: Depending on the geographic region of the work authorized by this verification, the appropriate 401 certifying authority has made the following determinations:

Washington Department of Ecology (Ecology) (Projects in all areas except as described for the other certifying agencies listed below): General and Specific WQC Conditions

A. State General Conditions for all Nationwide Permits

In addition to all of the U.S. Army Corps of Engineers' (Corps) national and Seattle District'sregional permit conditions, the following state general Water Quality Certification (WQC) conditions **apply to all NWPs whether granted or granted with conditions** in Washington where Ecology is the certifying authority.

Due to the lack of site specific information on the discharge types, quantities, and specific locations, as well as the condition of receiving waters and the quantity of waters (including wetlands) that may be lost, Ecology may need to review the project if one of the following stategeneral conditions is triggered.

This case-by-case review may be required, and additional information regarding the project and associated discharges may be needed, to verify that the proposed project would comply with state water quality requirements and if an individual WQC is required or if the project meets this programmatic WQC.

1. **In-water construction activities**. Ecology WQC review is required for projects or activities authorized under NWPs where the project proponent has indicated on the Joint Aquatic Resource Permit Application (JARPA) question 9e that the project or activity will not meet State water quality standards, or has provided information indicating that the project or activity will cause, or may be likely to cause or contributeto an exceedance of a State water quality standard (Chapter 173-201A WAC) or sediment management standard (Chapter 173-204 WAC).

Note: In-water activities include any activity within a jurisdictional wetland and/orwaters.

2. **Projects or Activities Discharging to Impaired Waters**. Ecology WQC review is required for projects or activities that will occur in a 303(d) listed segment of a waterbody or upstream of a listed segment and may result in further exceedances of the specific listedparameter to determine if the project meets this programmatic WQC or will require individual WQC.

To determine if your project or activity is in a 303(d) listed segment of a waterbody, visitEcology's Water Quality Assessment webpage for maps and search tools.

3. **Aquatic resources requiring special protection**. Certain aquatic resources are unique and difficult-to-replace components of the aquatic environment in Washington. Activities that would affect these resources must be avoided to the greatest extent practicable. Compensating for adverse impacts to high value aquatic resources is typically difficult, prohibitively expensive, and may not be possible in some landscapesettings.

Ecology WQC review is required for projects or activities in areas identified below to determine if the project meets this programmatic WQC or will require individual WQC.

a. Activities in or affecting the following aquatic resources:
   i. Wetlands with special characteristics (as defined in the Washington State Wetland Rating Systems for western and eastern Washington, Ecology Publications #14-06-029 and #14-06-030):
      - Estuarine wetlands.
      - Wetlands of High Conservation Value.
      - Bogs.
      - Old-growth forested wetlands and mature forested wetlands.
      - Wetlands in coastal lagoons.
      - Wetlands in dunal systems along the Washington coast.
      - Vernal pools.
      - Alkali wetlands.

   ii. Fens, aspen-dominated wetlands, camas prairie wetlands.

   iii. Category I wetlands.

   iv. Category II wetlands with a habitat score ≥ 8 points.

b. Activities in or resulting in a loss of eelgrass (Zostera marina) beds.

This state general condition does not apply to the following NWPs:
NWP 20 – Response Operations for Oil and Hazardous Substances
NWP 32 – Completed Enforcement Actions
NWP 48 – Commercial Shellfish Mariculture Activities

4. **Loss of More than 300 Linear Feet of Streambed.** For any project that results in the lossof more than 300 linear feet of streambed Ecology WQC review is required to determineif the project meets this programmatic WQC or will require individual WQC.

5. **Temporary Fills.** For any project or activity with temporary fill in wetlands or other waters for more than six months Ecology WQC review is required to determine if theproject meets this programmatic WQC or will require individual WQC.

6. **Mitigation.** Project proponents are required to show that they have followed the mitigation sequence and have first avoided and minimized impacts to aquatic resourceswherever practicable. For projects requiring Ecology WQC review or an individual WQC with unavoidable impacts to aquatics resources, a mitigation plan must be provided.

   a. Wetland mitigation plans submitted for Ecology review and approval shall be based

on the most current guidance provided in Wetland Mitigation in Washington State, Parts 1 and 2 (available on Ecology's website) and shall, at aminimum, include the following:

i. A description of the measures taken to avoid and minimize impacts to wetlands and other waters of the U.S.

ii. The nature of the proposed impacts (i.e., acreage of wetlands and functions lost or degraded).

iii. The rationale for the mitigation site that was selected.

iv. The goals and objectives of the compensatory mitigation project.

v. How the mitigation project will be accomplished, including construction sequencing, best management practices to protect water quality, proposed performance standards for measuring success and the proposed buffer widths.

vi. How it will be maintained and monitored to assess progress toward goals and objectives. Monitoring will generally be required for a minimum of five years. For forested and scrub-shrub wetlands, 10 years of monitoring will often be necessary.

vii. How the compensatory mitigation site will be legally protected for the long term.

Refer to Wetland Mitigation in Washington State – Part 2: Developing Mitigation Plans (Ecology Publication #06-06-011b) and Selecting Wetland Mitigation Sites Using a Watershed Approach (Ecology Publications #09-06-032 (Western Washington) and #10-06-007 (Eastern Washington)) for guidance on selecting suitable mitigation sites and developing mitigation plans.

Ecology encourages the use of alternative mitigation approaches, includingcredit/debit methodology, advance mitigation, and other programmatic approaches such as mitigation banks and in-lieu fee programs. If you are interested in proposing use of an alternative mitigation approach, consult with the appropriate Ecology regional staff person. Information on alternative mitigation approaches is available on Ecology's website.

b. Mitigation for other aquatic resource impacts will be determined on a case-by-case basis.

7. **Stormwater Pollution Prevention**. All projects involving land disturbance or impervious surfaces must implement stormwater pollution prevention or control measures to avoiddischarge of pollutants in stormwater runoff to waters.

a. For land disturbances during construction, the applicant must obtain and implement permits (e.g., Construction Stormwater General Permit) where required and follow Ecology's current stormwater manual.

b. Following construction, prevention or treatment of on-going stormwater runofffrom impervious surfaces shall be provided.

Ecology's Stormwater Management and Design Manuals and stormwater permitinformation are available on Ecology's website.

8. **Application**. For projects or activities that will require Ecology WQC review, or anindividual WQC, project proponents must provide Ecology with a JARPA or the equivalent information, along with the documentation provided to the Corps, as described in national general condition 32, Pre-Construction Notification (PCN), including, where applicable:

    a. A description of the project, including site plans, project purpose, direct and indirect adverse environmental effects the project discharge(s) would cause, best management practices (BMPs), and proposed means to monitor the discharge(s).

    b. List of all federal, state or local agency authorizations required to be used for anypart of the proposed project or any related activity.

    c. Drawings indicating the OHWM, delineation of special aquatic sites, and other waters of the state. Wetland delineations must be prepared in accordance with thecurrent method required by the Corps and shall include Ecology's Wetland Rating form. Wetland Rating forms are subject to review and verification by Ecology staff.

    Guidance for determining the OHWM is available on Ecology's website.

    d. A statement describing how the mitigation requirement will be satisfied. A conceptual or detailed mitigation or restoration plan may be submitted. See stategeneral condition 5.

    e. Other applicable requirements of Corps NWP general condition 32, Corps regional conditions, or notification conditions of the applicable NWP.

Ecology **grants Water Quality Certification** for this NWP provided that individual WQC review is not required per the state general conditions (see above).

Environmental Protection Agency (EPA) (on Tribal Lands where Tribes Do Not Have Treatment in a Similar Manner as a State and Lands with Exclusive Federal Jurisdiction in Washington): General and Specific 401 Conditions

On behalf of the 28 tribes that do not have treatment in a similar manner as a state and for exclusive federal jurisdiction lands located within the state of Washington, EPA Region 10 has determined that CWA Section 401 WQC for the following proposed NWPs is granted with conditions. EPA Region 10 has determined that any discharge authorized under the following proposed NWPs will comply with water quality requirements, as defined at 40 C.F.R. § 121.1(n), subject to the following conditions pursuant to CWA Section 401(d).

General Conditions:

EPA General Condition 1 – Aquatic Resources of Special Concern

Activities resulting in a point source discharge in the following types of aquatic resources of special concern shall request an individual project-specific CWA Section 401 WQC: mature forested wetlands; bogs, fens and other peatlands; vernal pools; aspen-dominated wetlands; alkali wetlands; camas prairie wetlands; wetlands in dunal systems along the Oregon or Washington Coast; riffle-pool complexes of streams; marine or estuarine mud-flats; salt marshes; marine waters with native eelgrass or kelp beds; or marine nearshore forage fish habitat. To identify whether a project would occur in any of these aquatic resources of special concern, project proponents shall use existing and available information to identify the location and type of resources, including using the U.S. Fish and Wildlife Service's online digital National Wetland Inventory maps, identifying project location on topographical maps, and/or providing on-site determinations as required by the Corps. When a project requires a Pre-Construction Notification (PCN) to the Corps, project proponents shall work with the Corps to identify whether the project is in any of these specific aquatic resources of special concern.

EPA General Condition 2 – Soil Erosion and Sediment Controls

Turbidity shall not exceed background turbidity by more than 50 Nephelometric Turbidity Units (NTU) above background instantaneously or more than 25 NTU above background for more than ten consecutive days.[8] Projects or activities that are expected to exceed these levels require an individual project-specific CWA Section 401 WQC.

The turbidity standard shall be met at the following distances from the discharge:

Wetted Stream Width at Discharge Point	**Approximate Downstream Point to Sample to Determine Compliance**
Up to 30 feet	50 feet
>30 to 100 feet	100 feet
>100 feet to 200 feet	200 feet
>200 feet	300 feet
Lake, Pond, Reservoir	Lesser of 100 feet or maximum surface distance

For Marine Water	**Point of Compliance for Temporary Area of Mixing**
Estuaries or Marine Waters	Radius of 150 feet from the activity causing the turbidity exceedance

Measures to prevent and/or reduce turbidity shall be implemented and monitored prior to, during, and after construction. Turbidity monitoring shall be done at the point of compliance within 24 hours of a precipitation event of 0.25 inches or greater. During monitoring and maintenance, if turbidity limits are exceeded or if measures are identified as ineffective, then additional measures shall be taken to come into compliance and EPA shall be notified within 48 hours of the exceedance or measure failure.

EPA General Condition 3 - Compliance with Stormwater Pollution Prevention and the National Pollutant Discharge Elimination System Permit Provisions

For land disturbances during construction that 1) disturb one or more acres of land, or 2) will disturb less than one acre of land but are part of a common plan of development or sale that will ultimately disturb one or more acres of land, the permittee shall obtain and implement Construction Stormwater General Permit requirements,[9] including:

1. The permittee shall develop a Stormwater Pollution Prevention Plan (SWPPP)[10] and submit it to EPA Region 10 and appropriate Corps District; and
2. Following construction, prevention or treatment of ongoing stormwater runoff from impervious surfaces that includes soil infiltration shall be implemented.

EPA General Condition 4 – Projects or Activities Discharging to Impaired Waters

Projects or activities are not authorized under the NWPs if the project will involve point source discharges into an active channel (e.g., flowing or open waters) of a water of the U.S. listed as impaired under CWA Section 303(d) and/or if the waterbody has an approved Total Maximum Daily Load (TMDL) and the discharge may result in further exceedance of a specific parameter (e.g., total suspended solids, dissolved oxygen, temperature) for which the waterbody is listed or has an approved TMDL. The current lists of impaired waters of the U.S. under CWA Section 303(d) and waters of the U.S. for which a TMDL has been approved are available on EPA Region 10's web site at: https://www.epa.gov/tmdl/impaired-waters-and-tmdls-region-10.

EPA General Condition 5 – Notice to EPA

All project proponents shall provide notice to EPA Region 10 prior to commencing construction activities authorized by a NWP. This will provide EPA Region 10 with the opportunity to inspect the activity for the purposes of determining whether any discharge from the proposed project will violate this CWA Section 401 WQC. Where the Corps requires a PCN for an applicable NWP, the project proponent shall also provide the PCN to EPA Region 10. EPA Region 10 will provide written notification to the project proponent if the proposed project will violate the water quality certification of the NWP.

EPA General Condition 6 – Unsuitable Materials

The project proponent shall not use wood products treated with leachable chemical components (e.g., copper, arsenic, zinc, creosote, chromium, chloride, fluoride, pentachlorophenol), which result in a discharge to waters of the U.S., unless the wood products meet the following criteria:

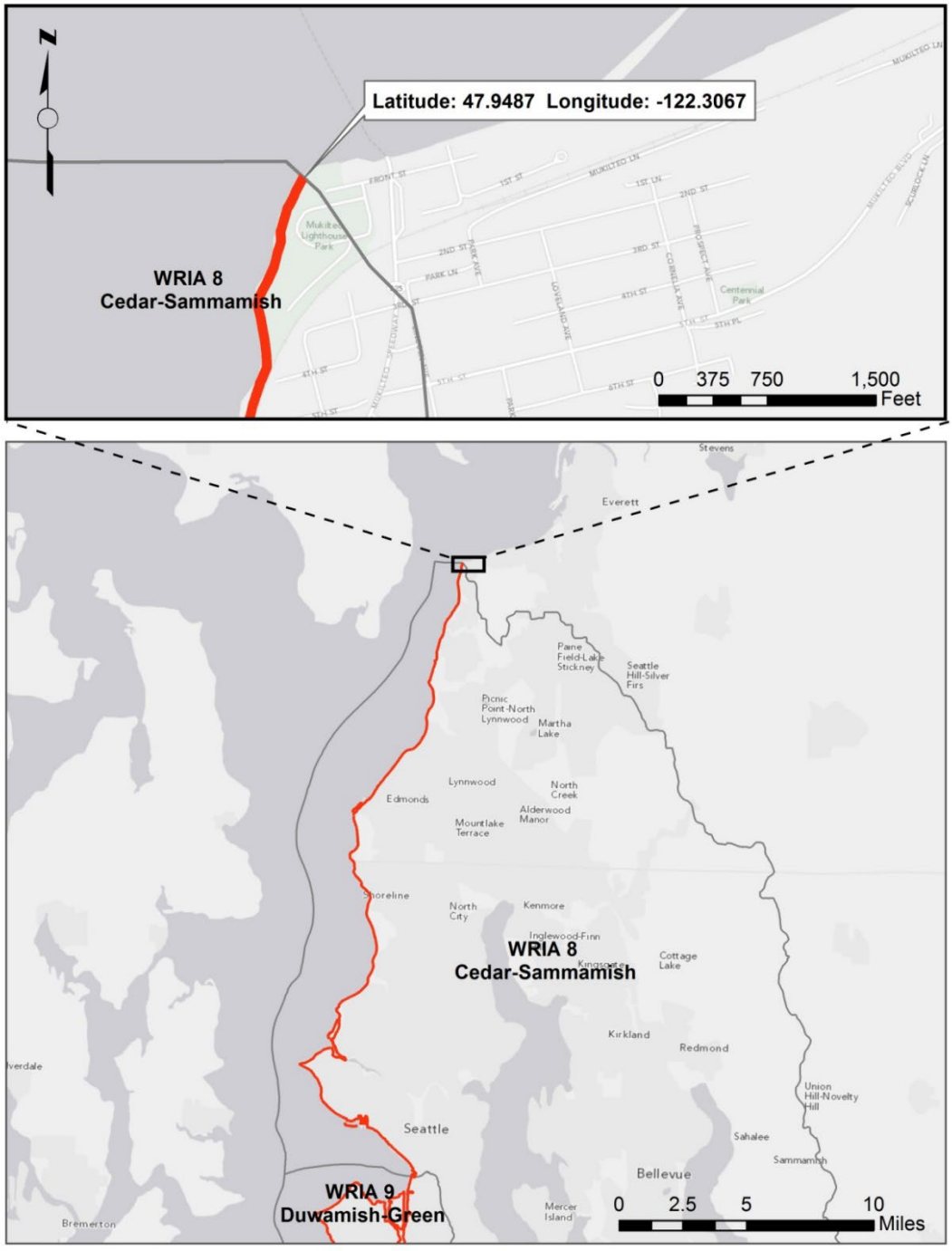
1. Wood preservatives and their application shall be in compliance with EPA label requirements and criteria of approved EPA Registration Documents under the Federal Insecticide, Fungicide, and Rodenticide Act;
2. Use of chemically treated wood products shall follow the Western Wood Preservatives Institute (WWPI) guidelines and BMPs to minimize the preservative migrating from treated wood into the aquatic environment;
3. For new or replacement wood structures, the wood shall be sealed with non-toxic products such as water-based silica or soy-based water repellants or sealers to prevent or limit leaching. Acceptable alternatives to chemically treated wood include untreated wood, steel (painted, unpainted or coated with epoxy petroleum compound or plastic), concrete and plastic lumber; and
4. All removal of chemically treated wood products (including pilings) shall follow the most recent “EPA Region 10 Best Management Practices for Piling Removal and Placement in Washington State.”

Specific Tribes with Certifying Authority (Projects in Specific Tribal Areas):
WQC was issued by the Swinomish Indian Tribal Community. WQC was waived by the Confederated Tribes of the Chehalis Reservation and Colville Indian Reservation, Kalispel Tribe of Indians, Port Gamble S'Klallam Tribe, Quinault Indian Nation, and the Spokane Tribe of Indians. WQC was denied by the Lummi Nation, Makah Tribe, Puyallup Tribe of Indians, and the Tulalip Tribes; therefore, individual WQC is required from these tribes.

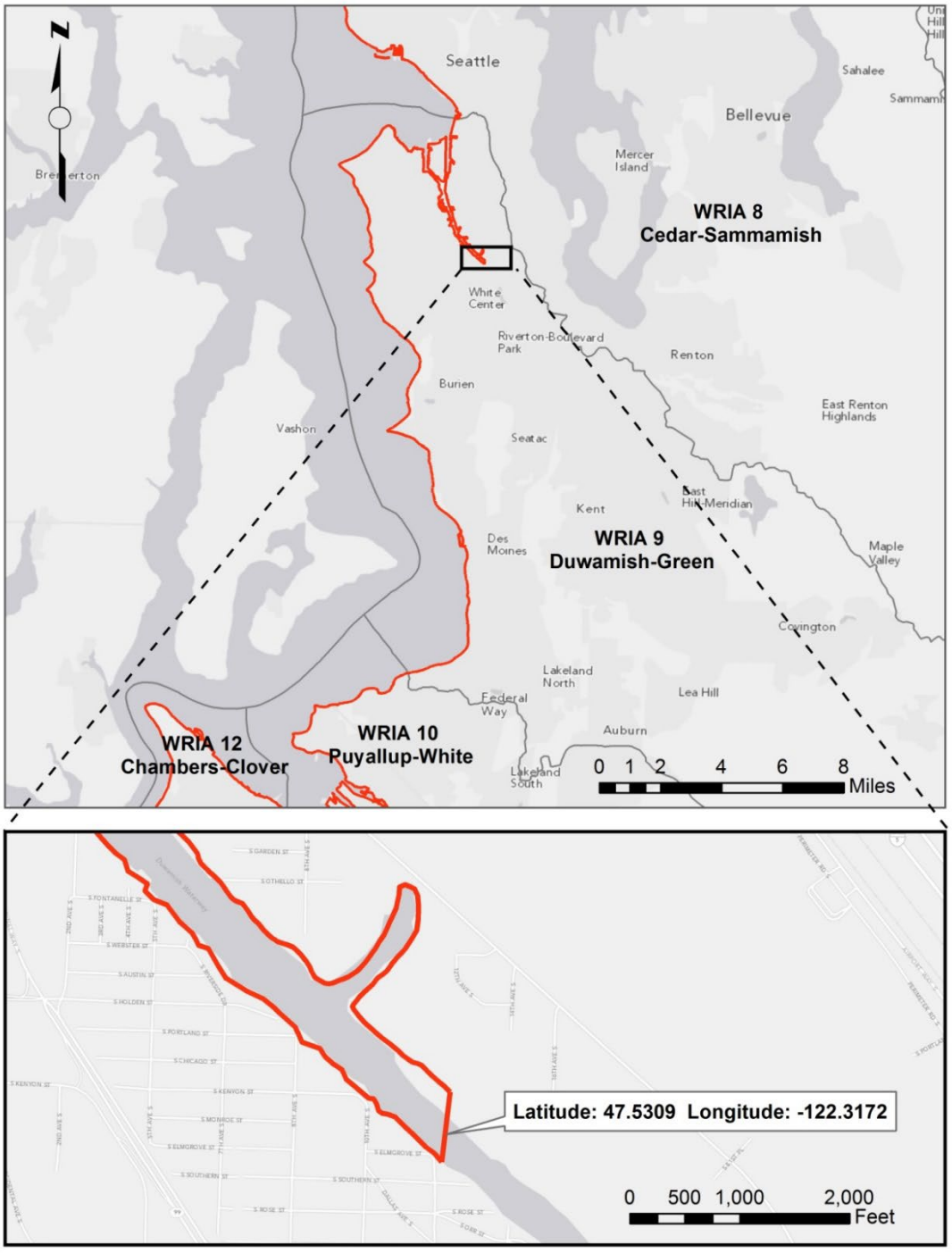
F. COASTAL ZONE MANAGEMENT ACT (CZMA) CONSISTENCY RESPONSE FOR THIS NWP:

Ecology’s determination is that they concur that this NWP is consistent with CZMA.

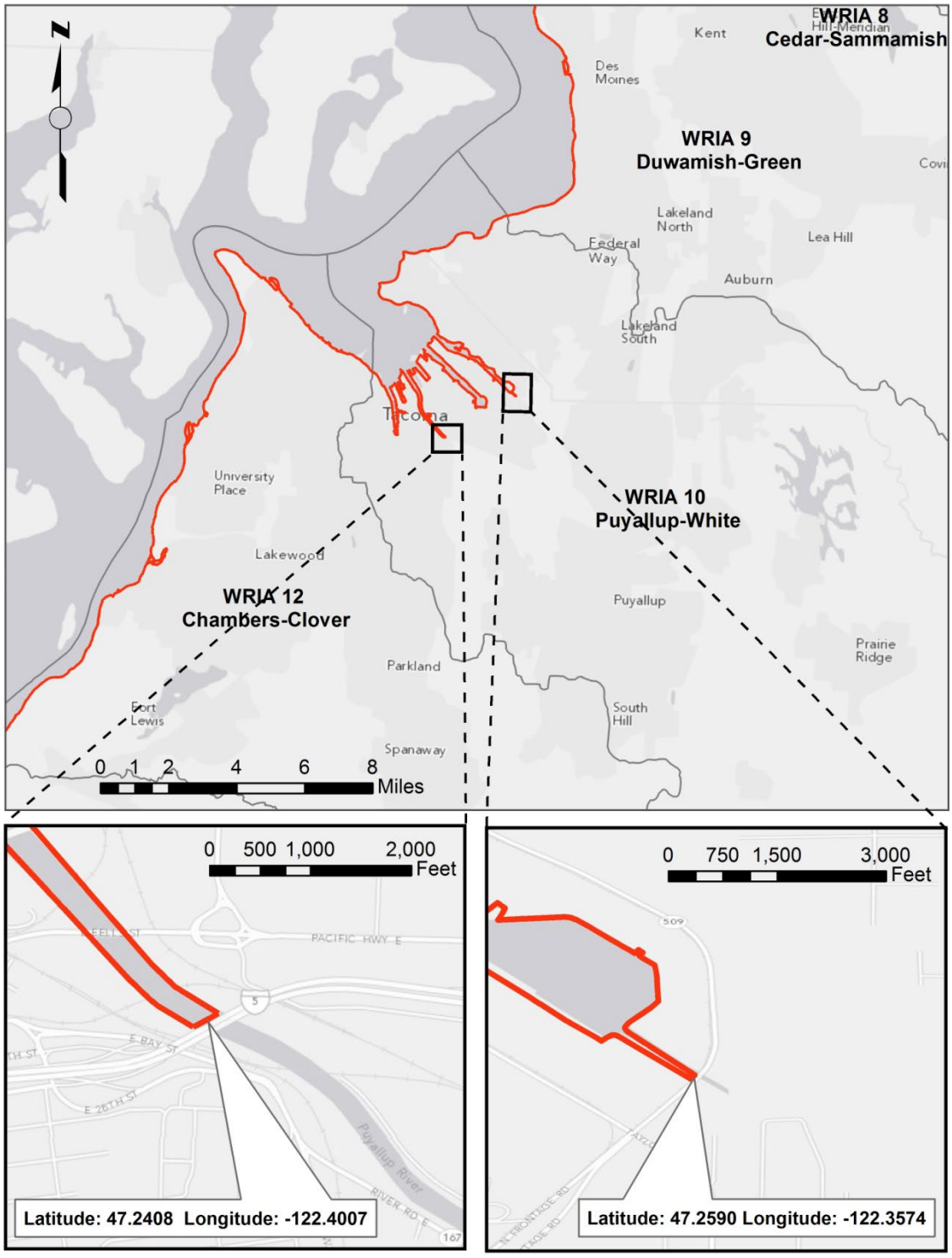
Seattle District Regional General Conditions - Figures
Figure 1: RGC 3 - WRIAs 8, 9, 10, 11, and 12
a. WRIA 8



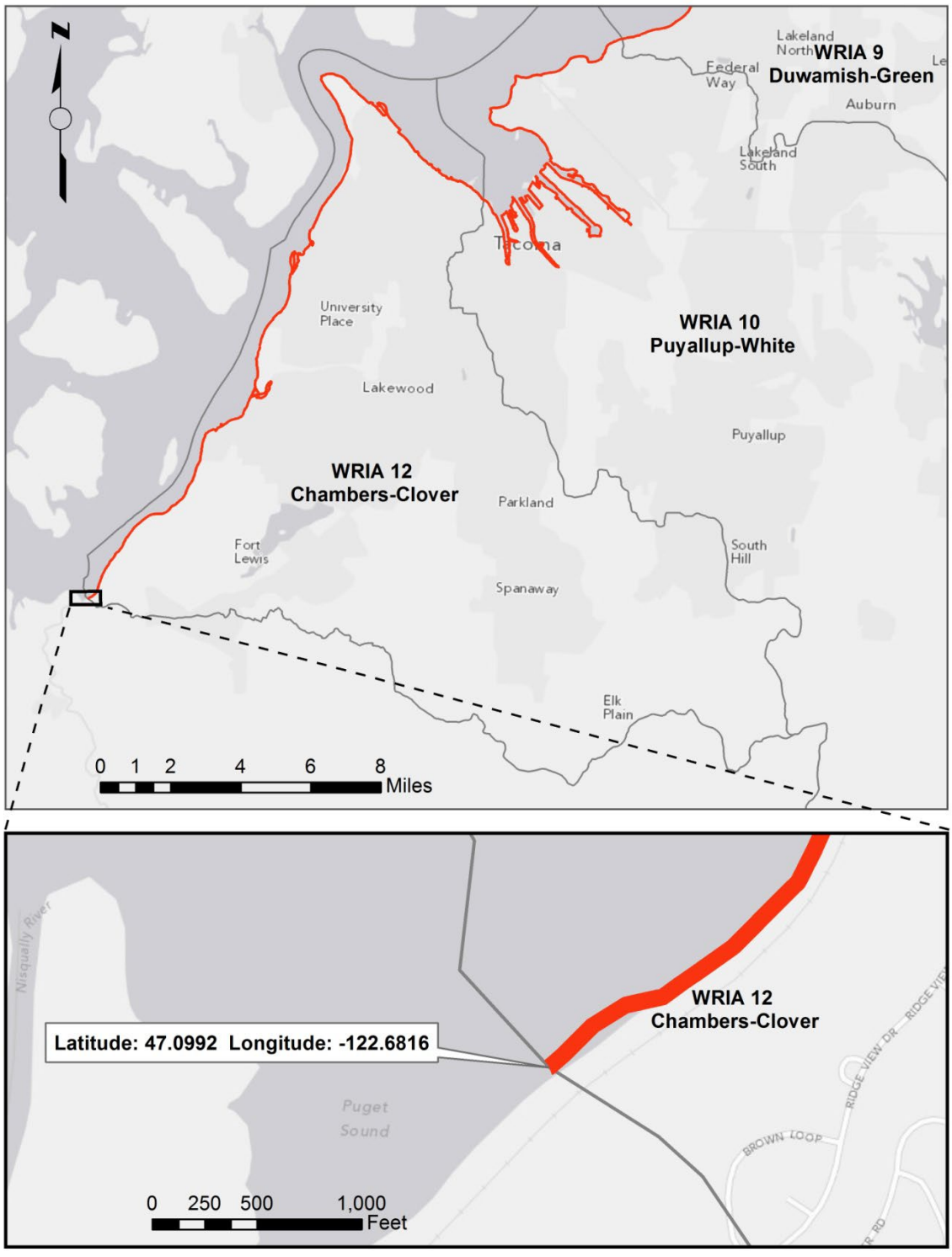
b. WRIA 9


N
Seattle
Bellevue
Sahalee
Mercer Island
Bremerton
WRIA 8
Cedar-Sammamish
White Center
Riverton-Boulevard Park
Renton
Burien
East Renton Highlands
Vashon
Seatac
Kent
East Hill-Meridian
Des Moines
WRIA 9
Duwamish-Green
Maple Valley
Covington
Lakeland North
Lea Hill
Federal Way
Auburn
WRIA 12
Chambers-Clover
WRIA 10
Puyallup-White
Lakeland South
0 1 2 4 6 8
Miles
Latitude: 47.5309 Longitude: -122.3172
0 500 1,000 2,000
Feet

c. WRIA 10


N
WRIA 8
Cedar-Sammamish
Kent
Des Moines
WRIA 9
Duwamish-Green
Lakeland North
Federal Way
Lea Hill
Auburn
Lakeland South
Tacoma
University Place
WRIA 10
Puyallup-White
Lakewood
WRIA 12
Chambers-Clover
Puyallup
Prairie Ridge
Parkland
Fort Lewis
South Hill
Spanaway
0 1 2 4 6 8 Miles
0 500 1,000 2,000 Feet
PACIFIC HWY E
E BAY ST
E 26TH ST
Puyallup River
RIVER RD E
Latitude: 47.2408 Longitude: -122.4007
0 750 1,500 3,000 Feet
509
Latitude: 47.2590 Longitude: -122.3574

d. WRIA 12


N
Lakeland North
WRIA 9
Duwamish-Green
Federal Way
Auburn
Lakeland South
Tacoma
University Place
WRIA 10
Puyallup-White
Lakewood
Puyallup
WRIA 12
Chambers-Clover
Parkland
Fort Lewis
South Hill
Spanaway
Elk Plain
0 1 2 4 6 8
Miles
Nisqually River
WRIA 12
Chambers-Clover
Latitude: 47.0992 Longitude: -122.6816
Puget Sound
BROWN LOOP
RIDGE VIEW DR
0 250 500 1,000
Feet

e. WRIA 11

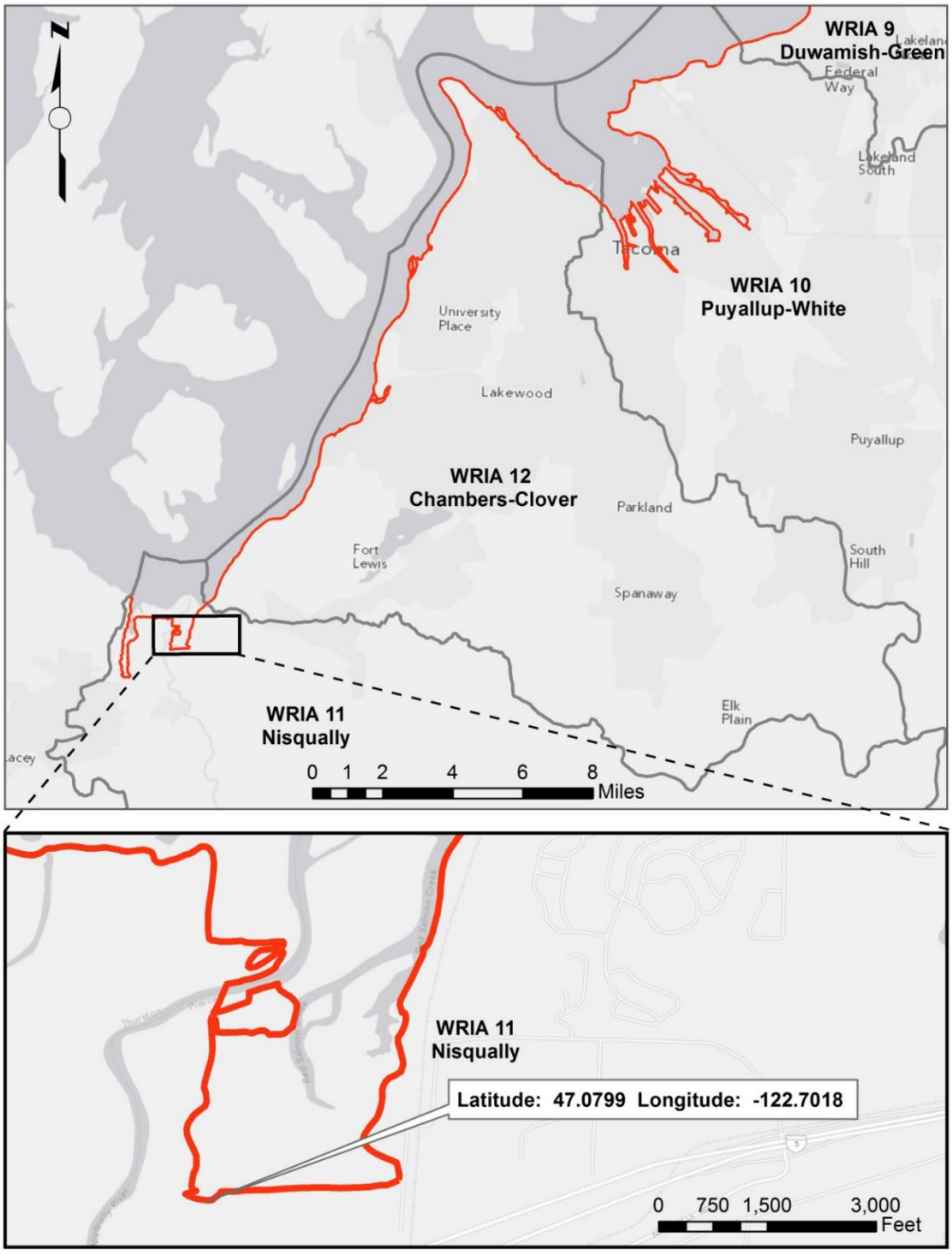
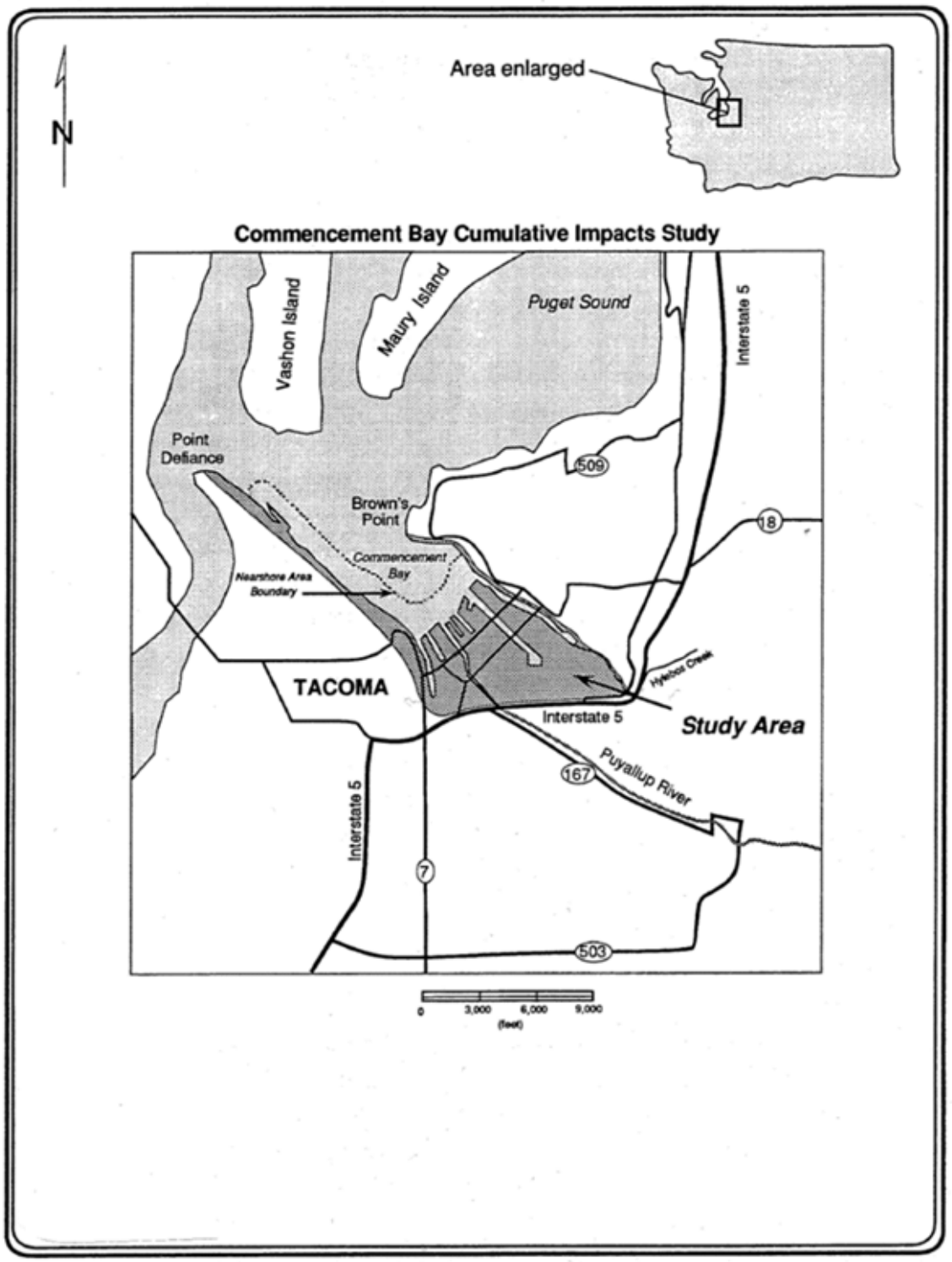

WRIA 9
Duwamish-Green
Federal Way
Lakeland South
Tacoma
WRIA 10
Puyallup-White
University Place
Lakewood
Puyallup
WRIA 12
Chambers-Clover
Parkland
Fort Lewis
South Hill
Spanaway
Elk Plain
Lacey
WRIA 11
Nisqually
0 1 2 4 6 8
Miles
WRIA 11
Nisqually
Latitude: 47.0799 Longitude: -122.7018
0 750 1,500 3,000
Feet

Figure 2. RGC 4 - Commencement Bay Study Area



State Environmental Policy Act - Determination of Nonsignificance

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: November 17, 2025

Lead agency: Department of Ecology, Toxics Cleanup Program, Southwest Region

Agency Contact: Sam Meng
Cleanup Project Manager
sam.meng@ecy.wa.gov
(360) 999-9587

Description of proposal:

The project applicants propose to conduct an interim cleanup action at the Arkema Inc Cleanup Site (Site). This action will be required by the Department of Ecology (Ecology) through an Amendment to the existing Agreed Order (No. DE 5668) between Ecology and the proponent listed below. This interim cleanup action is being conducted to reduce the rate of arsenic entering the Hylebos Waterway through groundwater.

The upland 2901 Taylor Way portion of the Site has been vacant and unused since the Port purchased the property. The contamination was associated with historical manufacturing operations related to chlorine, sodium hydroxide (caustic), sodium chlorate, hydrochloric acid, and sodium arsenite. Under the interim action, a barrier wall around the arsenic groundwater plume will be installed, followed by an impervious cap over the barrier wall area, and an asphalt cap will be installed outside the barrier wall area.

Location of proposal: 2901 Taylor Way, Tacoma, WA 98421, Pierce County

Applicant/Proponent: Port of Tacoma

Project Representative: Scott Hooton
Port of Tacoma
(253) 383-9428
PO Box 1837
Tacoma, WA 98401
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 Draft Interim Action Work Plan, which includes Preliminary Engineering Design.

These documents are available at:

Tacoma Public Library 1102 Tacoma Avenue Tacoma, WA 98402	Ecology Lacey Office (by appointment) 300 Desmond Drive SE Lacey, WA 98503

This determination is based on the following findings and conclusions:

- The project will reduce arsenic in the groundwater entering the Hylebos Waterway.
- Preliminary Engineering Design documents have been prepared and reviewed by Ecology.
- Final Engineering Design documents will be prepared and approved by Ecology to ensure all on-site work will be performed in accordance with applicable standards and use of best management construction practices.
- The work will be conducted under the requirements of the following plans that will be reviewed and approved by Ecology before beginning work: Erosion Control and Stormwater Pollution Prevention Plan; Inadvertent Discovery Plan; Contaminated Media Management Plan; Compliance Monitoring Plan; Health and Safety Plan; and other necessary plans if identified later.
- The Ecology cleanup project manager will provide oversight during project construction.

The comment period for this DNS corresponds with the comment period for the Draft Interim Action Work Plan and associated Agreed Order Amendment. The comment period begins on Dec 4, 2025, and ends on January 6, 2026.

Responsible Official: Marian L. Abbett, PE
Section Manager
Toxics Cleanup Program
Southwest Region Office
Department of Ecology
P.O. Box 47775
Olympia, WA 98504-7600
(360) 489-4569
marian.abbett@ecy.wa.gov

Signature: Marian L. Abbett

Date: 11/17/2025

SEPA[1] Environmental Checklist

Purpose of checklist

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization, or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. **You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown.** You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to **all parts of your proposal**, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for lead agencies

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B, plus the Supplemental Sheet for Nonproject Actions (Part D). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in "Part B: Environmental Elements" that do not contribute meaningfully to the analysis of the proposal.

[1] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/Checklist-guidance

A.Background

Find help answering background questions[2]

1. **Name of proposed project, if applicable:**

   Interim Action (IA), Former Arkema Manufacturing Site

2. **Name of applicant:**

   Scott Hooton, Port of Tacoma (Port) Environmental Program Manager

3. **Address and phone number of applicant and contact person:**

   Port of Tacoma
   PO Box 1837
   Tacoma, WA 98401
   253.383.9428

4. **Date checklist prepared:**

   August 15, 2025

5. **Agency requesting checklist:**

   Washington State Department of Ecology (Ecology)

6. **Proposed timing of schedule (including phasing, if applicable):**

   The phased IA construction is expected to take place over several years. The IA construction schedule is contingent upon a variety of factors, including Ecology's approval of IA engineering plans and specifications, obtaining permits/approvals, and the Port contracting process. Phase 1 of the IA is currently anticipated to begin in 2026. Phase 1 will include construction of the barrier wall, the barrier wall containment area cap over the barrier wall area, and stormwater outfalls. Phases 2 and 3 of the IA are currently anticipated to begin in 2027. Phases 2 and 3 include construction of an asphalt cap in a 24-acre area.

7. **Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.**

   Additional investigation and remedial actions will be conducted at this Model Toxics Control Act (MTCA) Site in the future pursuant to Agreed Order No. DE 5668 between Ecology and the Port.

8. **List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.**

   PIONEER Technologies Corporation (PIONEER). 2025. Interim Action Work Plan (IAWP). Former Arkema Manufacturing Site. August.

[2] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-A-Background

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

None known.

10. List any government approvals or permits that will be needed for your proposal, if known.

Per the MTCA law, WAC 173-340-710(9), and Section VIII.P.2 of Agreed Order No. DE 5668, the Port is exempt from the procedural requirements of local permits/approvals and select state permits/approvals (although the Port must comply with the associated substantive requirements). The following permits/approvals may be required for this IA:

- City of Tacoma Site Development Permit
- City of Tacoma Shoreline Substantial Development Permit (including Conditional Use Permit)
- City of Tacoma Right-of-Way Work Order Permit
- City of Tacoma Building Permit
- Washington State Department of Fish and Wildlife Hydraulic Project Approval

In conjunction with finalizing the IA design, the Port will lead efforts to submit permit applications and coordinate with permitting agencies to obtain necessary non-exempt permits/approvals. The permitting milestones for the non-exempt permits/approvals are expected to be:

- Obtaining coverage under a general construction stormwater NPDES permit; and
- Updating/obtaining applicable NPDES permit coverage for future stormwater discharges via the new stormwater utility system.

Other approvals may need to be obtained by the Remediation Contractor during construction. For instance, it is currently anticipated that the Remediation Contractor will be responsible for obtaining applicable waste disposal authorizations from permitted disposal facilities to dispose of generated waste.

On February 28, 2025, the United States Army Corps of Engineers approved the Port's application to install a new stormwater outfall and modify an existing stormwater outfall pursuant to Clean Water Act Nationwide Permit 7 and the additional conditions in the February 28, 2025 approval letter.

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The proposed project is an IA to partially address the cleanup of the Site pursuant to Agreed Order No. DE 5668.The IA is on the 2901 Taylor Way portion of the Site and covers approximately 30 acres. The IA consists of:

- Decommissioning, reinstalling, retrofitting, and/or installing monitoring wells within the IA areas;

- Demolishing surface and subsurface obstructions (e.g., former building foundations) within the IA areas and crushing concrete and asphalt for future use as common near-surface fill underneath asphalt caps;
- Installing a continuous, low-permeability barrier wall around the arsenic groundwater plume core by injecting slurry mix by vibratory beam technology to the subsurface;
- Installing an impervious cap over the barrier wall area (i.e., the barrier wall containment area cap);
- Importing acceptable fill material, reusing crushed concrete and asphalt, and grading soil within the IA areas to (1) raise the overall ground surface elevation of the approximately 24-acre area that will receive an asphalt cap, and (2) facilitate stormwater collection for all IA areas;
- Installing a new stormwater outfall, modifying an existing stormwater outfall, and constructing a stormwater collection, conveyance, and treatment system for the IA areas;
- Installing an asphalt cap in an approximately 24-acre area; and
- Security fence, lights and utilities.

The locations of the proposed barrier wall, the barrier wall containment area cap, and the asphalt cap are shown on Figure 8 of the IAWP. The locations of the proposed stormwater outfalls are shown on Figure 3 of the IAWP.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

The relevant Arkema properties are an approximately 45-acre portion of a 64.8-acre parcel (tax parcel number 0321351053) located at 2901 Taylor Way and a 3.2-acre parcel (tax parcel number 0321362056) located at 2920 Taylor Way in Tacoma, Washington. The Site boundary is the same as the Arkema property boundary with the following exceptions:

- The North Boundary Area (NBA) cleanup action is being conducted as part of Agreed Order No. DE 3405 for the United States Gypsum (USG) Taylor Way Plant Site.
- A triangular-shaped portion of the Intermediate Aquifer on the adjacent Arkema Mound site is part of the Site boundary.

A vicinity map and a Site map identifying the area where the IA will take place are included as Figure 1 and Figure 2, respectively, in the IAWP. The existing surface topography is shown on Figure 4 of the IAWP.

B.Environmental Elements

1. Earth

Find help answering earth questions[3]

a. General description of the site:

Circle or highlight one: Generally Flat

The Site is relatively flat, with the shoreline sloping to the Hylebos Waterway. Numerous former infrastructure features (e.g., building foundations, rail alignments, paved areas, piping systems) from the manufacturing operations remain at or below ground surface throughout much of the upland portion of the Site.

b. What is the steepest slope on the site (approximate percent slope)?

Except for the shoreline, current topographic elevations for the upland portion of the Site generally range between +15 feet and +20 feet mean lower low water (MLLW; see Figure 4 of the IAWP). The current upland elevation adjacent to the top of the shoreline is typically +17 to +19 feet MLLW.

The steepest slope is along the shoreline of the Hylebos Waterway (approximately 40% slope or 2.5H:1V).

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them, and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

The Site is located within the tideflats of the Puyallup River delta. The pre-development tideflats generally consisted of alternating layers of lower permeability silt/clay and sandy deposits. Sediment dredged from Commencement Bay and its tributaries, as well as other fill material, were used to raise the land elevation during the industrial development of the tideflats.

The relevant lithologic units at the Site, from shallowest to deepest, include (1) fill consisting of dredge sand and imported fill, (2) upper silt consisting primarily of clayey silt to fine sandy silt, with fibrous organic material associated with former tideflat vegetation at the top of the unit, (3) intermediate sand consisting primarily of native fine to medium sand with shell fragments and silt interbeds, (4) lower silt consisting primarily of clayey silt to fine sandy silt, and (5) lower sand consisting primarily of fine to medium sand with silt interbeds.

The Site does not include any agricultural land.

[3] https://ecology.wa.gov/regulations-permits/sepa/environmental-review/sepa-guidance/sepa-checklist-guidance/sepa-checklist-section-b-environmental-elements/environmental-elements-earth

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

No.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

Filling, grading, and limited excavation will occur during the IA. Filling and grading are necessary to (1) raise the overall ground surface elevation of the approximately 24-acre area that will receive an asphalt cap, (2) facilitate stormwater collection for all IA areas, and (3) construct the asphalt cap in the 24-acre area. It is currently estimated that approximately 110,000 cubic yards of fill material will be imported. Common borrow and crushed surfacing base course (CSBC) will be imported as fill material. The source of these import materials will be determined on a case-by-case basis based on chemical testing results in consultation with Ecology. The limited excavation activities include (1) excavating a shallow slurry reservoir trench along the barrier wall alignment to enable construction of the barrier wall (see IAWP Appendix G), (2) excavating materials as necessary to install a new stormwater outfall and modify an existing stormwater outfall (see IAPW Appendix H), and (3) excavating soil as necessary to install utilities (e.g., piping and vaults for the stormwater collection and treatment system).

f. Could erosion occur because of clearing, construction, or use? If so, generally describe.

Erosion is unlikely as a result of the IA. Temporary erosion and sediment controls will be used during IA construction activities. Temporary erosion and sediment controls will be included in the final IA Plans and Specifications. After IA construction, the IA areas will be covered by the barrier wall containment area cap and the asphalt cap, which will prevent erosion within the IA areas.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Approximately 67% of the Site will be covered by the barrier wall containment area cap and the asphalt cap after IA construction.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any.

Engineering controls and best management practices (BMPs), CSGP, SWPPP, TESC, will be used throughout the duration of construction to reduce or control erosion or other IA construction impacts.

2. Air

Find help answering air questions[4]

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

Temporary air emissions (e.g., engine exhaust and dust) will occur as a result of typical operating equipment used during construction activities. No additional emissions other than any that currently exist on the Site would result following completion of IA construction.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

No.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

Engineering controls (e.g., the Port's anti-idling policy, dust control measures) and BMPs will be implemented to reduce or control emissions or other impacts to air.

3. Water

Find help answering water questions[5]

a. Surface:

Find help answering surface water questions[6]

1. Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

The Hylebos Waterway is along the northeast boundary of the Site.

2. Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

Yes. Construction of portions of the barrier wall, barrier wall containment area cap, and asphalt cap will occur within 200 feet of the Hylebos Waterway (see IAWP Figure 8, Appendix G, and Appendix H). Installation of a new outfall and

[4] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-Air
[5] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-3-Water
[6] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-3-Water/Environmental-elements-Surface-water

modifications to an existing outfall will also occur within 200 feet of the Hylebos Waterway (see IAWP Figure 3 and Appendix H).

3. **Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.**

   Up to 156 cubic yards of fill material will be placed in the Hylebos Waterway to support installation of a new stormwater outfall and modifying an existing stormwater outfall pursuant to the United States Army Corps of Engineers February 28, 2025 approval letter. The fill material will be native material generated from stormwater outfall construction activities.

4. **Will the proposal require surface water withdrawals or diversions? Give a general description, purpose, and approximate quantities if known.**

   No surface water withdrawals or diversions are proposed.

5. **Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.**

   No.

6. **Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.**

   No.

b. Ground:

Find help answering ground water questions[7]

1. **Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give a general description, purpose, and approximate quantities if known.**

   Groundwater will not be used for drinking water purposes. Minimal quantities of groundwater will be periodically withdrawn from monitoring wells during monitoring well purging and sampling activities conducted to evaluate the effectiveness of the barrier wall and caps. This purged water will be drummed or containerized, profiled, and appropriately disposed of at an off-site facility approved to receive the waste. No water will be discharged to groundwater as part of the proposed project.

2. **Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (domestic sewage; industrial, containing the following chemicals…; agricultural; etc.). Describe the general size of the system, the number**

[7] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-3-Water/Environmental-elements-Groundwater

of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

None.

c. Water Runoff (including stormwater):

1. **Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.**

   The runoff source will be from precipitation within the Site boundary. The IA will include installing a new stormwater outfall, modifying an existing stormwater outfall, and constructing a stormwater collection, conveyance, and treatment system for the IA areas. The IA asphalt cap surface elevations and topography will direct stormwater to 7 new stormwater treatment vaults. These shallow vaults will treat stormwater at the point of collection and convey stormwater to two outfalls discharging to the Hylebos Waterway.

2. **Could waste materials enter ground or surface waters? If so, generally describe.**

   Slurry from the installation of the low permeability barrier wall has the potential to runoff into the Hylebos Waterway via (1) surface runoff, (2) manmade conduits (e.g., pipelines, utility trenches, infiltration trenches, and associated bedding gravel), and (3) subsurface soil/rock with large void spaces. Protective measures will be included in the design to prevent slurry loss and transport from active slurry trench construction operations as outlined in IAWP Section 4.1.3.

3. **Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.**

   Yes. Currently, virtually all stormwater infiltrates to Site soil. The IA areas will be regraded and capped to reduce infiltration to contaminated soils and groundwater and redirect stormwater to the Hylebos Waterway via stormwater outfalls.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

Engineering controls and BMPs will be implemented to control surface, ground, and runoff water impacts during IA construction.

4. Plants

Find help answering plants questions

a. Check the types of vegetation found on the site:

☐ **deciduous tree: alder, maple, aspen, other**

☐ **evergreen tree: fir, cedar, pine, other**

☐ **shrubs**

☒ **grass**

☐ **pasture**

☐ **crop or grain**

☐ **orchards, vineyards, or other permanent crops.**

☐ **wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other**

☐ **water plants: water lily, eelgrass, milfoil, other**

☐ **other types of vegetation**

b. What kind and amount of vegetation will be removed or altered?

There is currently limited vegetation on the Site. The existing grassy vegetation within IA areas will be removed to allow for filling to raise the Site elevation, regrading for stormwater collection, and installation of the barrier wall, barrier wall containment area cap, and asphalt cap. The IA areas include approximately 30 acres.

c. List threatened and endangered species known to be on or near the site.

None.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any.

None.

e. List all noxious weeds and invasive species known to be on or near the site.

None known.

5. Animals

Find help answering animal questions[8]

a. List any birds and other animals that have been observed on or near the site or are known to be on or near the site.

- **Birds:** Herons may utilize the waterway, and transitory geese and songbirds adapted to urban areas (house sparrows, starlings) may occur in the grass.
- **Mammals:** Small mammals such as mice, squirrels, and/or raccoons may utilize the grassy portions of the Site.
- **Fish:** Several species of salmon may occur in the waterway while traveling (see below). It is likely that other species of fish and marine life, such as benthic organisms, are also present.

b. List any threatened and endangered species known to be on or near the site.

Threatened and endangered species are known to occur on or near the Port properties. The following threatened or endangered species are known to be within the waterways near the Site.

[8] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-5-Animals

- Puget Sound Chinook salmon (Oncorhynchus tshawytscha – threatened)
- Coastal-Puget Sound bull trout (Salvelinus confluentus – threatened)
- Puget Sound steelhead trout (Oncorhynchus mykiss – threatened)
- Bocaccio (Sebastes paucispinis – endangered)
- Yelloweye Rockfish (S. ruberrimus – threatened)
- Southern Resident Killer Whale (Orcinus orca – endangered)
- Humpback Whale (Megaptera novaeangliae – endangered/threatened)
- Marbled Murrelet (Brachyramphus marmoratus – threatened)

c. Is the site part of a migration route? If so, explain.

Yes. The Tacoma Tideflats are part of the Pacific Flyway.

d. Proposed measures to preserve or enhance wildlife, if any.

No enhancement measures are proposed. No adverse impacts to wildlife are anticipated for threatened and endangered species.

e. List any invasive animal species known to be on or near the site.

None known.

6. Energy and natural resources

Find help answering energy and natural resource questions[9]

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

The completed project will not require any additional or different energy sources to operate. However, applicable underground utilities necessary for Port Maritime and Industrial use of the property will be installed in conjunction with installing the asphalt cap (see 16.b.).

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any.

None proposed.

7. Environmental health

Health Find help with answering environmental health questions[10]

[9] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-6-Energy-natural-resou
[10] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-7-Environmental-health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur because of this proposal? If so, describe.

Exposure to metals and volatile organic compound contamination could occur during the IA, as well as the physical hazards associated with the construction methods to be employed.

1. Describe any known or possible contamination at the site from present or past uses.

There is metals and volatile organic compound contamination in soils and groundwater at the Site from historical operations. Constituents of concern include arsenic, copper, lead (soil only), mercury, nickel, tetrachloroethylene, trichloroethylene, vinyl chloride, and chloroform. The primary concern for the Site is arsenic in groundwater due to the potential for groundwater transport of arsenic in the main arsenic plume to cause unacceptable exposures in Hylebos Waterway surface water and sediment. Dissolved arsenic concentrations up to 100,000 ug/L are observed in the main arsenic plume in the Upper and Intermediate Aquifers. Soil arsenic concentrations are generally less than 10,000 mg/kg, with the highest in-place soil concentrations occurring within the Upper Aquifer and the top portion of the First Aquitard. The highest concentrations in this vertical interval are 25,000 mg/kg and 165,000 mg/kg within and near Former Penite Pits #1 and #2 (known primary sources). This IA is being completed to decrease risks to human health and the environment that are associated with the existing contamination.

2. Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

According to the National Pipeline Mapping System (NPMS) pipeline public viewer, no underground hazardous liquid or gas transmission pipelines are located within or near the project area.

3. Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

The waste streams for this IA are currently expected to be:

- Any vegetation generated during clearing and grubbing that is designated as a waste (i.e., vegetation that cannot be composted for some reason);
- Any generated asphalt that is designated as a waste (i.e., asphalt that is not being crushed and reused on-site);
- Any generated concrete that is designated as a waste (i.e., concrete that is not being crushed and reused on-site);
- Any generated soil that is designated as a waste (i.e., soil that is not reused on-site);

- Investigation-derived waste (e.g., soil and water generated during installation and development of monitoring wells);
- Water generated from equipment and personnel decontamination;
- Personal protective equipment; and
- Miscellaneous construction debris (e.g., slurry materials designated as waste, disposable equipment/materials, rail ties, general trash)

Generated waste will be disposed of at an off-site facility permitted to accept the waste.

The only products stored during construction will be fuels, lubricants, or other typical construction-related materials used for operating equipment and vehicles.

4. **Describe special emergency services that might be required.**

   No special emergency services are expected to be required.

5. **Proposed measures to reduce or control environmental health hazards, if any.**

   Work will be completed in accordance with the IAWP and the final Engineering Plans and Specifications. Project health and safety plans will be developed to establish requirements to ensure that employees will wear appropriate personal protective equipment while working at the Site and will follow proper decontamination procedures. Daily tailgate safety awareness meetings will be held to discuss safety topics of the day.

b. Noise

1. **What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?**

   The Site is located within an industrial area with a range of sources of noise (e.g., traffic, trucks, trains, cargo handling, and vessels). These noise sources will not affect this project.

2. **What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site)?**

   Temporary noise during IA construction will be generated by construction equipment, including vibratory beam installation of the barrier wall, earthmoving equipment, and trucks transporting materials to and from the construction area.

   Active construction and support operations such as maintaining equipment will be limited to normal daytime work hours in accordance with City of Tacoma's noise ordinance or as modified through an approved variance.

   No additional long-term noise (post-IA construction) is expected to be created by the project.

3. **Proposed measures to reduce or control noise impacts, if any:**

All construction will be completed consistent with state and local regulations. The contractor will adhere to the City of Tacoma's noise ordinance and implement noise controls.

8. Land and shoreline use

Find help answering land and shoreline use questions[11]

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

The Site is within the Port Maritime and Industrial District. However, the upland 2901 Taylor Way portion of the Site has been vacant and unused since the Port purchased the property from Arkema in 2007. This portion of the Site is currently covered with vegetation, crushed rock, and numerous former infrastructure features at or below ground surface. The surrounding areas are used for industrial and maritime activities. The proposal will not affect land uses on nearby or adjacent properties.

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses because of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

No. The Site is not used as working farmland or working forest lands.

1. **Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how?**

   No.

c. Describe any structures on the site.

There are no existing buildings or structures on the Site. However, numerous former infrastructure features (e.g., building foundations, rail alignments, paved areas, piping systems) from the manufacturing operations remain at or below ground surface throughout much of the upland portion of the Site.

d. Will any structures be demolished? If so, what?

The IA will include demolishing surface and subsurface obstructions (e.g., former building and tank foundations) within the IA areas. This will limit the potential for differential settlement of the asphalt cap over time.

e. What is the current zoning classification of the site?

Port Maritime and Industrial

f. What is the current comprehensive plan designation of the site?

[11] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-8-Land-shoreline-use

Heavy Industrial

g. If applicable, what is the current shoreline master program designation of the site?

S10. Port Industrial Area, High Intensity

h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

No.

i. Approximately how many people would reside or work in the completed project?

There is no housing at the Site, no housing is proposed for the Site, and there will be no change in the number of jobs because of the completed project.

j. Approximately how many people would the completed project displace?

None.

k. Proposed measures to avoid or reduce displacement impacts, if any.

None proposed.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any.

The IA will be integrated with future property plans (e.g., the Port's Hylebos Barge Terminal Concept; Figure 3 of the IAWP). For example, the IA's stormwater collection, conveyance, and treatment system will be constructed to accommodate the IA areas as well as other areas of the upland 2901 Taylor Way portion of the Site that will eventually receive an asphalt cap after the IA. In addition, the IA will be constructed so that it does not preclude reasonable alternatives for a final cleanup action for the Site.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any:

None proposed.

9. Housing

Find help answering housing questions[12]

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

None.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

None.

c. Proposed measures to reduce or control housing impacts, if any:

[12] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-9-Housing

None.

10. Aesthetics

Find help answering aesthetics questions[13]

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

No proposed structures.

b. What views in the immediate vicinity would be altered or obstructed?

No views will be altered or obstructed.

c. Proposed measures to reduce or control aesthetic impacts, if any:

None proposed.

11. Light and glare

Find help answering light and glare questions[14]

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

There may be some light generated from construction equipment, but it will be temporary and minor if any. Active construction and support operations such as maintaining equipment will be limited to normal daytime work hours and weekdays. Any permanent security lighting will be shielded to minimize glare.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

No.

c. What existing off-site sources of light or glare may affect your proposal?

None.

d. Proposed measures to reduce or control light and glare impacts, if any:

None proposed.

12. Recreation

Find help answering recreation questions

a. What designated and informal recreational opportunities are in the immediate vicinity?

There are none in the immediate vicinity.

b. Would the proposed project displace any existing recreational uses? If so, describe.

[13] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-10-Aesthetics
[14] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-11-Light-glare

No.

c. **Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:**

None proposed.

13. Historic and cultural preservation

Find help answering historic and cultural preservation questions[15]

a. **Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers? If so, specifically describe.**

No.

b. **Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.**

There are no known cultural resources on the Site per:

- Cultural Resources Overview for the Blair-Hylebos Terminal Redevelopment Project prepared by Cultural Resource Consultants, Inc. (February 18, 2009), and
- Port of Tacoma Cultural Resource Programmatic Management Plan (CRPMP) prepared by Aqua Terra Cultural Resource Consultants (November 4, 2024).

c. **Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.**

The Port utilizes geological logs, the aforementioned documents, quarterly coordination meetings with the Puyallup Tribe of Indians Historic Department/THPO staff, and the Ecology/DAHP Governor's Executive Order 21-02 process to assess potential impacts.

d. **Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.**

The Inadvertent Discovery Plan in Appendix K of the IAWP will be on-site during construction activities and will be implemented if an inadvertent discovery is encountered during the IA.

[15] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-13-Historic-cultural-p

14. Transportation

Find help with answering transportation questions[16]

a. **Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.**

   Taylor Way services the Site. Access to Taylor Way will be by existing driveways.

b. **Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?**

   This Site is not served by public transit. The closest area for transit is Highway 99.

c. **Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle, or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).**

   No.

d. **Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.**

   No.

e. **How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?**

   Construction impacts will be temporary. It is expected that there will be on the order of 4,000 truck trips (assuming 25 cubic yards per trip) to import fill material and dispose of any generated waste material. Peak truck activity would occur while importing fill material during Phases 2 and 3 construction. The completed project is expected to result in no net change in the number of vehicular trips or traffic patterns.

f. **Will the proposal interfere with, affect, or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.**

   No.

g. **Proposed measures to reduce or control transportation impacts, if any:**

   None proposed.

15. Public services

Find help answering public service questions[17]

[16] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-14-Transportation
[17] https://ecology.wa.gov/regulations-permits/sepa/environmental-review/sepa-guidance/sepa-checklist-guidance/sepa-checklist-section-b-environmental-elements/environmental-elements-15-public-services

a. **Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.**

No.

b. **Proposed measures to reduce or control direct impacts on public services, if any.**

None proposed.

16. Utilities

Find help answering utilities questions[18]

a. **Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other:**

None.

b. **Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.**

Applicable underground utilities necessary for Port Maritime and Industrial use of the property will be installed in conjunction with installing the asphalt cap. Specifically, stormwater, fire protection water, and lighting utilities will be installed within the approximately 24-acre area that will receive an asphalt cap during the IA. These underground utilities are being installed in conjunction with the asphalt cap to maximize the long-term integrity of the asphalt cap and avoid compromising the asphalt cap by installing utilities after the cap has already been constructed. Following completion of the IA, the stormwater collection, conveyance, and treatment system will be operated and maintained by the Port.

C.Signature

Find help about who should sign[19]

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

X Scott Hooton

Type name of signee:

Scott T Hooton

[18] https://ecology.wa.gov/regulations-permits/sepa/environmental-review/sepa-guidance/sepa-checklist-guidance/sepa-checklist-section-b-environmental-elements/environmental-elements-16-utilities

[19] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-C-Signature

Position and agency/organization: Environmental Manager II, Port of Tacoma

Date submitted: November 18, 2025

D.Supplemental sheet for nonproject actions

Find help for the nonproject actions worksheet[20]

Do not use this section for project actions.

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. **How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?**
   - **Proposed measures to avoid or reduce such increases are:**
2. **How would the proposal be likely to affect plants, animals, fish, or marine life?**
   - **Proposed measures to protect or conserve plants, animals, fish, or marine life are:**
3. **How would the proposal be likely to deplete energy or natural resources?**
   - **Proposed measures to protect or conserve energy and natural resources are:**
4. **How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection, such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?**
   - **Proposed measures to protect such resources or to avoid or reduce impacts are:**
5. **How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?**
   - **Proposed measures to avoid or reduce shoreline and land use impacts are:**
6. **How would the proposal be likely to increase demands on transportation or public services and utilities?**
   - **Proposed measures to reduce or respond to such demand(s) are:**
7. **Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.**

[20] https://ecology.wa.gov/regulations-permits/sepa/environmental-review/sepa-guidance/sepa-checklist-guidance/sepa-checklist-section-d-non-project-actions

APPENDIX D

PROJECT SPECIFIC SUPPLEMENTAL BIDDER RESPONSIBILITY CRITERIA

APPENDIX D

Project Specific Supplemental Bidder Responsibility Criteria

The Port has established relevant project specific Supplemental Bidder Responsibility Criteria for this project. The apparent low bidder, as determined after Bid Opening, must submit project specific Supplemental Bidder Responsibility Criteria information within two business days from the Port's request for it. The apparent second low bidder must be prepared to submit their project specific Supplemental Bidder Responsibility Criteria from within 24 hours from the Port's request of it if the apparent low bidder does not meet the project specific Supplemental Bidder Responsibility Criteria as determined solely by the Port and **only** if requested in writing from the Port. This process will be repeated until the Port identifies the responsible Contractor with the lowest, responsive bid. The Port may, at it's sole discretion, grant bidder additional time to provide information if the circumstances justify such extension.

Relevant Experience Criteria

The bidder will be evaluated on demonstrating successful completion, either as a prime contractor or principal subcontractor, of projects containing similar construction elements to this Project (as submitted in materials supplementing the Bid Forms) and projects "Similar in Scope and Complexity." For purposes of this request, the elements of "Similar in Scope and Complexity" are the following:

1. A minimum of two (2) projects of similar scope involving installation of a containment wall using a mixture of water, clay and cement, or similar low permeability grout mixture and:
2. A minimum of two (2) projects using vibratory pile driving equipment to install steel H-beam or other steel piling similar to that used with the vibrating beam method and;
3. A minimum of two (2) projects using grout mixing equipment capable of high shear colloidal mixing and positive displacement pumps for delivery of mixed grout and;
4. Experience with and Quality Control methods to:
    a. track and adjust grout mix for strength and permeability
    b. record and adjust grout pumping rate, volume and pressure
    c. methods to maintain beam verticality and control depth

Note that these qualification requirements are listed in Section 31 56 13.1.05.A of the Specifications.

For each of the four (4) categories listed above, please provide a detailed description of relevant projects completed as either the prime contractor or principal

subcontractor within the last fifteen (15) years. In addition to describing the technical work completed, also include the following information concerning these projects:

- Name of Project(s).
- Whether the bidder was the prime contractor or subcontractor on the Project(s).
- If the bidder was a subcontractor, please identify the portion of the Project performed.
- The dollar amount of the bidder's contract or subcontract.
- The gross dollar increase of all change orders and the number of change orders related to the items 1 through 4 above regarding contractor qualifications. The bidder may, but is not required to, provide an explanation of change orders.
- The contact person (owner, owner's consultant, Ecology or equivalent agency (if applicable), or contractor (if the bidder was a subcontractor) that may be contacted concerning bidder's performance by providing the following information. Note, for all projects, an owner contact should be supplied. For projects where the owner had a consultant, the project was supervised by Ecology or equivalent agency, or the bidder was a subcontractor, the appropriate information should be supplied.
    - Name
    - Title
    - Telephone Number
    - Address.

Basis of Evaluation

What information will be considered: The Port will consider the prior relevant experience of the Bidder and any subcontractor that the bidder includes when completing the responsibility form. This includes any information obtained by the Port during due diligence on the information provided.

How the evaluation will be conducted: The Port project manager and its project consultant will evaluate the material submitted by the lowest responsive bidder and, at their sole option, contact the owners, consultants, and representatives of the bidder (if applicable) and the contacts as provided (if applicable). If necessary, the Port will take the same actions with regard to each successive low responsive bidder until the lowest responsive and responsible bidder is identified.

Based upon review of the information submitted and possible discussions with the references required therein, the Port will apply the scoring system of 0 (lowest) to 10 (highest) on each of the four (4) criteria of the Relevant Experience Criteria listed above.

Therefore, a maximum total of thirty (40) points is possible. A bidder will be deemed “not responsible” if they achieve a score of less than thirty-two (32) points.

Deadline for Appealing a Determination That a Bidder is Not Responsible: A bidder determined to be “not responsible” will receive a written notification sent via e-mail and United States mail detailing the reasons the bidder was held to be “not responsible.” The bidder held “not responsible” may appeal that determination within three (3) working days of the notification that bidder was determined as “not responsible.” The appeal must be made to the Port’s Executive Director in writing specifying the exact nature of the appeal. All decisions of the Port’s Executive director are final.

APPENDIX E

GRANT AGREEMENT BETWEEN PORT OF TACOMA AND WASHINGTON STATE DEPARTMENT OF ECOLOGY

WASHINGTON STATE DEPARTMENT OF ECOLOGY

General

Partial funding of this project is being provided by the Washington State Department of Ecology. All terms and conditions included in the grant agreement between the Port of Tacoma and the State of Washington Department of Ecology are fully incorporated into the Port of Tacoma agreement with the Contractor.

Compliance with State and Local Laws

The construction of the project, including all subcontracted work, shall conform to the applicable requirements of state and local laws and ordinances.

State Interest Exclusion

It is anticipated that this project will be funded in part by the Washington State Department of Ecology. Neither the State of Washington nor any of its departments or employees are, or shall be, a party to this contract or any subcontract.

Third Party Beneficiary

Partial funding of this project is being provided through the Washington State Department of Ecology. All parties agree that the State of Washington shall be, and is hereby, named as an express third-party beneficiary of this contract, with full rights as such.

Access to the construction site and to records

The contractor shall provide for the safe access to the construction site and to the contractor's records by Washington State Department of Ecology personnel.

The Contractor shall maintain accurate records and accounts to facilitate the Owner's audit requirements and shall ensure that all subcontractors maintain auditable records.

These Project records shall be separate and distinct from the Contractor's other records and accounts.

All such records shall be available to the Owner and to Washington State Department of Ecology personnel for examination. All records pertinent to this project shall be retained by the Contractor for a period of three (3) years after the final audit.

Notice of copyright with rights to any data or documents created or developed because of or under the contract. The Washington State Department of Ecology:

- Retains a royalty-free, nonexclusive, and irrevocable license to reproduce, publish, or otherwise us the data or documents.
- Can authorize others to use the data or documents for federal, state, or local government purposes.

Protection of the Environment

No construction related activity shall contribute to the degradation of the environment, allow material to enter surface or ground waters, or allow particulate emissions to the atmosphere, which exceed state or federal standards. Any actions that potentially allow a discharge to state waters must have prior approval of the Washington State Department of Ecology.

Inadvertent Discovery of Archeological Resources

The contractor shall obtain a copy of the Inadvertent Discovery Plan from the Project Owner. The contractor shall keep a copy of the inadvertent discovery plan for the project on the work site at all times. The contractor shall immediately stop all work if human remains, cultural, or archeological resources are discovered in the course of construction. The contractor shall follow the inadvertent discovery plan in dealing with the human remains, cultural, or archeological resources.

Utilization of Minority and Women Business Enterprises

All bidders are encouraged to utilize certified minority-owned and women-owned businesses to the extent possible in the performance of this contract

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Agreement No. TCPRA-2123-TacoPo-00010

TOXICS CLEANUP REMEDIAL ACTION GRANT AND LOAN PROGRAM AGREEMENT

BETWEEN

THE STATE OF WASHINGTON DEPARTMENT OF ECOLOGY

AND

PORT OF TACOMA

This is a binding Agreement entered into by and between the state of Washington, Department of Ecology, hereinafter referred to as "ECOLOGY," and PORT OF TACOMA, hereinafter referred to as the "RECIPIENT," to carry out with the provided funds activities described herein.

GENERAL INFORMATION

Project Title:	Arkema Interim Action
Total Cost:	$5,000,000.00
Total Eligible Cost:	$4,023,970.00
Ecology Share:	$2,011,985.00
Recipient Share:	$2,011,985.00
The Effective Date of this Agreement is:	04/01/2024
The Expiration Date of this Agreement is no later than:	06/30/2027
Project Type:	Oversight Remedial Action Grant or Loan

Project Short Description:

The Site generally consists of two parcels commonly referred to as the Arkema Manufacturing Plant and the Wypenn Parcel, located at the Port of Tacoma, in Pierce County, Washington. The Arkema Plant is a 68.1-acre waterfront property located at 2901 Taylor Way and the Wypenn Parcel is a 3.2-acre landlocked parcel located 2920 Taylor Way. Work is currently subject to ECOLOGY Agreed Order DE 5668 (CSID 3405, FSID 1220).

Project Long Description:

The Site generally consists of two parcels commonly referred to as the Arkema Manufacturing Plant and the Wypenn Parcel, located at the Port of Tacoma, in Pierce County, Washington. The Arkema Plant is a 68.1-acre waterfront property located at 2901 Taylor Way and the Wypenn Parcel is a 3.2-acre landlocked parcel located 2920 Taylor Way. Work is currently subject to ECOLOGY Agreed Order DE 5668 (CSID 3405, FSID 1220).

The Arkema Manufacturing Facility produced chlorine, caustic soda, chlorate salts and an herbicide (sodium

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arsenate) under the trade name “Penite”. Arsenie contamination was documented in 1981. Arkema entered into Consent Decree No. 87-2-011990 on January 24, 1987, to mitigate the release of hazardous substances from the manufacturing facility and the Wypenn parcel. The Consent Decree was issued under the authority of Chapter 90-48 RCW, the Water Pollution Control Act. The Consent Decree authority is not equivalent to the authority of a Consent Decree issued under the Model Toxics Control Act (Chapter 70A.305 RCW).

Arkema performed a series of remedial actions under the Consent Decree including:
• 1990 - Sheet pile wall installed along southeast shoreline to prevent contaminant migration into Hylebos Waterway.
• 1990 – Approximately 2,300 to 3,000 cubic yards of Penite pit waste materials and 1,200 cubic yards of asbestos pond sediment were excavated and disposed off-Site.
• 1992 to 2003 - Pump and treat system installed and operated to remove arsenic from groundwater.
• 1996 to 2000 - VOC treatment system operated in Waggoner’s Wallow Area.
• 2001 to 2004 - In-situ chemical injections completed to stabilize residual arsenic.
• 2003 to 2006 - Hylebos Waterway dredged.
• 2004 - Intertidal cap installed (Arkema shoreline).
• 2006 - Subtidal cap installed (Arkema shoreline).

Completed remedial actions have removed arsenic mass from the main arsenic plume. The majority of arsenic within the main arsenic plume is either precipitated or co-precipitated with highly stable minerals or co-precipitated with metal oxides. The main arsenic plume is stable or declining due to completed remedial actions and ongoing natural attenuation processes. The existing sheet pile wall, intertidal shoreline cap, and subtidal shoreline cap help attenuate arsenic concentrations in groundwater prior to discharge to surface water.

In September 2006, ECOLOGY certified that Arkema had completed the implementation of the remediation plan required under the 1987 Consent Decree. ECOLOGY notified Arkema in the same document that additional cleanup required under the authority of MTCA was necessary.

The RECIPIENT purchased the property from Arkema on May 31, 2007. An element of the purchase and sale agreement provided for the RECIPIENT to assume all environmental cleanup obligations associated with the property. Negotiations for an Agreed Order for the completion of a remedial investigation, feasibility study, cleanup action plan, and interim actions began in 2008. Agreed Order DE 5668 was finalized on July 25, 2011.

Deliverables completed under the agreed order include:
• DOF. 2013. Final Remedial Investigation Report for Former Arkema Manufacturing Plant. 2901 & 2920 Taylor Way, Tacoma, Washington. September.
• DOF. 2015b. Interim Action Construction Report Wypenn Property Tacoma, Washington. January.
• DOF. 2019. Hylebos - Arkema Southeast Shoreline Erosion Technical Memorandum from Paul Fuglevand to Scott Hooton. December 31.
• PIONEER. 2015. Presentation to ECOLOGY and United States Environmental Protection Agency titled "Fate and Transport, CSEM, RAOs, and FS Schedule Discussion." March 31.
• PIONEER. 2016. Presentation to Ecology titled "Overview of Proposed FS Data Gap Investigation Activities." March 30.
• PIONEER. 2019. Feasibility Study Data Gap Investigation Report, Former Arkema Manufacturing Site. July.
• PIONEER. 2020. Cleanup Action Alternatives, Former Arkema Manufacturing Site. July.
• PIONEER. 2021. North Boundary Area Feasibility Study Report, Former USG Taylor Way Plant Site. January.
• PIONEER. 2021. Draft Feasibility Study Report, Former Arkema Manufacturing Site. April.

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• PIONEER. 2023. Expanded RTC Data Gap Work Plan. June.

This funding will allow the RECIPIENT to complete the investigation and reporting outlined in the Expanded Response to Comments (RTC) Data Gap Work Plan. The RECIPIENT will also revise the Draft and submit the Final Interim Action Workplan and implement the approved plan for the installation of a vertical containment cell around the Penite Pits area and to cap other areas of the Site with lower concentrations of hazardous substances. Funding under this agreement is expected to allow construction to commence in 2026.

Overall Goal:

To develop and implement the Interim Action Work plan and to complete implementation and reporting required for the Feasibility Study and data gap investigation work plan.

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RECIPIENT INFORMATION

Organization Name: PORT OF TACOMA

Federal Tax ID: 91-6001026
UEI Number: QP8EKP37RKN1

Mailing Address: PO Box 1837
Tacoma, WA 98338

Physical Address: 1 Sitcum Plaza
Tacoma, Washington 98421

Organization Email: soffield@portoftacoma.com

Contacts

Project Manager	Scott Hooton Program Manager 1 Sitcum Plaza Tacoma, Washington 98421 Email: shooton@portoftacoma.com Phone: (253) 383-9428
Billing Contact	Sammi Offield Grants Administrator 1 Sitcum Plaza Tacoma, Washington 98421 Email: soffield@portoftacoma.com Phone: (253) 592-6790
Authorized Signatory	Eric Douglas Johnson Executive Director 1 Sitcum Way Tacoma, Washington 98421 Email: ejohnson@portoftacoma.com Phone: (253) 428-8633

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ECOLOGY INFORMATION

Mailing Address: Department of Ecology
Toxics Cleanup
PO BOX 47600
Olympia, WA 98504-7600

Physical Address: Toxics Cleanup
300 Desmond Drive SE
Lacey, WA 98503

Contacts

Project Manager	Sam Meng PO Box 47775 Olympia, Washington 98504-7775 Email: same461@ecy.wa.gov Phone: (360) 999-9587
Financial Manager	Lydia Lindwall PO Box 47600 Olympia, Washington 98504-7600 Email: llin461@ecy.wa.gov Phone: (360) 790-1124

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AUTHORIZING SIGNATURES

RECIPIENT agrees to furnish the necessary personnel, equipment, materials, services, and otherwise do all things necessary for or incidental to the performance of work as set forth in this Agreement.

RECIPIENT acknowledges that they had the opportunity to review the entire Agreement, including all the terms and conditions of this Agreement, Scope of Work, attachments, and incorporated or referenced documents, as well as all applicable laws, statutes, rules, regulations, and guidelines mentioned in this Agreement. Furthermore, the RECIPIENT has read, understood, and accepts all requirements contained within this Agreement.

This Agreement contains the entire understanding between the parties, and there are no other understandings or representations other than as set forth, or incorporated by reference, herein.

No subsequent modifications or amendments to this agreement will be of any force or effect unless in writing, signed by authorized representatives of the RECIPIENT and ECOLOGY and made a part of this agreement. ECOLOGY and RECIPIENT may change their respective staff contacts without the concurrence of either party.

This Agreement shall be subject to the written approval of Ecology's authorized representative and shall not be binding until so approved.

The signatories to this Agreement represent that they have the authority to execute this Agreement and bind their respective organizations to this Agreement.

IN WITNESS WHEREOF: the parties hereto, having read this Agreement in its entirety, including all attachments, do agree in each and every particular and have thus set their hands hereunto.

Washington State
Department of Ecology

By: DocuSigned by: Nhi Irwin 3DEAC62599A84A9... 2/18/2026

Nhi Irwin Date

Toxics Cleanup

Program Manager

PORT OF TACOMA

By: DocuSigned by: Eric Johnson 807BC40E35C7407... 2/18/2026

Eric Douglas Johnson Date

Executive Director

Template Approved to Form by
Attorney General's Office

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SCOPE OF WORK

Task Number: 1 **Task Cost:** $330,000.00

Task Title: 1. FEASIBILITY STUDY (J004)

Task Description:
This task funds the RECIPIENT's eligible costs ECOLOGY deems reasonable and necessary to plan and perform the Feasibility Study (FS) at the Site consistent with the Scope of Work in Agreed Order DE 5668.

This includes remedy selection and development of the draft Cleanup Action Plan (dCAP). Eligible costs may also include pilot tests, treatability studies, stormwater source control engineering studies, green remediation alternatives analysis, Environmental Impact Statements, data management, and public involvement.

If sampling and analysis is performed under this task, all validated analytical data will be submitted to ECOLOGY's Environmental Information Management (EIM) system database within 60 days of a sampling event and at least 60 days prior to the grant expiration date.

The RECIPIENT shall notify ECOLOGY of sampling events in the quarterly Payment Requests/Progress Reports (PRPR). Validated analytical data submitted is subjected to revisions based on ECOLOGY review.

The RECIPIENT shall work with ECOLOGY's EIM Data Coordinator to make any necessary corrections. The RECIPIENT must confirm with ECOLOGY that submitted data has been reviewed and uploaded to the EIM database prior to the final grant PRPR and closeout.

Task Goal Statement:
To complete an engineering study to develop and evaluate cleanup action alternatives to enable ECOLOGY to select a cleanup action for the Site.

Task Expected Outcome:
The results of the FS process are documented in an FS report and adequate information has been provided so a cleanup action can be selected for the Site.

Recipient Task Coordinator: Scott Hooten

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1. FEASIBILITY STUDY (J004)

Deliverables

Number	Description	Due Date
1.1	Final FS Report.	
1.2	Draft Cleanup Action Plan.	
1.3	Validated analytical data collected will be submitted to the EIM Loader within 60 days of a sampling event and at least 60 days prior to the grant expiration date.	04/30/2027
1.4	Feasibility Study Data Gap Investigation Results Report.	

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SCOPE OF WORK

Task Number: 2 **Task Cost:** $3,633,970.00

Task Title: 2. INTERIM ACTIONS (J002)

Task Description:
The purpose of this task is to fund the RECIPIENT's eligible costs ECOLOGY deems reasonable and necessary to plan ECOLOGY required or approved interim actions at the Site necessary to reduce potential threats to human health and the environment and are consistent with cleanup actions for the Site under Agreed Order No. DE 5688.

RECIPIENT shall develop an interim action work plan for ECOLOGY approval. These actions must be conducted in compliance with the Model Toxics Control Act.

Following ECOLOGY's approval of the final Interim Action Work Plan, the RECIPIENT may bill for costs incurred implementing the Interim Action Work Plan. Implementation costs may be incurred as of the date of ECOLOGY's approval of the final work plan. Pending approval of the final work plan, the RECIPIENT may bill up to $400,000 total project costs in this task for plan development, unless approved in writing by ECOLOGY's grant financial manager.

All validated analytical data will be submitted to ECOLOGY's Environmental Information Management (EIM) system database within 60 days of a sampling event and at least 60 days prior to the grant expiration date.

The RECIPIENT shall notify ECOLOGY of sampling events in the quarterly Payment Requests/Progress Reports (PRPR). Validated analytical data submitted is subjected to revisions based on ECOLOGY review.

The RECIPIENT shall work with ECOLOGY's EIM Data Coordinator to make any necessary corrections. The RECIPIENT must confirm with ECOLOGY that submitted data has been reviewed and uploaded to the EIM database prior to the final grant PRPR and closeout.

Task Goal Statement:
To develop and implement an interim action work plan needed 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 the Site, or to correct a problem that could become substantially worse or cost substantially more to address if the remedial action is delayed.

Task Expected Outcome:
The interim actions will be protective of human health and the environment, meets MTCA cleanup standards, do not foreclose reasonable alternatives for the cleanup action, delay or supplant the formal cleanup process.

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Recipient Task Coordinator: Scott Hooten

2. INTERIM ACTIONS (J002)

Deliverables

Number	Description	Due Date
2.1	30% Design for Interim Action Work Plan.	
2.2	Final Interim Action Work Plan.	
2.3	Validated analytical data collected will be submitted to the EIM Loader within 60 days of a sampling event and at least 60 days prior to the grant expiration date.	04/30/2027
2.4	Submit 90% construction plans and specifications for the barrier wall.	
2.5	Submit 100% construction plans and specifications for the barrier wall.	
2.6	Submit draft barrier wall construction completion report.	
2.7	Submit 90% construction plans and specifications for 24-acre asphalt cap.	
2.8	Submit 100% construction plans and specifications for 24-acre asphalt cap.	
2.9	Submit draft 24-acre asphalt cap construction completion report.	
2.10	Submit final 24-acre asphalt cap construction completion report.	

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SCOPE OF WORK

Task Number: 3 **Task Cost:** $60,000.00

Task Title: 3. GRANT AND PROJECT ADMININSTRATION (J008)

Task Description:
This task funds the RECIPIENT's eligible direct costs ECOLOGY deems reasonable and necessary to administer the grant and manage project activities in accordance with Agreed Order DE 5668, excluding legal costs. The RECIPIENT is expected to ensure compliance with a minimum of quarterly billing requirements and be responsive to all grant-related communications for both payments and amendments.

Examples of eligible activities include costs necessary to:

- Perform public outreach activities required by ECOLOGY.
- Competitively procure and actively manage consultants and construction contractors in accordance with state and local procurement laws.
- Manage the grant and maintain records.
- Prepare and submit payment requests/progress reports (PRPRs), spending plans, or reports required by ECOLOGY.
- Conduct, coordinate, and schedule project activities described in the Scope of Work in Agreed Order DE 5668.
- Purchase services, supplies, tools, and equipment needed to accomplish grant tasks. Computer purchases are not grant eligible. Equipment purchases are conditionally eligible and require prior written approval by ECOLOGY's Grant Financial Manager.
- Attend training events required to gain access or work on the Site. Trainings must be approved by ECOLOGY in advance, including related travel costs. ECOLOGY may agree to pay all or part of this cost. Conferences are not grant eligible.

SPENDING PLANS: The RECIPIENT shall submit a Spending Plan form in Ecology's Administration of Grants and Loans (EAGL) system. The Spending Plan must be updated at least quarterly with each PRPR to reflect actual expenditures and projections for the remainder of grant/loan reimbursement requests.

TRAVEL AND PER DIEM: ECOLOGY will reimburse travel costs at the state per diem rate in effect when the costs were incurred. Any costs incurred over the state rate will not be reimbursed under the grant unless an exception is provided in writing by the ECOLOGY Grant Financial Manager prior to the costs being incurred. The RECIPIENT may bill costs related to vehicle usage at the state-approved mileage rate. Any other motor pool costs are considered part of overhead and may not be direct billed to this grant.

BACKUP DOCUMENTATION: All backup documentation, whether RECIPIENT staff costs, prime contractor or subcontractor, must be submitted for PRPR reimbursement. Staff time details must include the person, project role, rate of pay, days worked, hours worked each day, detailed description of the activity being performed each day, and the total cost. Receipts or invoices must be provided for all direct expenses and hotel stays.

Task Goal Statement:
To manage the grant and project and complete all administrative documentation and billings in accordance with accounting standards, the terms and conditions of the grant, and the Administrative Requirements for Recipients of Ecology Grants and Loans managed in EAGL.

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Task Expected Outcome:
Project documentation will be properly developed and maintained in accordance with the terms and conditions of the grant, and the Administrative Requirements for Recipients of Ecology Grants and Loans managed in EAGL.

Recipient Task Coordinator: Sammi Offield

3. GRANT AND PROJECT ADMININSTRATION (J008)

Deliverables

Number	Description	Due Date
3.1	Quarterly grant payment requests/progress reports (PRPR) with proper documentation	
3.2	Updated spending plan form completed in EAGL with each PRPR	
3.3	Recipient Close Out Report submitted with the final PRPR	

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BUDGET

Funding Distribution EG260003

NOTE: *The above funding distribution number is used to identify this specific agreement and budget on payment remittances and may be referenced on other communications from ECOLOGY. Your agreement may have multiple funding distribution numbers to identify each budget.*

Funding Title: Arkema Interim Actions
Funding Type: Grant
Funding Effective Date: 04/01/2024 Funding Expiration Date: 06/30/2027
Funding Source:

Title: Model Toxics Control Capital Account (MTCCA) (TCP)

Fund: FD
Type: State
Funding Source %: 100%
Description: The Model Toxics Control Act (MTCA), Chapter 70.105D RCW. MTCA directs 25% of the tax revenue into the Model Toxics Control Capital Account (MTCCA) and in some cases capital bond funds are provided to increase available grant funding.

Approved Indirect Costs Rate: Approved State Indirect Rate: 25%
Recipient Match %: 50%
InKind Interlocal Allowed: No
InKind Other Allowed: No
Is this Funding Distribution used to match a federal grant? No

Arkema Interim Actions	Task Total
1. FEASIBILITY STUDY (J004)	$ 330,000.00
2. INTERIM ACTIONS (J002)	$ 3,633,970.00
3. GRANT AND PROJECT ADMININSTRATION (J008)	$ 60,000.00

Total: $ 4,023,970.00

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Funding Distribution Summary

Recipient / Ecology Share

Funding Distribution Name	Recipient Match %	Recipient Share	Ecology Share	Total
Arkema Interim Actions	50.00 %	$ 2,011,985.00	$ 2,011,985.00	$ 4,023,970.00
Total		**$ 2,011,985.00**	**$ 2,011,985.00**	**$ 4,023,970.00**

AGREEMENT SPECIFIC TERMS AND CONDITIONS

N/A

SPECIAL TERMS AND CONDITIONS

If this Agreement includes retroactive reimbursement for past costs covering field activities potentially impacting cultural resources, then that activity will be subject to ECOLOGY review to assess actions taken to address potential direct and indirect effects on prehistoric and historic archaeological sites, historic buildings and structures, traditional cultural places, sacred sites or other cultural resources. Based on the findings of the review, some or all past costs may be deemed ineligible for retroactive reimbursement.

Any current or future work included in this Agreement will also be subject to cultural resource review by ECOLOGY in accordance with any and all applicable WA State Executive Order(s).

GENERAL FEDERAL CONDITIONS

If a portion or all of the funds for this agreement are provided through federal funding sources or this agreement is used to match a federal grant award, the following terms and conditions apply to you.

A. CERTIFICATION REGARDING SUSPENSION, DEBARMENT, INELIGIBILITY OR VOLUNTARY EXCLUSION:

1. The RECIPIENT/CONTRACTOR, by signing this agreement, certifies that it is not suspended, debarred, proposed for debarment, declared ineligible or otherwise excluded from contracting with the federal government, or from receiving contracts paid for with federal funds. If the RECIPIENT/CONTRACTOR is unable to certify to the statements contained in the certification, they must provide an explanation as to why they cannot.
2. The RECIPIENT/CONTRACTOR shall provide immediate written notice to ECOLOGY if at any time the RECIPIENT/CONTRACTOR learns that its certification was erroneous when submitted or had become erroneous by reason of changed circumstances.
3. The terms covered transaction, debarred, suspended, ineligible, lower tier covered transaction, participant, person, primary covered transaction, principal, proposal, and voluntarily excluded, as used in this clause, have the meaning set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact ECOLOGY for assistance in obtaining a copy of those regulations.
4. The RECIPIENT/CONTRACTOR agrees it shall not knowingly enter into any lower tier covered transaction

with a person who is proposed for debarment under the applicable Code of Federal Regulations, debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction.

5. The RECIPIENT/CONTRACTOR further agrees by signing this agreement, that it will include this clause titled "CERTIFICATION REGARDING SUSPENSION, DEBARMENT, INELIGIBILITY OR VOLUNTARY EXCLUSION" without modification in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
6. Pursuant to 2CFR180.330, the RECIPIENT/CONTRACTOR is responsible for ensuring that any lower tier covered transaction complies with certification of suspension and debarment requirements.
7. RECIPIENT/CONTRACTOR acknowledges that failing to disclose the information required in the Code of Federal Regulations may result in the delay or negation of this funding agreement, or pursuance of legal remedies, including suspension and debarment.
8. RECIPIENT/CONTRACTOR agrees to keep proof in its agreement file, that it, and all lower tier recipients or contractors, are not suspended or debarred, and will make this proof available to ECOLOGY before requests for reimbursements will be approved for payment. RECIPIENT/CONTRACTOR must run a search in <http://www.sam.gov> and print a copy of completed searches to document proof of compliance.

B. FEDERAL FUNDING ACCOUNTABILITY AND TRANSPARENCY ACT (FFATA) REPORTING REQUIREMENTS:

CONTRACTOR/RECIPIENT must complete the FFATA Data Collection Form (ECY 070-395) and return it with the signed agreement to ECOLOGY.

Any CONTRACTOR/RECIPIENT that meets each of the criteria below must report compensation for its five top executives using the FFATA Data Collection Form.

- Receives more than $30,000 in federal funds under this award.
- Receives more than 80 percent of its annual gross revenues from federal funds.
- Receives more than $25,000,000 in annual federal funds.

Ecology will not pay any invoices until it has received a completed and signed FFATA Data Collection Form. Ecology is required to report the FFATA information for federally funded agreements, including the required Unique Entity Identifier in www.sam.gov <http://www.sam.gov/> within 30 days of agreement signature. The FFATA information will be available to the public at www.usaspending.gov <http://www.usaspending.gov/>.

For more details on FFATA requirements, see www.fsrs.gov <http://www.fsrs.gov/>.

C. FEDERAL FUNDING PROHIBITION ON CERTAIN TELECOMMUNICATIONS OR VIDEO SURVEILLANCE SERVICES OR EQUIPMENT:

As required by 2 CFR 200.216, federal grant or loan recipients and subrecipients are prohibited from obligating or expending loan or grant funds to:

1. Procure or obtain;
2. Extend or renew a contract to procure or obtain; or
3. Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that use covered telecommunications equipment, video surveillance services or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Public Law 115-232 <https://www.govinfo.gov/content/pkg/PLAW-115publ232/pdf/PLAW-115publ232.pdf>, section 889, covered

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telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).

Recipients, subrecipients, and borrowers also may not use federal funds to purchase certain prohibited equipment, systems, or services, including equipment, systems, or services produced or provided by entities identified in section 889, are recorded in the System for Award Management (SAM) <https://sam.gov/SAM/> exclusion list.

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GENERAL TERMS AND CONDITIONS

Pertaining to Grant and Loan Agreements With the state of Washington, Department of Ecology

GENERAL TERMS AND CONDITIONS
For DEPARTMENT OF ECOLOGY GRANTS and LOANS
07/01/2023 Version

1. ADMINISTRATIVE REQUIREMENTS

a) RECIPIENT shall follow the "Administrative Requirements for Recipients of Ecology Grants and Loans – EAGL Edition." (https://fortress.wa.gov/ecy/publications/SummaryPages/2301002.html)
b) RECIPIENT shall complete all activities funded by this Agreement and be fully responsible for the proper management of all funds and resources made available under this Agreement.
c) RECIPIENT agrees to take complete responsibility for all actions taken under this Agreement, including ensuring all subgrantees and contractors comply with the terms and conditions of this Agreement. ECOLOGY reserves the right to request proof of compliance by subgrantees and contractors.
d) RECIPIENT's activities under this Agreement shall be subject to the review and approval by ECOLOGY for the extent and character of all work and services.

2. AMENDMENTS AND MODIFICATIONS

This Agreement may be altered, amended, or waived only by a written amendment executed by both parties. No subsequent modification(s) or amendment(s) of this Agreement will be of any force or effect unless in writing and signed by authorized representatives of both parties. ECOLOGY and the RECIPIENT may change their respective staff contacts and administrative information without the concurrence of either party.

3. ACCESSIBILITY REQUIREMENTS FOR COVERED TECHNOLOGY

The RECIPIENT must comply with the Washington State Office of the Chief Information Officer, OCIO Policy no. 188, Accessibility (https://ocio.wa.gov/policy/accessibility) as it relates to "covered technology." This requirement applies to all products supplied under the Agreement, providing equal access to information technology by individuals with disabilities, including and not limited to web sites/pages, web-based applications, software systems, video and audio content, and electronic documents intended for publishing on Ecology's public web site.

4. ARCHAEOLOGICAL AND CULTURAL RESOURCES

RECIPIENT shall take all reasonable action to avoid, minimize, or mitigate adverse effects to archaeological and historic archaeological sites, historic buildings/structures, traditional cultural places, sacred sites, or other cultural resources, hereby referred to as Cultural Resources.
The RECIPIENT must agree to hold harmless ECOLOGY in relation to any claim related to Cultural Resources discovered, disturbed, or damaged due to the RECIPIENT's project funded under this Agreement.
RECIPIENT shall:
a) Contact the ECOLOGY Program issuing the grant or loan to discuss any Cultural Resources requirements for their project:
• Cultural Resource Consultation and Review should be initiated early in the project planning process and must be completed prior to expenditure of Agreement funds as required by applicable State and Federal requirements.
* For state funded construction, demolition, or land acquisitions, comply with Governor Executive Order 21-02, Archaeological and Cultural Resources.
• For projects with any federal involvement, comply with the National Historic Preservation Act of 1966 (Section 106).

b) If required by the ECOLOGY Program, submit an Inadvertent Discovery Plan (IDP) to ECOLOGY prior to implementing any project that involves field activities. ECOLOGY will provide the IDP form.
RECIPIENT shall:
• Keep the IDP at the project site.
• Make the IDP readily available to anyone working at the project site.
• Discuss the IDP with staff, volunteers, and contractors working at the project site.
• Implement the IDP when Cultural Resources or human remains are found at the project site.
c) If any Cultural Resources are found while conducting work under this Agreement, follow the protocol outlined in the project IDP.
• Immediately stop work and notify the ECOLOGY Program, who will notify the Department of Archaeology and Historic Preservation at (360) 586-3065, any affected Tribe, and the local government.
d) If any human remains are found while conducting work under this Agreement, follow the protocol outlined in the project IDP.
• Immediately stop work and notify the local Law Enforcement Agency or Medical Examiner/Coroner's Office, the Department of Archaeology and Historic Preservation at (360) 790-1633, and then the ECOLOGY Program.
e) Comply with RCW 27.53, RCW 27.44, and RCW 68.50.645, and all other applicable local, state, and federal laws protecting Cultural Resources and human remains.

5. ASSIGNMENT

No right or claim of the RECIPIENT arising under this Agreement shall be transferred or assigned by the RECIPIENT.

6. COMMUNICATION

RECIPIENT shall make every effort to maintain effective communications with the RECIPIENT's designees, ECOLOGY, all affected local, state, or federal jurisdictions, and any interested individuals or groups.

7. COMPENSATION

a) Any work performed prior to effective date of this Agreement will be at the sole expense and risk of the RECIPIENT. ECOLOGY must sign the Agreement before any payment requests can be submitted.
b) Payments will be made on a reimbursable basis for approved and completed work as specified in this Agreement.
c) RECIPIENT is responsible to determine if costs are eligible. Any questions regarding eligibility should be clarified with ECOLOGY prior to incurring costs. Costs that are conditionally eligible require approval by ECOLOGY prior to expenditure.
d) RECIPIENT shall not invoice more than once per month unless agreed on by ECOLOGY.
e) ECOLOGY will not process payment requests without the proper reimbursement forms, Progress Report and supporting documentation. ECOLOGY will provide instructions for submitting payment requests.
f) ECOLOGY will pay the RECIPIENT thirty (30) days after receipt of a properly completed request for payment.
g) RECIPIENT will receive payment through Washington State's Office of Financial Management's Statewide Payee Desk. To receive payment you must register as a statewide vendor by submitting a statewide vendor registration form and an IRS W-9 form at website, https://ofm.wa.gov/it-systems/statewide-vendorpayee-services. If you have questions about the vendor registration process, you can contact Statewide Payee Help Desk at (360) 407-8180 or email PayeeRegistration@ofm.wa.gov.
h) ECOLOGY may, at its sole discretion, withhold payments claimed by the RECIPIENT if the RECIPIENT fails to satisfactorily comply with any term or condition of this Agreement.
i) Monies withheld by ECOLOGY may be paid to the RECIPIENT when the work described herein, or a portion thereof, has been completed if, at ECOLOGY's sole discretion, such payment is reasonable and approved according to this Agreement, as appropriate, or upon completion of an audit as specified herein.

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j) RECIPIENT must submit within thirty (30) days after the expiration date of this Agreement, all financial, performance, and other reports required by this Agreement. Failure to comply may result in delayed reimbursement.

8. COMPLIANCE WITH ALL LAWS

RECIPIENT agrees to comply fully with all applicable federal, state and local laws, orders, regulations, and permits related to this Agreement, including but not limited to:

a) RECIPIENT agrees to comply with all applicable laws, regulations, and policies of the United States and the State of Washington which affect wages and job safety.

b) RECIPIENT agrees to be bound by all applicable federal and state laws, regulations, and policies against discrimination.

c) RECIPIENT certifies full compliance with all applicable state industrial insurance requirements.

d) RECIPIENT agrees to secure and provide assurance to ECOLOGY that all the necessary approvals and permits required by authorities having jurisdiction over the project are obtained. RECIPIENT must include time in their project timeline for the permit and approval processes.

ECOLOGY shall have the right to immediately terminate for cause this Agreement as provided herein if the RECIPIENT fails to comply with above requirements.

If any provision of this Agreement violates any statute or rule of law of the state of Washington, it is considered modified to conform to that statute or rule of law.

9. CONFLICT OF INTEREST

RECIPIENT and ECOLOGY agree that any officer, member, agent, or employee, who exercises any function or responsibility in the review, approval, or carrying out of this Agreement, shall not have any personal or financial interest, direct or indirect, nor affect the interest of any corporation, partnership, or association in which he/she is a part, in this Agreement or the proceeds thereof.

10. CONTRACTING FOR GOODS AND SERVICES

RECIPIENT may contract to buy goods or services related to its performance under this Agreement. RECIPIENT shall award all contracts for construction, purchase of goods, equipment, services, and professional architectural and engineering services through a competitive process, if required by State law. RECIPIENT is required to follow procurement procedures that ensure legal, fair, and open competition.

RECIPIENT must have a standard procurement process or follow current state procurement procedures. RECIPIENT may be required to provide written certification that they have followed their standard procurement procedures and applicable state law in awarding contracts under this Agreement.

ECOLOGY reserves the right to inspect and request copies of all procurement documentation, and review procurement practices related to this Agreement. Any costs incurred as a result of procurement practices not in compliance with state procurement law or the RECIPIENT's normal procedures may be disallowed at ECOLOGY's sole discretion.

11. DISPUTES

When there is a dispute with regard to the extent and character of the work, or any other matter related to this Agreement the determination of ECOLOGY will govern, although the RECIPIENT shall have the right to appeal decisions as provided for below:

a) RECIPIENT notifies the funding program of an appeal request.

b) Appeal request must be in writing and state the disputed issue(s).

c) RECIPIENT has the opportunity to be heard and offer evidence in support of its appeal.

d) ECOLOGY reviews the RECIPIENT's appeal.

e) ECOLOGY sends a written answer within ten (10) business days, unless more time is needed, after concluding the

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review.
The decision of ECOLOGY from an appeal will be final and conclusive, unless within thirty (30) days from the date of such decision, the RECIPIENT furnishes to the Director of ECOLOGY a written appeal. The decision of the Director or duly authorized representative will be final and conclusive.
The parties agree that this dispute process will precede any action in a judicial or quasi-judicial tribunal.
Appeals of the Director's decision will be brought in the Superior Court of Thurston County. Review of the Director's decision will not be taken to Environmental and Land Use Hearings Office.
Pending final decision of a dispute, the RECIPIENT agrees to proceed diligently with the performance of this Agreement and in accordance with the decision rendered.
Nothing in this Agreement will be construed to limit the parties' choice of another mutually acceptable method, in addition to the dispute resolution procedure outlined above.

12. ENVIRONMENTAL DATA STANDARDS

a) RECIPIENT shall prepare a Quality Assurance Project Plan (QAPP) for a project that collects or uses environmental measurement data. RECIPIENTS unsure about whether a QAPP is required for their project shall contact the ECOLOGY Program issuing the grant or loan. If a QAPP is required, the RECIPIENT shall:
• Use ECOLOGY's QAPP Template/Checklist provided by the ECOLOGY, unless ECOLOGY Quality Assurance (QA) officer or the Program QA coordinator instructs otherwise.
• Follow ECOLOGY's Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies, July 2004 (Ecology Publication No. 04-03-030).
• Submit the QAPP to ECOLOGY for review and approval before the start of the work.
b) RECIPIENT shall submit environmental data that was collected on a project to ECOLOGY using the Environmental Information Management system (EIM), unless the ECOLOGY Program instructs otherwise. The RECIPIENT must confirm with ECOLOGY that complete and correct data was successfully loaded into EIM, find instructions at: http://www.ecy.wa.gov/eim.
c) RECIPIENT shall follow ECOLOGY's data standards when Geographic Information System (GIS) data is collected and processed. Guidelines for Creating and Accessing GIS Data are available at: https://ecology.wa.gov/Research-Data/Data-resources/Geographic-Information-Systems-GIS/Standards. RECIPIENT, when requested by ECOLOGY, shall provide copies to ECOLOGY of all final GIS data layers, imagery, related tables, raw data collection files, map products, and all metadata and project documentation.

13. GOVERNING LAW

This Agreement will be governed by the laws of the State of Washington, and the venue of any action brought hereunder will be in the Superior Court of Thurston County.

14. INDEMNIFICATION

ECOLOGY will in no way be held responsible for payment of salaries, consultant's fees, and other costs related to the project described herein, except as provided in the Scope of Work.
To the extent that the Constitution and laws of the State of Washington permit, each party will indemnify and hold the other harmless from and against any liability for any or all injuries to persons or property arising from the negligent act or omission of that party or that party's agents or employees arising out of this Agreement.

15. INDEPENDENT STATUS

The employees, volunteers, or agents of each party who are engaged in the performance of this Agreement will continue to be employees, volunteers, or agents of that party and will not for any purpose be employees, volunteers, or agents of the other party.

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16. KICKBACKS

RECIPIENT is prohibited from inducing by any means any person employed or otherwise involved in this Agreement to give up any part of the compensation to which he/she is otherwise entitled to or receive any fee, commission, or gift in return for award of a subcontract hereunder.

17. MINORITY AND WOMEN'S BUSINESS ENTERPRISES (MWBE)

RECIPIENT is encouraged to solicit and recruit, to the extent possible, certified minority-owned (MBE) and women-owned (WBE) businesses in purchases and contracts initiated under this Agreement.
Contract awards or rejections cannot be made based on MWBE participation; however, the RECIPIENT is encouraged to take the following actions, when possible, in any procurement under this Agreement:
a) Include qualified minority and women's businesses on solicitation lists whenever they are potential sources of goods or services.
b) Divide the total requirements, when economically feasible, into smaller tasks or quantities, to permit maximum participation by qualified minority and women's businesses.
c) Establish delivery schedules, where work requirements permit, which will encourage participation of qualified minority and women's businesses.
d) Use the services and assistance of the Washington State Office of Minority and Women's Business Enterprises (OMWBE) (866-208-1064) and the Office of Minority Business Enterprises of the U.S. Department of Commerce, as appropriate.

18. ORDER OF PRECEDENCE

In the event of inconsistency in this Agreement, unless otherwise provided herein, the inconsistency shall be resolved by giving precedence in the following order: (a) applicable federal and state statutes and regulations; (b) The Agreement; (c) Scope of Work; (d) Special Terms and Conditions; (e) Any provisions or terms incorporated herein by reference, including the "Administrative Requirements for Recipients of Ecology Grants and Loans"; (f) Ecology Funding Program Guidelines; and (g) General Terms and Conditions.

19. PRESENTATION AND PROMOTIONAL MATERIALS

ECOLOGY reserves the right to approve RECIPIENT's communication documents and materials related to the fulfillment of this Agreement:
a) If requested, RECIPIENT shall provide a draft copy to ECOLOGY for review and approval ten (10) business days prior to production and distribution.
b) RECIPIENT shall include time for ECOLOGY's review and approval process in their project timeline.
c) If requested, RECIPIENT shall provide ECOLOGY two (2) final copies and an electronic copy of any tangible products developed.
Copies include any printed materials, and all tangible products developed such as brochures, manuals, pamphlets, videos, audio tapes, CDs, curriculum, posters, media announcements, or gadgets with a message, such as a refrigerator magnet, and any online communications, such as web pages, blogs, and twitter campaigns. If it is not practical to provide a copy, then the RECIPIENT shall provide a description (photographs, drawings, printouts, etc.) that best represents the item.
Any communications intended for public distribution that uses ECOLOGY's logo shall comply with ECOLOGY's graphic requirements and any additional requirements specified in this Agreement. Before the use of ECOLOGY's logo contact ECOLOGY for guidelines.
RECIPIENT shall acknowledge in the communications that funding was provided by ECOLOGY.

20. PROGRESS REPORTING

a) RECIPIENT must satisfactorily demonstrate the timely use of funds by submitting payment requests and progress

reports to ECOLOGY. ECOLOGY reserves the right to amend or terminate this Agreement if the RECIPIENT does not document timely use of funds.

b) RECIPIENT must submit a progress report with each payment request. Payment requests will not be processed without a progress report. ECOLOGY will define the elements and frequency of progress reports.

c) RECIPIENT shall use ECOLOGY's provided progress report format.

d) Quarterly progress reports will cover the periods from January 1 through March 31, April 1 through June 30, July 1 through September 30, and October 1 through December 31. Reports shall be submitted within thirty (30) days after the end of the quarter being reported.

e) RECIPIENT must submit within thirty (30) days of the expiration date of the project, unless an extension has been approved by ECOLOGY, all financial, performance, and other reports required by the Agreement and funding program guidelines. RECIPIENT shall use the ECOLOGY provided closeout report format.

21. PROPERTY RIGHTS

a) Copyrights and Patents. When the RECIPIENT creates any copyrightable materials or invents any patentable property under this Agreement, the RECIPIENT may copyright or patent the same but ECOLOGY retains a royalty free, nonexclusive, and irrevocable license to reproduce, publish, recover, or otherwise use the material(s) or property, and to authorize others to use the same for federal, state, or local government purposes.

b) Publications. When the RECIPIENT or persons employed by the RECIPIENT use or publish ECOLOGY information; present papers, lectures, or seminars involving information supplied by ECOLOGY; or use logos, reports, maps, or other data in printed reports, signs, brochures, pamphlets, etc., appropriate credit shall be given to ECOLOGY.

c) Presentation and Promotional Materials. ECOLOGY shall have the right to use or reproduce any printed or graphic materials produced in fulfillment of this Agreement, in any manner ECOLOGY deems appropriate. ECOLOGY shall acknowledge the RECIPIENT as the sole copyright owner in every use or reproduction of the materials.

d) Tangible Property Rights. ECOLOGY's current edition of "Administrative Requirements for Recipients of Ecology Grants and Loans," shall control the use and disposition of all real and personal property purchased wholly or in part with funds furnished by ECOLOGY in the absence of state and federal statutes, regulations, or policies to the contrary, or upon specific instructions with respect thereto in this Agreement.

e) Personal Property Furnished by ECOLOGY. When ECOLOGY provides personal property directly to the RECIPIENT for use in performance of the project, it shall be returned to ECOLOGY prior to final payment by ECOLOGY. If said property is lost, stolen, or damaged while in the RECIPIENT's possession, then ECOLOGY shall be reimbursed in cash or by setoff by the RECIPIENT for the fair market value of such property.

f) Acquisition Projects. The following provisions shall apply if the project covered by this Agreement includes funds for the acquisition of land or facilities:

1. RECIPIENT shall establish that the cost is fair value and reasonable prior to disbursement of funds provided for in this Agreement.

2. RECIPIENT shall provide satisfactory evidence of title or ability to acquire title for each parcel prior to disbursement of funds provided by this Agreement. Such evidence may include title insurance policies, Torrens certificates, or abstracts, and attorney's opinions establishing that the land is free from any impediment, lien, or claim which would impair the uses intended by this Agreement.

g) Conversions. Regardless of the Agreement expiration date, the RECIPIENT shall not at any time convert any equipment, property, or facility acquired or developed under this Agreement to uses other than those for which assistance was originally approved without prior written approval of ECOLOGY. Such approval may be conditioned upon payment to ECOLOGY of that portion of the proceeds of the sale, lease, or other conversion or encumbrance which monies granted pursuant to this Agreement bear to the total acquisition, purchase, or construction costs of such property.

22. RECORDS, AUDITS, AND INSPECTIONS

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RECIPIENT shall maintain complete program and financial records relating to this Agreement, including any engineering documentation and field inspection reports of all construction work accomplished.
All records shall:
a) Be kept in a manner which provides an audit trail for all expenditures.
b) Be kept in a common file to facilitate audits and inspections.
c) Clearly indicate total receipts and expenditures related to this Agreement.
d) Be open for audit or inspection by ECOLOGY, or by any duly authorized audit representative of the State of Washington, for a period of at least three (3) years after the final grant payment or loan repayment, or any dispute resolution hereunder.
RECIPIENT shall provide clarification and make necessary adjustments if any audits or inspections identify discrepancies in the records.
ECOLOGY reserves the right to audit, or have a designated third party audit, applicable records to ensure that the state has been properly invoiced. Any remedies and penalties allowed by law to recover monies determined owed will be enforced. Repetitive instances of incorrect invoicing or inadequate records may be considered cause for termination.
All work performed under this Agreement and any property and equipment purchased shall be made available to ECOLOGY and to any authorized state, federal or local representative for inspection at any time during the course of this Agreement and for at least three (3) years following grant or loan termination or dispute resolution hereunder.
RECIPIENT shall provide right of access to ECOLOGY, or any other authorized representative, at all reasonable times, in order to monitor and evaluate performance, compliance, and any other conditions under this Agreement.

23. RECOVERY OF FUNDS

The right of the RECIPIENT to retain monies received as reimbursement payments is contingent upon satisfactory performance of this Agreement and completion of the work described in the Scope of Work.
All payments to the RECIPIENT are subject to approval and audit by ECOLOGY, and any unauthorized expenditure(s) or unallowable cost charged to this Agreement shall be refunded to ECOLOGY by the RECIPIENT.
RECIPIENT shall refund to ECOLOGY the full amount of any erroneous payment or overpayment under this Agreement.
RECIPIENT shall refund by check payable to ECOLOGY the amount of any such reduction of payments or repayments within thirty (30) days of a written notice. Interest will accrue at the rate of twelve percent (12%) per year from the time ECOLOGY demands repayment of funds.
Any property acquired under this Agreement, at the option of ECOLOGY, may become ECOLOGY's property and the RECIPIENT's liability to repay monies will be reduced by an amount reflecting the fair value of such property.

24. SEVERABILITY

If any provision of this Agreement or any provision of any document incorporated by reference shall be held invalid, such invalidity shall not affect the other provisions of this Agreement which can be given effect without the invalid provision, and to this end the provisions of this Agreement are declared to be severable.

25. STATE ENVIRONMENTAL POLICY ACT (SEPA)

RECIPIENT must demonstrate to ECOLOGY's satisfaction that compliance with the requirements of the State Environmental Policy Act (Chapter 43.21C RCW and Chapter 197-11 WAC) have been or will be met. Any reimbursements are subject to this provision.

26. SUSPENSION

When in the best interest of ECOLOGY, ECOLOGY may at any time, and without cause, suspend this Agreement or any portion thereof for a temporary period by written notice from ECOLOGY to the RECIPIENT. RECIPIENT shall resume performance on the next business day following the suspension period unless another day is specified by ECOLOGY.

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27. SUSTAINABLE PRACTICES

In order to sustain Washington's natural resources and ecosystems, the RECIPIENT is fully encouraged to implement sustainable practices and to purchase environmentally preferable products under this Agreement.

a) Sustainable practices may include such activities as: use of clean energy, use of double-sided printing, hosting low impact meetings, and setting up recycling and composting programs.

b) Purchasing may include such items as: sustainably produced products and services, EPEAT registered computers and imaging equipment, independently certified green cleaning products, remanufactured toner cartridges, products with reduced packaging, office products that are refillable, rechargeable, and recyclable, 100% post-consumer recycled paper, and toxic free products.

For more suggestions visit ECOLOGY's web page, Green Purchasing, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Sustainable-purchasing.

28. TERMINATION

a) For Cause

ECOLOGY may terminate for cause this Agreement with a seven (7) calendar days prior written notification to the RECIPIENT, at the sole discretion of ECOLOGY, for failing to perform an Agreement requirement or for a material breach of any term or condition. If this Agreement is so terminated, the parties shall be liable only for performance rendered or costs incurred in accordance with the terms of this Agreement prior to the effective date of termination.

Failure to Commence Work. ECOLOGY reserves the right to terminate this Agreement if RECIPIENT fails to commence work on the project funded within four (4) months after the effective date of this Agreement, or by any date mutually agreed upon in writing for commencement of work, or the time period defined within the Scope of Work.

Non-Performance. The obligation of ECOLOGY to the RECIPIENT is contingent upon satisfactory performance by the RECIPIENT of all of its obligations under this Agreement. In the event the RECIPIENT unjustifiably fails, in the opinion of ECOLOGY, to perform any obligation required of it by this Agreement, ECOLOGY may refuse to pay any further funds, terminate in whole or in part this Agreement, and exercise any other rights under this Agreement. Despite the above, the RECIPIENT shall not be relieved of any liability to ECOLOGY for damages sustained by ECOLOGY and the State of Washington because of any breach of this Agreement by the RECIPIENT. ECOLOGY may withhold payments for the purpose of setoff until such time as the exact amount of damages due ECOLOGY from the RECIPIENT is determined.

b) For Convenience

ECOLOGY may terminate for convenience this Agreement, in whole or in part, for any reason when it is the best interest of ECOLOGY, with a thirty (30) calendar days prior written notification to the RECIPIENT, except as noted below. If this Agreement is so terminated, the parties shall be liable only for performance rendered or costs incurred in accordance with the terms of this Agreement prior to the effective date of termination.

Non-Allocation of Funds. ECOLOGY's ability to make payments is contingent on availability of funding. In the event funding from state, federal or other sources is withdrawn, reduced, or limited in any way after the effective date and prior to the completion or expiration date of this Agreement, ECOLOGY, at its sole discretion, may elect to terminate the Agreement, in whole or part, or renegotiate the Agreement, subject to new funding limitations or conditions. ECOLOGY may also elect to suspend performance of the Agreement until ECOLOGY determines the funding insufficiency is resolved. ECOLOGY may exercise any of these options with no notification or restrictions, although ECOLOGY will make a reasonable attempt to provide notice.

In the event of termination or suspension, ECOLOGY will reimburse eligible costs incurred by the RECIPIENT through the effective date of termination or suspension. Reimbursed costs must be agreed to by ECOLOGY and the RECIPIENT. In no event shall ECOLOGY's reimbursement exceed ECOLOGY's total responsibility under the Agreement and any amendments.

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If payments have been discontinued by ECOLOGY due to unavailable funds, the RECIPIENT shall not be obligated to repay monies which had been paid to the RECIPIENT prior to such termination.
RECIPIENT's obligation to continue or complete the work described in this Agreement shall be contingent upon availability of funds by the RECIPIENT's governing body.

c) By Mutual Agreement
ECOLOGY and the RECIPIENT may terminate this Agreement, in whole or in part, at any time, by mutual written agreement.

d) In Event of Termination
All finished or unfinished documents, data studies, surveys, drawings, maps, models, photographs, reports or other materials prepared by the RECIPIENT under this Agreement, at the option of ECOLOGY, will become property of ECOLOGY and the RECIPIENT shall be entitled to receive just and equitable compensation for any satisfactory work completed on such documents and other materials.
Nothing contained herein shall preclude ECOLOGY from demanding repayment of all funds paid to the RECIPIENT in accordance with Recovery of Funds, identified herein.

29. THIRD PARTY BENEFICIARY
RECIPIENT shall ensure that in all subcontracts entered into by the RECIPIENT pursuant to this Agreement, the state of Washington is named as an express third party beneficiary of such subcontracts with full rights as such.

30. WAIVER
Waiver of a default or breach of any provision of this Agreement is not a waiver of any subsequent default or breach, and will not be construed as a modification of the terms of this Agreement unless stated as such in writing by the authorized representative of ECOLOGY.

End of General Terms and Conditions