Interim Action Work Plan

Weyerhaeuser Mill A Former Cleanup Site
Everett, Washington

Prepared for
Washington State Department of Ecology

Prepared on behalf of
Port of Everett

June 14, 2024

Prepared by
GeoEngineers, Inc.
2101 Fourth Avenue, Suite 950
Seattle, Washington 98121
206.728.2674

GeoEngineers

Interim Action Work Plan

Weyerhaeuser Mill A Former Cleanup Site
Everett, Washington

GeoEngineers File No. 0676-020-07
June 14, 2024

Prepared for:

Washington State Department of Ecology
P.O. Box 47600
Olympia, Washington 98504-7600

Attention: Ryan Hardwick

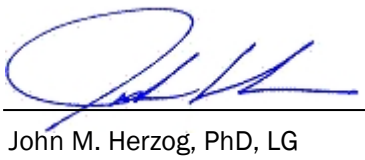
Prepared on behalf of:

Port of Everett
P.O. Box 538
Everett, Washington 98206

Prepared by:

GeoEngineers, Inc.
2101 Fourth Avenue, Suite 950
Seattle, Washington 98121
206.728.2674

Abhijit R. Joshi, PE
Senior Environmental Engineer



John M. Herzog, PhD, LG
Senior Principal Geologist

ARJ:JMH:ch

cc: Erik Gerking and Jacob Kirschner
Port of Everett

Table of Contents

List of Tables

List of Figures

Appendices

1.0 Introduction

This Interim Action Work Plan (IAWP) was prepared on behalf of the Port of Everett (Port) to describe the approach and procedures to be used to complete a Model Toxics Control Act (MTCA) interim cleanup action at the Weyerhaeuser Mill A Former Site (Site) located at 3500 Terminal Avenue, Everett, Snohomish County, Washington as shown in Figure 1. The Site is currently listed in Washington State Department of Ecology's (Ecology's) database of confirmed and suspected contaminated sites under Facility/Site Number No. 1884322 and Cleanup Site ID No. 2146.

Ecology entered into the Agreed Order Number DE 8979 (AO; Ecology 2012) with the Port of Everett (Port), the Weyerhaeuser Company (Weyerhaeuser), and the Washington State Department of Natural Resources (collectively "the Potentially Liable Person/Party" [the PLPs]) on August 9, 2012. The AO required the PLPs to conduct remedial investigation (RI) and feasibility study (FS) and develop a draft Cleanup Action Plan (CAP) for the Site. Subsequent to the issuance of the AO, Ecology determined that the PLPs could prepare separate RI/FSs and draft CAPs for contamination in the Upland Area and Marine Area as shown in Figure 2 to facilitate progress. The draft RI/FS (GeoEngineers 2024) and CAP (Ecology 2024a) for the Marine Area have been reviewed by Ecology and are currently being prepared for public review. The RI for the Upland Area is currently in progress. An interim action involving dredging of contaminated sediments was previously completed by the Port under a separate Agreed Order No. 13119 with Ecology. A new Agreed Order No. 22405 effective June 5, 2024, was prepared by Ecology to allow for implementation of the proposed interim action described in this document.

The Ecology-selected cleanup for the Marine Area includes construction of a confined disposal facility (CDF) in an area that is located between South and Pacific Terminals. An existing outfall (Outfall 003) discharges stormwater within the proposed CDF footprint. The Port is planning to implement an interim action to decommission Outfall 003, reroute stormwater and install stormwater treatment at the Site to allow for future construction of the CDF. An overview of the existing stormwater system at the Site including outfalls, storm drain networks, and interim action work areas are shown in Figure 3.

2.0 Existing Site Conditions

2.1. SITE DESCRIPTION AND OPERATIONAL HISTORY

The Marine Area of the Site is located offshore of Ordinary High Water (OHW) and includes intertidal and subtidal sediment containing contaminants of concern (COCs) that exceed the cleanup levels established for the Site.

The Upland Area of the Site is landward of the ordinary high water (OHW) mark and is bounded to the southeast by the BNSF Rainway (BNSF) rail lines, to the northwest by Port Gardner Bay, and to the northeast by a line extending landward on the southwestern side of Pier 1. The Upland Area encompasses the South Terminal and Pacific Terminal and is generally flat with a ground surface elevation ranging between approximately +17 and +22 feet mean lower low water (MLLW). Most of the Upland Area is paved with asphalt or concrete and contains several buildings that are used for marine terminals operations. A bulkhead and/or armored slopes are present along the shoreline in the South Terminal and Pacific Terminal areas. At the southwest end of the South Terminal area, a small portion of land is covered with compact

gravel and is used for general equipment storage (Equipment Storage Area). Adjacent to the Equipment Storage Area and outside the South Terminal perimeter fence, a small portion of Site has been developed as an access point to the shoreline for the public (Public Open Space). The Marine and Upland Areas of the Site are shown in Figure 2.

Historical industrial activities at the Site included pulp manufacturing, saw milling, ship building, shingle milling, and log storage and handling. The Site was acquired incrementally by Weyerhaeuser between 1901 and 1926. Weyerhaeuser initially operated a lumber mill at the site, and then in 1936 it constructed and began operation of a pulp mill. During the early 1940s, the shoreline was extended to the northwest following construction of a bulkhead near the current bulkhead location (Figure 2) and filling of the area behind the bulkhead. Prior to the early 1940s, historical facilities were supported by piling. By 1980, all Weyerhaeuser manufacturing operations at the Site ceased and the facilities were demolished. The Port purchased the property in 1983 and between 1983 and the mid-2000s, Port tenants used the property for log handling and storage. Since the mid-2000s the property has been used by the Port for break bulk and container cargo. A historical site layout is shown in Figure 4.

2.2. UPLAND AREA EXISTING CONDITION

Prior to entering the AO, the Port completed an initial investigation of Upland Area in January 2010 (Stage I Investigation). The purpose of the Stage I Investigation was to identify potential contamination and to gather geotechnical information to support preliminary planning for potential redevelopment of the South Terminal. The results of the Stage I Investigation are documented in the Stage 1 Upland Source and Groundwater Investigation Data Report (GeoEngineers 2010).

Pursuant to the Agreed Order, an Upland Area soil and groundwater investigation was completed by the Port between July 2016 and March 2023 in accordance with the RI/FS Work Plan (GeoEngineers 2014) and subsequent addenda (GeoEngineers 2018a; GeoEngineers 2018b; GeoEngineers 2019). As required by the Agreed Order, the RI field investigation activities were completed to fill gaps in the existing data and to define the nature and extent of contamination in the Upland Area of the Site. Soil and groundwater conditions based on these investigation activities are presented in the following technical memoranda and summarized below.

- Upland Area Remedial Investigation Data Report Technical Memorandum (GeoEngineers 2018c)
- Sulfide Investigation Data Report Technical Memorandum (GeoEngineers 2018d)
- Tier 1 Upland Area Soil Investigation Data Report Technical Memorandum (GeoEngineers 2021)
- Additional Tier 1 and Tier 2 Upland Area Soil Investigation Data Report Technical Memorandum (GeoEngineers 2022)
- Upland Area Groundwater Investigation Data Report Technical Memorandum (GeoEngineers 2023)

2.2.1. Soil Conditions

Development of the Site has included filling of the former marine tidelands to create the Upland Area of the Site. Based on observations from the soil explorations completed at the Site, the stratigraphy within the South Terminal, where interim action work areas are located, generally consists of fill soil and wood debris varying in thickness overlying native marine sand and silt as described below:

- **Fill Deposits** – Fill material at the Site is generally comprised of a shallow fill unit, a wood debris layer and an underlying deep fill unit. The shallow fill unit is comprised of loose to dense sand or sandy silt with occasional debris ranging from approximately 3 to 17 feet thick. Debris observed in shallow fill includes concrete debris, asphalt, brick and traces of metal. Underling the shallow fill unit is a wood debris layer that is comprised of saw dust, wood chips, dimensional lumber, logs and twigs mixed with silty sand and sand ranging from approximately 10 to 20 feet thick. Intermixed with or underlying the wood debris layer is a deep fill unit that is generally comprised of gray fine to medium sand with occasional silt ranging from approximately 5 to 10 feet thick.
- **Native Deposits** – Native material underlying the fill deposits include a gray fine sand with lenses of silt and silty sand that was formerly sediment prior to infilling of the Upland Area. The native material is generally encountered approximately 20 to 25 feet below ground surface (bgs). At depths of approximately 50 to 70 feet bgs, a hard silt identified as the Whidbey Formation was encountered.

The location of soil borings completed in the vicinity of the interim action work areas is shown on Figures 5 through 7. A detailed description of the materials encountered are presented in exploration logs provided in Appendix A.

The COCs exceeding the cleanup screening levels in Upland Area fill deposits include:

- Metals;
- Petroleum hydrocarbons;
- Volatile organic compounds (VOCs) including benzene, toluene, ethylbenzene and xylenes (BTEX);
- Semi-volatile organic compounds (SVOCs) including polycyclic aromatic hydrocarbons (PAHs);
- Polychlorinated biphenyls (PCBs); and
- Dioxins and furans.

2.2.2. Groundwater Conditions

Based on the results of the RI, groundwater is present at the Site in a single aquifer comprised of three separate hydrostratigraphic units that control the groundwater elevations, flow directions and the degree of influence from tidal fluctuations in Port Gardner. The three units are the following:

- **Shallow Groundwater Unit** – The shallow fill material contains shallow groundwater that is generally not influenced by tidal fluctuations except at the northern and western edges of the Site.
- **Semi-Confining Unit** – The wood debris layer underlying the shallow fill acts as a semi-confining unit. The wood debris layer extends to the southwest end of the South Terminal and pinches out in the Equipment Storage Area. The wood debris unit inhibits communication between groundwater in the shallow groundwater unit and the underlying deep groundwater unit based on the results of the tidal study described in the Upland Area RI Data Report Technical Memorandum (GeoEngineers 2018c).
- **Deep Groundwater Unit** – The deep groundwater unit occurs below the wood debris in the deep fill soil and the native sands. The deep groundwater unit appears to have limited connection to the shallow groundwater unit due to the presence of the semi-confining wood debris layer.

Within the shallow groundwater unit, the groundwater elevation ranges from approximately 6.5 and 12.5 feet bgs and varies seasonally with observed wet season elevations being higher than in the dry season by up to approximately 2 feet. Recharge to the shallow groundwater unit occurs from precipitation infiltrating into soil southeast of the Site including the unpaved portions along the BNSF railroad alignment and southeast adjacent forested bluff area. As described above, the marine terminal area is mostly covered with asphalt and concrete pavement except in a small portion of the Equipment Storage Area and in portions of the Public Open Space area. The asphalt and concrete pavement inhibit infiltration of precipitation across a predominant portion of the Upland Area. Precipitation falling on the asphalt and concrete pavement is collected using a network of catch basins and storm drains, treated through biofiltration swale and/or oil-water separators and discharged to Port Gardner Bay through outfalls as described in the following section.

COCs exceeding cleanup screening levels in the Upland Area groundwater include:

- Metals;
- Petroleum hydrocarbons;
- VOCs including BTEX;
- SVOCs including PAHs;
- PCBs; and
- dioxins and furans.

2.2.3. Existing Stormwater System

A detailed layout of the stormwater drainage networks within South and Pacific Terminals is shown in Figure 3. In the Upland Area of the Site, stormwater runoff can be divided into distinct stormwater drainage basins within the South and Pacific Terminal. Stormwater runoff from the majority of the South Terminal yard flows across paved surfaces, enters catch basins, is conveyed to stormwater pump stations, pumped to a biofiltration swale, and ultimately discharges to Port Gardner Bay at Outfall 001. Stormwater runoff from the South Terminal Wharf area flows across paved surfaces, enters catch basins or trench drains, and ultimately discharges to Port Gardner Bay at Outfalls 002 and 003, which provide drainage to the south and north halves of South Terminal Wharf respectively. Prior to discharge, Outfall 002 receives treatment via a Modular Wetland Linear Biofiltration System and Outfall 003 receives treatment from a baffle style oil-water separator.

Stormwater runoff from Pacific Terminal flows across the paved surfaces, enters catch basins, flows through stormwater pipes, and ultimately discharges to Port Gardner Bay at Outfalls 004 and Outfall 006. Stormwater within the Outfall 004 drainage basin is treated as it flows through a biofiltration swale, and a baffle style oil-water separator before it is discharged. Stormwater within the Outfall 006 drainage basin flows through a coalescing plate oil water separator before discharging through a check valve and co-mingling with a mixture of stormwater and wastewater from the City of Everett's Combined Sewer Overflow (CSO) PS07 before discharging. The existing stormwater system is equipped with bypass for high flow rain events that exceed the design capacity of the stormwater system. Outfall 005 formerly discharged stormwater runoff from Pacific Terminal but has been abandoned in place.

3.0 Applicable Regulatory Requirements for the Interim Action

Because the interim action is being performed under an Agreed Order with Ecology, the interim action is exempt from the procedural requirements of certain laws and local permits (Washington Administrative Code [WAC] 173-340-710[9][a]). However, the interim action must comply with the substantive requirements of these laws and permits. The following sections summarize the applicable regulatory requirements.

3.1. WATER QUALITY PERMITS

An Industrial Stormwater General Permit (ISGP) is a National Pollutant Discharge Elimination System (NPDES) and State waste discharge general permit for stormwater discharges associated with industrial activities. The ISGP is issued by Ecology under the regulatory authority of the State of Washington Water Pollution Control Law (Chapter 90.48 Revised Code of Washington) and the federal Clean Water Act (Title 33 United States Code, Section 1251 et seq.).

The Site is covered under ISGP Number WAR001207. A SWPPP is maintained by the Port as a condition of the ISGP. The Port implements all known, available, and reasonable methods of prevention, control, and treatment (AKART) in accordance with the requirements of the ISGP to ensure discharge from the site does not cause or contribute to a violation of Water Quality Standards. In accordance with the ISGP, stormwater discharge at the Site is monitored for the following parameters which are applicable to all ISGP facilities. Stormwater discharges are required to be in compliance with the benchmark values established for these parameters as presented in Table 1.

- Visible oil sheen;
- Turbidity;
- pH;
- Copper (total); and
- Zinc (total).

In addition to the sampling requirements applicable to all ISGP facilities, the Marine Terminals facility, based on its proximity to 303(d) listed waterbodies and Puget Sound Sediment Cleanup sites (as defined in special condition 6 of the 2019 ISGP), and nature of operation as a Marine Cargo Handling facility (SIC 4491), is required to monitor for the following parameter and achieve compliance with the benchmark values established for these parameters as presented in Table 1.

- Petroleum hydrocarbons (diesel fraction); and
- Total suspended solids (TSS).

A Construction Stormwater General Permit (CSWGP) is not required for the project. Construction wastewater (e.g., water accumulated in excavation and stockpile areas that require dewatering and water used for decontamination) will not be discharged to waters of the State. Wastewater will be collected during the construction and discharged to the sanitary sewer after treatment under an agreement with the City of Everett or disposed at a permitted disposal facility with appropriate authorization from the receiving facility.

An email communication was completed with Ecology's water quality group to evaluate the need for a CSWGP for the project on May 23, 2024 (Ecology 2024b). In their correspondence, Ecology confirmed that CSWGP would not be required for the project because the project will not result in discharges to the wasters of the State. Construction wastewater generated during the interim action will not be allowed to enter the stormwater collection system. Construction wastewater will be collected and contained in temporary on-site storage tanks, treated (if necessary) and either transported off-site for permitted disposal or discharged into the City of Everett sanitary sewer. A discharge authorization will be obtained, and discharge criteria will be met prior to discharge of wastewater.

3.2. WASHINGTON STATE ENVIRONMENTAL POLICY ACT (SEPA)

The Washington State Environmental Policy Act (SEPA) provides a way to identify possible environmental impacts that may result from governmental decisions. Information provided during the SEPA review process helps agency decision-makers, applicants, and the public understand how a project will affect the environment. SEPA is intended to ensure that state and local government officials consider environmental values when making decisions or taking an official action. To meet this requirement, the Port (SEPA lead agency for the project) has completed the SEPA checklist. The SEPA checklist was reviewed by Ecology and Ecology's review comments were addressed. Following Ecology's review, a public review period for the SEPA checklist was completed between May 7 to May 23, 2024. The Port will address public comments, if received, and complete a final SEPA determination prior to implementation of the project.

3.3. ARCHEOLOGICAL AND HISTORICAL PRESERVATION

Ecology has completed an archeological and historical resource review and consultation with the Washington Department of Archaeology and Historic Preservation (DAHP) under Washington State Governor's Executive Order 21-02 (formerly 05-05) to avoid adverse impacts on archaeology and historic resources. A determination of moderate risk for encountering archeological resources during the Interim Action was made by Ecology on May 7, 2024. Ecology's cultural resources determination letter is included in Appendix B. To meet the requirement of the cultural resource determination letter, an Inadvertent Discovery Plan (IDP) was prepared and included in Appendix B. The requirements of the IDP will be followed during construction. Additionally, the Port will have an archeologist on call when site work is being performed to meet the requirements of the cultural resource determination letter.

3.4. CITY OF EVERETT SUBSTANTIVE REQUIREMENTS

The interim action involves excavation, filling and grading work. The Port will coordinate with the City of Everett to ensure that their substantive requirements are met. Applicable documentation and plans prepared for interim Action construction will be submitted to the City of Everett for review, as necessary, and coordination will be completed with the City of Everett to ensure compliance with the substantive requirements of the appropriate permit(s), including, but not limited to, public works permits, and shoreline permits issued under the City of Everett Shoreline Master Program.

4.0 Interim Action

4.1. DESCRIPTION

The Interim Action involves decommissioning Outfall 003, installing new stormwater conveyance infrastructure and installing bio-retention stormwater treatment. Interim action activities will be completed

in five areas identified as areas A through E, as shown in Figure 3 and described in the following sub-sections.

4.1.1. Interim Action Work Area A

Interim Action Work Area A (Area A) is located in the western portion of the Upland Area near existing Outfall 003 as shown on Figures 3 and 5. The primary activities to be completed at Area A are described below and shown in Figure 5.

- Complete utility locates and implement temporary controls as described in Section 4.2;
- Sawcut/remove existing pavement and complete 620 cubic yards of excavation to depths ranging from approximately 6 to 9 feet within an area shown in Figure 5 to enable installation of stormwater conveyance elements;
- Demolish an existing catch basin and approximately 210 linear feet of existing 15-inch-diameter storm drain;
- Stockpile, characterize, transport, and dispose the excavated material, demolition debris and construction wastewater as described in Section 4.3;
- Provide a temporary stormwater reroute for the storm drain segment that is planned to be removed;
- Install a new upsized catch basin, approximately 125 linear feet of 18-inch-diameter storm drain, and approximately 205 linear feet of 36-inch-diameter storm drain to convey stormwater from the northern portion of South Terminal wharf that currently discharges through Outfall 003 (to be decommissioned as part of this interim action) to middle lift station, which discharges stormwater through Outfall 001;
- Plug the existing Outfall 003;
- Backfill the excavation using material imported from Port-approved source that meets the cleanup screening levels (presented in Table 3 of QAPP; Appendix C); and
- Restore the paved surfaces.

4.1.2. Interim Action Work Area B

Interim Action Work Area B (Area B) is located where the stormwater from the south lift station discharges into the existing biofiltration swale as shown on Figures 3 and 6. The primary activities to be completed at Area B are described below and shown in Figure 6.

- Complete utility locates and implement temporary controls as described in Section 4.2;
- Sawcut/remove the existing pavement, remove existing ecology blocks and complete approximately 200 cubic yards of excavation to depths ranging from approximately 1 to 6 feet within an area shown in Figure 6 to enable installation of stormwater conveyance elements and bioretention treatment cell;
- Abandon the existing 10-inch-diameter force main adjacent to Area B;
- Stockpile, characterize, transport, and dispose the excavated material, demolition debris and construction wastewater as described in Section 4.3;
- Provide a temporary stormwater reroute to collect and discharge incoming stormwater from the south lift station and from the upgradient portion of existing biofiltration swale that discharges either into the

existing biofiltration swale downgradient of Area B or into adjacent unnamed creek within port property such that Area B can be maintained relatively dry for construction purposes;

- Install approximately 1,500 square feet bioretention treatment cell within the existing biofiltration swale to enhance treatment of stormwater coming from south lift station as described in Section 4.5;
- Install an 18-inch-diameter culvert below bioretention treatment cell to allow treated stormwater from upgradient portion of existing biofiltration swale to bypass the bioretention treatment cell installed at Area B;
- Install a flow control structure upgradient of the bioretention treatment cell to ensure that the stormwater flow into the treatment cell does not exceed the design capacity (water quality design flowrate);
- Install approximately 30 linear feet of 10-inch-diameter force main to connect the existing force main to the flow control structure and convey stormwater from south lift station to the bioretention treatment cell;
- Backfill the excavation using material imported from Port-approved source that meets the cleanup screening levels (presented in Table 3 of QAPP; Appendix C).; and
- Restore the paved surfaces.

4.1.3. Interim Action Work Area C

Interim Action Work Area C (Area C) is located between the middle lift station and the existing biofiltration swale shown on Figures 3 and 6. The primary activities to be completed at Area C are described below and shown in Figure 6.

- Complete utility locates and implement temporary controls as described in Section 4.2;
- Sawcut/remove the existing pavement and complete approximately 200 cubic yards of excavation to depths ranging from approximately 5 to 8 feet within an area shown in Figure 6 to provide a trenchless pipe entry/exit pit that will enable installation of stormwater conveyance elements;
- Jack and bore between Areas C and D and install a casing pipe to enable installation of a storm drain underneath existing rail lines;
- Stockpile, characterize, transport, and dispose the excavated material, demolition debris and construction wastewater as described in Section 4.3;
- Abandon the existing 10-inch-diameter force main located between Areas C and D;
- Install 130 linear feet of 10-inch-diameter force main between Area C and D using trenchless pipe installation methods to connect to existing force main and convey stormwater from middle lift station to Area D;
- Backfill the excavation using material imported from Port-approved source that meets the cleanup screening levels (presented in Table 3 of QAPP; Appendix C); and
- Restore the paved surfaces.

4.1.4. Interim Action Work Area D

Interim Action Work Area D (Area D) is located where the stormwater from the middle lift station discharges into the existing biofiltration swale as shown on Figures 3 and 6. The primary activities to be completed at Area D are described below and shown in Figure 6.

- Complete utility locates and implement temporary controls as described in Section 4.2;
- Sawcut/remove the existing pavement, remove existing ecology blocks and complete 260 cubic yards of excavation to depths ranging from approximately 1 to 3 feet within an area shown in Figure 6 to provide a trenchless pipe entry/exit pit that will enable installation of stormwater conveyance elements and bioretention treatment cell;
- Stockpile, characterize, transport, and dispose the excavated material, demolition debris and construction wastewater as described in Section 4.3;
- Provide a temporary stormwater reroute to collect and discharge incoming stormwater from middle lift station and from upgradient portion of existing biofiltration swale either into the existing biofiltration swale downgradient of Area D or into adjacent Unnamed Creek 2 such that Area D can be maintained relatively dry for construction purposes;
- Install approximately 2,200 square feet bioretention treatment cell within the existing biofiltration swale to enhance treatment of stormwater coming from middle lift station as described in Section 4.5;
- Install 18-inch-diameter culvert below bioretention treatment cell to allow treated stormwater from upgradient portion of existing biofiltration swale to bypass the bioretention treatment cell installed at Area D;
- Install a flow control structure upgradient of the bioretention treatment cell to ensure that the stormwater flow into the treatment cell does not exceed the design capacity;
- Connect a 10-inch-diameter force main installed between Area C and D as described in Section 4.1.3 to the flow control structure and convey stormwater from the middle lift station to the bioretention treatment cell;
- Backfill the excavation using material imported from Port-approved source that meets the cleanup screening levels (presented in Table 3 of QAPP; Appendix C); and
- Restore the paved surfaces.

4.1.5. Interim Action Work Area E

Interim Action Work Area E (Area E) is located where the stormwater from the north lift station discharges into the existing biofiltration swale as shown on Figures 3 and 7. The primary activities to be completed at Area E are described below and shown in Figure 7.

- Complete utility locates and implement temporary controls as described in Section 4.2;
- Sawcut/remove the existing pavement and complete 230 cubic yards of excavation to depths ranging from approximately 1 to 6 feet within an area shown in Figure 7 to enable installation of stormwater conveyance elements and bioretention treatment cell;
- Demolish approximately 15 linear feet of existing 10-inch-diameter force main;

- Stockpile, characterize, transport, and dispose the excavated material, demolition debris and construction wastewater as described in Section 4.3;
- Provide a temporary stormwater reroute to collect and discharge incoming stormwater from north lift station and from the upgradient portion of existing biofiltration swale into the existing biofiltration swale downgradient of Area E such that Area E can be maintained relatively dry for construction purposes;
- Install approximately 1,800 square feet bioretention treatment cell within the existing biofiltration swale to enhance treatment of stormwater coming from north lift station as described in Section 4.5;
- Install an 18-inch-diameter culvert below bioretention treatment cell to allow treated stormwater from upgradient portion of existing biofiltration swale to bypass the bioretention treatment cell installed at Area E;
- Install a flow control structure upgradient of the bioretention treatment cell to ensure that stormwater flow into the treatment cell does not exceed the design capacity;
- Install approximately 15 linear feet of 10-inch diameter force main to connect existing force main to the flow control structure and convey the stormwater from north lift station to the bioretention treatment cell;
- Backfill the excavation using material imported from Port-approved source that meets the cleanup screening levels (presented in Table 3 of QAPP; Appendix C); and
- Restore the paved surfaces.

4.2. TEMPOARY CONTROLS

4.2.1. Site Access, Security and Traffic Control

The access to the interim action areas is through a gated entry of Port's terminal facility located on Terminal Avenue. Transportation Security Administration's (TSA's) Transportation Worker Identification Credential (TWIC) is required to enter the gate. Construction workers will be required to have a TWIC card or be escorted by authorized personnel.

The contractor will be responsible for installing a temporary security fence to cordon off the work areas and prevent unauthorized entry. Appropriate gate(s) will be provided along the temporary fence to ensure federal security standards for the facility are met while providing access to construction personnel, vehicles and other construction equipment. The contractor will coordinate work hours and construction activities with the Port's ongoing terminal operations to minimize workflow disruptions during the interim action.

A portion of interim action work is located adjacent to the Pigeon Creek Trail that runs parallel to Port's terminal facility to the east and provides access to a Public Beach located in the southern portion of the Site. To facilitate interim action construction work, Pigeon Creek Trail will be closed to the public for the duration of construction. Appropriate signage and advanced notifications will be provided to make the public aware of trail closures. Following completion of construction activities, the trail will be re-opened for public use.

If required, City coordination will be completed by the Port to ensure City's substantive requirements are met. The contractor will be required to install necessary traffic controls including signs and barricades to maintain safe movement of vehicles and personnel around interim action work areas.

4.2.2. Temporary Erosion and Sediment Controls (TESC)

Best management practices (BMPs) consistent with Ecology's current Stormwater Management Manual for Western Washington (SWMMWW) and the substantive regulatory requirements will be used for erosion and sediment control during construction. A temporary erosion and sediment control (TESC) plan will be prepared as part of the project plans presenting minimum requirements that the contractor will be required to follow. The contractor will be required to update this plan or prepare a new TESC plan as necessary to identify TESC BMPs that will be used for construction.

The proposed temporary erosion and sediment control elements will include the following:

- Prevention of sediment, debris and sediment-laden water from leaving the work area and entering adjacent surface streets, storm drains as well as surface water bodies using silt/filter fabric fences, straw bales, straw wattles, storm drain inlet protection, catch basin silt barriers or similar BMPs.
- Implementation of BMPs to divert stormwater such that stormwater from areas outside the work limits does not enter into the excavation area.
- Implementation of BMPs at the construction entrance/exit and internal haul routes to minimize the tracking of soil outside of work limits.
- Street sweeping and/or street cleaning, as necessary, to remove soil tracked outside of work limits.
- Implementation of stockpile BMPs (described in Section 4.3.2).
- Wastewater collection and management (described in Section 4.3.4)

4.2.3. Dust and Noise Control

Excavation work has the potential to generate airborne dust. Engineering controls will be used during construction (e.g., wetting or covering exposed soil), as necessary, to minimize off-site transport of airborne particulates. If wetting is employed, care will be taken to apply the appropriate amount of water to prevent dust only and avoid creation of mud. Visual monitoring will take place and water application will cease if over-saturation is noted (i.e., puddling, surface runoff).

Construction noise will be generated by the construction equipment that will be utilized to complete the interim action. To minimize potential noise impacts, the construction work will be performed during hours allowed by the City of Everett municipal code. If required, a variance on the allowable work hours would be requested and approved by the City of Everett.

4.3. MANAGEMENT OF EXCAVATED MATERIAL, DEMOLITION DEBRIS AND WASTEWATER

4.3.1. Management of Excavated Material

Excavated material will be temporarily stockpiled on Site for waste characterization purposes. Stockpiling will be completed in accordance with the stockpiling BMPs described in Section 4.3.2. Excavated material will be tested prior to transport and disposal at a permitted disposal facility.

Soil sampling and analysis will be completed from stockpiles to adequately characterize excavated material for disposal. The quantity of soil samples to be collected for stockpile characterization will be in accordance

with Ecology's guidance on the typical number of samples needed to adequately characterize stockpiled soil as summarized in Table 2.

Discrete grab samples will be collected 6 to 12 inches beneath the surface of the stockpile. Samples will be located where field observations indicate contamination is most likely to be present. If field observations do not indicate contamination, stockpile will be divided into sections and each section will be sampled.

Clean pairs of nitrile gloves will be used for collection of each sample. Hand tools such as hand-auger, shovel or similar, if used in sample collection, will be decontaminated prior to collecting each sample. Decontamination procedures presented in QAPP (Appendix C) will be followed. Duplicate soil samples will not be collected for waste characterization samples. Chemical analysis will be performed at an Ecology accredited laboratory. Stockpile samples will be analyzed for analytes requested by disposal facility.

A completed landfill profile form and the results of chemical analysis will be submitted to the contractor selected landfill to obtain disposal authorization. A landfill disposal authorization will be obtained prior to transport and disposal of excavated material. Transport and disposal of the excavated material will be completed in accordance with the applicable laws and regulations.

4.3.2. Stockpiling BMPs

This section presents stockpiling BMPs for material that will be excavated as part of the interim action. The location of stockpiles will be selected by the contractor depending on their approach to excavation and hauling. The location will be selected in coordination with Port's terminal operations and will require Port's approval prior to construction.

The minimum BMPs applicable to a stockpile located outside the limits of excavation area include a perimeter berm, an impermeable and stabilized base and an impermeable cover as described below.

- **Perimeter Barrier:** The intent of the perimeter barrier is to prevent stormwater run-on into the stockpiled material and to contain liquids from stockpiled material within the stockpile area. Stockpile material will be contained within the barrier in a manner that prevents spillage of material over/outside of the berm. The barrier can be constructed of clean imported soil, asphalt, concrete ecology blocks or similar. Perimeter TESC such as straw wattle may be installed along the perimeter barrier, as necessary, to prevent or minimize run-on and run-off.
- **Impermeable Liner:** An impermeable liner will be placed on existing surfaces following clearing of debris that might potentially tear or puncture the liner and will extend underneath the entire footprint of the stockpile and over the perimeter barrier. The intent of a liner is to minimize or eliminate (to the extent practicable) direct contact and cross-contamination of underlying existing surface from stockpiled material. If the individual section of the liner is not big enough to cover the entire stockpile, then multiple sections will be used. Adjacent sections of the liner will be overlapped with overlying section located uphill. The liner will be constructed of impermeable high density polyethylene (HDPE) sheeting or similar. A torn liner will be repaired or replaced upon identification of the breach.
- **Stabilized Impermeable Base:** The intent of the stabilized impermeable base is to prevent direct contact and cross contamination of underlying existing surface from stockpiled material, provide a stable working surface that is not compromised of its function due to normal wear and tear from construction activities and is sloped such that the liquids draining from stockpiled material are channeled to a point

(e.g., sump) where the liquids can be collected, as necessary. Existing asphalt surfaces can be used as stabilized impermeable base.

- **Impermeable Cover:** An impermeable cover will be required to eliminate or minimize wind dispersion and direct contact of precipitation with stockpiled material. The complete extent of the stockpile will be covered during off-work hours and the portions of stockpile that is not in use during work hours will also be covered. The covers will extend over the berm (to ensure that the precipitation is diverted outside the stockpile area) and will be anchored using sandbags or similar to prevent them from being removed by wind. If the individual section of the cover is not big enough to cover the entire stockpile, then multiple sections will be used similar to the approach described for the liner. The cover will be constructed of impermeable HDPE sheeting or similar. Any torn covers will be repaired or replaced upon identification of the breach.

4.3.3. Management of Demolition Debris

Demolition debris including removed concrete or asphalt pavement and storm drains pipes will be managed separately from excavated material and will either be transported offsite to a permitted recycling facility or disposal facility. Authorization will be obtained from recycling/disposal facility prior to transport and disposal. Transport and disposal of the demolition debris will be completed in accordance with the applicable laws and regulations.

4.3.4. Management of Wastewater

Wastewater including water accumulated in excavation and stockpile areas that require dewatering and water used for decontamination, will be managed in accordance with applicable laws and regulations. In addition to implementing TESC BMPs (Section 4.2.2), the contractor will be required to perform construction activities including excavation in a manner that minimizes or prevents to the extent practicable, the generation of wastewater.

The contractor will be responsible for the collection of wastewater into temporary on-Site storage tanks, treatment (if necessary), and the discharge or disposal of collected water. The contractor may elect to either transport collected water for disposal to an off-site permitted disposal facility or discharge to the City of Everett's sanitary sewer. Prior to disposal or discharge, the contractor will be required to treat the water (if necessary) to meet the disposal facility/City's acceptance criteria. The contractor will be responsible for collecting representative samples of the collected water for disposal characterization purposes and coordinating with the disposal facility or the City, as applicable, for obtaining necessary permits and approvals. Discharge into the sanitary sewer will require a discharge authorization from the City of Everett.

4.4. PROCEDURES FOR INADVERTENT DISCOVERY OF ARCHAEOLOGICAL OR HISTORICAL RESOURCES

Excavation activities to be completed as part of the interim action are shallow and located within the fill/wood debris layer and therefore, the potential for encountering archaeological or historical resources is low. No potential adverse effects on archaeological or historical resources are anticipated however, if potential archaeological resources, cultural resources, or human remains are identified during construction, work will be stopped immediately in the vicinity of the discovery and required notifications will be completed in accordance with the Inadvertent Discovery Plan (IDP; Appendix B). Construction work will not proceed in the area of, or near, the discovery until DAHP has issued an approval to continue work. Identification and documentation of the find will be completed in accordance with the IDP.

4.5. BIORETENTION TREATMENT

Bioretention treatment will be constructed in accordance with Ecology's guidelines for enhanced treatment facilities (Ecology 2019). As discussed in Section 4.1, bioretention treatment cells will be incorporated within the footprints of the existing biofiltration swale at the discharge locations of the south, middle and north lift stations to enhance the treatment of stormwater.

The bioretention treatment cells will be constructed using the following four layers of media placed in a sequential order with compost/mulch on the top and underdrain in the bottom:

- Approximately 3-inch-thick layer of compost/mulch;
- Approximately 18-inch-thick layer of High Performance Bioretention Soil Mix (HPBSM); and
- Approximately 6- to 12-inches-thick underdrain media.

These layers will be fully contained within a 4 to 5 feet high ecology block wall on all side. The four walls and base of the treatment cells will be lined with impermeable liner. The flow control structure will deliver stormwater to the surface of the treatment cell and the stormwater will be allowed to pass through the layers of compost/mulch and HPBSM media under gravity to receive treatment. The treated stormwater will be collected within the underdrain media from where it will be conveyed downstream using a slotted underdrain, which will be installed within the underdrain media. The bioretention treatment cells will be designed in accordance with the Stormwater Management Manual for Western Washington Section III-2.6. The flow control structure will ensure that the flow of stormwater into the treatment cells does not exceed the design capacity (water quality design flow rate). The flow control structure has a built in bypass which will discharge stormwater flows that exceed the water quality design flow rate into the existing swale. The treatment cells will also be equipped to provide emergency overflow into the existing swale in the event the media within the biotreatment cells becomes clogged indicating maintenance on the system may be required.

4.6. COMPLIANCE MONITORING

In accordance with WAC 173-340-410, there are three types of compliance monitoring: protection, performance, and confirmation monitoring, as described in the following sections.

4.6.1. Protection Monitoring

In accordance with WAC 173-340-410, protection monitoring is completed to "*confirm that human health and the environment are adequately protected during construction and the operation and maintenance period of an interim action or cleanup action as described in the health and safety plan.*"

Protection monitoring activities to be completed as part of the interim action are described in the following sections.

4.6.1.1. HEALTH AND SAFETY

Interim action activities will be performed in accordance with the requirements of the Washington Industrial Safety and Health Act (WISHA; RCW 49.17) and the Federal Occupational Safety and Health Act (OSHA; 29 CFR 1910, 1926). These regulations include requirements that workers be protected from exposure to contaminants. A site-specific Health and Safety Plan (HASP) is included in Appendix D and addresses the

protection monitoring requirement for GeoEngineers' personnel. Other contractors working on the Site will be required to prepare a separate HASP for their use.

Personnel engaged in work that involves hazardous material excavation and handling will be required to comply with the provisions of WAC 173-340-810 (MTCA Cleanup Regulation, Worker Safety and Health) and be Hazardous Waste Operations and Emergency Response (HAZWOPER), OSHA, and WISHA certified.

4.6.1.2. ENVIRONMENTAL PROTECTION

Environmental protection measures consisting of BMPs for stormwater, sediment, drainage, and erosion control; dust and noise control; spill prevention and pollution control; and other controls needed to protect environmental quality will be implemented. Environmental protection measures for stormwater management, control of surface water runoff, and temporary erosion and sediment control measures will be identified by the Contractor prior to commencing construction activities. The environmental protection measures including traffic controls, TESC, dust and noise controls that will be implemented are described in Section 4.2. If the Port determines that the Contractor's environmental protection measures are inadequate to meet the intent of applicable regulations, the Contractor will be required to implement additional measures to address the deficiencies.

4.6.2. Performance Monitoring

In accordance with WAC 173-340-410, performance monitoring is completed to "*confirm that the interim action or cleanup action has attained cleanup standards and, if appropriate, remediation levels or other performance standards such as construction quality control measurements or monitoring necessary to demonstrate compliance with a permit or, where a permit exemption applies, the substantive requirements of other laws.*"

As a result of the interim action, the stormwater that is currently being discharged through Outfall 003 will be rerouted and discharged through Outfall 001. Outfall discharges at the Site are being regulated under an existing ISGP (No. WAR001207) that the Port maintains with Ecology. To comply with the requirements of the ISGP, the Port performs periodic sampling and analysis of stormwater discharge through existing outfalls located at the Site. The ISGP requires monitoring of the following parameters on a quarterly basis at a minimum:

- Visible oil sheen;
- Turbidity;
- pH;
- TSS;
- Copper (total);
- Zinc (total); and
- Petroleum hydrocarbons (diesel fraction).

Performance monitoring will include completing one stormwater sampling event from Outfall 001 following completion of construction, analyzing the stormwater sample for the parameters mentioned above, and submitting the results to Ecology. Sampling activities will be completed following the completion of interim

action construction and following a storm event to allow for a collection of a representative stormwater sample.

The stormwater sample will be collected directly into laboratory-prepared containers by field personnel using clean pairs of nitrile gloves. Each sample container will be securely capped, labeled, and placed in a cooler with ice immediately upon collection. Reusable sampling equipment (if used) will be decontaminated prior to sample collection. Chemical analysis of the samples collected will be performed at an Ecology accredited laboratory. Chain-of-custody forms will be used to document the transfer of samples during transport and submittal of samples to the laboratory.

The sample results will be compared to benchmark values and/or effluent limits established for the parameters in the ISGP. The benchmark value and/or effluent limits for each parameter is presented in Table 1. If the results are less than the benchmark values and/or effluent limits, additional monitoring events will not be performed as part of performance monitoring. If the results are greater than the benchmark values and/or effluent limits, Ecology will be consulted, and the need for additional performance monitoring requirements, outside of the ISGP monitoring requirements will be discussed, and implemented if Ecology determines additional sampling is needed. Quality assurance requirements applicable to sampling and analysis are presented in Quality Assurance Project Plan (QAPP) included in Appendix C. The QAPP presents chemical analytical data quality objectives including analytical methods, laboratory practical quantitation limits (PQLs), precision, accuracy, representativeness, completeness, comparability, holding times and quality control samples. The QAPP also presents decontamination procedures, sample size, container, labeling, handling and custody procedures.

The performance monitoring requirements detailed above do not alter periodic monitoring of outfall discharges that Port completes to meet the requirements of ISGP. The Port will continue to monitor stormwater discharges in accordance with the ISGP.

4.6.3. Confirmational Monitoring

In accordance with WAC 173-340-410, confirmational monitoring is completed to "*confirm the long-term effectiveness of the interim action or cleanup action once cleanup standards and, if appropriate, remediation levels or other performance standards have been attained.*"

The Port will continue to perform sampling and analysis of stormwater discharge to comply with the requirements of the ISGP. The permit-required monitoring will meet the objectives of confirmational monitoring and therefore, no confirmational monitoring is necessary for the interim action.

5.0 Schedule

Interim action-related construction work is scheduled to begin in summer of 2024. The construction duration is estimated to occur over a period of three months. A high-level overview of the interim action schedule is listed below.

- IAWP – May/June 2024
- Plans, Specifications and Engineers Estimate – May/June 2024
- Permits and Regulatory Substantive Requirements – June 2024

- Bidding and Pre-Construction – June/July 2023
- Construction – July to November 2024
- Project Closeout and Reporting – December 2024 to March 2025

6.0 Reporting

Upon completion of the Interim Action work, an Interim Action Completion Report that describes the construction of the Interim Action will be prepared and submitted to Ecology for review and approval in accordance with the requirements of the Agreed Order. The Completion Report will present the details of the construction activities, as-built/record drawings, surveys, laboratory reports for sampling and analysis work, waste disposal summary and other supporting documents. The results of compliance monitoring will also be included in the completion report in addition to the recent and applicable outfall monitoring data that was collected prior to the interim action construction.

7.0 Limitations

This report has been prepared for the exclusive use of the Port of Everett, their authorized agents and regulatory agencies in their evaluation of the interim action at Weyerhaeuser Mill A Former Site. No other party may rely on the product of our services unless we agree in advance and in writing to such reliance.

Within the limitations of scope, schedule and budget, our services were executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

8.0 References

GeoEngineers Inc. (GeoEngineers), 2010. Stage 1 Upland Source and Groundwater Investigation, Port of Everett South Terminal, Weyerhaeuser Mill A Former Site. Prepared for Worley Parsons. March 24, 2010.

GeoEngineers Inc. (GeoEngineers), 2014. Remedial Investigation/Feasibility Study Work Plan, Weyerhaeuser Mill A Former, Everett, Washington, Ecology Agreed Order No. DE 8979. Prepared for the Washington State Department of Ecology on Behalf of Port of Everett, Weyerhaeuser Company and Washington State Department of Natural Resources. October 16, 2014.

GeoEngineers Inc. (GeoEngineers), 2018a. Work Plan Addendum No. 3 for Additional Groundwater Sampling from Selected Wells and Analysis Using Reductive Precipitation Method at the Former Mill A Site, Everett, Washington. October 16, 2018.

GeoEngineers Inc. (GeoEngineers), 2018b. Work Plan Addendum No. 5 for Additional Upland Area Sulfide Sample Collection and Analysis at the Weyerhaeuser Mill A Former Site, Everett, Washington. August 31, 2018.

GeoEngineers Inc. (GeoEngineers), 2018c. Upland Area Remedial Investigation Data Report Technical Memorandum, Weyerhaeuser Mill A Former, Everett, Washington, Ecology Agreed Order No. DE 8979. March 19, 2018.

GeoEngineers Inc. (GeoEngineers), 2018d. Sulfide Investigation, Diffusive Gradient Thin (DGT) Film Sampling and Analysis, Weyerhaeuser Mill A Former Site, Everett, Washington. December 6, 2018.

GeoEngineers Inc. (GeoEngineers), 2019. Work Plan Addendum No. 6 for Additional Upland Area Soil and Groundwater Sample Collection and Analysis at the Weyerhaeuser Mill A Former Site, Everett, Washington. September 13, 2019.

GeoEngineers Inc. (GeoEngineers), 2021. Tier 1 Upland Area Soil Investigation Data Report Technical Memorandum and Proposed Additional Soil and Groundwater Sampling and Analysis, Weyerhaeuser Mill A Former Site, Everett, Washington, Ecology Agreed Order No. DE 8979. December 7, 2021.

GeoEngineers Inc. (GeoEngineers), 2022. Additional Tier 1 and Tier 2 Upland Area Soil Investigation Data Report Technical Memorandum, Weyerhaeuser Mill A Former Site, Everett, Washington, Ecology Agreed Order No. DE 8979. October 7, 2022.

GeoEngineers Inc. (GeoEngineers), 2023. Data Report Technical Memorandum – Additional Upland Area Groundwater Investigation for Completion of Work Plan Addendum No. 3 and No. 6 Monitoring Requirements, Weyerhaeuser Mill A Former Site, Everett, Washington, Ecology Agreed Order No. DE 8979. October 16, 2023.

GeoEngineers Inc. (GeoEngineers), 2024. Remedial Investigation/Feasibility Study Report – Marine Area, Weyerhaeuser Mill A Former, Everett, Washington. April 2024.

Herrera Environmental Consultants, Inc. (Herrera), 2024. Stormwater Pollution Prevention Plan (SWPPP) Permit No. WAR001207, for Port of Everett Marine Terminals. Updated 2024.

Washington State Department of Ecology (Ecology), 2012. Agreed Order for Remedial Investigation/Feasibility Study and Draft Cleanup Action Plan – Weyerhaeuser Mill A Former Site, No. DE 8979. In the Matter of Remedial Action by: Port of Everett, Weyerhaeuser, and Washington State Department of Natural Resources. filed August 9, 2012.

Washington State Department of Ecology (Ecology), 2019. Stormwater Management Manual for Western Washington. Publication No. 19-10-021. Prepared by the Washington State Department of Ecology, Olympia, Washington. 2019.

Washington State Department of Ecology (Ecology), 2024a. “Marine Area Draft Cleanup Action Plan, Weyerhaeuser Mill A Former, Everett, Washington.” April 2024.

Washington State Department of Ecology (Ecology), 2024b. Email from Charles Hackel, Construction Stormwater Inspector, Washington State Department of Ecology, Water Quality Program to Jacob Kirschner, Environmental Project Manager, Port of Everett, dated May 23, 2024.

Tables

Table 1

Industrial Stormwater General Permit Stormwater Sampling Parameters and Benchmark Values

Weyerhaeuser Mill A Former Site

Everett, Washington

Parameter	Units	Benchmark Value	Analytical Method
Visible Oil Sheen	Yes/No	No visible oil sheen	NA
Turbidity	NTU	25	Field Meter/EPA 180.1
pH	Standard Units	Between 5.0 and 9.0	Field Meter
Total Suspended Solids	mg/L	30	SM2540-D
Copper, Total	µg/L	14	EPA 200.8
Zinc, Total	µg/L	117	EPA 200.8
Petroleum Hydrocarbons (Diesel Fraction)	mg/L	10	NWTPH-Dx

Notes:

mg/L = Milligrams per liter

µg/L = Micrograms per liter

EPA = United States Environmental Protection Agency

NA = Not Applicable

NTU = Nephelometric Turbidity Unit

NWTPH = Northwest Total Petroleum Hydrocarbon

SM = Standard Method

Table 2

Typical Number of Samples Needed to Adequately Characterize Stockpiled Soil

Weyerhaeuser Mill A Former Site

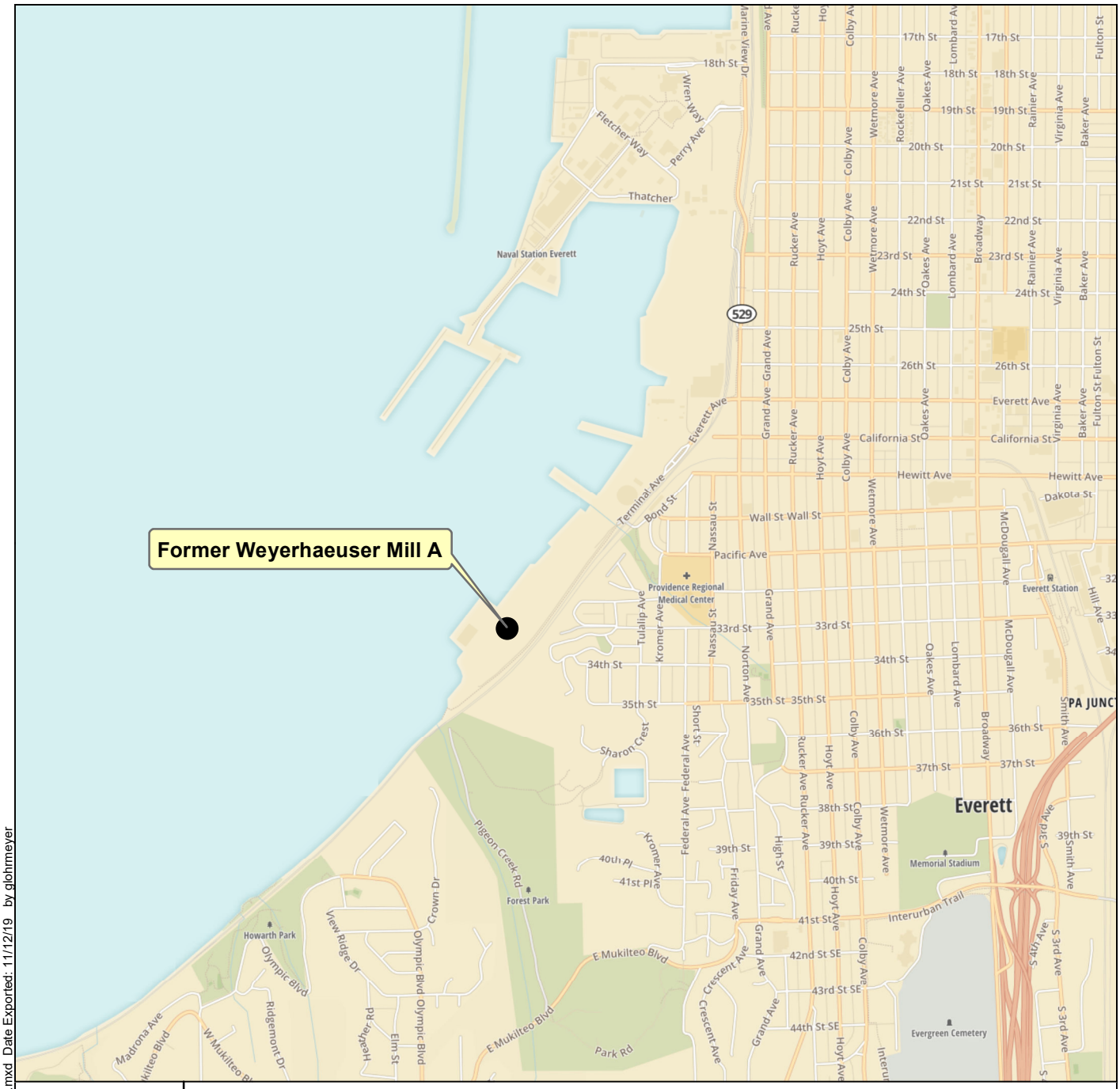
Everett, Washington

Cubic Yards of Soil	Number of Samples for Chemical Analysis
0-100	3
101-500	5
501-100	7
1001-2000	10
>2000	10+1 for each additional 500 cubic yards

Notes:

Source: Washington State Department of Ecology Guidance for Remediation of Petroleum Contaminated Sites, Toxics Cleanup Program, Publication No. 10-09-057, June 2016.

Figures



N
W
E
S

2,000 0 2,000

Feet

Vicinity Map

Weyerhaeuser Mill A Former Site
Everett, Washington

GeoEngineers

Figure 1

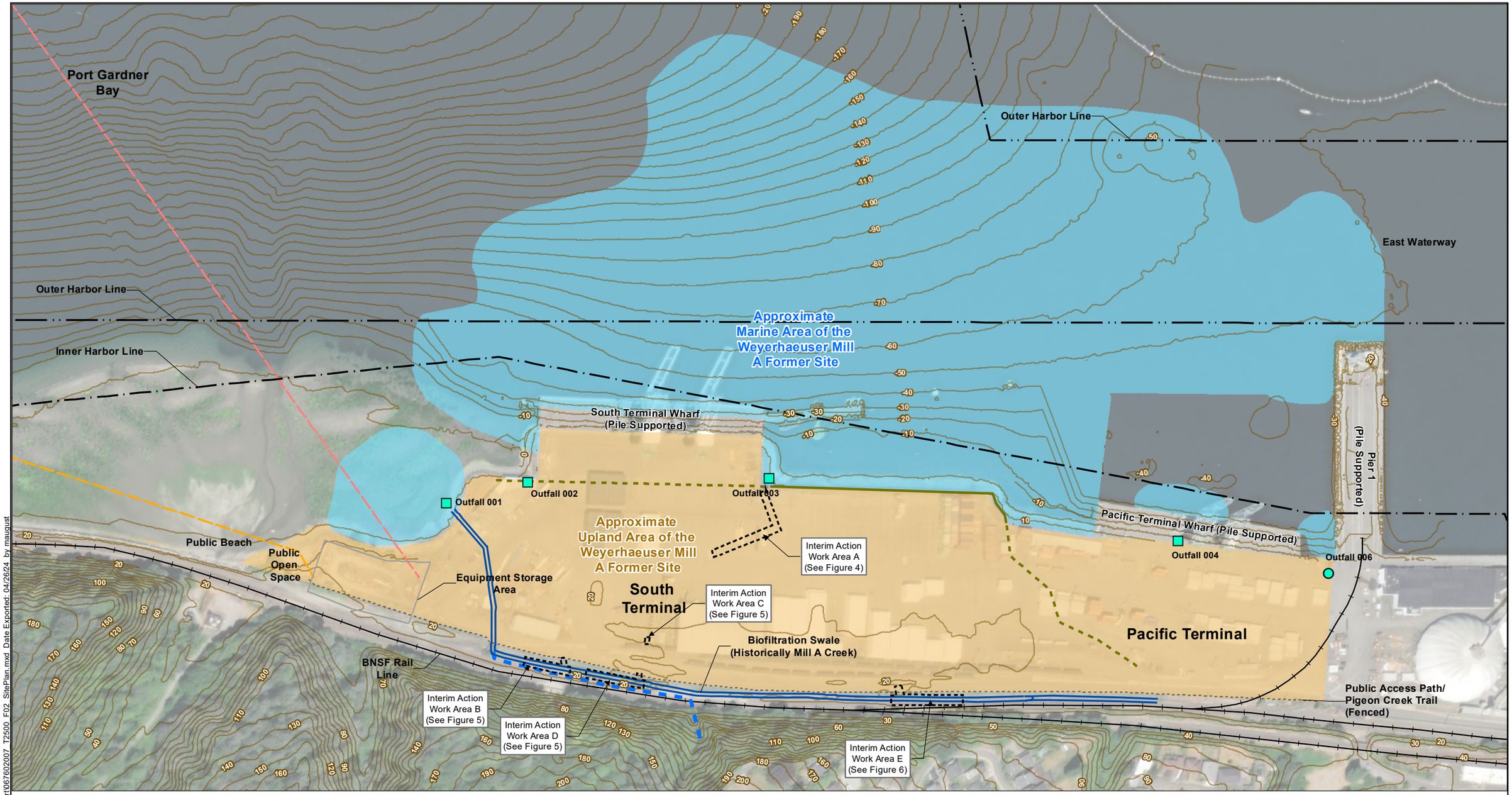
Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Mapbox Open Street Map, 2016

Projection: NAD 1983 UTM Zone 10N

P:\0\0676020\GIS\MXD\MarineArea_RI_Report\0676020006_F01_VicinityMap.mxd Date Exported: 11/12/19 by glohrmeyer



Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Base aerial from ESRI, 2024

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Legend

- Approximate Interim Action Work Area
- Approximate Marine Area of the Weyerhaeuser Mill A Former Site
- Approximate Upland Area of the Weyerhaeuser Mill A Former Site
- Current Kimberly-Clark/City of Everett/ City of Marysville Outfall 100 (approximate)
- Historical Kimberly-Clark/Weyerhaeuser Outfall SW001 (approximate)
- Biofiltration Swale
- Public Access Path/Pigeon Creek Trail
- Unnamed Creek
- Bulkhead (Dashed where burried)
- Topography/Bathymetry Contour (Feet Mean Lower Low Water [MLLW])
- Railway
- Combined Sewer Overflow (CSO)
- Current Stormwater Outfall

300 0 300
Feet

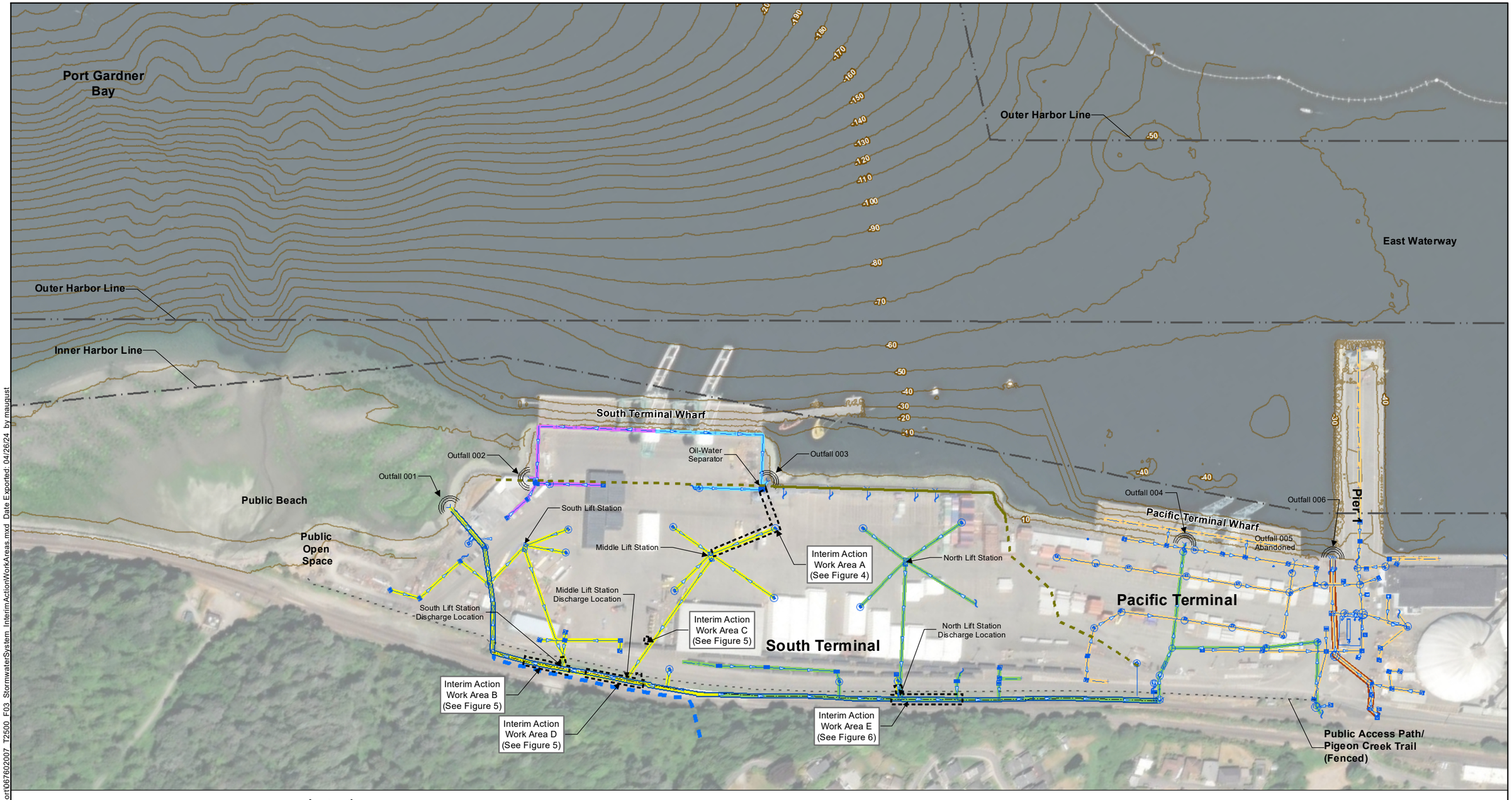
Site Plan

Weyerhaeuser Mill A Former
Everett, Washington

GeoEngineers

Figure 2

P:\0\067602G\GIS\MXD\MarineArea_RI_Report\067602007_T2500_F02_SitePlan.mxd Date Exported: 04/26/24 by maugust



Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Base aerial from ESRI, 2024

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Legend

- Approximate Interim Action Work Area
- Bulkhead (Dashed where burried)
- Biofiltration Swale
- Topography/Bathymetry Contour
- Public Access Path/Pigeon Creek Trail
- Unnamed Creek
- Outfall 001 Stormwater Drain Network
- Outfall 002 Stormwater Drain Network
- Outfall 003 Stormwater Drain Network
- Outfall 004 Stormwater Drain Network
- Outfall 006 Stormwater Drain Network
- City of Everett Combined Sewer Overflow (CSO)
- Storm Drain (Inferred)
- Swale
- Trench Drain
- Culvert End
- End of Pipe is Unknown
- Flow Direction

300 0 300
Feet

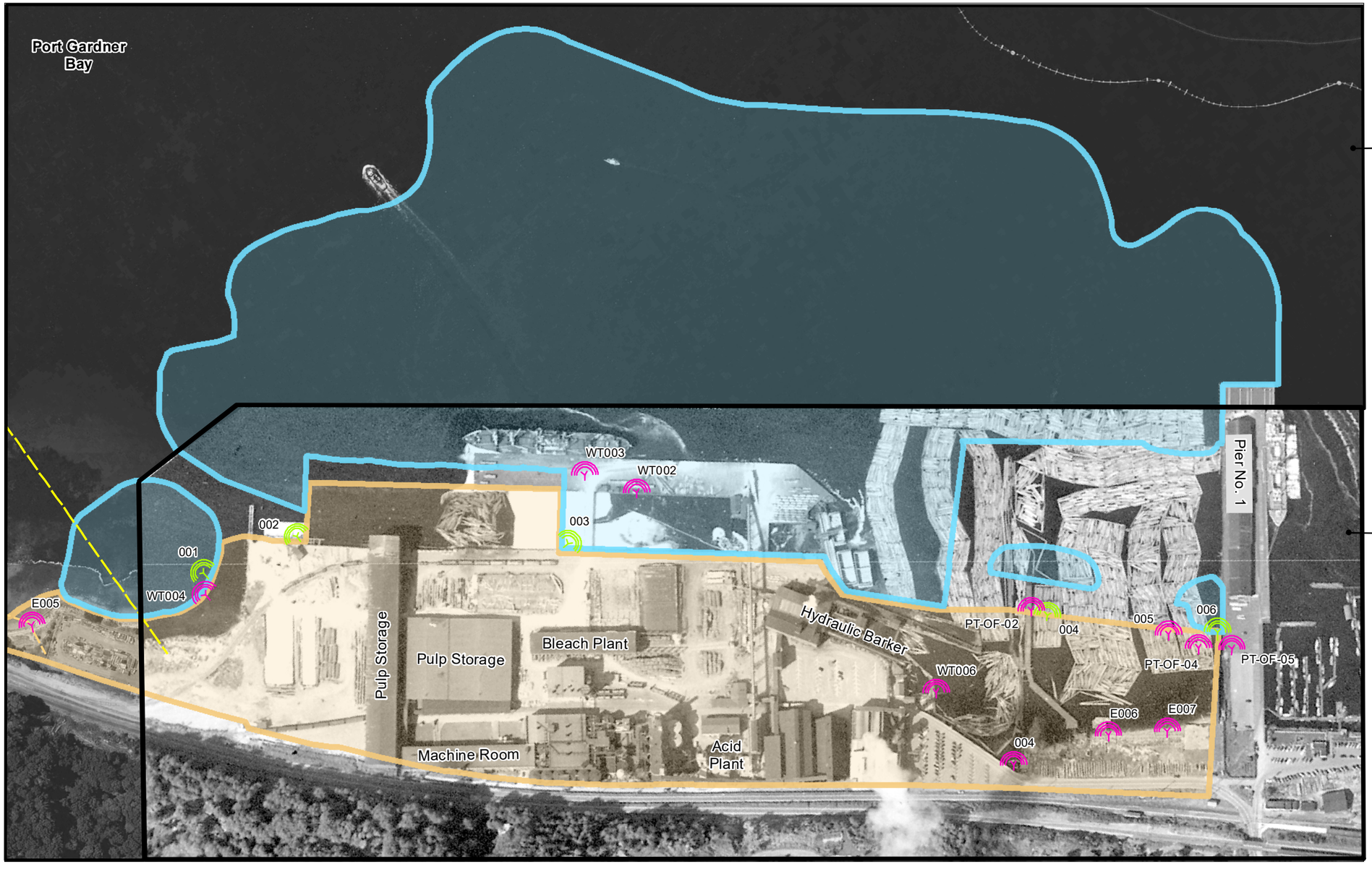
Stormwater System and Interim Action Work Areas

Weyerhaeuser Mill A Former
Everett, Washington

GeoEngineers

Figure 3

P:\0067602G\GIS\MXD\MarineArea_RI_Report\0067602007_T2500_F03_StormwaterSystem_InterimActionWorkAreas.mxd Date Exported: 04/26/24 by maugust



Legend

- Approximate Marine Area of the Weyerhaeuser Mill A Former Site
- Approximate Upland Area of the Weyerhaeuser Mill A Former Site
- Current Kimberly-Clark/City of Everett/ City of Marysville Outfall 100
- Historical Kimberly-Clark/Weyerhaeuser Outfall SW001
- Limits of 1947 Aerial Photograph
- Current Outfall
- Former/Historical Outfall

0 300
Feet

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

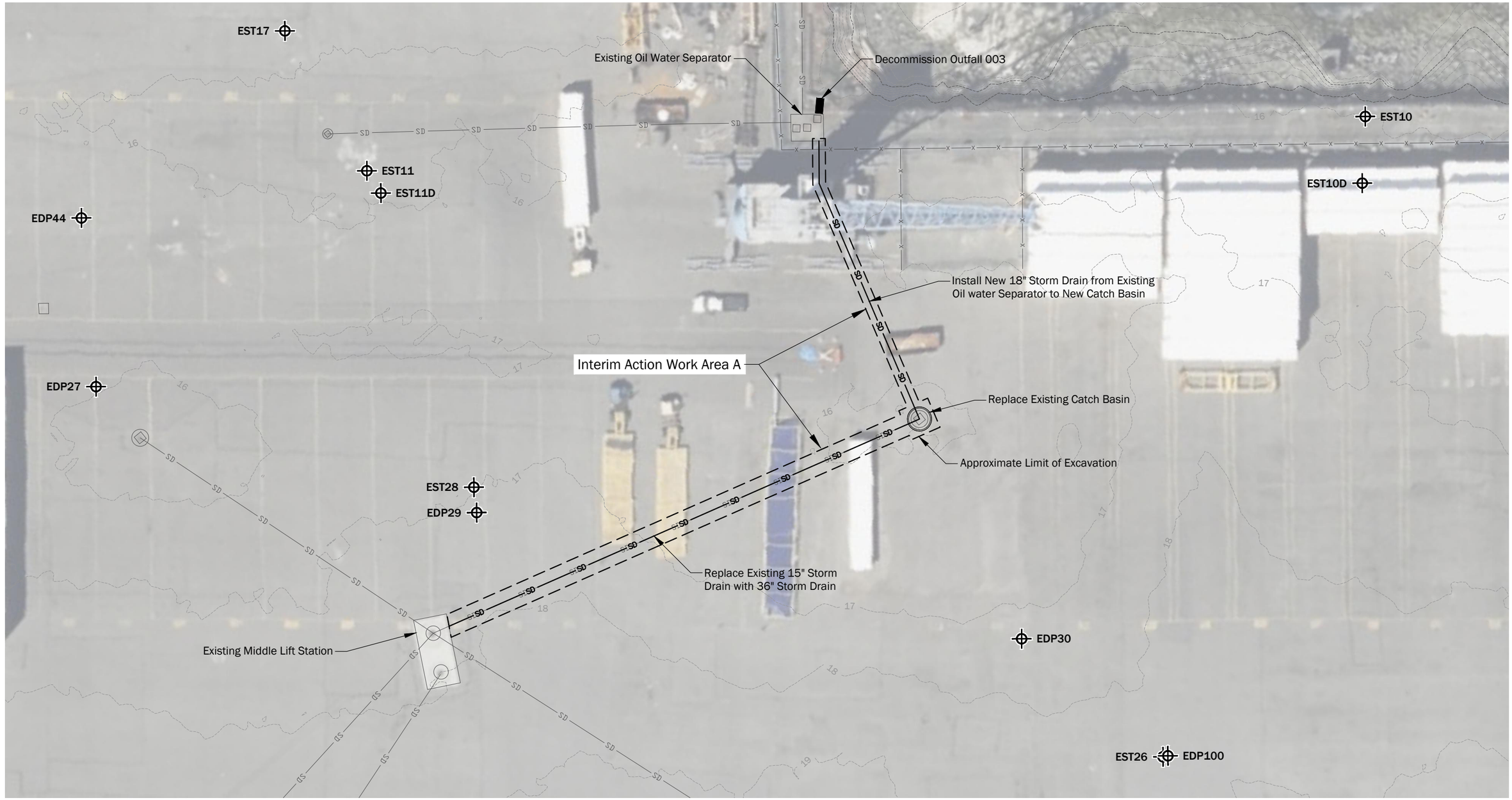
P:\0067602G\GIS\MXD\MarineArea_RI_Report\0067602007_T2500_F04_HistoricalSiteLayout.mxd Date Exported: 04/26/24 by maugust

Historical Site Layout

Weyerhaeuser Mill A Former
Everett, Washington

GeoEngineers

Figure 4



Notes:

Source(s):
- Aerial from Microsoft Bing, dated 2024
- Base from KPFF, dated 4/18/2024

Coordinate System: NAD83 Washington State Planes, North Zone, US Foot

Disclaimer: This figure was created for a specific purpose and project. Any use of this figure for any other project or purpose shall be at the user's sole risk and without liability to GeoEngineers. The locations of features shown may be approximate. GeoEngineers makes no warranty or representation as to the accuracy, completeness, or suitability of the figure, or data contained therein. The file containing this figure is a copy of a master document, the original of which is retained by GeoEngineers and is the official document of record.

Legend

- -45 — Existing Contour (Feet MLLW)
- Existing Boring Location
- x x — Existing Fence
- Existing Catch Basin
- SD — Existing Storm Drain
- SD — New Storm Drain
- Approximate Limit of Excavation

N

0 40
Feet

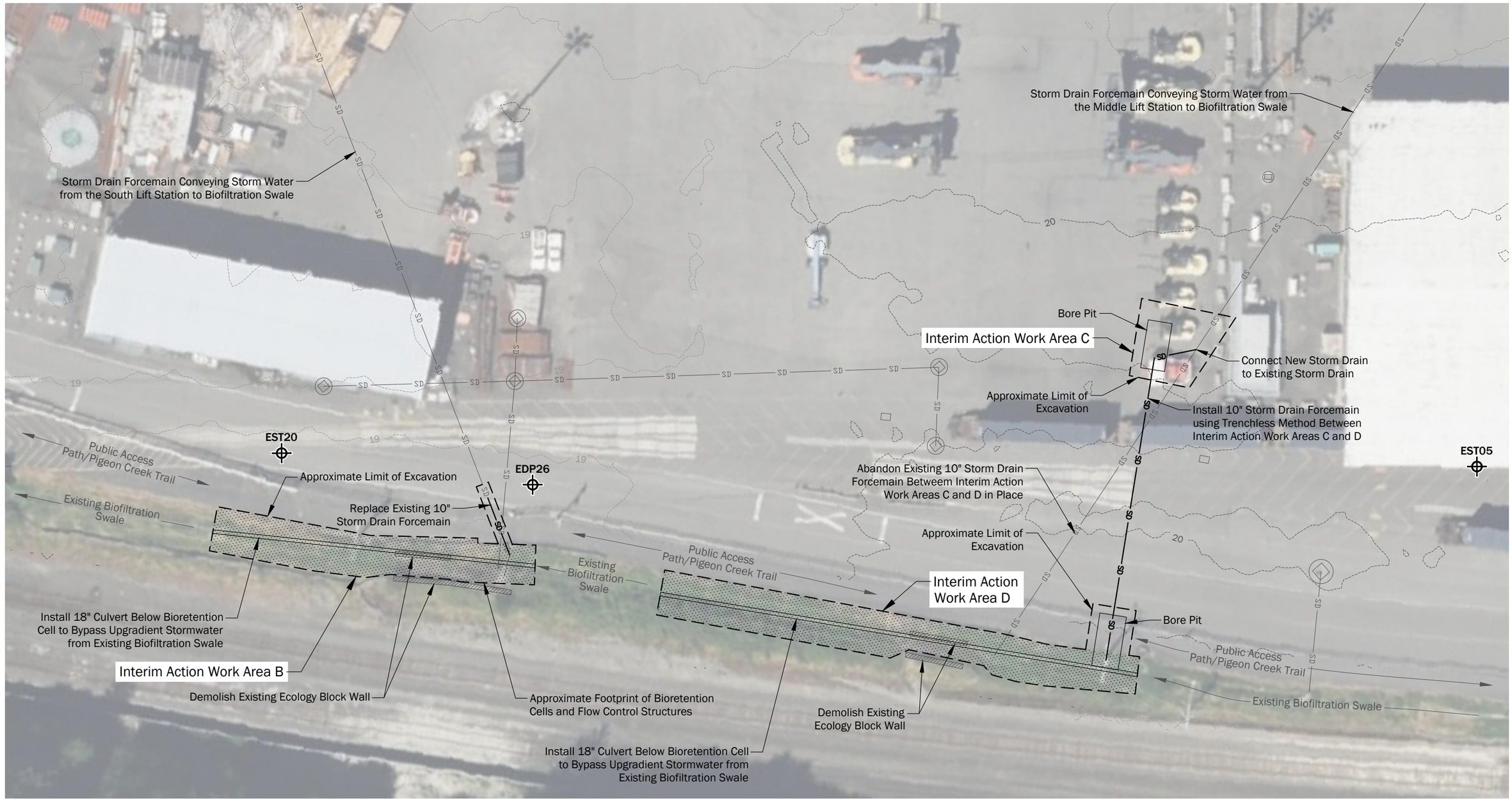
Interim Action Work Area A

Weyerhaeuser Mill A Former
Everett, Washington

GeoEngineers

Figure 5

\\geoengineers.com\WAN\Projects\0\0676020\CAD\07\Task 2500 (Stormwater Interim Action)\0067602007_F5_Interim Action Work Area A.dwg 5 Date Exported:4/26/2024 11:58 AM - by Michael R. Woods



Notes:

Source(s):
- Aerial from Microsoft Bing, dated 2024
- Base from KPFF, dated 4/18/2024

Coordinate System: NAD83 Washington State Planes, North Zone, US Foot

Legend

- -45 — Existing Contour (Feet MLLW)
- Existing Boring Location
- Existing Catch Basin
- SD — Existing Storm Drain
- SD — New Storm Drain
- Approximate Limit of Excavation
- Approximate Footprint of Bioretention Cell and Flow Control Structures

N

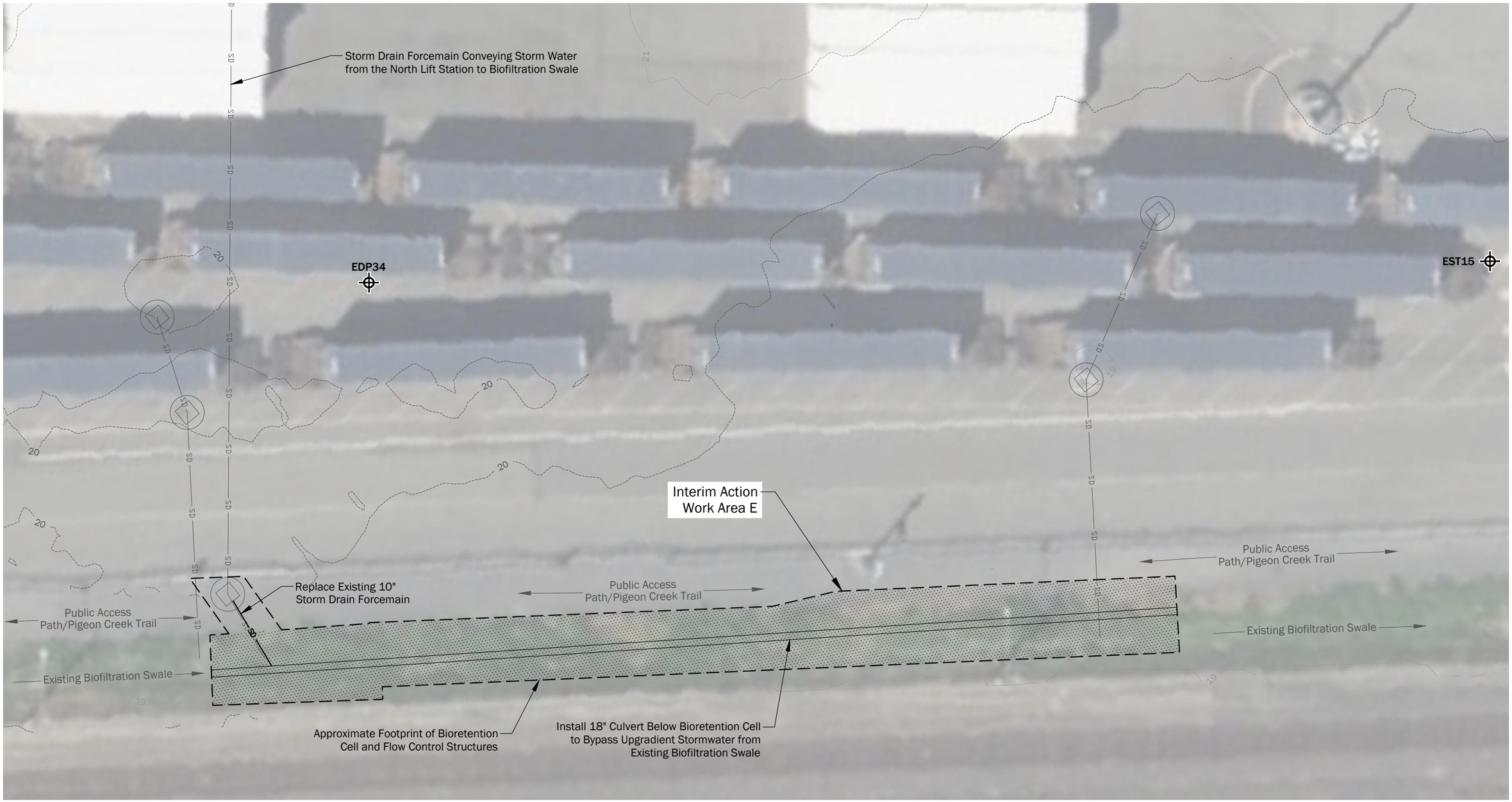
0 40
Feet

Interim Action Work Area B, C and D

Weyerhaeuser Mill A Former
Everett, Washington

GeoEngineers

Figure 6



Notes:

Source(s):
- Aerial from Microsoft Bing, dated 2024
- Base from KPFF, dated 4/18/2024

Coordinate System: NAD83 Washington State Planes, North Zone, US Foot

Legend

- -45 — Existing Contour (Feet MLLW)
- Existing Boring Location
- Existing Catch Basin
- SD — Existing Storm Drain
- SD — New Storm Drain
- Approximate Limit of Excavation
- Approximate Footprint of Bioretention Cell and Flow Control Structures

N

0 20
Feet

Interim Action Work Area E

Weyerhaeuser Mill A Former
Everett, Washington

GeoEngineers

Figure 7

Appendix A
Boring Logs

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% RETAINED ON NO. 200 SIEVE	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
				SP	POORLY-GRADED SANDS, GRAVELLY SAND
	MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/ Quarry Spalls
	TS	Topsoil/ Forest Duff/Sod

Groundwater Contact

Measured groundwater level in exploration, well, or piezometer

Measured free product in well or piezometer

Graphic Log Contact

Distinct contact between soil strata

Approximate contact between soil strata

Material Description Contact

Contact between geologic units

Contact between soil of the same geologic unit

Sampler Symbol Descriptions

2.4-inch I.D. split barrel

Standard Penetration Test (SPT)

Shelby tube

Piston

Direct-Push

Bulk or grab

Continuous Coring

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

A "P" indicates sampler pushed using the weight of the drill rig.

A "WOH" indicates sampler pushed using the weight of the hammer.

Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PP	Pocket penetrometer
PPM	Parts per million
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen
NT	Not Tested

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

KEY TO EXPLORATION LOGS

GeoEngineers

FIGURE A-1

Rev. 02/16

Drilled	Start 7/8/2016	End 7/8/2016	Total Depth (ft)	25	Logged By PDR / Checked By RST	Driller Cascade Drilling, LP	Drilling Method Direcct Push
Surface Elevation (ft) / Vertical Datum	20.8 MLLW		Hammer Data	Pneumatic - 2" Sampler w/ Teflon Liner		Drilling Equipment	GeoProbe 7756
Easting (X) / Northing (Y)	357797.5 1299018.6		System Datum	NAD83		Groundwater: Date Measured	Depth to Water (ft) / Elevation (ft)
Notes:							

Elevation (feet)	Depth (feet)	Interval	Recovered %	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
20	0		80					AC	Approximately 8 inches of asphalt concrete			
								GP	Gray 5/8-inch minus crushed rock with recycled asphalt (moist) (structural fill)			
						EDP26_2-3 CA		SM	Gray silty fine to coarse sand with occasional gravel (moist) (fill)	NS	<1	
										SS	<1	
15	5		60						No recovery			
						EDP26_7-8		GP	Gray fine to coarse gravel with sand and trace silt (moist)	NS	<1	
								SM	Brown silty fine to medium sand with gravel (moist)			
10	10		80							NS	<1	
								GP	Gray fine gravel with sand and trace silt (moist)			
						EDP26_12-13 CA		SP	Gray fine to coarse sand (wet)	NS	<1	
								SM	Gray-brown silty fine to coarse sand with occasional gravel (wet)			
5	15		100			EDP26_15-16		GP	Gray fine to coarse gravel with sand and trace silt (wet)	NS	<1	Angular gravel
								WOOD	Brown wood debris (sawdust) with fine sand and silt (wet)			Visual wood = 80%
						EDP26_18-19 CA				SS	<1	
0	20		100					WOOD	Brown wood debris (sawdust and weathered logs) (wet)	NS	1.1	Visual wood = 100%
						EDP26_22-23		SP	Gray fine to medium sand with silt interbeds (wet) (native)	NS	1.2	
-5	25					EDP26_24-25		ML	Brown silt with sand (moist)	NS	<1	

Note: See Figure A-1 for explanation of symbols.

Log of Boring EDP26

GeoEngineers

Project: Weyerhaeuser Mill A Former
Project Location: Everett, Washington
Project Number: 0676-020-05

Figure A-11
Sheet 1 of 1

Drilled	Start 7/12/2016	End 7/12/2016	Total Depth (ft) 25	Logged By PDR / Checked By RST	Driller Cascade Drilling, LP	Drilling Method Direcct Push
Surface Elevation (ft) / Vertical Datum	18.2 MLLW		Hammer Data	Pneumatic - 2" Sampler w/ Teflon Liner	Drilling Equipment	GeoProbe 7756
Easting (X) / Northing (Y)	358304.1 1298873.5		System Datum	NAD83	Groundwater: Date Measured	Depth to Water (ft) / Elevation (ft)
Notes:						

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered %	Blows/foot	Collected Sample / Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		90				AC	Approximately 8 inches of asphalt concrete			
							GP	Gray 5/8-inch minus crushed rock (moist) (structural fill)			
							SM	Gray silty fine to coarse sand with occasional gravel and asphalt debris			Geotextile fabric at approximately 2 feet
15					EDP27 3-4 CA		SP-SM				
							SP	Gray fine to coarse sand with silt, gravel and occasional glass debris (moist) (fill)	NS	2	
	5							Gray fine to coarse sand with trace silt (moist)			
			80					No recovery			
					EDP27 6-7		SP	Gray fine to coarse sand with trace silt (moist)	NS	1.7	
							SM	Gray fine sand with silt (moist) Approximately 2-inch layer of wood debris (log?) at 7 feet bgs			
10							WOOD	Brown wood debris (log?) (moist)	NS	2.2	Visual wood = 100%
					EDP27 9-10 CA		SW	Gray fine sand with trace silt (wet)	NS	3.2	
	10		100								
							WOOD	Brown wood debris (logs) with fine sand and trace silt (wet)	NS	3.1	Visual wood = 65%
5					EDP27 13-14		SW	Gray fine sand with trace silt (wet)	NS	3.4	
	15		100								
					EDP27 17-18 CA		WOOD	Brown wood debris (very weathered logs) (wet) Approximately 3-inch gray fine sand layer at 17½ feet	NS	3.3	Visual wood = 95%
0											
	20		100		EDP27 20-21		SP	Gray fine to medium sand with trace silt (wet)	NS	6.4	
							WOOD	Light brown wood debris (sawdust) (wet)	NS	1.5	Visual wood = 100%
5					EDP27 23-24		SP-SM	Dark gray fine sand with silt (wet) (native)	NS	1.4	
	25										

Note: See Figure A-1 for explanation of symbols.

Log of Boring EDP27

GeoEngineers

Project: Weyerhaeuser Mill A Former
Project Location: Everett, Washington
Project Number: 0676-020-05

Figure A-12
Sheet 1 of 1

Drilled	Start 7/12/2016	End 7/12/2016	Total Depth (ft)	30	Logged By / Checked By	PDR / RST	Driller	Cascade Drilling, LP	Drilling Method	Direcct Push
Surface Elevation (ft) / Vertical Datum	26.46 MLLW		Hammer Data	Pneumatic - 2" Sampler w/ Teflon Liner	Drilling Equipment	GeoProbe 7756				
Easting (X) / Northing (Y)	358393.2 / 1299012.8		System Datum	NAD83	Groundwater: Date Measured		Depth to Water (ft)		Elevation (ft)	
Notes:										

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered %	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
25	0		80					AC	Approximately 8 inches of asphalt concrete			
								GP	Gray 5/8-inch minus crushed rock (structural fill)			
								GP	Gray fine to coarse gravel with sand and trace silt (moist)			
						EDP29_2-3_CA		SP-SM	Gray fine to coarse sand with gravel and silt (moist) (fill)	NS	1.9	Geotextfile fabric at approximately 2 feet
						EDP29_4-5		ML	Brown silt with occasional gravel (moist)	NS	7.4	
20	5		100						No recovery			
								SP	Gray fine to coarse sand with silt (moist)			
						EDP29_7-8		SP	Gray fine to coarse sand with trace silt (moist)	NS	6.4	
15	10		100			EDP29_11-12_CA			Becomes wet	NS	7.2	
	15		100			EDP29_15-16				NS	4.9	
10						EDP29_18-19_CA		WOOD	Brown wood debris (sawdust and lumber) and interbedded fine sand layers (wet)	NS	7.9	Visual wood = 90%
	20		100					SP-SM	Gray fine sand with silt (wet)			
5						EDP29_21-22				NS	6.2	
								WOOD	Brown wood debris (sawdust) (wet)	NS	5.5	Visual wood = 100%
						EDP29_23-24		SW	Gray fine sand with trace silt (wet) (native)	NS	5.9	
0	25		100									
						EDP29_26-27				NS	5.5	
	30											

Note: See Figure A-1 for explanation of symbols.

Log of Boring EDP29

GeoEngineers

Project: Weyerhaeuser Mill A Former
Project Location: Everett, Washington
Project Number: 0676-020-05

Figure A-14
Sheet 1 of 1

Drilled	Start 7/13/2016	End 7/13/2016	Total Depth (ft)	30	Logged By / Checked By	PDR / RST	Driller	Cascade Drilling, LP	Drilling Method	Direcct Push
Surface Elevation (ft) / Vertical Datum	19.6 MLLW		Hammer Data	Pneumatic - 2" Sampler w/ Teflon Liner			Drilling Equipment	GeoProbe 7756		
Easting (X) / Northing (Y)	358534.8 / 1299194.9		System Datum	NAD83			Groundwater	Date Measured	Depth to Water (ft)	Elevation (ft)
Notes:										

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered %	Blows/foot	Collected Sample / Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0						AC	Approximately 8 inches of asphalt concrete			
							GP	Gray 5/8-inch minus crushed rock (structural fill)			
							SM	Gray silty fine to coarse sand with occasional gravel			
			80		EDP30_2-3		SP-SM	Gray to dark gray fine to coarse sand and gravel with silt (moist) (fill)	NS	<1	Geotextile fabric at approximately 2 feet
					EDP30_4-5				SS	<1	
5	5		80					No recovery			
							SM	Gray silty fine to coarse sand with occasional gravel (moist)			
					EDP30_7-8 CA				NS	<1	
							SP	Gray fine to medium sand with trace silt (moist)			
					EDP30_9-10				NS	<1	
	10		40					No recovery			
					EDP30_13-14 CA		WOOD	Approximately 3 inches of fine sand above wood debris (wet)	NS	<1	Visual wood = 100%
								Brown wood debris (log)			
	15		80					No recovery			
					EDP30_16-17 CA		SW	Gray fine sand with trace silt (wet)	SS	<1	
					EDP30_19-20				MS	3.2	
	20		60					No recovery			
					EDP30_22-23		SW	Gray fine sand with trace silt (wet) (native)	NS	<1	
							WOOD	Wood debris (weathered log) (wet)	NS	<1	Visual wood = 100%
	25		80					No recovery			
							WOOD	Wood debris (weathered log) (wet)	NS	<1	Visual wood = 100%
					EDP30_27-28		SW	Gray fine sand with trace silt (wet)	NS	<1	
	30										

Note: See Figure A-1 for explanation of symbols.

Log of Boring EDP30

GeoEngineers

Project: Weyerhaeuser Mill A Former
Project Location: Everett, Washington
Project Number: 0676-020-05

Figure A-15
Sheet 1 of 1

Seattle: Date:2/16/17 Path:W:\PROJECTS\0676020\GINT\0676020G5.GPJ DBTemplate/LibTemplate:GEOENGINEERS_DF_STD_US.GDT/GEI8_ENVIRONMENTAL_STANDARD_NO_GW

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	7/8/2016	7/8/2016	25	PDR	RST	Cascade Drilling, LP	Direcct Push

Surface Elevation (ft) Vertical Datum	23.16 MLLW	Hammer Data	Pneumatic - 2" Sampler w/ Teflon Liner	Drilling Equipment	GeoProbe 7756
Easting (X) Northing (Y)	358624.7 1299715.5	System Datum	NAD83	Groundwater Date Measured	Depth to Water (ft) / Elevation (ft)
Notes:					

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered %	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
20	0		80					AC	Approximately 8 inches of asphalt concrete			
								GP	Gray 5/8-inch minus crushed rock (moist) (structural fill)			
								SP-SM	No recovery			
						EDP34_3.5-4.5		SP	Gray fine to coarse sand with silt and asphalt debris (moist) (fill)			
									Gray fine to medium sand with trace silt (moist)	NS	2.1	
15	5		60						No recovery			
						EDP34_8-9 CA		SP-SM	Gray fine to coarse sand with silt and occasional gravel and cobbles (moist)	SS	1.8	
10	10		60						No recovery			
						EDP34_12-13		SP-SM	Gray fine to coarse sand with silt and gravel (moist)	SS	5.2	
5						EDP34_13-14 CA		SM	Dark brown to black silty fine to medium sand with occasional yellow granules (wet)	MS	1.6	Strong sulfur odor
						EDP34_14-15				HS	5.8	
0	15		60						No recovery			
						EDP34_18-19		SM	Black silty fine sand with occasional yellow granules (wet)	HS	4.9	
-5	20		90						No recovery			
						EDP34_21-22 CA		WOOD	Brown wood debris (log?) with occasional fine to medium sand (wet)	HS	4.5	Visual wood = 75%
						EDP34_22-23		SP	Gray fine to medium sand with trace silt (wet) (native)	NS	2.1	
-10	25					EDP34_24-25		SM	Gray silty fine sand with gravel (wet)	NS	<1	

Note: See Figure A-1 for explanation of symbols.

Log of Boring EDP34

GeoEngineers

Project: Weyerhaeuser Mill A Former
Project Location: Everett, Washington
Project Number: 0676-020-05

Figure A-19
Sheet 1 of 1

Drilled	Start 7/12/2016	End 7/12/2016	Total Depth (ft)	30	Logged By / Checked By	PDR / RST	Driller	Cascade Drilling, LP	Drilling Method	Direcct Push
Surface Elevation (ft) / Vertical Datum	18.39 MLLW		Hammer Data	Pneumatic - 2" Sampler w/ Teflon Liner			Drilling Equipment	GeoProbe 7756		
Easting (X) / Northing (Y)	358343.3 / 1298815.7		System Datum	NAD83			Groundwater	Date Measured	Depth to Water (ft)	Elevation (ft)
Notes:										

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered %	Blows/foot	Collected Sample / Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0						AC	Approximately 8 inches of asphalt concrete			
							GP	Gray 5/8-inch minus crushed rock (structural fill)			
			70		EDP44_2-3 CA		SP-SM	Gray fine to coarse sand with silt and gravel (moist) (fill)	NS	2.1	Geotextile fabric at approximately 2 feet
15					EDP44_4-5		SP	Gray fine to medium sand with trace silt (moist)	NS	3.9	
	5		60					No recovery			
							SP	Gray fine to medium sand with trace silt (moist)			
10					EDP44_8-9				NS	2.7	
							WOOD	Brown wood debris (log?)	NS	2.2	Visual wood = 100%
	10		40					No recovery			
5							SP-SM	Approximately 3 inches of gray fine sand with silt (wet)			
					EDP44_14-15		WOOD	Brown wood debris (weathered logs) with fine sand (wet)	NS	8.1	Visual wood = 85%
	15		100				SW	Gray fine sand with trace silt (wet)			
0					EDP44_16-17 CA				NS	1.6	
					EDP44_18-19 CA		WOOD	Brown wood debris (logs) with occasional fine to medium sand (wet)	NS	2.7	Visual wood = 85%
	20		40					No recovery			
-5							WOOD	Brown wood debris (chips and logs) (wet)	NS	2.6	Visual wood = 100%
							SW	Gray fine sand with trace silt (wet) (native)			
	25		100								
-10					EDP44_26-27				NS	1.2	
	30										

Note: See Figure A-1 for explanation of symbols.

Log of Boring EDP44

GeoEngineers

Project: Weyerhaeuser Mill A Former
Project Location: Everett, Washington
Project Number: 0676-020-05

Figure A-32
Sheet 1 of 1

DRAFT

Drilled	Start 5/4/2021	End 5/4/2021	Total Depth (ft) 15	Logged By NS / Checked By RST	Driller Cascade Drilling, LLC	Drilling Method Direct-push
Surface Elevation (ft) Vertical Datum	20.47 MLLW		Hammer Data	Pneumatic	Drilling Equipment	Track-mounted drill rig
Easting (X) Northing (Y)	1299273.88 358526.38		System Datum	WA State Plane North NAD83 (feet)	Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
20	0		60					AC	Asphalt concrete pavement			
								CC	Crushed concrete (dry)			
								SM	Brown silty fine to coarse sand with gravel (dry)	NS	<1	pH = 8
						EDP-99-3.0		SM	Gray silty fine to coarse sand with trace gravel (dry)	NS	<1	pH = 8
15	5		48							SS	<1	pH = 8
								SM	Dark brown silty fine to coarse sand with gravel (moist)	SS	<1	pH = 8
								SM	Dark brown silty fine to coarse sand with gravel and brick debris (dry)	SS	<1	pH = 8
						EDP-99-8.0 CA			Becomes wet	NS	<1	pH = 8
								WD	Wood debris (chips) with gray sand	NS	<1	pH = 8
10	10		48					SM	Gray silty fine to coarse sand with wood debris (chips) (wet)	NS	<1	pH = 7
						EDP-99-13.0 CA				NS	<1	pH = 7
	15									NS	<1	pH = 7

Boring terminated at approximately 15 feet below ground surface due to refusal on concrete?

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Hand-held GPS. Vertical approximated based on 2012 Port Master Survey for the South Terminal.

Log of Boring EDP-99

GeoEngineers

Project: Mill A Site
Project Location: Everett, Washington
Project Number: 0676-020-07

Figure A-48
Sheet 1 of 1

DRAFT

Drilled: Start 5/4/2021 End 5/4/2021	Total Depth (ft): 20	Logged By: NS Checked By: RST	Driller: Cascade Drilling, LLC	Drilling Method: Direct-push	
Surface Elevation (ft) Vertical Datum: 20.22 MLLW		Hammer Data: Pneumatic		Drilling Equipment: Track-mounted drill rig	
Easting (X) Northing (Y): 1299270.4 358551.13		System Datum: WA State Plane North NAD83 (feet)		Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
20	0		60					AC	Asphalt concrete pavement			
								CC	Crushed concrete (dry)	NS	<1	pH = 7
								SM	Brown silty fine to coarse sand with gravel			
								AC	Asphalt concrete pavement			
						EDP-100-3.0			Light gray silty fine to coarse sand (dry)			
								SM	Brown silty fine to coarse sand with gravel (dry)	SS	<1	pH = 7
15	5		48					SM	Gray-dark gray silty fine to coarse sand with gravel (dry)			
								SM	Brown-light gray silty fine to coarse sand with gravel (moist)	NS	<1	pH = 8
						EDP-100-8.0				NS	<1	pH = 8
10	10		50					SM	Dark gray silty fine to coarse sand (moist)	NS	<1	pH = 8
									With swell fragment, becomes wet	NS	<1	pH = 8
						EDP-100-13.0				NS	<1	pH = 8
5	15							SM	Gray silty fine to coarse sand with wood debris (wet)	NS	<1	pH = 7
								WD	Wood (chips and sawdust) (wet)	NS	<1	pH = 7 Visual wood = 100%
						EDP-100-18.0				NS	<1	pH = 7
	20											

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Hand-held GPS. Vertical approximated based on 2012 Port Master Survey for the South Terminal.

Log of Boring EDP-100

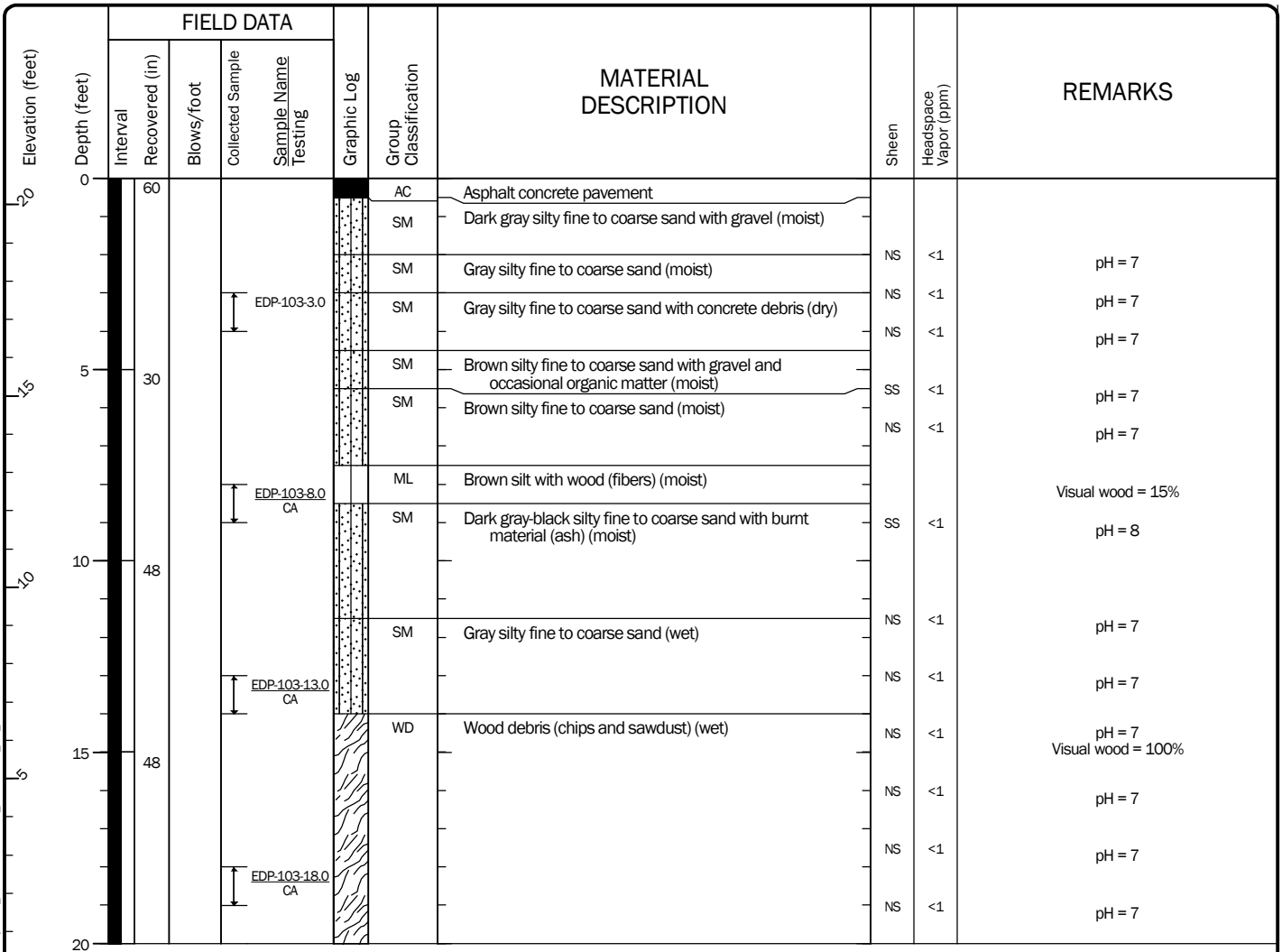
GeoEngineers

Project: Mill A Site
Project Location: Everett, Washington
Project Number: 0676-020-07

Figure A-49
Sheet 1 of 1

DRAFT

Drilled: Start 5/5/2021 End 5/5/2021	Total Depth (ft): 20	Logged By: NS Checked By: RST	Driller: Cascade Drilling, LLC	Drilling Method: Direct-push	
Surface Elevation (ft) Vertical Datum: 20.69 MLLW	Hammer Data: Pneumatic	Drilling Equipment: Track-mounted drill rig			
Easting (X) Northing (Y): 1299213.53 358416.91	System Datum: WA State Plane North NAD83 (feet)	Groundwater not observed at time of exploration			
Notes:					



Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Hand-held GPS. Vertical approximated based on 2012 Port Master Survey for the South Terminal.

Log of Boring EDP-103

GeoEngineers

Project: Mill A Site
Project Location: Everett, Washington
Project Number: 0676-020-07

Figure A-52
Sheet 1 of 1

DRAFT

Drilled Start 5/5/2021 End 5/5/2021	Total Depth (ft) 20	Logged By NS Checked By RST	Driller Cascade Drilling, LLC	Drilling Method Direct-push	
Surface Elevation (ft) Vertical Datum 20.78 MLLW		Hammer Data Pneumatic		Drilling Equipment Track-mounted drill rig	
Easting (X) 1299188.77 Northing (Y) 358413.43		System Datum WA State Plane North NAD83 (feet)		Groundwater not observed at time of exploration	
Notes:					

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample / Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
20	0						AC	Asphalt concrete pavement			
							CC	Crushed concrete (dry)			
							SM	Light gray silty fine to coarse sand (dry)			
					EDP-104-3.0				NS	<1	pH = 8
							CC	Crushed concrete (dry)			
15	5		48				SM	Light gray silty fine to coarse sand with gravel (moist)	NS	<1	pH = 7
									NS	<1	pH = 7
					EDP-104-8.0		SM	Gray silty fine to coarse sand (moist)	NS	<1	pH = 7
10	10		52				SM	Dark gray silty fine to coarse sand with occasional gravel (wet)	SS	<1	pH = 7
					EDP-104-13.0		SM	Gray silty fine to medium sand (wet)	NS	<1	pH = 7
5	15		32				WD	Wood debris (chips and sawdust) (wet)	NS	<1	pH = 8 Visual wood = 100%
									NS	<1	pH = 7
					EDP-104-18.0				NS	<1	pH = 7
									NS	<1	pH = 7
0	20										

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Hand-held GPS. Vertical approximated based on 2012 Port Master Survey for the South Terminal.

Log of Boring EDP-104

GeoEngineers

Project: Mill A Site
Project Location: Everett, Washington
Project Number: 0676-020-07

Figure A-53
Sheet 1 of 1

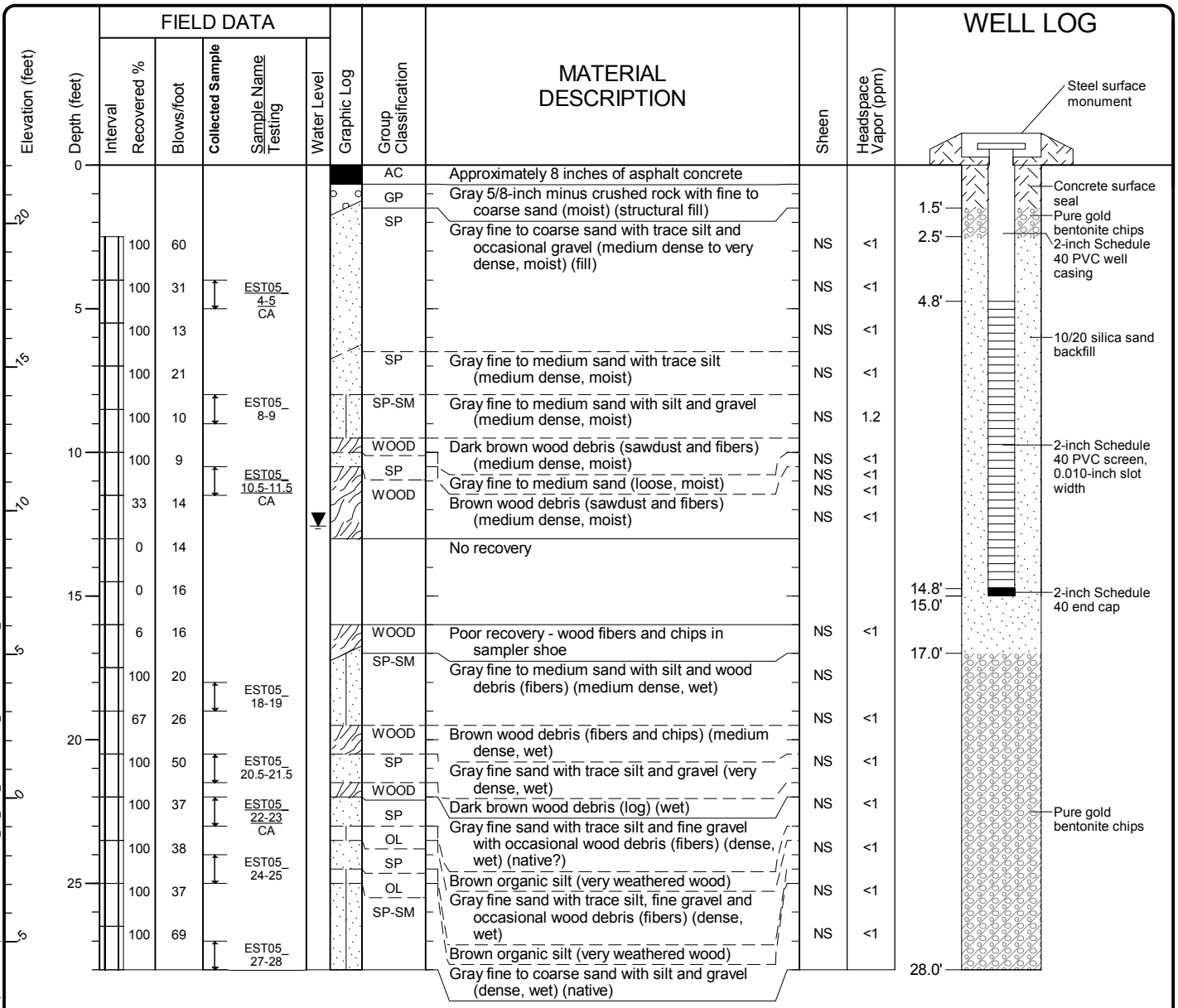
Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	8/2/2016	8/2/2016	28	PDR	RST	Cascade Drilling, LP	Hollow-Stem Auger

Hammer Data	Rope & Cathead 300 (lbs) / 30 (in) Drop	Drilling Equipment	CME 75
Surface Elevation (ft) Vertical Datum	22.03 MLLW	Top of Casing Elevation (ft)	21.63
Easting (X) Northing (Y)	358104.4 1299258.3	Horizontal Datum	NAD83

DOE Well I.D.: BJY-117
A 2 (in) well was installed on 8/2/2016 to a depth of 15 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
9/30/2016	12.6	9.1

Notes:



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well EST05

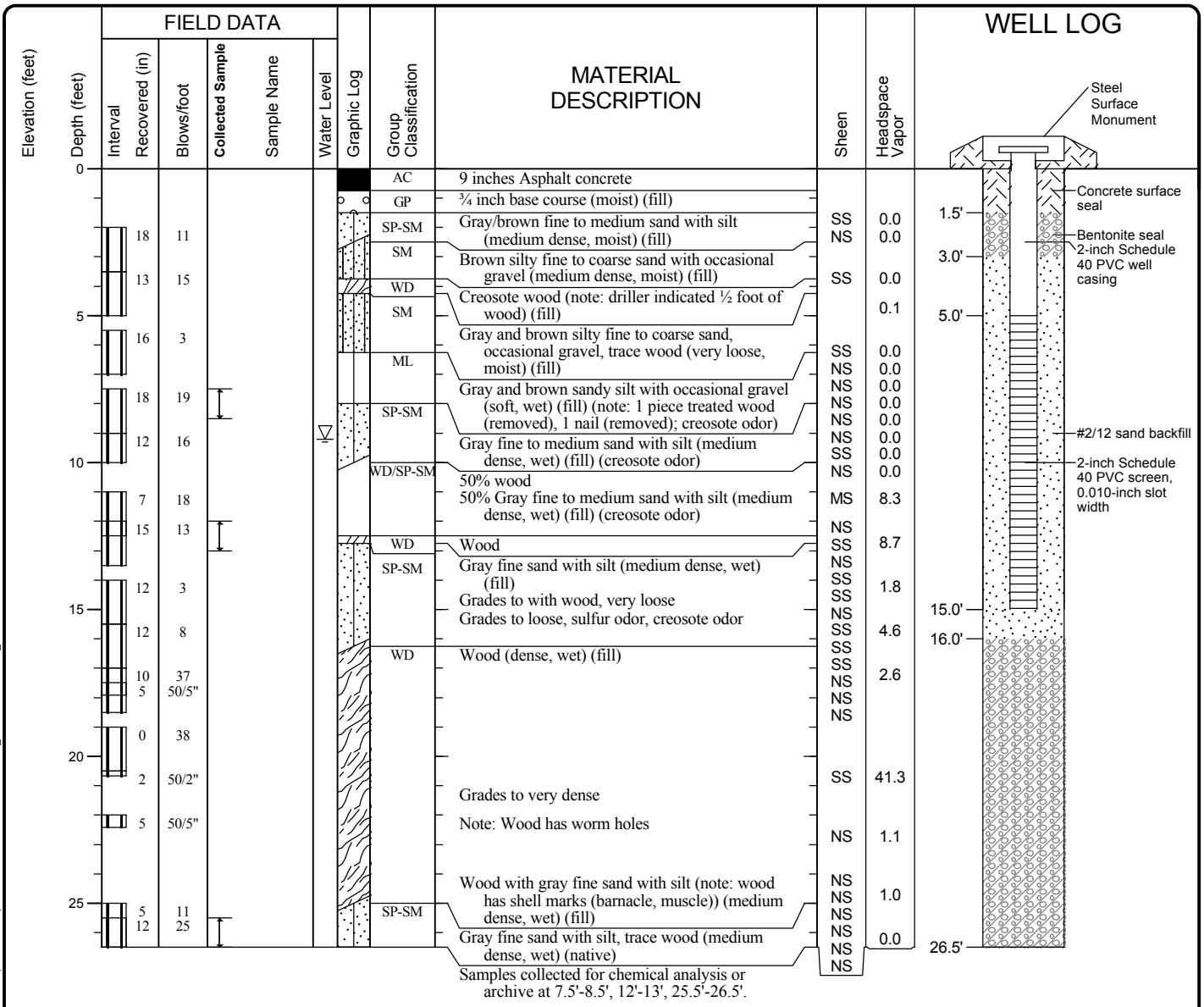
GeoEngineers

Project: Weyerhaeuser Mill A Former
Project Location: Everett, Washington
Project Number: 0676-020-05

Figure A-47
Sheet 1 of 1

Drilled	Start 1/20/2010	End 1/20/2010	Total Depth (ft) 26.5	Logged By / Checked By GRL	Driller Cascade Drilling	Drilling Method Hollow Stem Auger
Hammer Data	300 lb/30 in Drop		Drilling Equipment	CME 75 Truck Rig	Licensing agency well number: **#BCC-521** A 2 inch well was installed on 1/20/2010 to a depth of 15 feet.	
Surface Elevation (ft) Vertical Datum	Undetermined		Top of Casing Elevation (ft)		Groundwater Date Measured: 1/20/2010 Depth to Water (ft): 9.2 Elevation (ft):	
Easting (X) Northing (Y)			Horizontal Datum			

Notes: Auger Data: 5 foot long continuous flight 4" I.D., 8" O.D.



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well EST10

GeoEngineers

Project: Port of Everett South Terminal Redevelopment
Project Location: Everett, Washington
Project Number: 0676-018-04

Figure A-4
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	8/9/2016	8/9/2016	35	PDR	RST	Cascade Drilling, LP	Hollow-Stem Auger

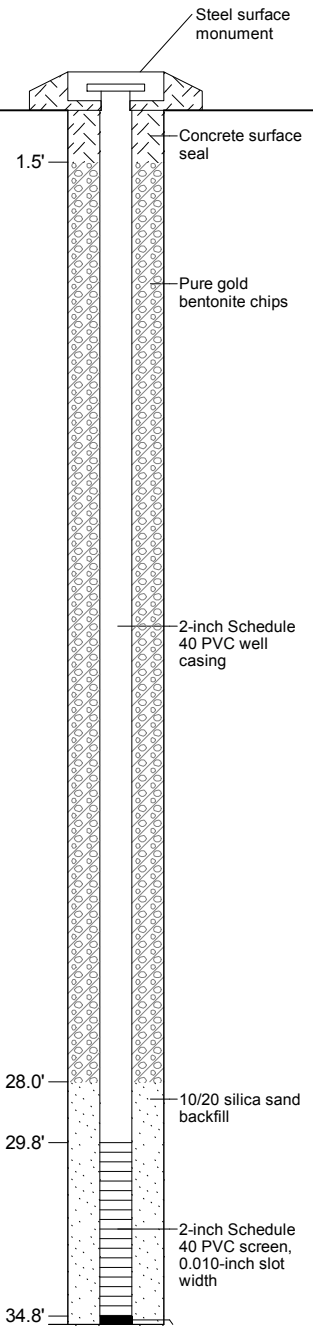
Hammer Data	Rope & Cathead 300 (lbs) / 30 (in) Drop	Drilling Equipment	CME 75
Surface Elevation (ft) Vertical Datum	18.31 MLLW	Top of Casing Elevation (ft)	17.88
Easting (X) Northing (Y)	358762.3 1299137.7	Horizontal Datum	NAD83

DOE Well I.D.: BJY-127
A 2 (in) well was installed on 8/9/2016 to a depth of 35 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
10/10/2016	19.6	-1.8

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered %	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
	0								AC	Approximately 6 inches of asphalt concrete		
									GP	Gray 5/8-inch minus crushed rock with fine to coarse sand (moist) (structural fill)		
			33	45					SP-SM	Dark brown fine to coarse sand with silt and gravel (dense, moist) (fill)	NS	<1
			83	10		EST10D_4-5			SP-SM	Gray fine to medium sand with silt and occasional shell fragments (loose, moist)	NS	<1
	5		67	10							NS	<1
			100	28		EST10D_7-8			SP-SM	Gray fine to medium sand with silt (medium dense, moist)	NS	<1
									WOOD	Brown wood debris (logs and lumber) (medium dense, moist)		
			44	18							NS	<1
	10		100	9		EST10D_10-11 CA			SP	Gray fine to medium sand with trace silt (loose, wet)	NS	<1
			100	25		EST10D_12-13 CA			WOOD	Brown wood debris (log) (wet)	NS	<1
			67	23					SP	Gray fine to medium sand with trace silt (medium dense, wet)	NS	<1
	15		67	19		EST10D_15-16			SP	Gray fine sand with occasional wood debris (fibers) and trace silt (medium dense, wet)	NS	<1
			67	21							NS	<1
			67	24					SP-SM	Gray fine sand with silt and occasional wood debris (fibers)	NS	<1
			67	37			▼				NS	<1
	20		67	44		EST10D_20-21 CA			WOOD	Red-brown wod debris (logs, fibers and chips) (medium dense, wet)	NS	<1
			33	24							NS	<1
			17	20							NS	<1
	25		67	14		EST10D_25.5-26.5			SW	Gray fine sand with trace silt (medium dense, wet) (native)	NS	<1
			67	18							NS	<1
			100	22		EST10D_28-29 DUP-08 CA					NS	<1
	30		67	36							NS	<1
			83	46		EST10D_34-35					NS	<1
	35											



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well EST10D

GeoEngineers

Project: Weyerhaeuser Mill A Former
Project Location: Everett, Washington
Project Number: 0676-020-05

Figure A-51
Sheet 1 of 2

Drilled	Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
	1/18/2010	1/18/2010	66.25	GRL	Cascade Drilling	Hollow Stem Auger

Hammer Data	300 lb/30 in Drop	Drilling Equipment	CME 75 Truck Rig
Surface Elevation (ft) Vertical Datum	Undetermined	Top of Casing Elevation (ft)	
Easting (X) Northing (Y)		Horizontal Datum	

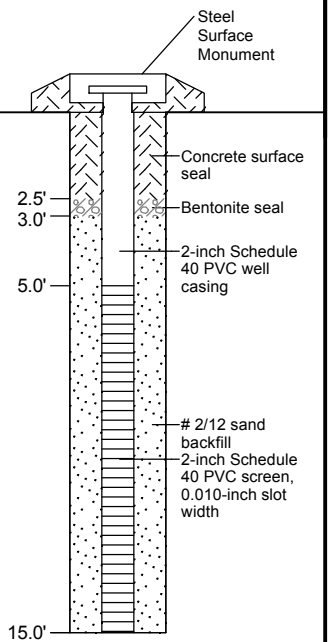
Licensing agency well number: **#BCC-525**
A 2 inch well was installed 11 feet east of boring on 1/19/2010 to a depth of 15 feet.

Groundwater		
Date Measured	Depth to Water (ft)	Elevation (ft)
1/18/2010	7.5	

Notes: Auger Data: 5 foot long continuous flight 4" I.D., 8" O.D.

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor
	0								AC	9 inches Asphalt concrete		
									GP	¾ inch ballast from 9 inches to 18 inches bgs (very dense, moist) (fill)	NS	0.0
			18	62					SP-SM	Brown fine to coarse sand with gravel and silt (very dense, moist) (fill)	NS	0.0
									SP		NS	0.0
			18	28						Brown fine sand, trace silt and shell fragment (medium dense, moist) (fill)	NS	0.0
	5		4	22							NS	0.0
			0	17							NS	0.0
										Grades to trace wood (sawdust)	NS	0.0
			18	20						Grades wet	NS	0.0
			16	21							NS	0.0
	10								SP	Grades fine to medium sand, trace silt and shell fragments (medium dense, moist) (fill) (note: no wood fragments, slight diesel odor)	NS	0.0
			16	18								
			12	16						Diesel odor to 17.5 feet bgs	NS	0.0
											NS	0.0
											NS	0.0
			16	9							SS	0.0
	15										SS	0.0
			16	18							NS	0.0
											NS	0.0
											NS	0.0
			8	11						Grades to trace wood	NS	0.0
			12	33							NS	0.0
											NS	0.0
									WD	Wood (fill)	NS	0.0
									SM	Brown silty fine sand with wood (medium dense, wet) (note: wood is sawdust, splinters, and small pieces approximately 2 inches) (slight sulfur odor)	NS	0.0
	20		12	13							NS	0.0
			14	52					WD		NS	0.0
			18	40							NS	0.0
										Wood with brown silty fine sand (very dense, wet) (fill) (note: wood is woodwaste)	NS	0.0
											NS	0.0
									SM	Gray silty fine sand, trace wood (medium dense, wet) (native)	NS	0.0
			7	32							NS	0.0
	25										NS	0.0
											NS	0.0
			15	26							NS	0.0
			18	41						One piece of wood (note: wood looks like different type compared to wood above-possible driftwood?/native)	NS	0.0
											NS	0.0
											NS	0.0
			18	77					SP-SM	Gray fine sand with silt, trace wood (very dense, wet) (native)	NS	0.0
	30										NS	0.0
	35								SP	Gray fine sand, trace silt (dense, wet) (native)		

WELL LOG



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well EST11

GeoEngineers

Project: Port of Everett South Terminal Redevelopment
Project Location: Everett, Washington
Project Number: 0676-018-04

Figure A-5
Sheet 1 of 2

Seattle: Date:3/11/10 Path:W:\SEATTLE\PROJECTS\0\0676018\GINT\0676018.GPJ DBTemplate\LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_WELL

Elevation (feet)	Depth (feet)	FIELD DATA: Interval Recovered (in)	FIELD DATA: Blows/foot	FIELD DATA: Collected Sample	FIELD DATA: Sample Name	FIELD DATA: Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor	WELL LOG
	35	14	32							NS	0.0	
									Grades to no wood			
	40	16	75						Grades to very dense			
	45	12	57							NS	0.0	
	50	11	72/11"						Trace shell fragments	NS	0.0	
	55	16	96/10"							NS	0.0	
	60	10	80/10"							NS	0.0	
	65	15	95/9"						Grades to fine to coarse sand, trace silt (very dense, wet) (native)	NS	0.0	
									Samples collected for chemical analysis or archive at 7'-8', 11'-12', 18'-19' and 22'-23'.			

Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well EST11 (continued)

GeoEngineers

Project: Port of Everett South Terminal Redevelopment
Project Location: Everett, Washington
Project Number: 0676-018-04

Figure A-5
Sheet 2 of 2

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	8/3/2016	8/3/2016	40	PDR	RST	Cascade Drilling, LP	Hollow-Stem Auger

Hammer Data	Rope & Cathead 300 (lbs) / 30 (in) Drop	Drilling Equipment	CME 75
Surface Elevation (ft) Vertical Datum	17.6 MLLW	Top of Casing Elevation (ft)	17.22
Easting (X) Northing (Y)	358445.6 1298885.6	Horizontal Datum	NAD83

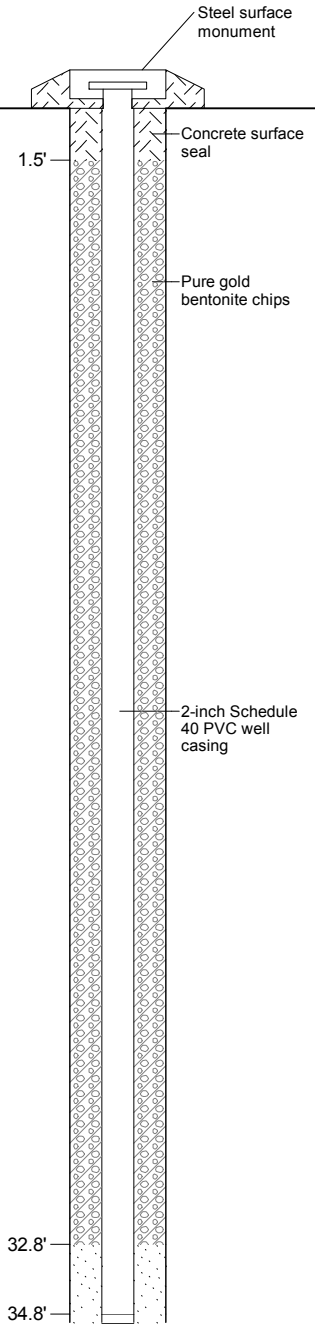
DOE Well I.D.: BJY-119
A 2 (in) well was installed on 8/3/2016 to a depth of 40 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
10/21/2016	8.3	8.9

Notes:

Depth (feet)	Interval Recovered %	Blows/foot	Collected Sample Sample Name Testing	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
0				AC	Approximately 11 inches of asphalt concrete		
				GP	Gray 5/8-inch minus crushed rock with fine to coarse sand (moist) (structural fill)		
				SP	Gray fine to medium sand with trace silt (loose to medium dense, moist) (fill)		
	100	17				NS	<1
	100	7	EST11D_4-5_CA			NS	<1
5	100	9				NS	<1
	100	9	EST11D_7-8			NS	<1
	67	22				NS	<1
				SP	Gray fine sand with wood debris (chips and fibers) (medium dense, wet)	NS	<1
10	100	17	EST11D_10-11	SP		NS	<1
	100	12			Gray fine to coarse sand with wood debris (chips, fibers and sawdust) (medium dense, wet)	NS	<1
	100	21	EST11D_13-14			NS	2.7
	78	23		SP	Gray fine to coarse sand (medium dense, wet)	NS	4.5
15				WOOD	Brown wood debris (lumber) (medium dense, wet)		
	33	24			Limited recovery		
	33	19	EST11D_17-18_CA		Limited recovery	NS	7.1
	100	50/6"		WOOD	Brown wood debris (log) (very dense, wet)	NS	5.2
20				WOOD	Brown wood debris (lumber) (medium dense, wet)	NS	32.1
	100	40	EST11D_21-22				
				SP	Gray fine sand with occasional silt and wood debris (fibers and chips) (medium dense, wet)	NS	<1
25	33	38					
	100	32	EST11D_26-27_CA	SP	Gray fine to medium sand with occasional silt (medium dense, wet)	NS	1
				SW	Gray fine sand with trace silt (medium dense to very dense, wet) (native)		
	100	24	EST11D_29-30			NS	<1
30	83	34				NS	<1
	100	50/6"				NS	<1
35	100	52				NS	<1

WELL LOG



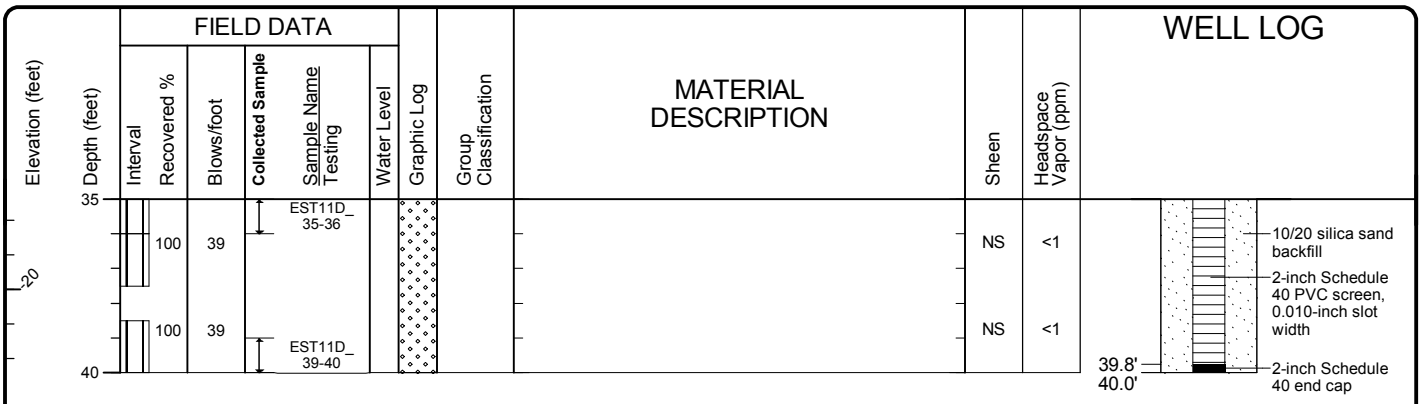
Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well EST11D

GeoEngineers

Project:	Weyerhaeuser Mill A Former
Project Location:	Everett, Washington
Project Number:	0676-020-05

Figure A-52
Sheet 1 of 2



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well EST11D (continued)

GeoEngineers

Project: Weyerhaeuser Mill A Former
Project Location: Everett, Washington
Project Number: 0676-020-05

Figure A-52
Sheet 2 of 2

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	8/4/2016	8/4/2016	36	PDR	RST	Cascade Drilling, LP	Hollow-Stem Auger

Hammer Data	Rope & Cathead 300 (lbs) / 30 (in) Drop	Drilling Equipment	CME 75
Surface Elevation (ft) Vertical Datum	18.04 MLLW	Top of Casing Elevation (ft)	17.63
Easting (X) Northing (Y)	358084.4 1298527	Horizontal Datum	NAD83

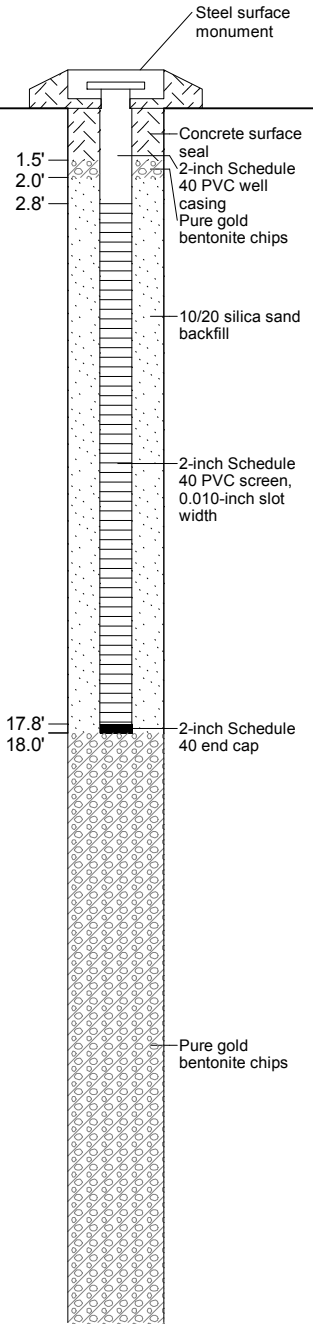
DOE Well I.D.: BJY-120
A 2 (in) well was installed on 8/4/2016 to a depth of 18 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
9/29/2016	10.6	7.0

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered %	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
	0								AC	8 inches of asphalt concrete		
									GM	Brown silty fine to coarse gravel with sand (moist) (fill)		
									SP-SM	Brown fine to coarse sand with silt and occasional gravel (medium dense, moist)	NS	1.2
			100	12								
			100	11	■	EST18 4-5 CA			SP	Brown fine to coarse sand with occasional silt and gravel (medium dense, moist)	NS	2.7
	5		100	18							NS	2.5
			100	10					SP	Brown fine to coarse sand with occasional gravel (medium esne, moist)	NS	1.6
			100	17	■	EST18 9-10					NS	2.8
	10		100	9	■	EST18 10-11 CA	▼		SP	Gray fine to coarse sand with gravel (medium dense, wet)	NS	1.3
			67	11					SP	Gray-brown fine to coarse sand with gravel (medium dense, wet)	NS	2.1
			67	9							NS	2.2
			100	14	■	EST18 14-15			SP	Gray medium to coarse sand with gravel (medium dense, wet) (native)	NS	2.8
	15		100	11							NS	3.1
			100	8	■	EST18 17-18 CA					NS	3
			100	11							NS	22
	20		67	10							NS	1.7
			33	8							NS	1.3
			67	9	■	EST18 24-25			SP	Gray fine to coarse sand with gravel (medium dense, wet)	NS	1.3
	25		56	7							NS	<1
			67	11							NS	<1
			33	10							NS	<1
			83	15					SP	Gray fine to coarse sand (medium dense, wet)	NS	<1
	30				■	EST18 30-31						
	35			16							NS	<1

WELL LOG



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well EST18

GeoEngineers

Project:	Weyerhaeuser Mill A Former
Project Location:	Everett, Washington
Project Number:	0676-020-05

Figure A-56
Sheet 1 of 2

Seattle: Date:2/16/17 Path:W:\PROJECTS\0676020\GINT\0676020G5.GPJ DBTemplate/LibTemplate:GEOENGINEERS_DF_STD_US.GDT/GEI8_ENVIRONMENTAL_WELL

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered %	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	WELL LOG
	35					EST18_ 35-36							36.0'

Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well EST18 (continued)

GeoEngineers

Project: Weyerhaeuser Mill A Former
Project Location: Everett, Washington
Project Number: 0676-020-05

Figure A-56
Sheet 2 of 2

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	8/5/2016	8/5/2016	36.5	PDR	RST	Cascade Drilling, LP	Hollow-Stem Auger

Hammer Data	Rope & Cathead 300 (lbs) / 30 (in) Drop	Drilling Equipment	CME 75
Surface Elevation (ft) Vertical Datum	20.77 MLLW	Top of Casing Elevation (ft)	20.36
Easting (X) Northing (Y)	357725.3 1298943.2	Horizontal Datum	NAD83

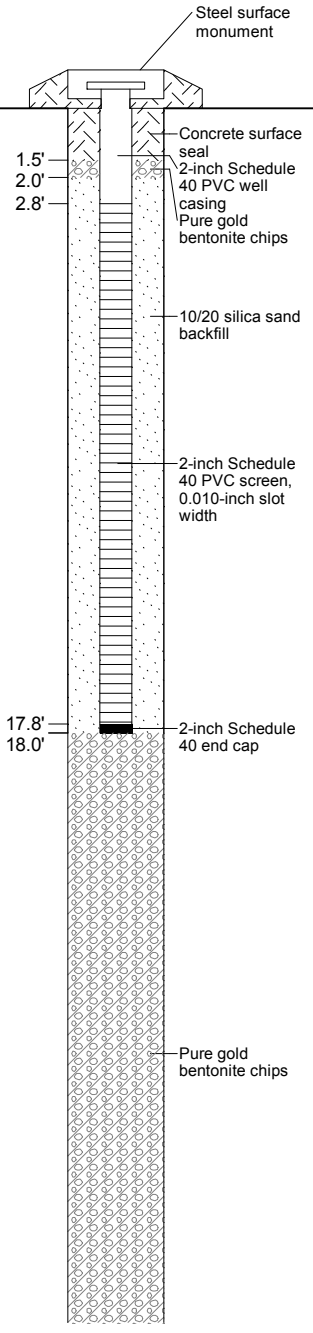
DOE Well I.D.: BJY-122
A 2 (in) well was installed on 8/5/2016 to a depth of 18 (ft).

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
9/27/2016	10.4	10.0

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered %	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
	0								AC	Approximately 10 inches of asphalt concrete		
									GP	Gray 5/8-inch minus crushed rock with fine to coarse sand (moist) (structural fill)		
			100	21					SP	Brown-gray fine to coarse sand with silt (medium dense, moist) (fill)	NS	
			67	11		EST20_ 4-5					MS	
	5		67	12					SP	Gray fine to coarse sand with silt (medium dense, moist)	NS	
			67	6		EST20_ 7-8					NS	
			22	6							NS	
	10		100	7		EST20_ 10-11 CA	▼		WOOD	Brown wood debris (chips) with brown fine to coarse sand and silt (loose, wet)	NS	
			67	14		EST20_ 11.5-12.5 CA			WOOD	Brown wood debris (chips) with brown fine sand and silt (loose to medium dense, wet)	NS	
			33	5							NS	
	15		22	20		EST20_ 15-16			WOOD	Brown wood debris (sawdust) (medium dense, wet)	NS	
			22	36							NS	
			11	26					SP-SM	Gray fine sand with silt and wood debris (fibers) (medium dense, wet)	NS	
			11	15							NS	
	20		22	41					WOOD	Brown wood debris (fibers) with gray fine sand, silt and occasional cobbles (dense, wet)	NS	
			100	50/6"		EST20_ 22-23			SP-SM	Gray fine to coarse sand with silt (medium dense to very dense, wet) (native)	NS	
			100	48							NS	
	25		100	40		EST20_ 25-26 CA					NS	
				30								
	30		100	27							NS	
	35											

WELL LOG



Note: See Figure A-1 for explanation of symbols.

Log of Monitoring Well EST20

GeoEngineers

Project:	Weyerhaeuser Mill A Former
Project Location:	Everett, Washington
Project Number:	0676-020-05

Figure A-58
Sheet 1 of 2

Seattle: Date:2/16/17 Path:W:\PROJECTS\0676020\GINT\0676020G5.GPJ DBTemplate/LibTemplate:GEOENGINEERS_DF_STD_US.GDT/GEI8_ENVIRONMENTAL_WELL

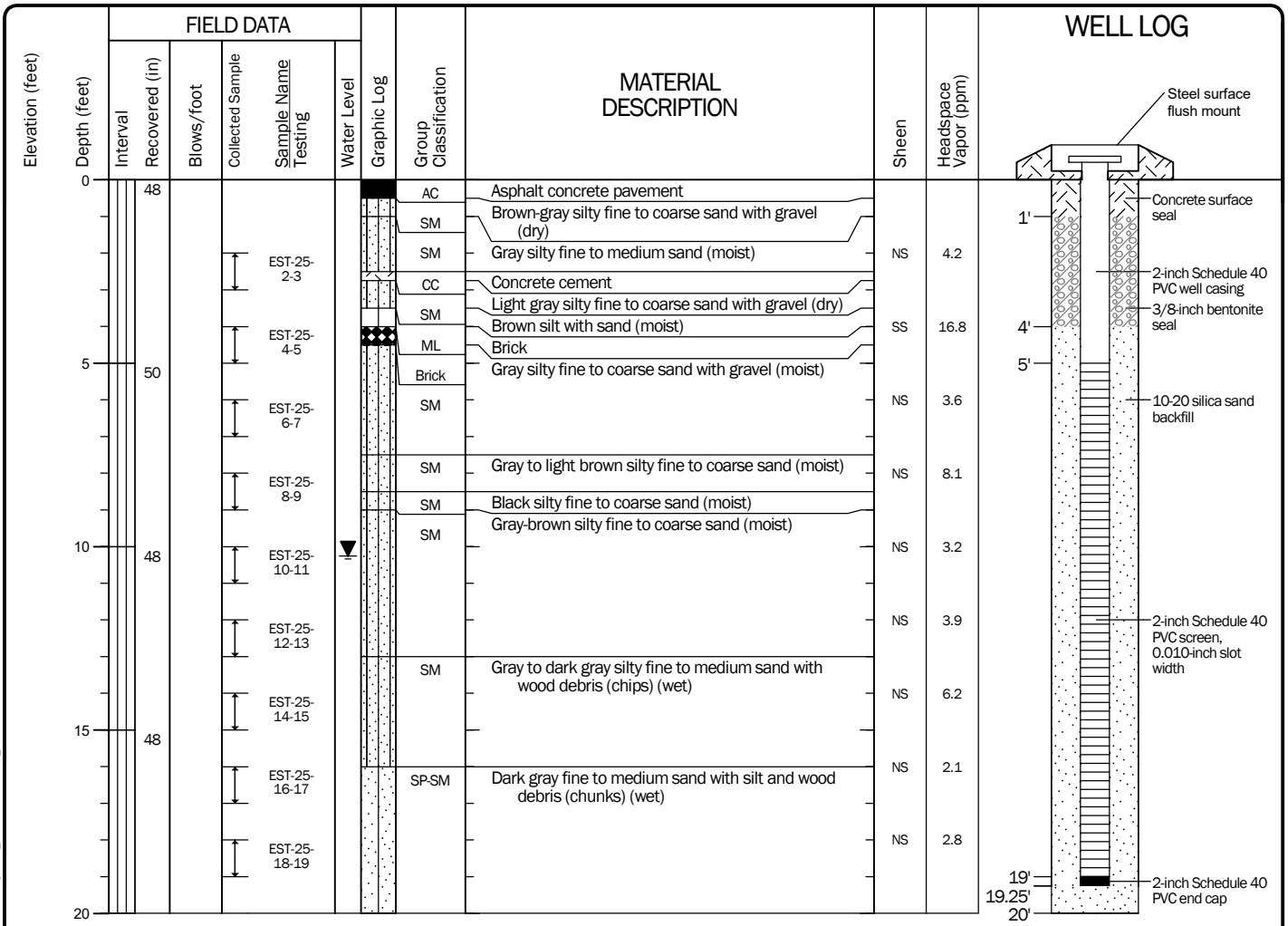
Drilled Start	End	Total Depth (ft)	Logged By / Checked By	Driller	Drilling Method
1/19/2022	1/19/2022	20	NRS / RST	Cascade Drilling, LLC	Direct-push

Hammer Data	Pneumatic	Drilling Equipment	Track-mounted sonic rig
Surface Elevation (ft) Vertical Datum	Undetermined MLLW	Top of Casing Elevation (ft)	
Easting (X) Northing (Y)		Horizontal Datum	WA State Plane North NAD83 (feet)

DOE Well I.D.: BNW 086
A 2-in well was installed on 1/19/2022 to a depth of 19 ft.

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
5/13/2022	10.26	

Notes:



Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Hand-held GPS. Vertical approximated based on 2012 Port Master Survey for the South Terminal.

Log of Boring EST-25

GeoEngineers

Project: Weyerhauser Mill A Former
Project Location: Everett, Washington
Project Number: 0676-020-07

Figure A-11
Sheet 1 of 1

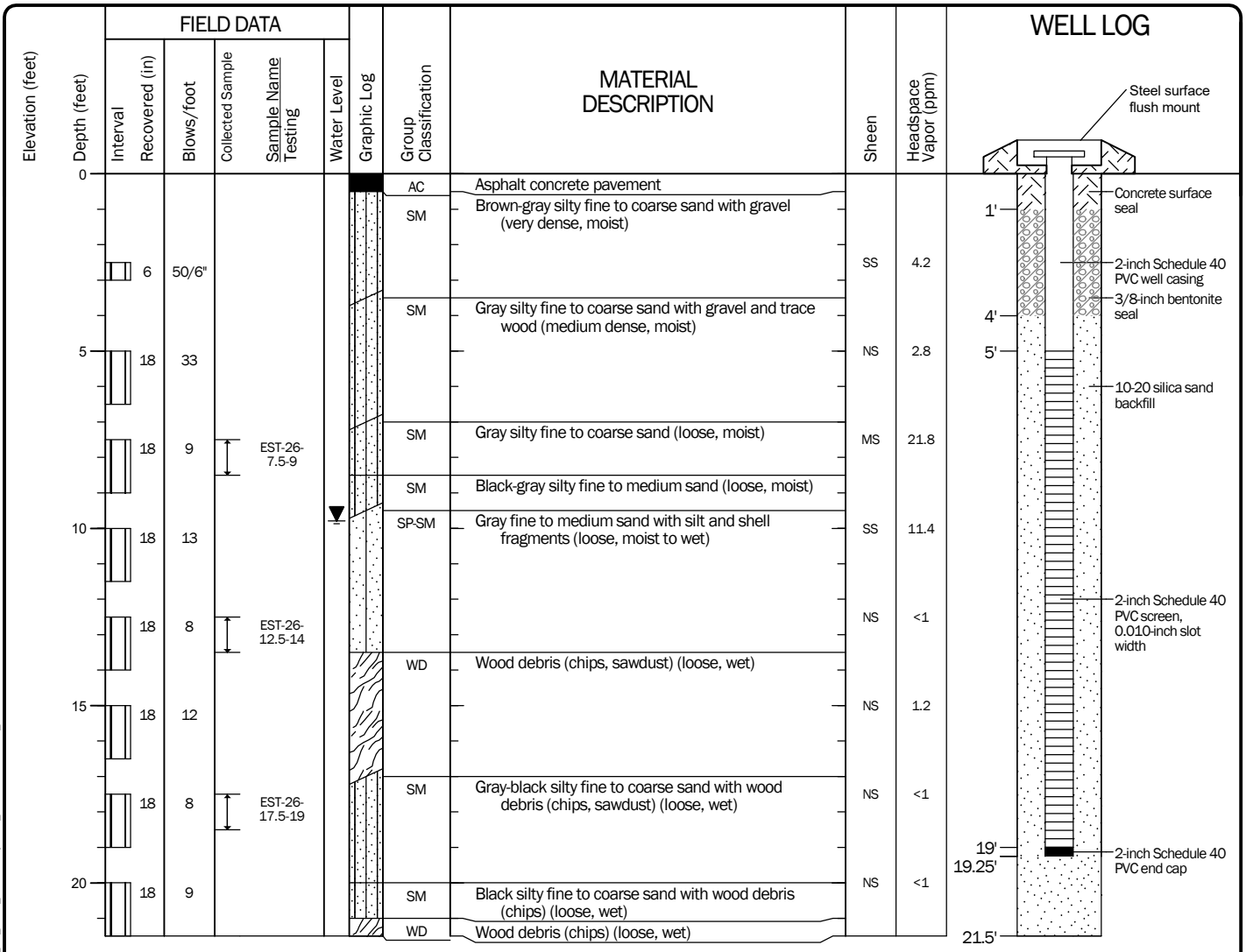
Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	4/23/2022	4/23/2022	21.5	NRS	RST	Cascade Drilling, LLC	Hollow-stem Auger

Hammer Data	Pneumatic	Drilling Equipment	Truck-mounted drill rig
Surface Elevation (ft) Vertical Datum	Undetermined MLLW	Top of Casing Elevation (ft)	
Easting (X) Northing (Y)		Horizontal Datum	WA State Plane North NAD83 (feet)

DOE Well I.D.: BNC 929
A 2-in well was installed on 4/23/2022 to a depth of 19 ft.

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
5/11/2022	9.79	

Notes:



Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Hand-held GPS. Vertical approximated based on 2012 Port Master Survey for the South Terminal.

Log of Boring EST-26

GeoEngineers

Project: Weyerhauser Mill A Former
Project Location: Everett, Washington
Project Number: 0676-020-07

Figure A-12
Sheet 1 of 1

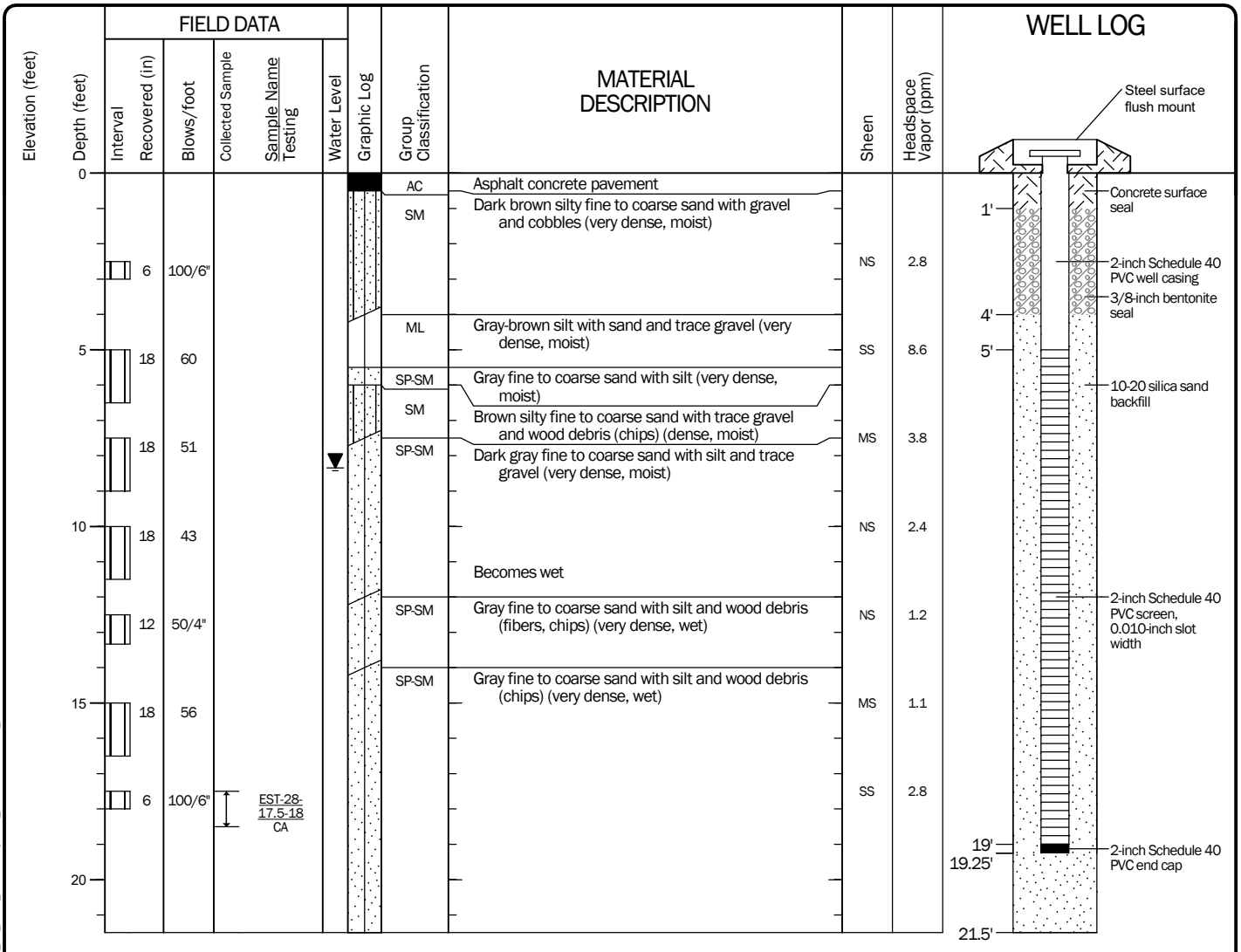
Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	4/16/2022	4/16/2022	21.5	NRS	RST	Cascade Drilling, LLC	Hollow-stem Auger

Hammer Data	Pneumatic	Drilling Equipment	Truck-mounted drill rig
Surface Elevation (ft) Vertical Datum	Undetermined MLLW	Top of Casing Elevation (ft)	
Easting (X) Northing (Y)		Horizontal Datum	WA State Plane North NAD83 (feet)

DOE Well I.D.: BNC 918
A 2-in well was installed on 4/16/2022 to a depth of 19 ft.

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
5/11/2022	8.34	

Notes:



Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Hand-held GPS. Vertical approximated based on 2012 Port Master Survey for the South Terminal.

Log of Boring EST-28

GeoEngineers

Project: Weyerhauser Mill A Former
Project Location: Everett, Washington
Project Number: 0676-020-07

Figure A-14
Sheet 1 of 1

Appendix B

Cultural Resources Determination Letter and Inadvertent Discovery Plan (IDP)

DATE: May 7, 2024

TO: Ryan Hardwick, Department of Ecology, Toxics Cleanup Program – Headquarters

FROM: Amy Hargrove, Department of Ecology, Toxics Cleanup Program – Headquarters

SUBJECT: Washington State Governor's Executive Order 21-02
Weyerhaeuser Mill A, FSID 1884322, CSID 2146
Department of Archeology and Historic Preservation (DAHP) Project # 2016-04-02460

Area of Potential Effect and Project Activities

The Washington State Department of Ecology (Ecology) is providing grant funding for an interim action at the Weyerhaeuser Mill A Site. The planned activities include decommissioning of a stormwater outfall and construction of a stormwater conveyance and bio-retention stormwater treatment cells within the bioswales. This will disturb soil from around 6700 sq ft with a maximum depth of 10 ft.

The project is located at 3500 Terminal Ave Everett, Snohomish County, parcel numbers 29053000203400, 29053000201800, 29042500400200, at T29, R04E and R05E, Sections 25 and 30. Project activities within the area include saw cutting, excavation/trenching, potholing, and backfilling along 3200 sq foot conveyance area to a maximum depth of 10 ft. Construction of bio-retention stormwater treatment cells within the footprint of the current bioswale that will include excavation and gradings over an area approximately 3500 square feet. The maximum depth in this area will be around 3 feet.

Final Determination

Ecology made a preliminary determination that the area is a **moderate risk** for pre-historic artifacts or other archaeological resources. Ecology recommended that an Inadvertent discovery plan (IDP) be required and to avoid cultural resource impacts an archeologist will be

on call when site work is being performed. The preliminary determination and request for consultation was sent via email to the following parties on March 25, 2024:

- David Witt, Department of Archaeological and Historic Preservation
- Kerry Lyste and Sam Barr, Stillaguamish Tribe of Indians
- Lena Tso, Lummi Nation
- Kevin Joseph, Sauk-Suiattle Tribe
- Stephanie Trudel, Suquamish Tribe
- Stephen Mullen-Moses and Adam Osbekoof, Snoqualmie Indian Tribe
- Josephine Jefferson, Swinomish Indian Tribal Community
- Richard Young, Tulalip Tribe

During consultation, Ecology received concurrence on our preliminary determination from the Suquamish Tribe and the Snoqualmie Tribe responded saying they had no substantive comments at this time.

Based on our review and comments received, Ecology retains the preliminary determination of **moderate risk** with the requirement of an inadvertent discovery plan (IDP) and an on-call archaeologist. The recipient must follow the IDP protocol in the event that archaeological deposits are inadvertently discovered during construction in any portion of the project area; ground-disturbing activities should be halted immediately in an area large enough to maintain integrity of the deposits. The DAHP, affected tribes, and Ecology must be notified.

Thank you for complying with the requirements of this cultural resources consultation.

Amy Hargrove,
amy.hargrove@ecy.wa.gov, 360-402-4217

INADVERTENT DISCOVERY PLAN

PLAN AND PROCEDURES FOR THE DISCOVERY OF CULTURAL RESOURCES AND HUMAN SKELETAL REMAINS

To request ADA accommodation, including materials in a format for the visually impaired, call Ecology at 360-407-6000 or visit https://ecology.wa.gov/accessibility. People with impaired hearing may call Washington Relay Service at 711. People with a speech disability may call TTY at 877-833-6341.

Site Name(s): Weyerhaeuser Mill A Former Location: 3500 Terminal Ave, Everett, Washington

Project Lead/Organization: Port of Everett County: Snohomish

If this Inadvertent Discovery Plan (IDP) is for multiple (batched) projects, ensure the location information covers all project areas.

1. INTRODUCTION

The IDP outlines procedures to perform in the event of a discovery of archaeological materials or human remains, in accordance with applicable state and federal laws. An IDP is required, as part of Agency Terms and Conditions for all grants and loans, for any project that creates disturbance above or below the ground. An IDP is not a substitute for a formal cultural resource review (Executive 21-02 or Section 106).

Once completed, **the IDP should always be kept at the project site** during all project activities. All staff, contractors, and volunteers should be familiar with its contents and know where to find it.

2. CULTURAL RESOURCE DISCOVERIES

A cultural resource discovery could be prehistoric or historic. Examples include (see images for further examples):

- An accumulation of shell, burned rocks, or other food related materials.
- Bones, intact or in small pieces.
- An area of charcoal or very dark stained soil with artifacts.
- Stone tools or waste flakes (for example, an arrowhead or stone chips).
- Modified or stripped trees, often cedar or aspen, or other modified natural features, such as rock drawings.
- Agricultural or logging materials that appear older than 50 years. These could include equipment, fencing, canals, spillways, chutes, derelict sawmills, tools, and many other items.
- Clusters of tin cans or bottles, or other debris that appear older than 50 years.
- Old munitions casings. ***Always assume these are live and never touch or move.***
- Buried railroad tracks, decking, foundations, or other industrial materials.
- Remnants of homesteading. These could include bricks, nails, household items, toys, food containers, and other items associated with homes or farming sites.

The above list does not cover every possible cultural resource. When in doubt, assume the material is a cultural resource.

3. ON-SITE RESPONSIBILITIES

If any employee, contractor, or subcontractor believes that they have uncovered cultural resources or human remains at any point in the project, take the following steps to ***Stop-Protect-Notify***. **If you suspect that the discovery includes human remains, also follow Sections 5 and 6.**

STEP A: Stop Work.

All work must stop immediately in the vicinity of the discovery.

STEP B: Protect the Discovery.

Leave the discovery and the surrounding area untouched and create a clear, identifiable, and wide boundary (30 feet or larger) with temporary fencing, flagging, stakes, or other clear markings. Provide protection and ensure integrity of the discovery until cleared by the Department of Archaeological and Historical Preservation (DAHP) or a licensed, professional archaeologist.

Do not permit vehicles, equipment, or unauthorized personnel to traverse the discovery site. Do not allow work to resume within the boundary until the requirements of this IDP are met.

STEP C: Notify Project Archaeologist (if applicable).

If the project has an archaeologist, notify that person. If there is a monitoring plan in place, the archaeologist will follow the outlined procedure.

STEP D: Notify Project and Washington Department of Ecology (Ecology) contacts.

Project Lead Contacts

Primary Contact		Alternate Contact	
Name:	Jacob Kirschner	Name:	Erik Gerking
Organization:	Port of Everett	Organization:	Port of Everett
Phone:	425.388.0268	Phone:	425.388.0604
Email:	jacobk@portofeverett.com	Email:	erikg@portofeverett.com

Ecology Contacts (completed by Ecology Project Manager)

Ecology Project Manager		Alternate or Cultural Resource Contact	
Name:	Ryan Hardwick	Name:	Amy Hargrove
Program:	Washington Department of Ecology	Program:	Washington Department of Ecology
Phone:	360.280.3895	Phone:	360.407.6262
Email:	ryha461@ecy.wa.gov	Email:	ahar461@ecy.wa.gov

STEP E: Ecology will notify DAHP.

Once notified, the Ecology Cultural Resource Contact or the Ecology Project Manager will contact DAHP to report and confirm the discovery. To avoid delay, the Project Lead/Organization will contact DAHP if they are not able to reach Ecology.

DAHP will provide the steps to assist with identification. DAHP, Ecology, and Tribal representatives may coordinate a site visit following any necessary safety protocols. DAHP may also inform the Project Lead/Organization and Ecology of additional steps to further protect the site.

Do not continue work until DAHP has issued an approval for work to proceed in the area of, or near, the discovery.

DAHP Contacts:

Name: Rob Whitlam, PhD
Title: State Archaeologist
Cell: 360-890-2615
Email: Rob.Whitlam@dahp.wa.gov
Main Office: 360-586-3065

Human Remains/Bones:

Name: Guy Tasa, PhD
Title: State Anthropologist
Cell: 360-790-1633 (24/7)
Email: Guy.Tasa@dahp.wa.gov

4. TRIBAL CONTACTS

In the event cultural resources are discovered, the following tribes will be contacted. See Section 10 for Additional Resources.

Tribe:	Tulalip Tribes	Tribe:	Suquamish Tribe
Name:	Richard Young	Name:	Stephanie Trudel
Title:	Cultural Resources Officer	Title:	Cultural Resources Officer
Phone:	425-239-0182	Phone:	360-394-8533
Email:	ryoung@tulaliptribes-nsn.gov	Email:	STrudel@suquamish.nsn.us
Tribe:	Swinomish Tribe	Tribe:	Stillaguamish Tribe
Name:	Josephine Jefferson	Name:	Kerry Lyste
Title:	Cultural Resources Officer	Title:	Cultural Resources Officer
Phone:	360-466-7352	Phone:	360-572-3072
Email:	JJefferson@swinomish.nsn.us	Email:	KLyste@stillaguamish.com

Please provide contact information for additional tribes within your project area, if needed, in Section 11.

5. FURTHER CONTACTS (if applicable)

If the discovery is confirmed by DAHP as a cultural or archaeological resource, or as human remains, and there is a partnering federal or state agency, Ecology or the Project Lead/Organization will ensure the partnering agency is immediately notified.

Federal Agency:		State Agency:	
Agency:		Agency:	
Name:		Name:	
Title:		Title:	
Phone:		Phone:	
Email:		Email:	

6. SPECIAL PROCEDURES FOR THE DISCOVERY OF HUMAN SKELETAL MATERIAL

Any human skeletal remains, regardless of antiquity or ethnic origin, will at all times be treated with dignity and respect. Follow the steps under ***Stop-Protect-Notify.*** For specific instructions on how to handle a human remains discovery, see: *RCW 68.50.645: Skeletal human remains—Duty to notify—Ground disturbing activities—Coroner determination—Definitions*.

Suggestion: If you are unsure whether the discovery is human bone or not, contact Guy Tasa with DAHP, for identification and next steps. Do not pick up the discovery.

Guy Tasa, PhD State Physical Anthropologist
Guy.Tasa@dahp.wa.gov
(360) 790-1633 (Cell/Office)

For discoveries that are confirmed or suspected human remains, follow these steps:

1. Notify law enforcement and the Medical Examiner/Coroner using the contacts below. **Do not call 911** unless it is the only number available to you.

   Enter contact information below (required):
   - Local Medical Examiner or Coroner name and phone: Daniel Augustine, MD, 425.438.6200
   - Local Law Enforcement main name and phone: City of Everett Police Department, 425.257.8400
   - Local Non-Emergency phone number (911 if without a non-emergency number):
2. The Medical Examiner/Coroner (with assistance of law enforcement personnel) will determine if the remains are human or if the discovery site constitutes a crime scene and will notify DAHP.
3. **DO NOT speak with the media, allow photography or disturbance of the remains, or release any information about the discovery on social media.**
4. If the remains are determined to be non-forensic, Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection and to shield them from being photographed by others or disturbed.

Further activities:

- Per RCW 27.44.055, RCW 68.50, and RCW 68.60, DAHP will have jurisdiction over non-forensic human remains. Ecology staff will participate in consultation. Organizations may also participate in consultation.
- Documentation of human skeletal remains and funerary objects will be agreed upon through the consultation process described in RCW 27.44.055, RCW 68.50, and RCW 68.60.
- When consultation and documentation activities are complete, work in the discovery area may resume as described in Section 8.

If the project occurs on federal lands (such as a national forest or park or a military reservation) the provisions of the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) apply and the responsible federal agency will follow its provisions. Note that state highways that cross federal lands are on an easement and are not owned by the state.

If the project occurs on non-federal lands, the Project Lead/Organization will comply with applicable state and federal laws, and the above protocol.

7. DOCUMENTATION OF ARCHAEOLOGICAL MATERIALS

Archaeological resources discovered during construction are protected by state law RCW 27.53 and assumed eligible for inclusion in the National Register of Historic Places under Criterion D until a formal Determination of Eligibility is made.

The Project Lead/Organization must ensure that proper documentation and field assessment are made of all discovered cultural resources in cooperation with all parties: the federal agencies (if any), DAHP, Ecology, affected tribes, and the archaeologist.

The archaeologist will record all prehistoric and historic cultural material discovered during project construction on a standard DAHP archaeological site or isolate inventory form. They will photograph site overviews, features, and artifacts and prepare stratigraphic profiles and soil/sediment descriptions for minimal subsurface exposures. They will document discovery locations on scaled site plans and site location maps.

Cultural features, horizons, and artifacts detected in buried sediments may require the archaeologist to conduct further evaluation using hand-dug test units. They will excavate units in a controlled fashion to expose features, collect samples from undisturbed contexts, or to interpret complex stratigraphy. They may also use a test unit or trench excavation to determine if an intact occupation surface is present. They will only use test units when necessary to gather information on the nature, extent, and integrity of subsurface cultural deposits to evaluate the site's significance. They will conduct excavations using standard archaeological techniques to precisely document the location of cultural deposits, artifacts, and features.

The archaeologist will record spatial information, depth of excavation levels, natural and cultural stratigraphy, presence or absence of cultural material, and depth to sterile soil, regolith, or bedrock for each unit on a standard form. They will complete test excavation unit level forms, which will include plan maps for each excavation level and artifact counts and material types, number, and vertical provenience (depth below

surface and stratum association where applicable) for all recovered artifacts. They will draw a stratigraphic profile for at least one wall of each test excavation unit.

The archaeologist will screen sediments excavated for purposes of cultural resources investigation through 1/8-inch mesh, unless soil conditions warrant 1/4-inch mesh.

The archaeologist will analyze, catalogue, and temporarily curate all prehistoric and historic artifacts collected from the surface and from probes and excavation units. The ultimate disposition of cultural materials will be determined in consultation with the federal agencies (if any), DAHP, Ecology, and the affected tribe(s).

Within 90 days of concluding fieldwork, the archaeologist will provide a technical report describing any and all monitoring and resultant archaeological excavations to the Project Lead/Organization, who will forward the report to Ecology, the federal agencies (if any), DAHP, and the affected tribe(s) for review and comment.

If assessment activities expose human remains (burials, isolated teeth, or bones), the archaeologist and Project Lead/Organization will follow the process described in **Section 6**.

8. PROCEEDING WITH WORK

The Project Lead/Organization shall work with the archaeologist, DAHP, and affected tribe(s) to determine the appropriate discovery boundary and where work can continue.

Work may continue at the discovery location only after the process outlined in this plan is followed and the Project Lead/Organization, DAHP, any affected tribe(s), Ecology, and the federal agencies (if any) determine that compliance with state and federal laws is complete.

9. ORGANIZATION RESPONSIBILITY

The Project Lead/Organization is responsible for ensuring:

- This IDP has complete and accurate information.
- This IDP is immediately available to all field staff at the sites and available by request to any party.
- This IDP is implemented to address any discovery at the site.
- That all field staff, contractors, and volunteers are instructed on how to implement this IDP.

10. ADDITIONAL RESOURCES

Informative Video

Ecology recommends that all project staff, contractors, and volunteers view this informative video explaining the value of IDP protocol and what to do in the event of a discovery. The target audience is anyone working on the project who could unexpectedly find cultural resources or human remains while excavating or digging. The video is also posted on DAHP's inadvertent discovery language website.

Ecology's IDP Video (https://www.youtube.com/watch?v=ioX-4cXfbDY)

Informational Resources

DAHP (https://dahp.wa.gov)

Washington State Archeology (DAHP 2003)
(https://dahp.wa.gov/sites/default/files/Field%20Guide%20to%20WA%20Arch_0.pdf)

Association of Washington Archaeologists (https://www.archaeologyinwashington.com)

Potentially Interested Tribes

Interactive Map of Tribes by Area
(https://dahp.wa.gov/archaeology/tribal-consultation-information)

WSDOT Tribal Contact Website
(https://wsdot.wa.gov/tribal/TribalContacts.htm)

11. ADDITIONAL INFORMATION

Please add any additional contact information or other information needed within this IDP.

Additional Tribal Contacts include the following:
Snoqualmie Tribe
Steve Moses
Cultural Resources Officer
425-888-6551
Steve@snoqualmietribe.us

Sauk-Suiattle Tribe
Kevin Joseph
Cultural Resources Officer
360-436-2833
KJoseph@sauk-suiattle.com

Muckleshoot Tribe
Laura Murphy
Cultural Resources Officer
253-876-3272
laura.murphy@muckleshoot.nsn.us

Implement the IDP if you see…

Chipped stone artifacts.

Examples are:

- Glass-like material.
- Angular material.
- “Unusual” material or shape for the area.
- Regularity of flaking.
- Variability of size.

Stone artifacts from Oregon.

Stone artifacts from Washington.

Biface-knife, scraper, or pre-form found in NE Washington. Thought to be a well knapped object of great antiquity. Courtesy of Methow Salmon Rec. Foundation.

Implement the IDP if you see…

Ground stone artifacts.

Examples are:

- Unusual or unnatural shapes or unusual stone.
- Striations or scratching.
- Etching, perforations, or pecking.
- Regularity in modifications.
- Variability of size, function, or complexity.

Above: Fishing Weight - credit CRITFC Treaty Fishing Rights website.

Artifacts from unknown locations (left and right images).

Implement the IDP if you see…

Bone or shell artifacts, tools, or beads.

Examples are:

- Smooth or carved materials.
- Unusual shape.
- Pointed as if used as a tool.
- Wedge shaped like a “shoehorn”.
- Variability of size.
- Beads from shell (dentalium) or tusk.

Upper Left:*Bone Awls from Oregon.*

Upper Center: *Bone Wedge from California.*

Upper Right: *Plateau dentalium choker and bracelet, from Nez Perce National Historical Park, 19th century, made using Antalis pretiosa shells Credit: Nez Perce - Nez Perce National Historical Park, NEPE 8762, Public Domain.*

Above: *Tooth Pendants. Right: Bone Pendants. Both from Oregon and Washington.*

Implement the IDP if you see…

Culturally modified trees, fiber, or wood artifacts.

Examples are:

- Trees with bark stripped or peeled, carvings, axe cuts, de-limbing, wood removal, and other human modifications.
- Fiber or wood artifacts in a wet environment.
- Variability of size, function, and complexity.

Left and Below: *Culturally modified tree and an old carving on an aspen (Courtesy of DAHP).*

Right, Top to Bottom: *Artifacts from Mud Bay, Olympia: Toy war club, two strand cedar rope, wet basketry*.

Implement the IDP if you see…

Strange, different, or interesting looking dirt, rocks, or shells.

Human activities leave traces in the ground that may or may not have artifacts associated with them. Examples are:

- "Unusual" accumulations of rock (especially fire-cracked rock).
- "Unusual" shaped accumulations of rock (such as a shape similar to a fire ring).
- Charcoal or charcoal-stained soils, burnt-looking soils, or soil that has a "layer cake" appearance.
- Accumulations of shell, bones, or artifacts. Shells may be crushed.
- Look for the "unusual" or out of place (for example, rock piles in areas with otherwise few rocks).

Shell Midden pocket in modern fill discovered in sewer trench.

Underground oven. Courtesy of DAHP.

Shell midden with fire cracked rock.

Hearth excavated near Hamilton, WA.

Implement the IDP if you see…

Historic period artifacts (historic archaeology considered older than 50 years).

Examples are:

- Agricultural or logging equipment. May include equipment, fencing, canals, spillways, chutes, derelict sawmills, tools, etc.
- Domestic items including square or wire nails, amethyst colored glass, or painted stoneware.

Left: Top to Bottom: *Willow pattern serving bowl and slip joint pocket knife discovered during Seattle Smith Cove shantytown (45-KI-1200) excavation.*

Right: *Collections of historic artifacts discovered during excavations in eastern Washington cities.*

Implement the IDP if you see…

Historic period artifacts (historic archaeology considered older than 50 years).

Examples are:

- Railway tokens, coins, and buttons.
- Spectacles, toys, clothing, and personal items.
- Items helping to understand a culture or identity.
- Food containers and dishware.

Main Image: *Dishes, bottles, workboot found at the North Shore Japanese bath house (ofuro) site, Courtesy Bob Muckle, Archaeologist, Capilano University, B.C. This is an example of an above ground resource.*

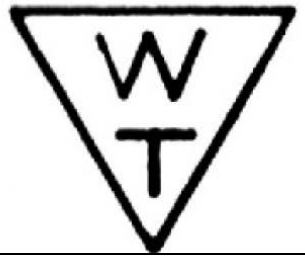
Right, from Top to Bottom: *Coins, token, spectacles and Montgomery Ward pitchfork toy discovered during Seattle Smith Cove shantytown (45-KI-1200) excavation.*

Implement the IDP if you see…

- Old munition casings – if you see ammunition of any type – ***always assume they are live and never touch or move!***
- Tin cans or glass bottles with an older manufacturer's technique – maker's mark, distinct colors such as turquoise, or an older method of opening the container.

Far Left: .303 British cartridge found by a WCC planting crew on Skagit River. Don't ever touch something like this!
Left: Maker's mark on bottom of old bottle.

Right: *Old beer can found in Oregon. ACME was owned by Olympia Brewery. Courtesy of Heather Simmons.*



Logo employed by Whithall Tatum & Co. between 1924 to 1938 (Lockhart et al. 2016).

Can opening dates, courtesy of W.M. Schroeder.

Implement the IDP if you see…

You see historic foundations or buried structures.

Examples are:

- Foundations.
- Railroad and trolley tracks.
- Remnants of structures.

Counter Clockwise, Left to Right: *Historic structure 45KI924, in WSDOT right of way for SR99 tunnel. Remnants of Smith Cove shantytown (45-KI-1200) discovered during Ecology CSO excavation, City of Spokane historic trolley tracks uncovered during stormwater project, intact foundation of historic home that survived the Great Ellensburg Fire of July 4, 1889, uncovered beneath parking lot in Ellensburg.*

Implement the IDP if you see...

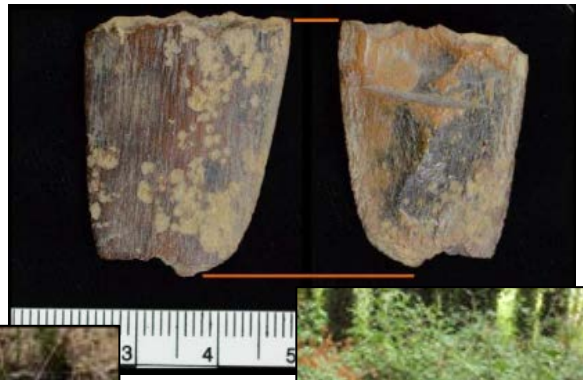
Potential human remains.

Examples are:

- Grave headstones that appear to be older than 50 years.
- Bones or bone tools--intact or in small pieces. It can be difficult to differentiate animal from human so they must be identified by an expert.
- These are all examples of animal bones and are not human.

Center: *Bone wedge tool, courtesy of Smith Cove Shantytown excavation (45KI1200).*

Other images (Top Right, Bottom Left, and Bottom) Center: Courtesy of DAHP.



Directly Above: This is a real discovery at an Ecology sewer project site.

What would you do if you found these items at a site? Who would be the first person you would call?

Hint: *Read the plan!*

Appendix C
Quality Assurance Project Plan (QAPP)

Quality Assurance Project Plan (QAPP)

Weyerhaeuser Mill A Former Site Interim Action
Marine Terminals Stormwater Rerouting and Treatment

for
Washington State Department of Ecology
on Behalf of Port of Everett

June 14, 2024

2101 4th Avenue, Suite 950,
Seattle, Washington 98121
206.728.2674

GeoEngineers

Quality Assurance Project Plan (QAPP)

Weyerhaeuser Mill A Former Site
Marine Terminals Stormwater Rerouting and Treatment
Port of Everett, Washington

File No. 0676-020-07
June 14, 2024

Prepared for:

Washington State Department of Ecology
P.O. Box 47600
Olympia, Washington 98504-7600

Attention: Ryan Hardwick

On Behalf of:

Port of Everett
PO Box 538
Everett, Washington 98206
425.388.0268

Prepared by:

GeoEngineers, Inc.
Fourth and Blanchard Building
2101 4th Avenue, Suite 950
Seattle, Washington 98121
206.728.2674

Abhijit R. Joshi, PE
Senior Environmental Engineer

John M. Herzog, PhD, LG
Senior Principal

DK:ARJ:JMH:ch

Table of Contents

List of Tables

List of Acronyms and Abbreviations

Acronym/ Abbreviation	Description
ARI	Analytical Resources, Inc.
ASTM	ASTM International
cPAH	carcinogenic polycyclic aromatic hydrocarbons
DQO	data quality objective
Ecology	Washington State Department of Ecology
EDD	electronic data deliverable
EIM	Environmental Information Management
EPA	United States Environmental Protection Agency
GeoEngineers	GeoEngineers, Inc.
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
KM	Kaplan-Meier
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
MDL	method detection limit
MRL	method reporting limit
MS	matrix spike
MSD	matrix spike duplicate
MTCA	Model Toxics Control Act
OnSite	OnSite Environmental, Inc.
OSHA	Occupational Safety and Health Administration
PARCC	Precision, Accuracy, Representativeness, Completeness, and Comparability
Port	Port of Everett
PPE	personal protective equipment
%D	percent difference
%R	percent recovery
PQL	practical quantitation limit
QA	quality assurance
QC	quality control

RL	reporting limit
RPD	relative percent difference
Site	Weyerhaeuser Mill A Former Site
SOP	standard operating procedure
SVOC	semi-volatile organic compound
TEF	toxicity equivalency factor
TEQ	toxicity equivalent (refers to concentration basis)
TRL	target reporting limit
VOC	volatile organic compound
WAC	Washington Administrative Code

1.0 Introduction

This Quality Assurance Project Plan (QAPP) is prepared as an appendix to the Interim Action Work Plan (IAWP) for Weyerhaeuser Mill A Former Site (Site). The Site is located at 3500 Terminal Avenue, Everett, Snohomish County, Washington. The Site is currently listed in Ecology's database of confirmed and suspected contaminated sites under Facility/Site No. 1884322.

The planned interim action activities are described in the IAWP. In general, the interim action includes decommissioning of an existing outfall (Outfall 003), rerouting stormwater and installing stormwater treatment at the Site.

The QAPP was prepared following the Washington State Department of Ecology's (Ecology's) Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies (Ecology, 2004), United States Environmental Protection Agency (EPA) Requirements for Quality Assurance Project Plans (EPA 2001), Guidance for Quality Assurance Project Plans (EPA 2002), and EPAs National Functional Guidelines for Inorganic and Organic Superfund Methods Data Review (EPA 2017a and 2017b). This QAPP presents the project management and organization and quality assurance/quality control (QA/QC) activities designed to achieve the data quality objectives (DQOs) established for the project. Environmental measurements will be taken to produce data that are scientifically valid, of known and acceptable quality, and meet established objectives. QA/QC procedures will be implemented so that the precision, accuracy, representativeness, completeness, and comparability (PARCC) of the data generated meet the specified DQOs to the maximum extent possible.

2.0 Project Management and Organization

The project management and organization elements for the cleanup action including the key personnel, roles and responsibilities of the participants and special training/certification are presented in the following sections.

2.1 PROJECT ORGANIZATION AND RESPONSIBILITIES

Key individuals and positions providing QA and QC are summarized in the following table. A description of the responsibilities, lines of authority and communication for the key individuals and other project positions providing QA and QC is presented below.

PROJECT ROLE	NAME AND ORGANIZATION	CONTACT INFORMATION
Project Coordinator	Jacob Kirschner Port of Everett	425.388.0268 JacobK@portofeverett.com
Technical Project Manager	John Herzog GeoEngineers	206.406.6431 jherzog@geoengineers.com 2101 4th Avenue, Suite 950 Seattle, Washington 98121

PROJECT ROLE	NAME AND ORGANIZATION	CONTACT INFORMATION
Task Manager	Abhi R. Joshi GeoEngineers	206.239.3256 ajoshi@geoengineers.com 2101 4th Avenue, Suite 950 Seattle, Washington 98121
Health and Safety Manger	Chad D. Kean GeoEngineers	425.284.7256 ckean@geoengineers.com Anacortes, Washington
Data Quality Assurance Leader	Christine Ransom EcoChem, Inc.	206.233.9332 cransom@ecochem 500 Union Street, Suite 1010 Seattle, Washington 98101
Laboratory Project Manager (OnSite Environmental, Inc. [OnSite])	David A. Baumeister OnSite Environmental, Inc.	206.550.2483 dbaumeister@onsite-env.com 14648 NE 95th Street Redmond, Washington 98052
Laboratory Project Manager (Analytical Resources LLC [ARI])	Susan D. Dunnihoo Analytical Resources, LLC	(206) 695-6207 limsadm@arilabs.com 4611 South 134th Place, Suite 100 Tukwila, Washington 98168
Contractor Project Manager and Superintendent (To Be Selected)	Not Available	Not Available

2.1.1 Project Coordinator

The project coordinator represents the Port of Everett and their duties consist of implementing the project approach and tasks, overseeing the project team members during performance of project tasks.

2.1.2 Technical Project Manager

The technical project manager is responsible for fulfilling contractual and administrative control of the project. The technical project manager's duties include defining the project approach and tasks, selecting project team members and establishing budgets and schedules.

The technical project manager's duties also include implementing the project approach and tasks, overseeing project team members during performance of project tasks, adhering to and communicating the status of budgets and schedules to the Port project manager, providing technical oversight, and providing overall production and review of project deliverables.

2.1.3 Task Manager

The task manager is responsible for the daily management of project tasks including providing technical direction to the field staff, produces task specific documents and supporting documents, develops schedules and allocates resources for field tasks, coordinates data collection activities to be consistent with information requirements, supervises the compilation of field data and laboratory analytical results, assures that data are correctly and completely reported, implements and oversees field sampling in

accordance with project plan and supervises field personnel. Additionally, the task manger coordinates work with on-site subcontractors, verifies that appropriate sampling, testing, and measurement procedures are followed, coordinates the transfer of field data, sample tracking forms, and log books to the technical project manager for data reduction and validation, and participates in QA corrective actions as required.

2.1.4 Field Coordinator

The field coordinator will lead the field sampling effort for the project, serving as the direct point of contact between the task manager, on-site laboratory and subcontractors; and ensures that the appropriate sampling containers, chain-of-custody forms and field sampling gear including PPE are available. The field coordinator ensures that data collection activities are consistent with information requirements and to assure that field information is correctly and completely reported for the entire duration of the project. The field coordinator will also coordinate appropriate sampling, testing, and measurement procedures and schedule sample delivery/shipment with the onsite laboratory. The field coordinator will transfer field data and sample tracking forms to the project file and data reduction and validation and participate in QA corrective actions as required.

2.1.5 Field Personnel

Field personnel have the primary responsibility for duties involving field data collection and documentation. Technical/field staff are responsible for:

- Understanding and following the IAWP, QAPP and HASP.
- Checking all equipment and supplies in advance of field operations.
- Ensuring that samples are properly collected, preserved, labeled, packaged, and shipped.
- Ensuring that all field data are carefully recorded in accordance with the IAWP and supporting documents.
- Following chain-of-custody procedures and standard operating procedures (SOPs) when they are required.

2.1.6 Health and Safety Manager

The health and safety manager will oversee implementation of health and safety programs and verify that work on the project proceeds in accordance with the Site-specific HASP.

2.1.7 Data Quality Assurance Leader

This person will also oversee the completion of data validation activities completed for this project. The quality assurance leader maintains independence from the individual(s) generating the data.

2.1.8 Laboratory Project Manager

The laboratory project manager will fulfill the analytical requirements of this project including being responsible for sample analyses using appropriate analytical laboratory methods. The laboratory project manager will ensure that the analytical work is proceeding in accordance with internal laboratory standard practices and the QA/QC guidelines for the project. The specific procedures to be used for chain-of-custody transfer, internal calibrations, laboratory analyses, reporting, preventive instrument maintenance, and corrective action will follow standard protocols.

2.1.9 Contractor Project Manager and Superintendent

A contractor will be selected by the Port through the project bidding process. The project manager and superintendent of the selected contractor will be responsible for implementing the project in accordance with project plans and specifications.

2.2 SPECIAL TRAINING REQUIREMENTS/CERTIFICATION

Occupational Safety and Health Administration (OSHA) regulations (29 CFR 1910.120) require training to provide employees with the knowledge and skills necessary to enable them to perform their jobs safely and with minimum risk to their personal health. All sampling personnel will have completed the 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training course and 8-hour refresher courses, as necessary, to meet OSHA regulations.

3.0 Data Quality Objectives

The primary Data Quality Objectives (DQO) for this cleanup action is to collect environmental sampling data of known, acceptable, and documentable quality. The specific objectives established for the project are:

- Implement the procedures outlined herein for field sampling, sample custody, equipment operation and calibration, laboratory analysis, and data reporting to ensure consistency and thoroughness of data generated.
- Achieve the level of QA/QC required to produce scientifically valid analytical data of known and documented quality. This will be accomplished by establishing criteria for data precision, accuracy, representativeness, completeness, and comparability, and by evaluating project data against these criteria.

3.1 CHEMICAL QUALITY OBJECTIVES

The sampling design, field procedures, useable laboratory procedures, and QC procedures established for this project were developed to provide defensible data. Specific factors that may affect data usability include quantitative factors (precision, bias, accuracy, completeness, and reporting limits) and qualitative factors such as representativeness and comparability. The specific DQOs associated with these data quality factors are discussed below. Method-specific DQOs for chemical laboratory analyses are presented in Tables 1 and 2 for soil and stormwater, respectively.

3.1.1 Analytical Detection Limits

Analytical methods have quantitative limitations at a given statistical level of confidence that are often expressed as the method detection limit (MDL). Although results reported near the MDL provide insight for contaminant conditions, quality assurance dictates that analytical methods achieve a consistently reliable level of detection known as the practical quantitation limit (PQL), which is typically demonstrated with the lowest point of a linear calibration. The contract laboratory will provide numerical results for all analytes and report them as detected above the PQL or undetected at the PQL.

The PQLs provided by the Ecology-certified laboratory contract laboratory are presented in Tables 3 and 4 for soil and stormwater respectively. The PQLs presented in Tables 3 and 4 are considered target reporting limits (TRLs) because several factors may influence final reporting limits. First, moisture and other physical

conditions of samples affect detection limits. Second, analytical procedures may require sample dilutions or other practices to quantify a particular analyte at concentrations above the range of the instrument. The effect is that other analytes could be reported as undetected but at a value higher than a specified TRL. Data users must be aware that high non-detect values, although correctly reported, can bias statistical summaries and careful interpretation is required to correctly characterize subsurface conditions.

3.1.2 Precision

Precision is the measure of mutual agreement among replicate or duplicate measurements of an analyte from the same sample and applies to field duplicates (i.e., split samples), replicate analyses, and duplicate spiked environmental samples (matrix spike duplicates). The closer the measured values are to each other, the more precise the measurement process. Precision error may affect data usefulness. Good precision is indicative of relative consistency and comparability between different samples. Precision will be expressed as the relative percent difference (RPD) for spike sample and field duplicate comparisons of various matrices. The RPD is calculated as:

Where: $$RPD\,(\%) = \frac{|\,D_1 - D_2\,|}{(D_1 + D_2)/2}\ X\ 100,$$

D_1 = Concentration of analyte in primary sample.

D_2 = Concentration of analyte in duplicate sample.

The calculation applies to split samples, replicate analyses, duplicate spiked environmental samples (matrix spike duplicates), and laboratory control duplicates. The RPD will be calculated for samples and compared to the applicable criteria. Precision can also be expressed as the percent difference (%D) between replicate analyses. Project RPD goals for soil and stormwater analyses are presented in Tables 1 and 2, respectively, unless the primary and duplicate sample results are less than 5 times the method reporting limit (MRL), in which case RPD goals will not apply for data quality assessment purposes.

3.1.3 Accuracy

Accuracy is a measure of bias in the analytical process. The closer the measurement value is to the true value, the greater the accuracy. Accuracy is typically evaluated by adding a known spike concentration of a target or surrogate compound to a sample prior to analysis. The detected concentration or percent recovery (%R) of the spiked compound reported in the sample provides a quantitative measure of analytical accuracy. Since most environmental data collected represent single points spatially and temporally rather than an average of values, accuracy is generally more important than precision in assessing the data. In general, if %R values are low, non-detect results may be reported for compounds of interest when in fact these compounds are present (i.e., false negative results), and results for detected compounds may be biased low. The reverse is true when %R values are high. In this case, non-detect values are considered accurate, whereas detected values may be higher than true values.

For this project, accuracy will be expressed as the %R of a known surrogate spike, matrix spike, or laboratory control sample (blank spike), concentration:

$$Recovery\,(\%R) = \frac{Spiked\ Result - Unspiked\ Result}{Known\ Spike\ Concentration}\ X\ 100$$

Accuracy (%R) criteria for surrogate spikes, matrix spikes, and laboratory control samples (blank spikes) are presented in Tables 1 and 2 for soil and stormwater, respectively.

3.1.4 Representativeness, Completeness, and Comparability

Representativeness expresses the degree to which data accurately and precisely represent the actual site conditions. Representativeness of the data will be evaluated by:

- Comparing actual sampling procedures to those specified in this document.
- Reviewing analytical results for field duplicates to determine the variability in the analytical results.
- Invalidating non-representative data or identifying data to be classified as questionable or qualitative in nature. Only representative data will be used in subsequent data reduction, validation, and reporting activities.

Completeness establishes whether a sufficient amount of valid measurements were obtained to meet project objectives. The number of samples and results expected establishes the comparative basis for completeness. The completeness goal is 90 percent useable data for the samples/analyses planned. If the completeness goal is not achieved, an evaluation will be performed to determine if the data are adequate to meet study objectives.

Comparability expresses the confidence with which one set of data can be compared to another. Although numeric goals do not exist for comparability, a statement on comparability will be prepared to assess overall usefulness of data sets generated during the project, following the evaluation of precision and accuracy.

3.1.5 Holding Times

Holding times are defined as the time between sample collection and extraction, sample collection and analysis, or sample extraction and analysis. Recommended holding times are presented in Tables 5 and 6 for soil and stormwater, respectively. If the analysis of an archived sample is required but the sample exceeds the respective holding time, either discard the sample and collect a new representative sample for analysis and/or consult with Ecology to determine if the sample may still be used.

3.1.6 Quality Control Blank Samples

According to the National Functional Guidelines for Organic Data Review (EPA 2017b), “The purpose of laboratory (or field) blank analysis is to assess the existence and magnitude of contamination resulting from laboratory (or field) activities. The criteria for evaluation of blanks apply to any blank associated with the samples (e.g., method blanks, instrument blanks, trip blanks, and equipment blanks).” Trip blanks are placed with samples during shipment; method blanks are created during sample preparation and follow samples throughout the analysis process.

Analytical results for QC blanks will be interpreted in general accordance with EPA’s National Functional Guidelines for Inorganic (EPA 2017a) and Organic Data (EPA 2017b) Review and professional judgment. QC blank samples are discussed further in Section 4.0.

4.0 Data Generation and Acquisition

The data generation and acquisition elements for the QAPP (as detailed below) address aspects of the project design and implementation including the appropriate methods for measurement and analysis, data collection or generation, data handling, and how QC activities are employed and properly documented.

Sampling methods including field documentation, sampling, and decontamination procedures are also discussed below.

4.1 DECONTAMINATION PROCEDURES

Reusable sampling equipment that comes in contact with soil or stormwater will be decontaminated before each use. Decontamination procedures for this equipment will consist of the following:

1. Washing with a brush and non-phosphate detergent solution (e.g., Liqui-Nox and distilled water);
2. Rinsing with distilled water;
3. Rinse equipment with 10 percent nitric acid solution if cross-contamination is suspected. Follow-up with rinsing with distilled water;
4. Wrapping or covering the decontaminated equipment with aluminum foil. Field personnel will limit cross-contamination by changing gloves between sampling locations; and
5. Wash water used to decontaminate equipment will be collected and stored on-site in 55-gallon drums.

4.2 SAMPLE CONTAINERS, LABELING, HANDLING AND CUSTODY

4.2.1 Sample Containers and Labeling

The Field Coordinator will establish field protocol to manage field sample collection, handling and documentation. Soil and stormwater samples will be placed in appropriate laboratory-prepared containers. Sample containers and preservatives are listed in Tables 5 and 6 for soil and stormwater, respectively.

Sample containers will be labeled with the following information at the time of sample collection:

- Project name and number
- Type of sample preservative used (where applicable)
- Sample name, which will include a reference to date and sampling depth (if applicable)
- Date and time of collection

The sample collection activities will be noted in the field log books. The Field Coordinator will monitor consistency between sample containers/labels, field log books and chain-of-custody forms.

4.2.2 Sample Storage

Samples will be placed in a cooler with ice after they are collected. The objective of the cold storage will be to attain a sample temperature of 2 to 6 degrees Celsius. Holding times (Tables 5 and 6 for soil and stormwater, respectively) will be observed during sample storage.

4.2.3 Sample Shipment

Samples will be transported and delivered to the analytical laboratory in the sample coolers. The samples will either be transported by field personnel, laboratory personnel or by courier service. The Field Coordinator will ensure that the cooler has been properly secured using clear plastic tape and custody seals.

4.2.4 Chain-of-Custody Records

Field personnel are responsible for the security of samples from the time the samples are collected until the samples have been received by the courier service or laboratory personnel. A chain-of-custody form will be completed for each group of samples being shipped to the laboratory. Information to be included on the chain-of-custody form includes:

- Project name and number;
- Sample identification numbers;
- Date and time of sampling;
- Sample matrix (soil and stormwater), preservative, and number of containers for each sample;
- Analyses to be performed;
- Names of sampling personnel;
- Project manager name and contact information including phone number; and
- Shipping information including shipping container number, if applicable.

The original chain-of-custody form will be signed by a member of the field team. Field personnel will retain copies and place the original and remaining copies in a plastic bag. The plastic bag containing the chain-of-custody form will be placed in the cooler before sealing the cooler for transport to the laboratory.

4.2.5 Laboratory Custody Procedures

The laboratory will follow their standard operating procedures to document sample handling from time of receipt (sample log-in) to reporting. Documentation will include, at a minimum, the analyst's name or initials, time and date and documentation of sample disposition at the time of receipt (i.e., seal in place, labels complete, temp between 2-6 degrees Celsius, etc.).

4.3 DISPOSAL OF INVESTIGATION-DERIVED MATERIALS

4.3.1 Drums of Investigation-Derived Materials

Investigation-derived material including decontamination water will be placed in labeled and sealed 55-gallon drums. The drums will be temporarily stored on site at a secure location pending receipt of analytical results and off-site disposal at a permitted facility. Each drum will be labeled with the following information:

- Material/media (i.e., soil, water, etc.) contained in the drum;
- Source of the material in the drum (i.e., investigation locations and depths where appropriate);
- Date material was generated;
- Phrase "Waste Pending Designation"; and
- Name and telephone number of GeoEngineers contact person.

4.3.2 Disposition of Incidental Waste

Incidental waste generated during sampling activities includes items such as gloves, plastic sheeting, sample tubing, paper towels and similar expended and discarded field supplies. These materials are considered *de minimis* and will be disposed of in a local trash receptacle.

4.4 FIELD DOCUMENTATION

The field staff will be responsible for documenting field activities including sampling in an all-weather (e.g., "Rite-in-the-Rain") field notebook and/or on field logs, and by producing a draft technical field report at the end of each day of sampling. The field staff will also be responsible for implementing field QA/QC procedures in accordance with the methods outlined in this document and general good practice sampling protocols. These procedures include recording and documenting relevant and appropriate information regarding project activities, sampling methods and data collected during performance of field activities at each sample location.

The following general guidelines should be followed in documenting fieldwork:

- Documentation will be maintained in a dedicated field notebook and on field forms, as applicable.
- Notebook documentation will be completed in waterproof ink or permanent marker and written errors will be crossed out with a single line.

Field notebooks will include records of pertinent activities completed on site including sampling. Field notebooks will be bound books with sequentially numbered pages. The books will remain in the custody of the Field Coordinator/Personnel until project completion, after which, the books will be kept in the project files. The field notebook and forms will be maintained on a real-time basis and will include, where applicable and appropriate, the following information:

- Date, time of specific activities and weather conditions.
- Names of all personnel on the site, including visitors.
- Specific details regarding sampling activities, including sampling locations, type of sampling, depth, and sample numbers.
- Specific problems and resolutions.
- Identification numbers of monitoring instruments used that day.
- Chain-of-custody details, including sample identification numbers.

A draft field report will be prepared upon completion of field activities each day. Field data that was recorded in the notebooks and field forms will be used to complete the field report. The field report will be used to document construction, sampling, and monitoring activities, sampling and Site personnel, and weather conditions, as well as decisions, corrective actions, and/or modifications to the project plans and procedures discussed in this report. The draft field report will be finalized following review by the Task Manager and/or Technical Project Manager and kept in the project files.

4.5 ANALYTICAL METHODS

Samples and QC samples shall be analyzed following the analytical methods listed in Tables 5 and 6 for soil and stormwater, respectively, using laboratory instruments prescribed in the methods. The analytical methods must meet the technical acceptance criteria specified by the method prior to the analysis of environmental samples. Samples that are not analyzed initially (i.e., placed on "hold") will be stored at the laboratory for at least 6 months, and will be disposed of by the laboratory following this period. Samples to be analyzed initially will be analyzed within proper holding times, which are listed in Tables 5 and 6 for soil and stormwater, respectively.

The laboratory is required to comply with their current written standard operating procedures. All laboratory personnel will be responsible for reporting problems that may compromise the quality of the data to the laboratory project manager. A narrative describing the anomaly, the steps taken to identify and correct it and the treatment of the relevant sample batch (i.e., recalculation, reanalysis, re-extraction) will be submitted with the data package.

4.6 QUALITY CONTROL

Quality control activities that will be implemented for each sampling, analysis or measurement technique are summarized in Tables 1 and 2 (soil and stormwater respectively). Formulas for calculating QC statistics are provided in Section 3.1.

The laboratory will maintain and implement documented QA/QC procedures. The laboratory QA/QC program will provide the following:

- Procedures that must be followed for certifying the precision and accuracy of the analytical data generated by the laboratory.
- Documentation of each phase of sample handling, data acquisition, data transfer, report preparation, and report review.
- Accurate and secure storage and retrieval of samples and data.
- Detailed instructions for performing analyses and other activities affecting the quality of analytical data generated by the laboratory.
- Appropriate management-level review and approval of procedures, revisions to procedures, and control of procedures in such a way so that laboratory personnel that require specific procedures have access to them.

4.6.1 Field Quality Control

Field QC samples serve as a control and check mechanism to monitor the consistency of sampling methods and the potential influence of off-site factors on project samples.

4.6.1.1 FIELD DUPLICATES

In addition to replicate analyses performed in the laboratory, field duplicates also serve as measures for precision. Field duplicates measure the precision and consistency of laboratory analytical procedures and methods, as well as the consistency of the sampling techniques used by field personnel. Under ideal field conditions, field duplicates are created by thoroughly mixing a volume of the sample matrix, placing aliquots

of the mixed sample in separate containers, and identifying one of the aliquots as the primary sample and the other as the duplicate sample. The interim action compliance monitoring involves collection and analysis of one stormwater sample and therefore field duplicates are not planned to be collected as part of interim action.

4.6.2 Laboratory Quality Control

Laboratory QC procedures will be evaluated through a formal data quality assessment process. The laboratory will follow standard analytical method procedures that include specified QC monitoring requirements. These requirements will vary by method, but generally include:

- Method blanks
- Internal standards
- Instrument calibrations
- Matrix spike/matrix spike duplicates (MS/MSD)
- Laboratory control samples/laboratory control sample duplicates (LCS/LCSD)
- Laboratory replicates or duplicates
- Surrogate spikes

4.6.2.1 LABORATORY BLANKS

Laboratory procedures utilize several types of blanks, but the most commonly used blanks for QC monitoring are method blanks. Method blanks are laboratory QC samples that consist of either a soil-like material having undergone a contaminant destruction process, or reagent (contaminant-free) water. Method blanks are extracted and analyzed with each batch of environmental samples undergoing analysis. Method blanks are particularly useful during volatiles analysis since volatile organic compound (VOCs) can be transported in the laboratory through the vapor phase. If a substance is detected in a method blank, then one (or more) of the following occurred:

- Sample containers, measurement equipment, and/or analytical instruments were not properly cleaned and contained contaminants.
- Reagents used in the process were contaminated with a substance(s) of interest.
- Volatile substances in ambient laboratory air with high solubility or affinities toward the sample matrix contaminated the samples during preparation or analysis.

It is difficult to determine which of the above scenarios took place if blank contamination occurs. However, it is assumed that the conditions that affected the blanks also likely affected the project samples. If target analytes are detected in method blanks, data validation guidelines assist in determining which substances in project samples are considered "real," and which ones are attributable to the analytical process. Furthermore, the guidelines state, "…there may be instances where little or no contamination was present in the associated blank, but qualification of the sample is deemed necessary. Contamination introduced through dilution water is one example."

4.6.2.2 CALIBRATIONS

Several types of instrument calibrations are used, depending on the analytical method, to assess the linearity of the calibration curve and assure that the sample results reflect accurate and precise measurements. The main calibrations used are initial calibrations, daily calibrations, and continuing calibration verification.

4.6.2.3 MATRIX SPIKE/MATRIX SPIKE DUPLICATES (MS/MSD)

MS/MSD samples are used to assess influences or interferences caused by the physical or chemical properties of the sample itself. For example, extreme pH can affect the results for semi-volatile organic compounds (SVOCs). Or, the presence of a particular compound may interfere with accurate quantitation of another analyte. MS/MSD data is reviewed in combination with other QC monitoring data to determine matrix effects. In some cases, matrix effects cannot be determined due to dilution and/or high levels of related substances in the sample. A matrix spike is evaluated by spiking a project sample with a known amount of one or more of the target analytes, ideally at a concentration that is 5 to 10 times higher than the sample result. A percent recovery is then calculated by subtracting the un-spiked sample result from the spiked sample result, dividing by the known concentration of the spike, and multiplying by 100.

MS/MSD samples will be analyzed at a frequency of one MS/MSD per sample set or batch. The samples for the MS/MSD analyses should be collected from a boring or sampling location that is believed to have only low-level contamination. A sample from an area of low-level contamination is needed because the objective of MS/MSD analyses is to determine the presence of matrix interferences, which can best be achieved with low levels of contaminants. Additional sample volume will be collected for the MS/MSD analyses as required by the laboratory.

4.6.2.4 LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATES (LCS/LCSD)

Also known as blank spikes, LCSs are similar to MS samples in that a known amount of one or more of the target analytes are spiked into a prepared sample medium, and a percent recovery of the spiked substances is calculated. The primary difference between LCS and MS samples is that the LCS uses a contaminant-free sample medium. For example, reagent water is typically used for LCS water analyses. The purpose of an LCS is to help assess the overall accuracy and precision of the analytical process including sample preparation, instrument performance, and analyst performance.

4.6.2.5 LABORATORY REPLICATES/DUPLICATES

Laboratories utilize MS/MSDs, LCS/LCSDs, and/or replicates to assess precision. Replicates are a second analysis of a field-collected environmental sample. Replicates can be split at varying stages of the sample preparation and analysis process; they most commonly consist of a second analysis on the extracted media.

4.6.2.6 SURROGATE SPIKES

Surrogate spikes are used to verify proper extraction procedures and the accuracy of the analytical instrument. Surrogates are substances with characteristics similar to the target analytes. A known concentration of surrogate is added to the project sample and passed through the instrument, and percent recovery is calculated. Each surrogate used has acceptance limits (i.e., an acceptable range) for percent recovery. If a surrogate recovery is low, sample results may be biased low and depending on the recovery value, a possibility of false negatives may exist. Conversely, when recoveries are above the specified acceptance limits, a possibility of false positives exist, although non-detect results are considered accurate.

4.7 INSTRUMENT/EQUIPMENT TESTING, INSPECTION, AND MAINTENANCE

4.7.1 Field Instrumentation

If field instruments are used, calibration and calibration checks will be performed to facilitate accurate and reliable field measurements. The calibration of the instruments will be checked and adjusted as necessary in general accordance with manufacturers' recommendations. Methods and frequency of calibration checks and instrument maintenance will be based on the type of instrument, stability characteristics, required accuracy, intended use, and environmental conditions.

4.7.2 Laboratory Instrumentation

For chemical analytical testing, calibration procedures will be performed in general accordance with the analytical methods used and the laboratory's SSOPs. Calibration documentation will be retained at the laboratory for a period of 6 months.

4.8 LABORATORY DATA REPORTING AND DELIVERABLES

Laboratories will report data in formatted hardcopy and electronic form to the technical project manager, task manager and QA leader. Upon completion of analyses, the laboratory will prepare electronic deliverables for data packages in accordance with the specifications in the agreed-upon *Special Conditions for Lab Analysis* document. The laboratory will provide electronic data deliverables (EDDs) within 2 business days after GeoEngineers' receipt of printed-copy analytical results, including the appropriate QC documentation. GeoEngineers will establish EDD requirements with the contract laboratory.

Analytical laboratory measurements will be recorded in standard formats that display, at a minimum, the client/field sample identification, the laboratory sample identification, reporting units, analytical methods, analytes tested, analytical results, extraction and analysis dates, quantitation limits, and data qualifiers. Each sample delivery group will be accompanied by sample receipt forms and a case narrative identifying data quality issues.

5.0 Data Reduction and Assessment Procedures

The process for generating and checking data, as well as the process for producing reports for field and analytical laboratory data, are summarized in the following sections.

5.1 DATA REDUCTION

Data reduction involves the conversion or transcription of field and analytical data to a useable format. The laboratory personnel will reduce the analytical data for review by the QA leader, task manager and technical project manager. This will involve both hard-copy forms and EDDs. Both forms of data will be compared with each other to verify that the data are reliable and error-free.

5.2 REVIEW OF FIELD DOCUMENTATION AND LABORATORY RECEIPT INFORMATION

Documentation of field sampling data will be reviewed periodically for conformance with project QC requirements described in this document. At a minimum, field documentation will be checked for proper documentation of the following:

- Sample collection information (date, time, location, matrices, etc.);
- Field instruments used and calibration data;
- Sample collection protocol;
- Sample containers, preservation, and volume;
- Field QC samples collected at the frequency specified;
- Chain-of-custody protocols; and
- Sample shipment information.

Sample receipt forms provided by the laboratory will be reviewed for QC exceptions. The final laboratory data package will describe (in the case narrative) the effects that any identified QC exceptions have on data quality. The laboratory will review transcribed sample collection and receipt information for correctness prior to delivering the final data package.

5.3 DATA VERIFICATION/VALIDATION

Project decisions, conclusions, and recommendations will be based upon verified (validated) data. The purpose of data verification is to ensure that data used for subsequent evaluations and calculations are scientifically valid, of known and documented quality, and legally defensible. Field data verification will be used to eliminate data not collected or documented in accordance with the protocols specified in the IAWP and this document. Laboratory data verification will be used to eliminate data not obtained using prescribed laboratory procedures.

EcoChem, Inc. located in Seattle, Washington will validate data collected during the interim action compliance monitoring to ensure that the data are valid and usable. At a minimum, a Stage 2B validation will be performed on the data in general conformance with EPA functional guidelines for data validation (EPA 2004; and EPA 2008). At a minimum, the following items will be reviewed to verify the data as applicable:

- Documentation that a final review of the data was completed by the laboratory QA coordinator;
- Documentation of analytical and QC methodology;
- Documentation of sample preservation and transport;
- Sample receipt forms and case narratives; and
- The following QC parameters:
  - Holding times and sample preservation
  - Method blanks
  - MS/MSDs
  - LCS/LCSDs
  - Surrogate spikes
  - Duplicates/replicates
  - Instrument tunes
  - Initial and continuing calibrations

- Internal standards.

When sample analytical data are received from the laboratory, they will undergo a QC review by the QA leader. The accuracy and precision achieved will be compared to the laboratory's analytical control limits. Example control limits are presented in Table 1 and 2 for soil and stormwater, respectively. Calculations of RPDs will follow standard statistical conventions and formulas as presented in in this document. Additional specifications and professional judgment by the QA leader may be incorporated when appropriate data from specific matrices and field samples are available.

A data quality assessment will be prepared to document the overall quality of the data relative to the DQOs. The major components of the data quality assessment are as follows:

- **Data Validation Summary:** Summarizes the data validation results for all sample delivery groups by analytical method. The summary identifies any systematic problems, data generation trends, general conditions of the data, and reasons for any data qualification.
- **QC Sample Evaluation:** Evaluates the results of QC sample analyses, and presents conclusions based on these results regarding the validity of the project data.
- **Assessment of DQOs:** An assessment of the quality of data measured and generated in terms of accuracy, precision, and completeness relative to objectives established for the project.
- **Summary of Data Usability:** Summarizes the usability of data, based on the assessment performed in the three preceding steps.

The data quality assessment will help to achieve an acceptable level of confidence in the decisions that are to be made based upon the project data. The project analytical data collected as part of compliance monitoring will be submitted to Ecology's Environmental Information Management (EIM) database within 60 days after the data quality assessment is completed.

5.4 CALCULATING CHEMICAL SUMS

The following guidelines will be used to calculate chemical sums:

- Total benzofluoranthenes represents the sum of detected concentrations of the b, j, and k isomers of benzofluoranthenes (Washington Administrative Code [WAC] 173-204-562(2)(k)). In some cases, the testing laboratory may report the total benzofluoranthenes concentration rather than concentrations of individual compounds since they may not be able to resolve all three isomers.
- Total carcinogenic polycyclic aromatic hydrocarbons (cPAHs) and dioxins/furans will be calculated using the toxicity equivalent (TEQ) approach in accordance with WAC 173-340-708. Total cPAH and dioxins/furans TEQs will be calculated using toxicity equivalency factor (TEF) values referenced from Model Toxics Control Act (MTCA) Tables 708-1 (dioxins/furans) and 708.2 (cPAHs) of WAC 173-340-900. For non-detect results, one-half the PQL will be used in the TEQ calculations.

For the summation of chemical totals, any "U" qualified data, which may be data reported at the PQL, the MDL, or the reporting limit (RL), represent non-detects. For the calculations, no distinction is made between these different types of detection limits, and any "U" qualified data are treated as "non-detects." The following guidelines will be used for reporting and summing non-detects for benzofluoranthenes:

- When all chemicals in a group are non-detect, only the single highest individual chemical quantitation limit in a group will be reported and appropriately qualified.
- If some concentrations were detected and others are not, only the detected concentrations are included in the sum.

Estimated values between the method detection limit and the laboratory reporting limit (i.e., "J" qualified results) will be included in the summation at face value and the sum will also be qualified as estimated with a "J" qualifier. Results that are qualified as estimates with "J" qualifiers through data validation, will also be handled in the same manner.

For calculating total cPAH and dioxins/furans TEQ, the sum will be calculated using a substitution at one-half the detection limit (i.e., n=1/2). However, using this alternative may result in generated sums that are estimates with unknown bias and precision. Therefore, these estimates will be bounded by reporting sums using a substitution of the detection limit at n=0 and n=1. As an alternative, the Kaplan-Meier (KM) method for estimating the TEQ sums when non-detected congeners are present within a sample may be used.

6.0 Limitations

We have prepared this Quality Assurance Project Plan (QAPP) for use by the Port of Everett during the interim action at the Weyerhaeuser Mill A Former Site. Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

7.0 References

United States Environmental Protection Agency (EPA) 2001, "EPA Requirements for Quality Assurance Project Plans, EPA QA/R-5" EPA-240/B-01/003, Office of Environmental Information, Washington, DC, dated March 2001.

United States EPA 2002, "Guidance for Quality Assurance Project Plans, EPA QA/G-5," EPA-240/R-02/009, Office of Environmental Information, Washington, DC, dated December 2002.

United States EPA 2017a, "National Functional Guidelines for Inorganic Superfund Methods Data Review." OLEM 9355.0-135, EPA 540-R-2017-001, Office of Superfund Remediation and Technology Innovation (OSRTI), Washington, DC, dated January 2017.

United States EPA 2017b "National Functional Guidelines for Organic Superfund Methods Data Review." OLEM 9355.0-136, EPA 540-R-2017-002, Office of Superfund Remediation and Technology Innovation (OSRTI), Washington, DC, dated January 2017.

Washington State Department of Ecology (Ecology), 2004, "Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies," dated July 2004 and revised December 2016.

Tables

Table 1

Soil Laboratory Quality Assurance/Quality Control Requirements

Quality Assurance Project Plan (QAPP)

Weyerhaeuser Mill A Former Site

Everett, Washington

Analyte	Reference Method[1]	Laboratory Control Sample (LCS) %R Limits[2,3]	Matrix Spike (MS) %R Limits[2]	MS Duplicate Samples or Lab Duplicate RPD Limits[4]	Surrogate Standard (SS) %R Limits[2,4,5]
Total Metals[6]	EPA 6010/6020/7470/7471/200.7/200.8/1631E	80%-120%	75% - 125%	≤20%	NA
SVOCs	EPA 8270/SIM	30% - 160%	30% - 160%	≤30%	30% - 160%
VOCs	EPA 8260	70% - 130%	70% - 130%	≤30%	50% - 150%
PCB Aroclors	EPA 8082	30% - 160%	30% - 160%	≤30%	30% - 160%
Gasoline-Range Hydrocarbons/BTEX	Ecology NWTPH-Gx/5035/8021	50% - 150%	NA	≤30%	50% - 150%
Diesel- and Heavy oil-range Hydrocarbons	Ecology NWTPH-Dx with acid/silica gel cleanup	50% - 150%	NA	≤30%	50% - 150%
Dioxins/Furans	EPA 1613	30% - 160%	NA	≤30%	30% - 160%

Notes:

[1] Method numbers refer to United States Environmental Protection Agency (EPA) or Washington State Department of Ecology (Ecology) recommended analytical methods.

[2] Recovery ranges are estimates. Actual ranges will be provided by the laboratory when contracted.

[3] Percent recovery limits are expressed as ranges based on laboratory control limits. Limits will vary for individual analytes.

[4] RPD control limits are only applicable if the primary and duplicate sample concentrations are greater than 5 times the method reporting limit (MRL). For results less than 5 times the MRL, the difference between the primary and duplicate samples must be less than 2X the MRL for soils/sediments and 1X the MRL for waters.

[4] Individual surrogate recoveries are compound-specific.

[6] Metals may include antimony, arsenic, beryllium, cadmium, total chromium, copper, lead, mercury, nickel, selenium, silver, thallium and/or zinc.

mg/kg = Milligrams per kilogram

ug/kg = Micrograms per kilogram

VOCs = Volatile organic compounds

SVOCs = Semivolatile organic compounds

%R = Percent Recovery

PCBs = Polychlorinated biphenyls

RPD = Relative percent difference

RSD = Relative standard deviation

NA = Not applicable

Table 2

Stormwater Laboratory Quality Assurance/Quality Control Requirements

Quality Assurance Project Plan (QAPP)
Weyerhaeuser Mill A Former Site
Everett, Washington

Analyte Group	Reference Method	Laboratory Control Sample (LCS) %R Limits (%)	Matrix Spike (MS) %R Limits (%)	MS Duplicate Samples or Lab Duplicate RPD Limits[1] (%)	Surrogate Standard (SS) or Labeled Compounds %R Limits (%)
Turbidity	EPA 180.1/Meter	NA	NA	26	NA
pH	Meter	NA	NA	NA	NA
Copper, Total	EPA 200.8	80% - 120%	75% - 125%	≤20%	NA
Zinc, Total	EPA 200.8	80% - 120%	75% - 125%	≤20%	NA
Petroleum Hydrocarbons (Diesel Fraction)	NWTPH-Dx	50% - 150%	NA	≤30%	50% - 150%
Total Suspended Solids	SM2540-D	56%-120%	NA	≤39%	NA

Notes:

[1] Relative percent difference (RPD) control limits are only applicable if the primary and duplicate sample concentrations are greater than 5 times the method reporting limit (MRL). For results less than 5 times the MRL, the difference between the primary and duplicate samples must be less than 2X the MRL for soils/sediments and 1X the MRL for waters.

%R = Percent recovery

EPA = United States Environmental Protection Agency

LCS = Laboratory control sample

MRL = Method reporting limit

MS = Matrix spike

NA = Not applicable

RPD = Relative percent difference

SS = Surrogate standard

Table 3

Soil Practical Quantitation Limits (PQLs)

Quality Assurance Project Plan (QAPP)

Weyerhaeuser Mill A Former Site

Everett, Washington

Analyte	CAS No.	Analytical Method	PQL[1]	Preliminary Soil Screening Level[2]
Metals (mg/kg)				
Antimony	7440-36-0	EPA 6010C/6020A	5	5.0
Arsenic	7440-38-2	EPA 6010C/6020A	5	20
Beryllium	7440-41-7	EPA 6010C/6020A	0.1	216
Cadmium	7440-43-9	EPA 6010C/6020A	0.20	1.0
Chromium (total)	7440-47-3	EPA 6010C/6020A	0.50	50
Copper	7440-50-8	EPA 6010C/6020A	0.2	36
Lead	7439-92-1	EPA 6010C/6020A	2	81
Mercury	7439-97-6	EPA 7470A/7471A	0.05	0.070
Nickel	7440-02-0	EPA 6010C/6020A	1	48
Selenium	7782-49-2	EPA 6010C/6020A	5	5
Silver	7440-22-4	EPA 6010C/6020A	0.3	0.30
Thallium	7440-28-0	EPA 6010C/6020A	5	5.0
Zinc	7440-66-6	EPA 6010C/6020A	1	85
Petroleum Hydrocarbons (mg/kg)				
Gasoline-Range[3]	8006-61-9	NWTPH-Gx	5.0	30
Diesel-Range	68334-30-5	NWTPH-Dx with acid/silica gel cleanup	25.0	2,000
Heavy Oil-Range	30109	NWTPH-Dx with acid/silica gel cleanup	50.0	2,000
Benzene	71-43-2	EPA 8021	0.001	0.0010
Ethylbenzene	100-41-4	EPA 8021	0.001	0.015
Toluene	108-88-3	EPA 8021	0.005	0.055
Xylenes	1330-20-7	EPA 8021	0.002	0.83
Volatile Organic Compounds (VOCs) (mg/kg)				
1,1,1,2-Tetrachloroethane	630-20-6	EPA 8260	0.001	0.0010
1,1,1-Trichloroethane	71-55-6	EPA 8260	0.001	21
1,1,2,2-Tetrachloroethane	79-34-5	EPA 8260	0.002	0.0020
1,1,2-trichloro-1,2,2-trifluoroethane (CFC113)	76-13-1	EPA 8260	0.002	116
1,1,2-Trichloroethane	79-00-5	EPA 8260	0.001	0.0010
1,1-Dichloroethane	75-34-3	EPA 8260	0.001	0.0026
1,1-Dichloroethene	75-35-4	EPA 8260	0.001	1.4
1,1-Dichloropropene	563-58-6	EPA 8260	0.001	NE
1,2,3-Trichlorobenzene	87-61-6	EPA 8260	0.005	NE
1,2,3-Trichloropropane	96-18-4	EPA 8260	0.002	0.0020
1,2,4-Trichlorobenzene	120-82-1	EPA 8260	0.005	0.0050
1,2,4-Trimethylbenzene	95-63-6	EPA 8260	0.001	NE
1,2-Dibromo-3-chloropropane	96-12-8	EPA 8260	0.005	0.0050
1,2-Dichlorobenzene	95-50-1	EPA 8260	0.001	0.53
1,2-Dichloroethane (EDC)	107-06-2	EPA 8260	0.001	0.019
1,2-Dichloropropane	78-87-5	EPA 8260	0.001	0.0010
1,3,5-Trimethylbenzene	108-67-8	EPA 8260	0.001	0.071
1,3-Dichlorobenzene	541-73-1	EPA 8260	0.001	NE
1,3-Dichloropropane	142-28-9	EPA 8260	0.001	NE
1,4-Dichlorobenzene	106-46-7	EPA 8260	0.067	0.067
2,2-Dichloropropane	594-20-7	EPA 8260	0.001	NE
2-Butanone (MEK)	78-93-3	EPA 8260	0.005	1.4
2-Chloroethyl Vinyl Ether	110-75-8	EPA 8260	0.005	NE
2-Chlorotoluene	95-49-8	EPA 8260	0.001	0.11
2-Hexanone	591-78-6	EPA 8260	0.005	NE
4-Chlorotoluene	106-43-4	EPA 8260	0.001	NE
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	108-10-1	EPA 8260	0.005	0.19
Acetone	67-64-1	EPA 8260	0.005	2.1
Acrolein	107-02-8	EPA 8260	0.05	0.050
Acrylonitrile	107-13-1	EPA 8260	0.005	0.0050
Benzene	71-43-2	EPA 8260	0.001	0.0010
Bromobenzene	108-86-1	EPA 8260	0.005	NE
Bromochloromethane	74-97-5	EPA 8260	0.005	NE
Bromoform	75-25-2	EPA 8260	0.005	0.0050
Bromomethane	74-83-9	EPA 8260	0.005	0.28
Carbon Disulfide	75-15-0	EPA 8260	0.001	0.27
Carbon Tetrachloride	56-23-5	EPA 8260	0.001	0.0010
Chlorobenzene	108-90-7	EPA 8260	0.001	0.10
Chloroethane	75-00-3	EPA 8260	0.005	NE
Chloroform	67-66-3	EPA 8260	0.001	0.019
Chloromethane	74-87-3	EPA 8260	0.005	NE
Cis-1,2-Dichloroethene	156-59-2	EPA 8260	0.001	0.0052
Cis-1,3-Dichloropropene	10061-01-5	EPA 8260	0.001	NE
Dibromochloromethane	124-48-1	EPA 8260	0.001	0.0010
Dibromomethane	74-95-3	EPA 8260	0.001	0.025
Dichlorobromomethane	75-27-4	EPA 8260	0.001	0.0010
Dichlorodifluoromethane (CFC 12)	75-71-8	EPA 8260	0.001	0.53
Ethylbenzene	100-41-4	EPA 8260	0.001	0.015

Analyte	CAS No.	Analytical Method	PQL[1]	Preliminary Soil Screening Level[2]
1,2-Dibromoethane (EDB)	106-93-4	EPA 8260	0.001	0.0010
Hexachlorobutadiene	87-68-3	EPA 8260	0.005	0.027
Isopropylbenzene	98-82-8	EPA 8260	0.001	0.79
Methyl Iodide	74-88-4	EPA 8260	0.005	NE
Methyl t-Butyl Ether (MTBE)	1634-04-4	EPA 8260	0.001	0.0060
Methylene Chloride	75-09-2	EPA 8260	0.005	0.030
Naphthalene	91-20-3	EPA 8260	0.005	7.0
n-Butylbenzene	104-51-8	EPA 8260	0.001	0.71
n-Propylbenzene	103-65-1	EPA 8260	0.001	0.88
p-Isopropyltoluene	99-87-6	EPA 8260	0.001	NE
sec-Butylbenzene	135-98-8	EPA 8260	0.001	1.3
Styrene	100-42-5	EPA 8260	0.001	0.12
tert-Butylbenzene	98-06-6	EPA 8260	0.001	1.0
Tetrachloroethene (PCE)	127-18-4	EPA 8260	0.001	0.0016
Toluene	108-88-3	EPA 8260	0.005	0.055
Trans-1,2-Dichloroethene	156-60-5	EPA 8260	0.001	0.32
Trans-1,3-Dichloropropene	10061-02-6	EPA 8260	0.001	NE
Trans-1,4-Dichloro-2-butene	110-57-6	EPA 8260	0.005	NE
Trichloroethene (TCE)	79-01-6	EPA 8260	0.001	0.0010
Trichlorofluoromethane (CFC 11)	75-69-4	EPA 8260	0.001	0.79
Vinyl Acetate	108-05-4	EPA 8260	0.005	2.3
Vinyl Chloride	75-01-4	EPA 8260	0.001	0.0010
Xylenes	1330-20-7	EPA 8260	0.002	0.83
Semi-volatile Organic Compounds (SVOCs) (mg/kg)				
1,2,4-Trichlorobenzene	120-82-1	EPA 8270	0.067	0.067
1,2-Dichlorobenzene	95-50-1	EPA 8270	0.067	0.53
1,3-Dichlorobenzene	541-73-1	EPA 8270	0.067	NE
1,4-Dichlorobenzene	106-46-7	EPA 8270	0.067	0.067
2,2'-Oxybis[1-chloropropane]	108-60-1	EPA 8270	0.067	0.067
2,4,5-Trichlorophenol	95-95-4	EPA 8270	0.33	1.1
2,4,6-Trichlorophenol	88-06-2	EPA 8270	0.33	0.33
2,4-Dichlorophenol	120-83-2	EPA 8270	0.33	0.33
2,4-Dimethylphenol	105-67-9	EPA 8270	0.067	0.067
2,4-Dinitrophenol	51-28-5	EPA 8270	0.67	0.67
2,4-Dinitrotoluene	121-14-2	EPA 8270	0.33	0.33
2,6-Dinitrotoluene	606-20-2	EPA 8270	0.33	0.33
2-Chloronaphthalene	91-58-7	EPA 8270	0.067	0.28
2-Chlorophenol	95-57-8	EPA 8270	0.067	0.067
2-Nitroaniline	88-74-4	EPA 8270	0.33	0.33
2-Nitrophenol	88-75-5	EPA 8270	0.33	NE
3,3'-Dichlorobenzidine	91-94-1	EPA 8270	0.33	0.33
3-Nitroaniline	99-09-2	EPA 8270	0.33	NE
4,6-Dinitro-2-methylphenol	534-52-1	EPA 8270	0.67	0.67
4-Bromophenyl-phenylether	101-55-3	EPA 8270	0.067	NE
4-Chloro-3-Methylphenol	59-50-7	EPA 8270	0.33	0.33
4-Chloroaniline	106-47-8	EPA 8270	0.33	0.33
4-Chlorophenyl-phenylether	7005-72-3	EPA 8270	0.067	NE
4-Nitroaniline	100-01-6	EPA 8270	0.33	NE
4-Nitrophenol	100-02-7	EPA 8270	0.33	NE
Benzoic acid	65-85-0	EPA 8270	0.67	18
Benzyl alcohol	100-51-6	EPA 8270	0.330	0.33
bis(2-Chloroethoxy)methane	111-91-1	EPA 8270	0.067	NE
bis(2-chloroethyl)ether	111-44-4	EPA 8270	0.067	0.067
bis(2-Ethylhexyl)phthalate	117-81-7	EPA 8270	0.067	0.33
Butylbenzylphthalate	85-68-7	EPA 8270	0.067	0.067
Carbazole	86-74-8	EPA 8270	0.067	NE
Dibenzofuran	132-64-9	EPA 8270	0.067	0.15
Diethylphthalate	84-66-2	EPA 8270	0.067	0.074
Dimethylphthalate	131-11-3	EPA 8270	0.067	NE
Di-n-butylphthalate	84-74-2	EPA 8270	0.067	0.067
Di-n-octylphthalate	117-84-0	EPA 8270	0.067	13000
Hexachlorobenzene	118-74-1	EPA 8270	0.067	0.080
Hexachlorobutadiene	87-68-3	EPA 8270	0.067	0.067
Hexachlorocyclopentadiene	77-47-4	EPA 8270	0.067	1.0
Hexachloroethane	67-72-1	EPA 8270	0.067	0.067
Isophorone	78-59-1	EPA 8270	0.067	0.067
Nitrobenzene	98-95-3	EPA 8270	0.067	0.067
n-Nitroso-di-n-propylamine	621-64-7	EPA 8270	0.067	0.067
n-Nitrosodiphenylamine	86-30-6	EPA 8270	0.067	0.067
o-Cresol (2-Methylphenol)	95-48-7	EPA 8270	0.067	0.15
p-Cresol (4-Methylphenol)	106-44-5	EPA 8270	0.067	0.47
Pentachlorophenol	87-86-5	EPA 8270	0.17	0.17
Phenol	108-95-2	EPA 8270	0.033	22

Analyte	CAS No.	Analytical Method	PQL[1]	Preliminary Soil Screening Level[2]
Non-carcinogenic Polycyclic Aromatic Hydrocarbons (PAHs) (mg/kg)				
1-Methylnaphthalene	90-12-0	EPA 8270/SIM	0.005	0.005
2-Methylnaphthalene	91-57-6	EPA 8270/SIM	0.005	0.088
Acenaphthene	83-32-9	EPA 8270/SIM	0.005	0.16
Acenaphthylene	208-96-8	EPA 8270/SIM	0.005	NE
Anthracene	120-12-7	EPA 8270/SIM	0.005	2.4
Fluoranthene	206-44-0	EPA 8270/SIM	0.005	0.3
Fluorene	86-73-7	EPA 8270/SIM	0.005	0.08
Indeno[1,2,3-c,d]pyrene	193-39-5	EPA 8270/SIM	0.005	0.035
Naphthalene	91-20-3	EPA 8270/SIM	0.005	7.0
Phenanthrene	85-01-8	EPA 8270/SIM	0.005	NE
Pyrene	129-00-0	EPA 8270/SIM	0.005	0.55
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) (mg/kg)				
Benzo[a]anthracene	56-55-3	EPA 8270/SIM	0.005	0.005
Benzo[a]pyrene	50-32-8	EPA 8270/SIM	0.005	0.0097
Benzo[b]fluoranthene	205-99-2	EPA 8270/SIM	0.005	0.012
Benzo[g,h,i]perylene	191-24-2	EPA 8270/SIM	0.005	NE
Benzo[k]fluoranthene	207-08-9	EPA 8270/SIM	0.005	0.012
Chrysene	218-01-9	EPA 8270/SIM	0.005	0.0064
Dibenz[a,h]anthracene	53-70-3	EPA 8270/SIM	0.005	0.018
cPAHs TEC	--	EPA 8270/SIM	0.005	0.010
Polychlorinated Biphenyl (PCB) (mg/kg)				
Total PCBs (sum of Aroclors)	1336-36-3	EPA 8082	0.033	0.033
Dioxins and Furans (ng/kg)				
Total dioxins/furans TEQ	--	EPA 1316	5	5.2

Notes:

[1] Practical Quantitation Limit (PQL). The lowest concentration that can be reliably measured within specified limits of precision, accuracy representativeness, completeness, and comparability during routine laboratory operating conditions.

[2] Development and selection of preliminary screening levels is presented in the Uplands Area Data Report Technical Memorandum.

[3] Value for gasoline-range petroleum hydrocarbons if benzene is present. If benzene is not present, screening level is 100 mg/kg.

PQL = Practical quantitation limit

mg/kg = Milligrams per kilogram

ng/kg = Nanogram per kilogram

CAS = Chemical Abstract Service

-- = No CAS number available

NE = Cleanup level not established

TEQ = Toxic equivalency quotient

Table 4

Stormwater Practical Quantitation Limits (PQLs)

Quality Assurance Project Plan (QAPP)

Weyerhaeuser Mill A Former Site

Everett, Washington

Analyte	CAS Number	PQL	Units	Analytic Method
Turbidity	7732-18-5	0.5	NTU	Field Meter/EPA 180.1
pH	NA	±0.5	Standard Units	pH Meter
Copper, Total	7440-50-8	1.0	µg/L	EPA 200.8
Zinc, Total	7440-66-6	1.0	µg/L	EPA 200.8
Petroleum Hydrocarbons (Diesel Fraction)	68334-30-5	250	µg/L	NWTPH-Dx
Total Suspended Solids	NA	5	µg/L	SM2540-D

Notes:

CAS = Chemical Abstract Services

PQL = Practical quantitation limit

µg/L = Micrograms per liter

"--" = Not available

Table 5

Soil Analytical Method, Sample Container, Preservation and Holding Times

Quality Assurance Project Plan (QAPP)
Weyerhaeuser Mill A Former Site
Everett, Washington

Analyte	Method	Internal Minimum Sample Size (dry weight)	Container Size and Type	Sample Preservation Technique	Holding Time for Indicated Preservation Technique[1]
Metals[2]	EPA 6010/6020/7470/7471	100 g	4 or 8 oz glass wide mouth with Teflon-lined lid	Cool 6°C	180 days/28 days for Mercury
SVOCs	EPA 8270/SIM	100 g	8 oz glass wide mouth with Teflon-lined lid	Cool 6°C	14 days to extraction, 40 days from extraction to analysis
VOCs	EPA 8260	5 g	Three 40mL glass vial (VOA)	Cool 6°C 2 vials - sodium bisulfate 1 vial - methanol	14 days to extraction/analysis
PCB Congeners	EPA 1668	100 g	8 oz wide mouth glass	Cool 6°C	1 year until extraction
Gasoline-Range Hydrocarbons/BTEX	NWTPH-Gx/5035/EPA 8021	5 g	Two 40mL glass vial (VOA)	Cool 6°C	14 days to extraction/analysis
Diesel- and Oil-Range Hydrocarbons	Ecology NWTPH-Dx with acid/silica gel cleanup	100 g	8 oz amber glass wide-mouth with Teflon-lined lid	Cool 6°C	14 days to extraction, 40 days from extraction to analysis
Dioxins/furans	EPA 1613	100 g	8 oz glass wide mouth with Teflon-lined lid	Freeze -18 C	1 year

Notes:

[1] Holding times are based on elapsed time from date of collection.

[2] Metals may include antimony, arsenic, beryllium, cadmium, total chromium, copper, lead, mercury, nickel, selenium, silver, thallium and/or zinc.

VOC = Volatile organic compound
SVOC = Semivolatile organic compound
NWTPH = Northwest total petroleum hydrocarbons
BTEX = Benzene, toluene, ethylbenzene, xylenes
Gx = Gasoline range extended
EPA = United States Environmental Protection Agency
mL = Milliliter
PCBs = Polychlorinated biphenyls
oz = Ounce
g = Gram
Dx = Diesel range extended
VOA = Volatile organics analysis
SIM = Selected ion mode

Table 6

Stormwater Analytical Methods, Sample Size, Containers, Preservation and Holding Times

Quality Assurance Project Plan (QAPP)
Weyerhaeuser Mill A Former Site
Everett, Washington

Analyte	Method Code	Internal Minimum Sample Size (Volume in ml)	Container Size and Type	Sample Preservation Technique	Holding Time for Indicated Preservation Technique[1]
Turbidity	EPA 180.1/Meter	30 mL	One 250 mL HDPE	Cool 6°C	48 Hours
pH	Meter	20 mL	One 250 mL HDPE	Cool 6°C	As soon as possible
Copper, Total	EPA 200.8	500 mL	One 250 mL HDPE	Cool 6°C, HNO_3	180 days
Zinc, Total	EPA 200.8	500 mL	One 250 mL HDPE	Cool 6°C, HNO_3	180 days
Petroleum Hydrocarbons (Diesel Fraction)	NWTPH-Dx	500 mL	Two 500 mL amber glass with Teflon-lined lid	Cool 6°C, HCl to pH < 2	14 days to extraction 40 days from extraction to analysis
Total Suspended Solids	SM2540-D	100 mL	One 500 mL HDPE	Cool 6°C	7 days

Notes:

[1] Holding times are based on elapsed time from date of sample collection unless otherwise noted.

EPA = United States Environmental Protection Agency

HDPE = High-density polyethylene

HNO_3 = Nitric acid

HCL = Hydrochloric acid

SIM = Selective ion monitoring

mL = Milliliters

L = Liter

°C = Degrees Celsius

Appendix D
Health and Safety Plan (HASP)

Health and Safety Plan (HASP)

Weyerhaeuser Mill A Former Site Interim Action
Marine Terminals Stormwater Rerouting and Treatment

for
Washington State Department of Ecology
on Behalf of Port of Everett

June 10, 2024

2101 4th Avenue, Suite 950,
Seattle, Washington 98121
206.728.2674

GeoEngineers

Table of Contents

Attachments:

GeoEngineers, Inc.
Site Health and Safety Plan
Weyerhaeuser Mill A Former Site Interim Action
File No. 0676-020-07

This Health and Safety Plan (HASP) is to be used in conjunction with the GeoEngineers, Inc. (GeoEngineers) Safety Programs. Together, the written GeoEngineers' safety programs and this HASP constitute the site safety plan for this subject site. This HASP is required by the Hazardous Waste Operations and Emergency Response (HAZWOPER) regulation (29 CFR 1910.120) when preforming mandatory or voluntary clean-up operations and initial investigations conducted to determine the presence or absence of hazardous substances unless the employer can demonstrate that the work does not involve employee exposure to safety and health hazards from hazardous substances at the site. This HASP is to be used by GeoEngineers personnel on this site and must be available on site, as well as in the project Safety folder on Sharepoint.

Standard HASPs will have to be reviewed and approved at least by the GeoEngineers Project Manager and Site Safety Officer. The Project Manager may need to send an email to GeoEngineers Health and Safety Team indicating the availability of the final copy of the approved standard HASP on SharePoint for review and/or reference upon request.

All HASPs and/or HCPs are to be used in conjunction with current standards and policies outlined in the GeoEngineers Health and Safety Programs.

Liability Clause: If requested by subcontractors, this site HASP may be provided for informational purposes only. In this case, Form 1 of this HASP shall be signed by the subcontractor. Please be advised that this site-specific HASP is intended for use by GeoEngineers employees only. Nothing herein shall be construed as granting rights to GeoEngineers' subcontractors or any other contractors working on this site to use or legally rely on this HASP. GeoEngineers specifically disclaims any responsibility for the health and safety of any person not employed by the company.

1.0 General Project Information

Project Name:	Weyerhaeuser Mill A Former Site Interim Action
Project Number:	0676-020-07
Type of Project:	Decommissioning of stormwater Outfall 003, installing new stormwater conveyance infrastructure and stormwater treatment at the South Terminal.
Start/Completion:	The project construction will be completed in 2024/2025
Subcontractors:	None
Client:	Port of Everett

CHAIN OF COMMAND	TITLE	NAME	TELEPHONE NUMBERS (O & C)
1	**Current Property Owner(s)**	Port of Everett	(o) 800.729.7678
2	**Client Assigned Site Supervisor**	Jacob Kirschner	(425) 388-0268
3	**Health and Safety Manager (HSM)**	Chad D. Kean	(425) 284-7256
4	**Health and Safety Specialist (HSS)**	Connor R. Jordan	(253) 722-2426
5	**Health and Safety Authorized Consultant (HSC)**	Not Applicable	Not Applicable
6	**Project Manager (PM)**	Abhijit R. Joshi	(206) 239-3256
7	**Site Safety Officer (SSO)**	Abhijit R. Joshi	(206) 239-3256
8	**Field Personnel**	To Be Determined	To Be Determined
9	**GeoEngineers Laboratory Manager**	Not Applicable	Not Applicable
10	**Subcontractor(s)**	KPFF	(206) 382-0600

1.1 FUNCTIONAL RESPONSIBILITY

Health and Safety Manager (HSM)

GeoEngineers' Health and Safety Manager (HSM) is responsible for implementing and promoting employee participation in the company Health and Safety Program. The HSM has overall responsibility for the general health and safety of GeoEngineers personnel. The HSM issues directives, advisories and information regarding health and safety to the technical staff. Additionally, the HSM has the authority to audit on-site compliance with HASPs, suspend work or modify work practices for safety reasons, and dismiss from the site any GeoEngineers or subcontractor employees whose conduct on the site endangers the health and safety of themselves or others.

Health and Safety Specialist (HSS)

GeoEngineers' Health and Safety Specialist (HSS) is a designated safety specialist. The HSS provides technical support to the PM and Site Safety Officer (SSO) to ensure that that GeoEngineers staff are following GeoEngineers safety program and safe work practices during site activities. The HSS works with the PM and SSO to ensure the subcontractors' crews are following the site general HASPs, the activities HASP/JHAs and safe work practices. The HSS may periodically go on-site to perform safety observations and mentor on-site personnel on safety behavior practices. Additionally, the HSS has the authority to suspend work or modify work practices for safety reasons and dismiss from the site any GeoEngineers or subcontractor employees whose conduct on the site endangers the health and safety of themselves or others. The HSS shall keep the PM and HSM informed of the project's health- and safety-related matters, as necessary.

Health and Safety Authorized Consultant (HSC)

GeoEngineers' Health and Safety Authorized Consultant is a GeoEngineers employee who is given written authorization to act in the role of a Consultant with regard to Health and Safety on project sites. The HSC provides technical support to the PM and Site Safety Officer (SSO) to ensure that that GeoEngineers staff follow GeoEngineers safety program and safe work practices during site activities. The HSC works with the PM and SSO to ensure the subcontractors' crews are following the site general HASPs, the activities

HASP/JHAs and safe work practices. The HSC may periodically go on-site to perform safety observations and mentor on-site personnel on safety behavior practices. Additionally, the HSC has the authority to suspend work or modify site work practices for safety reasons and dismiss from the site any GeoEngineers or subcontractor employees whose conduct on the site endangers the health and safety of themselves or others. The HSC shall keep the PM, HSS, and HSM informed of the project's health- and safety-related matters, as necessary.

Project Manager (PM)

A PM is assigned to manage the activities of various projects and is responsible to the principal-in-charge of the project. The PM has the responsibility of ensuring the safety of all GeoEngineers personnel on job sites. The PM is responsible for assessing the hazards present at a job site and incorporating the appropriate safety measures for field staff protection into the field briefing and/or Site Safety Plan. He or she is also responsible for assuring that appropriate HASPs are developed. The PM will provide a summary of chemical analysis to personnel completing the HASP. PMs shall also see that their project budgets consider health and safety costs. The PM shall keep the HSM and HSS or HSC informed of the project's health- and safety-related matters as necessary. The PM shall designate the project Site Safety Officer (SSO) and help the SSO implement the specifications of the HASP. The PM is responsible for communicating information in site safety plans and checklists to appropriate field personnel. Additionally, the PM and SSO shall hold a site safety briefing before any field activities begin. The PM is responsible for transmitting health and safety information to the Site Safety Officer (SSO) when appropriate.

Site Safety Officer/HAZWOPER (SSO)

The SSO will have the on-site responsibility and authority to modify and stop work or remove GeoEngineers personnel from the site if working conditions change, that may affect on-site and off-site health and safety. The SSO will be the main contact for any on-site emergency situation. The SSO is First Aid and CPR qualified and has current Hazardous Waste Operations and Emergency Response (HAZWOPER) training when working at hazardous waste sites. The SSO is responsible for implementing and enforcing the project safety program and safe work practices during site activities. The SSO shall conduct daily safety meetings, perform air monitoring as required, conduct site safety inspections as required, coordinate emergency medical care, and ensure personnel are wearing the appropriate personal protective equipment (PPE). The SSO shall have advanced fieldwork experience and shall be familiar with health and safety requirements specific to the project. The SSO has the authority to suspend site activities if unsafe conditions are reported or observed.

Duties of the SSO include the following:

- Implementing the HASP in the field and monitoring staff compliance with its guidelines.
- Ensuring that all GeoEngineers field personnel have met the training and medical examination requirements. Advising other contractor employees of these requirements.
- Maintaining adequate and functioning safety supplies and equipment at the site.
- Setting up work zones, markers, signs and security systems, if necessary.
- Performing or supervising air quality measurements. Communicating information on these measurements to GeoEngineers field staff and subcontractor personnel.

- Lead the pre-entry briefing (at the beginning of the site activities) and the site safety meetings (daily and/or weekly), with onsite personnel. These meetings should include a discussion of emergency response, site communications and site hazards associated with the planned activities.
- Communicating health and safety requirements and site hazards to field personnel, subcontractors and contractor employees, and site visitors.
- Directing personnel to wear PPE and guiding compliance with all health and safety practices in the field.
- Consulting with the PM regarding new or unanticipated site conditions, including emergency response activities. If monitoring detects concentrations of potentially hazardous substances at or above the established exposure limits, notify/consult with the PM. Consult with the PM, the HSC or HSS, and the HSM regarding new or unanticipated site conditions, including emergency response activities. If field monitoring indicates concentrations of potentially hazardous substances at or above the established exposure limits, the HSM must be notified, and corrective action taken.
- Documenting all site accidents, injuries, illnesses and unsafe activities or conditions and/or near misses, and reporting them to the PM, HSC or HSC and the HSM as soon as practical, but no later than the end of the day.
- Directing decontamination operations of equipment and personnel.

Field Employees

All employees working on site that have the potential of coming in contact with hazardous substances or chemical, biological, and/or physical hazards are responsible for participating in the health and safety program and complying with the site-specific health and safety plans. These employees are required to:

- Read, participate and be familiar with the GeoEngineers health and safety programs located in SharePoint. Attend to applicable specific safety training.
- Notify the SSO that when there is need to stop work to address an unsafe situation.
- Comply with the HASP and acknowledge understanding of the plan discussed during the health and safety pre-entry briefing
- Review applicable Job Hazard Analysis (JHAs) prior starting a new activity and follow the recommended critical actions to mitigate hazards.
- Think through potential hazards at the beginning of a new task, before changing tasks, and when conditions changes and after a near miss or incident.
- Report to the SSO, PM or HSM any unsafe conditions and all facts pertaining to near misses, incidents or accidents that could result in physical injury or exposure to hazardous materials and/or equipment damage.
- Participate in health and safety training, including initial 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) course, annual 8-hour HAZWOPER refresher, and First Aid/cardiopulmonary resuscitation (CPR) training.
- Participate in the medical surveillance program, if applicable.
- Any field employee working on site may stop work if the employee believes the work is unsafe.

GeoEngineers Laboratory Manager

When GeoEngineers lab use is anticipated, the Laboratory Manager will coordinate the receipt of samples for analysis with the Project Manager. The communication will include historical environmental data and/or field screening results. The Laboratory Manager will ensure all laboratory staff are following SOPs for the soils type or limited chemical constituents. SOPs will be developed and maintained under the direction of the Laboratory Manager and the HSM.

Contractors Under GeoEngineers Supervision

GeoEngineers will hire contractors for this project? Yes ☒ No ☐

Contractors working on the site directly for the Client will have their own Health and Safety Plans or Job Hazard Analysis. Sub-contractors working on the site under GeoEngineers supervision that have the potential of coming in contact with hazardous substances or chemical, biological and/or physical hazards shall have their own health and safety programs and safety plan that is generally consistent with the requirements of this HASP.

1.2 GEOENGINEERS FIELD PERSONNEL QUALIFICATIONS AND READINESS STATUS

Anticipated field personnel include the following:

- Nathan Solomon
- Woodrow Stokstad
- Paul Robinette
- James Kohn
- Divya Khandelwal

Field personnel will have appropriate training (HAZWOPER, first aid, respirator fit test, HAZWOPER supervisor training, and Working Over Water Safety) and up to date certifications.

1.3 PERSONNEL MEDICAL SURVEILLANCE

Field personnel on this job site are ☐; are not ☒ entered in a GeoEngineers provided medical surveillance program.

GeoEngineers employees are required to be in a medical surveillance program when they fall into the category of "Employees Covered" in OSHA 1910.120(f)(2) (or Chapter 296-842 WAC). This includes:

1. All employees who are or may be exposed to hazardous substances or health hazards at or above the permissible exposure limits or, if there is no permissible exposure limit, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more a year.
2. All employees who wear a respirator for 30 days or more a year or as required by state and federal regulations.

3. All employees who are injured, become ill or develop signs or symptoms due to possible overexposure involving hazardous substances or health hazards from an emergency response or hazardous waste operation.
4. Members of HAZMAT teams.

2.0 Scope of Work

2.1 SUMMARY OF PROJECT SCOPE

The interim action includes decommissioning an existing outfall, temporary rerouting of stormwater during interim action construction (as necessary), removal of existing pavement and performing excavation necessary for installation of stormwater conveyance elements including storm drains and catch basins, demolishing existing storm drains and catch basins, installing new storm drains and catch basins, and enhancing stormwater treatment within the existing biofiltration swale by installing bioretention treatment cells.

It is expected that GeoEngineers will provide construction observation services to the Port during interim action construction and soil sampling and analysis of excavated soil for disposal characterization purposes.

2.2 PRIMARY FIELD TASKS

Indicate the primary field tasks to be completed during the scope of this project (delete or add rows as needed). Refer back to this table for development of hazard mitigation strategies in the sections that follow.

2.2.1 Primary Field Tasks to be Performed by GeoEngineers

TASK #	PRIMARY FIELD TASK	PREDICTED START/END DATES
1	Soil Sampling from stockpiled soil for waste characterization purposes	2024/2025
	Task Description:	Contaminated soil removed from any excavations will be characterized, stockpiled and will be transported offsite for disposal at a permitted upland landfill.
2	Construction observation of interim action activities	2024/2025
	Task Description:	Observation of interim action construction activities described in Section 2.1.

3.0 Hazard Analysis

From within the Primary Field Tasks (Section 2.2.1 above), identify activities which may pose an elevated risk to worker's health. A list of activities that GeoEngineers recognizes as Elevated Risk Activities (ERA) are included in the table below. Each ERA triggers the completion of a separate ERA Job Hazard Analysis (Form 3).

3.1 GENERAL SAFE WORK PRACTICES

- Utility check: there may be site-specific procedures for preventing drilling or digging into utilities. Add these procedures to the standard GeoEngineers utility check list. Implement additional utilities clearance activities, if deemed necessary (typically if disturbing drilling work is within 2, 5 and/or 10 feet of underground utilities, for Lower, Medium and Higher Risks, respectively).
- Lifting hazards: use proper techniques, mechanical devices where appropriate.
- Terrain obstacles: Terrain could be soft, and activities will be conducted to minimize lawn damage and the potential for vehicles to get stuck.
- Personnel will wear high-visibility vests for increased visibility by vehicle and equipment operators.
- At the beginning of the day conduct a tail gate safety meeting discussing the jobs, the hazards, exclusion zone(s) surrounding work area(s), utilities clearance and actions that will be taken to prevent injury and reduce risk. Discuss "Stop Work Authority" as it applies to each site member. Discuss appropriate PPE including high visibility clothing such as reflective vest. Discuss Competent Person's responsibilities and support of excavation (SOE) protective system(s) and potential de-watering.

3.2 ELEVATED RISK ACTIVITIES

Does this project have Elevated Risk Activities? Yes ☐ or No ☒

ELEVATED RISK ACTIVITIES	ASSOCIATED PRIMARY FIELD TASK(S)	SEPARATE ERA JHA COMPLETED?
Excavation and/or Trenching	Not Applicable	To be completed prior to construction, if necessary
Chemical Exposure > OEL Possible	Not Applicable	To be completed prior to construction, if necessary
Noise Exposure > OEL Potential	Not Applicable	To be completed prior to construction, if necessary
Heat/Cold Injury Risk	Not Applicable	To be completed prior to construction, if necessary

Each JHA describes the activity being performed in a helpful chronological order, the inherent risks and their specific control measures. They must be completed before the activity begins and must be updated if any aspect is revised. Any single project may have multiple ERA JHAs.

3.3 General Hazard Review

The Primary Field Tasks (excluding the previously identified ERA) identified in Section 2.2 are included in the following Primary Field Task Hazard Analysis Tables. Hazards are divided into three categories: A) Chemical, B) Biological, C) Physical.

PRIMARY FIELD TASK HAZARD ANALYSIS

Primary Field Tasks	
# 1	Soil stockpile testing, soil sample collection
# 2	Construction Observation

Task Hazard Recognition – *evaluate primary field tasks for hazards*

Chemical Hazards	Task #s	Biological Hazards	Task #s	Physical Hazards	Task #s
Vapors	1,2	Bird Droppings	1,2	Heavy Equipment	1,2
Dust	1,2			Noise	1,2
				Trip/fall	1,2
				Heat/cold stress	1,2

Hazard Details and Controls - *include those items checked above*

Chemical Hazards

Hazard	When/How Exposure May Occur	Critical Actions to Mitigate Hazards
Dusts	Excavation Soil stockpiling	Contractor will use water spray/mist as a dust control measure to suppress visible dust. Locate workspaces upwind of potential hazards whenever possible.
Vapors	Excavation Soil stockpiling	Use monitoring devices like PID to detect the concentrations, use designated respirators.

Biological Hazards

Hazard	When/How Exposure May Occur	Critical Actions to Mitigate Hazards
Others: Bird Droppings	Construction work in open environment	Hard hat, gloves and long sleeve shirt

Physical Hazard

Hazard	When/How Exposure May Occur	Critical Actions to Mitigate Hazards
Heavy Equipment	Excavation operations	Heavy equipment and/or vehicles used on this Site will not work within 20 feet of overhead utility lines without first ensuring that the lines are not energized. This distance may be reduced to 10 feet depending on the client and the use of a safety watch. Note: If it is later determined that overhead lines are a hazard on this job Site, a copy the overhead lines safety section from the HASP Supplemental document will be attached.
Underground hazards – Utilities/power lines	Pre excavation, locating utility lines	Utility checklist will be completed as required for the location to prevent drilling or digging into utilities.

Tripping/puncture hazards (debris on-site, steep slopes or pits)	Construction observation, stockpile soil sampling	Personnel will avoid tripping hazards, steep slopes, pits and other hazardous encumbrances. If it becomes necessary to work within 6 feet of the edge of a pit, slope or other potentially hazardous area, appropriate fall protection measures will be implemented by the Site Safety and Health Supervisor in accordance with OSHA/DOSH regulations and the GeoEngineers Health and Safety Program.
Unusual traffic hazard – Cargo and truck traffic	Construction observation, stockpile soil sampling	Work areas will be marked with reflective cones, barricades and/or caution tape. High-visibility vests will be worn by on-site personnel to ensure they can be seen by vehicle and equipment operators.
Heat/Cold, Humidity	Construction observation, stockpile soil sampling	Heat stress control measures required for this Site will be implemented according to GeoEngineers Health and Safety Program with water provided on-site. Cold stress control measures will be implemented according to the GeoEngineers Health and Safety Program to prevent frost nip (superficial freezing of the skin), frost bite (deep tissue freezing), or hypothermia (lowering of the core body temperature). Heated break areas and warm beverages shall be available during periods of cold weather.

PPE, Equipment and Tools

PPE	Task #s	Equipment	Task #s	Tools	Task #s
☒ Hard Hat	1,2	☐ Safety Beacons		☐ Cell Phone/Satellite	
☒ Eye Protection	1,2	☒ First Aid Kit	1,2	☒ Digital Camera	1,2
☒ Hearing Protection	1,2	☐ Fire Extinguisher		☐ Radio/Spare Batteries	
☒ Gloves	1,2	☐ Sunglasses/Sunscreen		☐ Flashlight	
☒ High Visibility Vest	1,2	☒ Drinking Water	1,2	☒ Hands Tools	
☒ Steel Toe Boots	1,2	☐ Survival Gear		☐ Other	
☐ Face Shield		☐ Eye Wash Kit		☐	
☐		☐ Other		☐	

3.4 CHEMICAL HAZARDS

The following table is a summary of the chemicals known to be historically or currently present on the site and their associated occupational exposure limits (OEL). GeoEngineers typically uses the most conservative (lowest) of the limits published for the protection of its' workers. Chemicals without published limits should be discussed with the Health and Safety Department.

3.4.1 Summary of Chemical Hazard Exposure Limits

CHEMICAL COMPOUND/ CAS #	PRIMARY FIELD TASK OR ELEVATED RISK ACTIVITY WITH POTENTIAL EXPOSURES	OSHA PERMISIBLE EXPOSURE LIMIT (PEL)	APPLICABLE* STATE OSHA PLAN (PEL)	ACGIH EXPOSURE LIMITS (TLV AND/OR TWA)	NIOSH EXPOSURE LIMITS (REL AND/OR IDLH)
Arsenic	Contaminated soil/GW from excavations	0.010 mg/m^3	10 mg/m^3	REL: 0.002 mg/m^3 IDLH: 5 mg/m^3	NA
Copper	Contaminated soil/GW from excavations	1 mg/m^3 as dust or 0.1 mg/m^3 as fumes	NA	1 mg/m^3 as dust	NA
Chromium	Contaminated soil/GW from excavations	PEL: 1 mg/m^3 IDLH: 250 mg/m^3	NA	TLV = 0.5 mg/m^3	REL 0.5 mg/m^3 IDLH 250 mg/m^3
Lead	Contaminated soil/GW from excavations	PEL: 0.05 mg/m^3 50 µg/m^3	AL: 30 µg/m^3 PEL: 0.05 mg/m^3 50 µg/m^3	TLV 0.05 mg/m^3	REL 0.05 mg/m^3 IDLH 100 mg/m^3
Mercury	Contaminated soil/GW from excavations	No available data	No available data	No available data	No available data
Nickel	Contaminated soil/GW from excavations	PEL as metal 0.5 mg/m^3, insoluble 0.1 mg/m^3, soluble 0.05 mg/m^3	NA	0.1 mg/m^3 IHL	TWA 0.015 mg/m^3
Zinc	Contaminated soil/GW from excavations	TLV/PEL none Treat as Particles not otherwise specified and maintain levels below 3 mg/m^3 respirable and 10 mg/m^3 inhalable	NA	NA	NA
Gasoline (Unleaded) — clear liquid with a characteristic odor	Contaminated soil/GW from excavations	None established by OSHA	PEL: 300 ppm STEL: 500 ppm	TWA: 300 ppm STEL: 500 ppm	NA
Diesel Fuel — liquid with a characteristic odor	Contaminated soil/GW from excavations	None established by OSHA	NA	TLV-TWA = 100 mg/m^3	NA
Waste oil – may contain metals, gas, antifreeze and PAHs	Contaminated soil/GW from excavations	Depends on the ancillary contaminants	NA	NA	NA

CHEMICAL COMPOUND/ CAS #	PRIMARY FIELD TASK OR ELEVATED RISK ACTIVITY WITH POTENTIAL EXPOSURES	OSHA PERMISIBLE EXPOSURE LIMIT (PEL)	APPLICABLE* STATE OSHA PLAN (PEL)	ACGIH EXPOSURE LIMITS (TLV AND/OR TWA)	NIOSH EXPOSURE LIMITS (REL AND/OR IDLH)
Lube Oil/Mineral Oil – as a mist	Contaminated soil/GW from excavations	5 mg/m^3 of air as an 8-hr TWA	NA	NA	NA
Benzene	Contaminated soil/GW from excavations	PEL: 1 ppm STEL: 5 ppm	NA	NA	NA
Toluene	Contaminated soil/GW from excavations	PEL: 200 ppm	PEL: 100 ppm STEL: 150 ppm	TLV-TWA: 20 ppm	TWA: 100 ppm
Ethyl benzene	Contaminated soil/GW from excavations	PEL: 100 ppm	PEL: 100 ppm STEL: 125 ppm	TLV-TWA: 100 ppm TLV-STEL: 125 ppm	REL: 100 ppm IDLH: 800 ppm
Xylenes	Contaminated soil/GW from excavations	PEL: 100 ppm	PEL: 100 ppm STEL: 150 ppm	STEL: 100 ppm	TWA: 100 ppm
Perchloroethylene (PCE)	Contaminated soil/GW from excavations	TWA: 100 ppm C: 200 ppm	NA	TLV TWA = 25 ppm, STEL = 100 ppm	NIOSH = 100 ppm, C: 200 ppm, IDLH: 150 ppm
Trichloroethylene (TCE)	Contaminated soil/GW from excavations	OSHA = TWA: 100 ppm, C: 200 ppm	WA L&I PEL = TWA: 50 ppm STEL: 200 ppm	TLV-TWA = 10 ppm TLV-STEL = 25 ppm	NIOSH = 100 ppm C: 200 ppm, IDLH: 150 ppm TLV TWA = 25 ppm, STEL = 100 ppm
Vinyl Chloride	Contaminated soil/GW from excavations	TLV: 1 ppm Ceiling: 5 ppm	NA	TLV = 1 ppm	NA
Polycyclic aromatic hydrocarbons (PAH) as coal tar pitch volatiles	Contaminated soil/GW from excavations	PEL: 0.2 mg/m^3	TWA: 0.2 mg/m^3 STEL: 0.6 mg/m^3	TLV = 0.2 mg/m^3	TWA: 0.1 mg/m^3 IDLH: 80 mg/m^3
PCBs (as Arochlor 1254)—colorless to pale-yellow viscous liquid with a mild, hydrocarbon odor	Contaminated soil/GW from excavations	NA	NA	TLV = 0.5 mg/m^3	NA

CHEMICAL COMPOUND/ CAS #	PRIMARY FIELD TASK OR ELEVATED RISK ACTIVITY WITH POTENTIAL EXPOSURES	OSHA PERMISIBLE EXPOSURE LIMIT (PEL)	APPLICABLE* STATE OSHA PLAN (PEL)	ACGIH EXPOSURE LIMITS (TLV AND/OR TWA)	NIOSH EXPOSURE LIMITS (REL AND/OR IDLH)
Dioxins/furans	Contaminated soil/GW from excavations	NA	NA	NA	NA

Notes:

*If a State has established a PEL more restrictive than the OSHA limits, then the applicable State limit becomes the legal limit.
IDLH = immediately dangerous to life or health
OSHA = Occupational Safety and Health Administration
ACGIH = American Conference of Governmental Industrial Hygienists
NA = not available
NIOSH = National Institute of Occupational Safety & Health
mg/m^3 = milligrams per cubic meter (dust or particulate conc.)
TWA = time-weighted average (over 8 hrs), basis of most exposure limits
PEL = permissible exposure limit, legally enforceable
TLV = threshold limit value (over 8 hrs)
REL= recommended exposure limit (over 10 hrs)
STEL = short-term exposure limit (15 min)
Ceiling (C) – concentration never to be exceeded
ppm = parts per million (vapor conc.)

3.4.2 Descriptive Summaries of Chemicals Present

For those chemicals onsite either historically or currently, complete the following table. For chemicals without a direct pathway for exposure or those cleaned or removed from the site in previous site activities, indicate these conditions or actions. Most of our projects are shorter in duration. In these instances, it is more relevant to provide the acute symptoms of exposure rather than the chronic. Discuss the difference with the Health and Safety Department if unsure.

CHEMICAL COMPOUND	PHYSICAL CHARACTERISTICS OF CHEMICAL	ACUTE ☒ AND/OR CHRONIC ☒ SYMPTOMS OF EXPOSURE
1) Arsenic	Metallic grey solid/dust	Ulceration of nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, respiratory irritation, hyperpigmentation of skin. Target organs: liver, kidneys, skin, lungs, lymphatic system (lung and lymphatic cancer)
Where and how exposure may occur:	Inhalation, skin absorption, skin and eye contact, ingestion	
2) Copper	Soft, malleable, and ductile metal. Freshly exposed surface of pure copper has a pinkish-orange color.	Lassitude; insomnia; anorexia; weight loss; malnutrition; constipation; abdominal pain; colic; anemia, gingival lead line; tremor; wrist and ankle paralysis; encephalopathy; kidney disease; irritated eyes

Where and how exposure may occur:	Inhalation, ingestion, skin and eye contact	
3) Chromium	Steely-grey, lustrous, hard, and brittle transition metal	Chromium III is an essential nutrient, Chromium VI can cause irritation to nose, skin ulcers, linked to cancer
Where and how exposure may occur:	Inhalation, ingestion, skin and eye contact	
4) Lead	Soft heavy metal that is silvery with a hint of blue; it tarnishes to a dull gray color when exposed to air	Lassitude (weakness, exhaustion), insomnia, facial pallor, anorexia, weight loss, malnutrition, constipation, abdominal pain, colic, anemia, gingival lead line, tremor, wrist and ankle paralysis, encephalopathy, kidney disease, irritated eyes, hypotension
Where and how exposure may occur:	Inhalation, ingestion, skin and eye contact	
5) Mercury	Silvery liquid metal in pure forms	Irritated eyes and skin, coughing, chest pain, difficulty breathing, bronchitis, pneumonitis, tremor, insomnia, irritability, indecision, headache, lassitude (weakness, exhaustion), stomatitis, salivation, gastrointestinal disturbance, anorexia, weight loss, proteinuria
Where and how exposure may occur:	Inhalation, skin absorption, skin and eye contact, ingestion	
6) Nickel	Silvery-white lustrous metal with a slight golden tinge	Sensitization dermatitis, allergic asthma, pneumonitis; [potential occupational carcinogen]
Where and how exposure may occur:	Inhalation, skin and eye contact	
7) Zinc	Slightly brittle metal and has a silvery-greyish appearance when oxidation is removed	Metal fume fever (usually onsets at 77-600 mg zinc/m^3)
Where and how exposure may occur:	No direct pathway of exposure based on site activities	
8) Gasoline	Clear liquid with a characteristic odor. Motor fuel, motor spirits, natural gasoline. A complex mixture of volatile, hydrocarbons (paraffins, cycloparafinns and aromatics)	Irritation eyes, skin, mucous membrane; dermatitis, headache, lassitude (weakness, exhaustion), blurred vision, dizziness, slurred-speech, confusion, convulsions; chemical pneumonitis (aspiration liquid)
Where and how exposure may occur:	Ingestion, inhalation, skin absorption, skin and eye contact	

9) Diesel	Black liquid with a characteristic odor	Irritated eyes, skin, and mucous membrane; fatigue; blurred vision; dizziness; slurred speech; confusion; convulsions; and headache, and dermatitis
Where and how exposure may occur:	Ingestion, inhalation, skin absorption, skin and eye contact	
10) Waste Oil	Liquid with a characteristic odor	Depends on the ancillary contaminants
Where and how exposure may occur:	Ingestion, inhalation, skin absorption, skin and eye contact	
11) Lube Oil/Mineral Oil – as a mist	Liquid with a characteristic odor	Exposure to oil mists can cause eye, skin and upper respiratory tract irritation
Where and how exposure may occur:	If the oil is not a mist, then route of exposure is skin and eye contact	
12) Benzene	Organic chemical compound that is colorless and highly flammable liquid with a sweet smell, and is partially responsible for the aroma of gasoline	Irritated eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; anorexia, lassitude (weakness, exhaustion); dermatitis; bone marrow depression; [potential occupational carcinogen]
Where and how exposure may occur:	Inhalation, skin absorption, ingestion, skin and/or eye contact	
13) Toluene	Colorless, water-insoluble liquid with the smell associated with paint thinners	Irritation to eyes, nose, exhaustion, confusion, dizziness, headaches, dilated pupils, euphoria, anxiety, teary eyes, muscle fatigue, insomnia, paresthesia, dermatitis, liver and kidney damage
Where and how exposure may occur:	Inhalation, absorption, ingestion, direct contact	
14) Ethyl benzene	Highly flammable, colorless liquid with an odor similar to that of gasoline	Irritation to eyes, skin, respiratory system, burning
Where and how exposure may occur:	Inhalation, ingestion, direct contact	
15) Xylenes	Colorless, flammable, slightly greasy liquid	Irritation to eyes, skin, nose, throat, dizziness, excitement, drowsiness, incoordination, staggering gait, corneal vacuolization, anorexia, nausea, vomiting, abdominal
Where and how exposure may occur:	Inhalation, skin absorption, ingestion, direct contact	
16) Perchloroethylene (PCE)	Colorless liquid widely used for dry cleaning of fabrics, hence it is sometimes called "dry-cleaning fluid	Irritation to eyes, nose, throat, nausea, flush face or neck, vertigo, dizziness, incoherence, headache, drowsiness, skin redness, liver damage
Where and how exposure may occur:	Inhalation, skin absorption, ingestion, skin and/or eye contact	

17) Trichloroethylene (TCE)	Clear, colorless non-flammable liquid with a chloroform-like sweet smell	Irritation to eyes, skin, headaches, vertigo, distorted vision, fatigue, giddiness, tremors, drowsiness, nausea, vomiting, dermatitis, cardiac arrhythmia, paresthesia
Where and how exposure may occur:	Inhalation, absorption, ingestion, dermal contact	
18) Vinyl Chloride	Colorless liquid or gas with a pleasant odor	Lassitude (weakness, exhaustion); abdominal pain, gastrointestinal bleeding; enlarged liver; pallor or cyanosis of extremities; liquid: frostbite; [potential occupational carcinogen]
Where and how exposure may occur:	Inhalation, skin, and/or eye contact (liquid)	
19) Polycyclic aromatic hydrocarbons (PAH)	Coal tar pitch volatiles	Dermatitis, bronchitis, potential carcinogen
Where and how exposure may occur:	Inhalation, ingestion, skin and/or eye contact	
20) PCBs (as Arochlor 1254)	Colorless to pale-yellow viscous liquid with a mild, hydrocarbon odor	Irritated eyes, chloracne, liver damage, reproductive effects, potential carcinogen
Where and how exposure may occur:	Inhalation (dusts or mists), skin absorption, ingestion, skin and/or eye contact	
21) Dioxins/furans	See below	See below
Where and how exposure may occur:	See below	

3.4.3 Dioxins/Furans

Generally, dioxin exposures to humans are associated with increased risk of severe skin lesions such as chloracne and hyperpigmentation, altered liver function and lipid metabolism, general weakness associated with drastic weight loss, changes in activities of various liver enzymes, depression of the immune system, and endocrine- and nervous-system abnormalities. It is a potent teratogenic and fetotoxic chemical in animals. A very potent promoter in rat liver cancers, 2,3,7,8-tetrachlorodibenzo-pdioxin (2,3,7,8-TCDD) causes cancers of the liver and other organs in animals. Populations occupationally or accidentally exposed to chemicals contaminated with dioxin have increased incidences of soft-tissue sarcoma and non-Hodgkin's lymphoma.

Dioxin-contaminated soil may result in dioxins occurring in a food chain. This is especially important for the general population. It has been estimated that about 98% of exposure to dioxins is through the oral route. Exposure as a vapor is normally negligible because of the low vapor pressure typical of these compounds. In the 1980s, a concentration level of 1 ppb 2,3,7,8-TCDD in soil was specified as "a level of concern," based on cancer effects. However, recent studies indicate that end points other than cancer (such as those listed above) are also of concern based on a projected intake from 1 ppb 2,3,7,8-TCDD in soil. Human studies have shown alteration in delayed-type hypersensitivity after exposure to dioxins. NIOSH

recommends respiratory protection at the "lowest feasible level." Very little human toxicity data from exposure to tetrachlorodibenzodioxins (TCDDs) and/or polychlorinated dibenzodioxins (PCDDs) are available. Health-effect data obtained from occupational settings in humans are based on exposure to chemicals contaminated with dioxins. It produces a variety of toxic effects in animals and is considered one of the most toxic chemicals known. Most of the available toxicity data are from high-dose oral exposures to animals (including tumor production, immunological dysfunction, and teratogenesis).

Very little dermal and inhalation exposure data are available in the literature. It is important for field personnel to remember that although dioxins are toxic and carcinogenic, most of the information is based on exposure to high doses of liquid product. These products are not very volatile, so the major concern is on skin protection and inhalation/ingestion of soil particles. The American Conference of Governmental Industrial Hygienists (ACGIH) recommends a 20 ppm threshold limit value (TLV) for 1,4-dioxane (an example of numerous dioxin compounds), lists it as being absorbed through the skin, and lists it as potentially carcinogenic as well as toxic to liver and kidneys. This is typical of health effects for dioxin/furan compounds. Care should be taken especially in sampling product from drums and wells known to contain detectable levels of dioxins. Emphasis will be on working outside in well-ventilated areas using proper PPE (as discussed later in this plan). There is significant variability in dioxin lethality in animals. The signs and symptoms of dioxin poisoning in humans, however, are analogous to those observed in animals.

4.0 Personal Protective Equipment

The appropriate personal protective equipment (PPE) will be selected on a daily or task-specific basis. These PPE selections will be communicated to field personnel during the pre-work briefing, **before** the start of site operations.

GLOVES	CLOTHING
☒ Nitrile ☐ Latex ☐ Liners ☐ Cold Weather	☒ High-vis Vest ☐ Tyvek ☐ Saranex ☐ Snake Chaps
☐ Leather ☒ General Construction Gloves ☐ Cut resistant/Kevlar ☐ Rubber ☐ Other	☐ Fire Retardant Clothing ☐ Long Pants ☒ Rain gear (if wet conditions) ☐ Long Sleeve Shirt ☐ Other
HEAD	**EYE & FACE**
☒ Hard Hat ☐ Climbing Helmut ☐ Sunhat	☒ Safety Glasses ☐ Face Shield ☐ Goggles ☐ Sun Glasses
HEARING PROTECTION	**FEET**
☒ Ear Plugs ☐ Ear Muffs ☐ Flanges	☒ Safety Toe Work Boot/Shoe ☒ Safety Toe Rubber Boot (if wet conditions)
	☐ Hiking Boot ☐ Hip Wader ☐ Chest Wader

4.1 PERSONAL PROTECTIVE EQUIPMENT INSPECTIONS

PPE ensemble shall be selected daily or before each separate task to provide protection against known or anticipated hazards. To obtain maximum performance from PPE, site personnel shall be trained in the proper use and inspection of PPE.

5.0 Site Control Plan

5.1 TRAFFIC OR VEHICLE ACCESS CONTROL PLANS

Will vehicles, heavy equipment and/or pedestrians traffic be controlled on this site? Yes ☒ No ☐.

Is GeoEngineers responsible for controlling traffic?

No. Project work will be completed within gated and fenced terminal facility managed by the Port.

Is the proposed work in the street and/or sidewalks? Yes ☐ No ☒ Police Details required? Yes ☐ No ☒.

Method of Delineation / Excluding Non-Site Personnel	
Yes	Fence
Yes	Traffic Cones (minimum), and flags, caution tapes and/or warning signs
Yes	Other Road Work Signs

5.2 SITE WORK ZONES

Work zones will be considered to be within 50 feet of the drill rig, backhoe, or other equipment. Employees should work upwind of the machinery if possible. To the extent practicable, use the buddy system. Do not approach heavy equipment unless you are sure the operator sees you and has indicated it is safe to approach.

Exclusion zones will be established around each working area. Only persons with the appropriate training will enter this perimeter while work is being conducted in these exclusion zones.

In addition, an exclusion zone, contamination reduction zone and support zone should be established when the project involves significant chemical contamination and potential of for exposure to contaminants to on-site personnel. Passage through zones or out of the site should be consistent with the level of decontamination required.

Decontamination, at a minimum, should include removing and disposing of PPE when exiting the exclusion zone and washing your hands. Decontamination will also consist of removing of outer protective gloves and washing soiled boots and gloves using bucket and brush provided on site in the contamination reduction zone. If needed, inner gloves will then be removed, and hands and face will be washed in either a portable wash station or a bathroom facility at the site. Employees will perform decontamination procedures and wash before eating, drinking or leaving the site.

In addition to wet decontamination procedures, other measures will be taken to prevent cross contamination. The contamination reduction zone, at a minimum, should consist of garbage bags into which used PPE should be disposed. Personnel should wash their hands before eating or leaving the reduction zone.

Drinking, eating, smoking and using phone are not allowed in the Exclusion and Reduction Zones.

5.3 BUDDY SYSTEM

Personnel on site should use the buddy system (pairs), particularly whenever communication is restricted. If only one GeoEngineers employee is on site, a buddy system can be arranged with subcontractor/ contractor personnel.

5.4 SITE COMMUNICATION PLAN

Positive communications (within sight and hearing distance or via radio) should be maintained between workers on site, with the pair remaining in proximity to assist each other in case of emergencies. The field team should prearrange other emergency signals for communication when voice communication becomes impaired (including cases of dropped cell phone or radio breakdown) and an agreed upon location for an emergency assembly area. In these instances, you should consider suspending work until communication can be restored; if not, the following are some examples for communication:

1. Hand gripping throat: Out of air, can't breathe.
2. Gripping partner's wrist or placing both hands around waist: Leave area immediately, no debate.
3. Hands on top of head: Need assistance.
4. Thumbs up: Okay, I'm all right: or I understand.
5. Thumbs down: No, negative.

All personnel from GeoEngineers and subcontractor(s) should be made aware of safety features during safety tailgate meetings (drill rig shutoff switch, location of fire extinguishers, cell phone numbers, etc.).

On-site personnel will be visible to the operator at all times and will remain out of the swing and/or direction of the equipment apparatus.

5.5 SANITATION

Contractors performing construction work will be required to provide sanitary facilities in accordance with applicable laws and regulations.

5.6 LIGHTING

Work is anticipated to be performed during daylight hours. Work may extend into the evening provided adequate lighting is used (e.g. portable flood lights).

6.0 Emergency Response

For each potential site emergency indicate what site-specific procedures you will implement to address the occurrence.

General Response Guidance:

- If any member of the field crew experiences any adverse exposure symptoms while on site or an injury, the entire field crew should immediately halt work and act according to the instructions provided by the SSO.
- The discovery of any condition that would suggest the existence of a situation more hazardous than anticipated should result in the evacuation of the field team, contact of the PM, and reevaluation of the hazard and the level of protection required.
- As soon as feasible, notify GeoEngineers' PM and follow the GeoEngineers' Incident Reporting and Investigation Program, and Health and Safety Injury Management Procedures Flowchart (see copy attached to this HASP).
- If an accident occurs, the Site Safety Officer and the injured person are to complete, within 24 hours, an Incident Report (Form 4) for submittal to the PM, the HSPM, and HR. The PM should ensure that follow-up action is taken to correct the situation that caused the accident or exposure.

Hospital Name and Address: Providence Regional Medical, 916 Pacific Avenue
Everett, Washington 98201

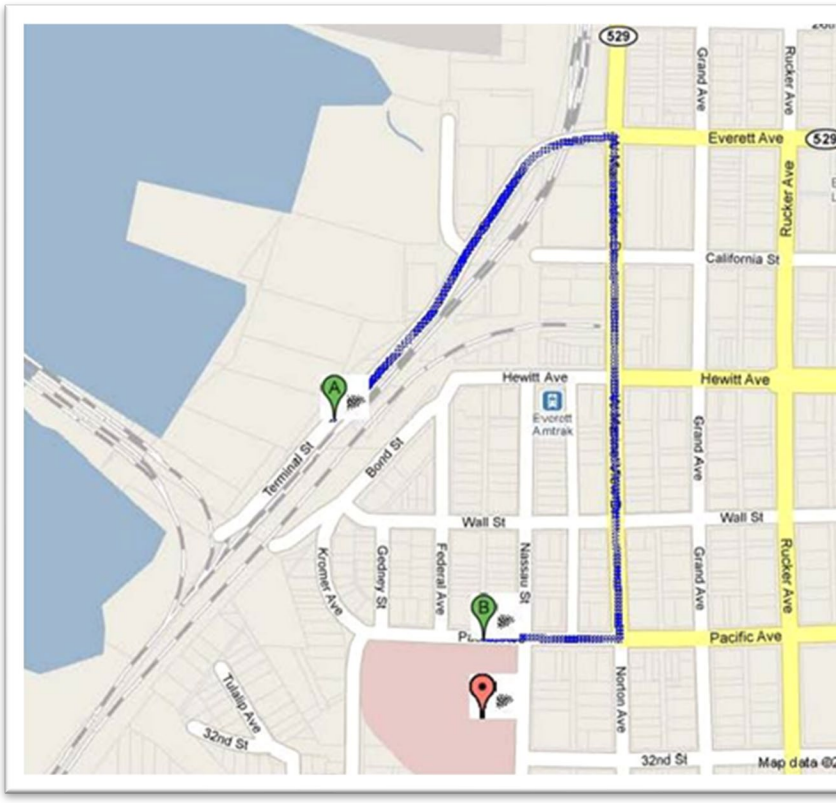
Phone Numbers (Hospital ER): **Phone**: (425) 258-7123

Distance: 0.8 miles

Route to Hospital: **Map to Hospital**:

Driving Direction:

1. Head **northeast** on **Terminal** Street
2. Continue onto **Everett Avenue**
3. Turn **right** on **West Marine View Drive**
4. Turn **right** at the 3rd cross street onto **Pacific Avenue**
5. Destination will be on the **left**



Ambulance: 9-1-1

Poison Control: Seattle (206) 253-2121; Other (800) 732-6985

Police: 9-1-1

Fire: 9-1-1

Location of Nearest Telephone: Cell phones are carried by field personnel. Check connectivity at work site location.

Nearest Fire Extinguisher: Located in the GeoEngineers vehicle on site.

Nearest First-Aid Kit: Located in the GeoEngineers vehicle on site.

Standard Emergency Procedures

Get help

- Send another worker to phone 9-1-1 (if necessary).
- As soon as feasible, notify the GeoEngineers' Project Manager and/or GeoEngineers HSM and follow the GeoEngineers' Incident Reporting and Investigation Program, and Health and Safety Injury Management Procedures Flowchart (see copy attached to this HASP).

Reduce risk to injured person

- Turn off equipment.
- Move person from injury location to safer area (if in life-threatening situation only).
- Keep person warm.
- Perform CPR (if necessary).

Transport injured person to medical treatment facility (if necessary)

- By ambulance (if necessary) or GeoEngineers vehicle.
- Stay with person at medical facility.
- Keep GeoEngineers Project Manager apprised of situation and notify Human Resources Manager of situation.
- Accidents involving injuries requiring professional medical attention must be reported as soon as feasible to the Site Safety Officer and/or Health and Safety Team.
- First aid cases not involving professional medical attention must be reported within 24 hours after occurrence.
- Incidents involving property damage must be reported within 24 hours of occurrence.
- After hours illnesses must be reported within 24 hours (i.e., flu, rashes).

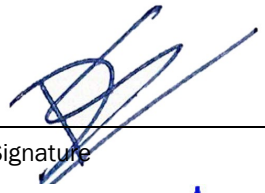
7.0 Documentation to be Completed for HAZWOPER Projects

- PM Checklist (recommended only)
- Daily Field Log
- FORM 1—Health and Safety Pre-Entry Briefing and Acknowledgment of Site Health and Safety Plan for use by employees, subcontractors and visitors
- FORM 2—Safety Meeting Record
- FORM 3—Elevated Risk Job Hazard Analyses (ERA-JHA) Form (as needed)
- FORM 4—Near Miss Form (as needed)
- FORM 4—Incident Report Form (as needed)
- FORM 5—Direct Reading Instrument Monitoring Log (as needed)

8.0 Approvals

NOTE: THIS HASP IS NOT CONSIDERED APPROVED OR ACTIVE UNTIL AT LEAST LINES 1 THROUGH 2 HAVE BEEN SIGNED by the designated personnel. For HASPs with elevated risk tasks including but not limited to confined spaces, working over water, hazardous atmospheres, chemical hazards, extreme weather conditions, fall protection/rope access, or respirator usage the Health and Safety Team must review and sign lines 3 and/or 4. The Health and Safety Team may review other JHAs/HASPs as they have time upon request and will sign lines 3 and/or 4.

1. Plan Prepared by



June 14, 2024

Signature Date

2. Project Manager Plan Approval

June 14, 2024

PM Signature Date

3. Health and Safety Specialist or Consultant

HSS or HSC Signature Date

4. Health and Safety Manager

June 18, 2024

HSM Signature Date

5. GeoEngineers Laboratory Manager

GLM Signature Date

Attachments:

Form 1: Health and Safety Pre-Entry Briefing and Acknowledgement

Form 2: Site Safety Meeting Record (Daily or Weekly)

Form 3: Elevated Risk Activity JHA Form

Form 4: Near Miss or Incident Report Form

Form 1
Health and Safety Pre-Entry Briefing and Acknowledgement For Geoengineers' Employees, Subcontractors and Visitors

WEYERHAEUSER MILL A FORMER SITE INTERIM ACTION, EVERETT, WASHINGTON
FILE NO. 0676-020-07

Inform GeoEngineers employees, contractors and subcontractors or their representatives about:

- The nature, level and degree of exposure to hazardous substances and other hazards they are likely to encounter;
- All site-related emergency response procedures; and
- Any identified potential fire, explosion, health, safety or other hazards.

Conduct safety pre-entry briefing meeting with GeoEngineers on-site employees, contractors and subcontractors, or their representatives as follows:

- A pre-entry briefing before any site activity is started.
- Additional briefings, as needed, to make sure that the Site-specific HASP is followed, especially prior starting new activities and/or when new on-site personnel is planning to work at the site.
- Make sure all employees (GeoEngineers, contractors, subcontractors and equipment/material delivery companies) working on the Site are informed of any risks identified and trained on how to protect themselves and other workers against the Site hazards and risks.
- Update all information to reflect current site activities and hazards.
- All personnel participating in this project must receive "initial" health and safety orientation. Thereafter, brief daily or weekly tailgate safety meetings will be held as deemed necessary by the Site Safety Officer.
- The orientation and the tailgate safety meetings shall include a discussion of emergency response, site communications and site hazards associated with the planned activities and activities performed concurrently by others at the site in the vicinity of the working areas.
- Have all personnel attending the pre-entry briefing meeting sign Form 2 of the HASP.

(All of GeoEngineers' Site workers shall complete this Form 1, which should remain attached to the HASP and be filed with other project documentation). Please be advised that this site-specific HASP is intended for use by GeoEngineers employees only. Nothing herein shall be construed as granting rights to GeoEngineers' subcontractors or any other contractors working on this site to use or legally rely on this HASP. GeoEngineers specifically disclaims any responsibility for the health and safety of any person not employed by the company.

I hereby verify that a copy of the current HASP has been provided by GeoEngineers, Inc., for my review and personal use. I have read the document completely and acknowledge an understanding of the safety procedures and protocol for my responsibilities on site. I agree to comply with all required, specified safety regulations and procedures.

Print Name	Company	Signature	Date

Form 2
Site Safety Meeting Record (Daily or Weekly)

WEYERHAEUSER MILL A FORMER SITE INTERIM ACTION, EVERETT, WASHINGTON
FILE NO. 0676-020-07

Site Safety meetings should include a discussion of emergency response, site communications and site hazards associated with the planned activities. Site safety meeting should be completed prior implementing site activities at a minimum in the beginning of each day and/or at a minimum weekly for similar activities performed few consecutive days.

- Use in conjunction with the HASP Hazard Review and ERA Job Hazard Analyses (JHA) Form 3 to help identify hazards with the planned activities and activities performed concurrently by others at the site in the vicinity of the working areas.

Date: _____ **Site Safety Officer (SSO):** _____

Topics: _____

_____

Attendees:

Print Name	Company	Signature

Form 3
Elevated Risk Activity JHA Form

WEYERHAEUSER MILL A FORMER SITE INTERIM ACTION, EVERETT, WASHINGTON
FILE NO. 0676-020-07

This ERA JHA Form is to be used when the project's Principal Field Tasks (Section 3.1) include elevated risk activities. Complete a separate ERA JHA for each identified elevated risk activity. Add activities manually if not included in drop down. Activity Phases may include staging/set-up/initiation/operations/ shutdown/clean-up or others specific to this project. If all phases of this activity have the same controls, indicate this by including all applicable phase names in single row.

Elevated Risk Activity:	Choose an item.		
Written by:	**Position/Title:**	**Reviewed by:**	**Position/Title:**

Activity Phase	**How Risk May Occur**	**Phase Based Hazard Mitigations**
Set-up		Actions
		•
		PPE
		•
		Equipment
		•
		Tools
		•
Operations		Actions
		•
		PPE
		•
		Equipment
		•
		Tools
		•
Shut-down and Clean up		Actions
		•
		PPE
		•
		Equipment
		•
		Tools

Form 4
Near Miss or Incident Report Form

WEYERHAEUSER MILL A FORMER SITE INTERIM ACTION, EVERETT, WASHINGTON
FILE NO. 0676-020-07

Electronic Version Available at: https://safety.geoengineers.com/nearmisses/new or https://safety.geoengineers.com/incidents/new

NEAR MISS

Near Miss Date

Reported By

Location

Location Type

Incident Details

How did the incident happen?

What led to the Near Miss occurring? (Contributing factors, constraints, the setting, behaviors, etc.)

What is the most important thing you learned from this Near Miss that others could learn from?

INCIDENT REPORT

Basic Information

Incident Date

Reported By

Location

Location Type

Business Unit

Office Information

Project Manager

Group Leader

Office Manager

Other Emails

Incident Type (more than one OK)

_____ Injury

_____ Vehicle

_____ Utility Strike

_____ Damaged Property

_____ Stolen Equipment

Incident Details

What happened? Describe how the incident occurred. Where the employee was located at the time of the incident.

Project Number (if project related)

Date & Time employee started working

Date & Time supervisor notified

Supervisor Name

Notified Project Manager/PA ___ Yes ___ No

Client Notified ___ Yes ___ No

Supervisor Comments (Optional. These are usually filled out later.)

Supervisor Comments Date

Project Manager Comments (Optional. These are usually filled out later.)

Project Manager Comments Date

Health and Safety Comments (Optional. These are usually filled out later.)

Health & Safety Rep Name

Health & Safety Comments Date

Corrective Action (Optional. These are usually filled out later.)