SUBMITTAL

Submittal number	19.04.00	Date	03/10/2022
Project	POE COMBN SEWER MAIN IMPR	2600 FEDERAL AVE EVERETT, WA 98201	
Project number	823		
Spec section			
Subsection		Status	Open
Current action	Not yet submitted	Ball in court	NICHOLAS J AGOSTINO
Topic	REVISED PIPE CONSTRUCTION, TRENCHING & BACKFILL PLAN		

Submitter	NICHOLAS J AGOSTINO
Reviewer	Keith Alewine
Cc	

Date submitted	03/10/2022	Submission due date	
Released for review		Review due date	
Date returned		Required on site date	
Date closed			

Notes
Revised Pipe Construction, Trenching & Backfill Plan

Pipe Construction, Trenching and Backfill Plan

(Environmental Media Management Plan)

City of Everett – Port of Everett Combined Sewer Main Improvements

The below plan outlines the mean and methods for the construction of the 42" CSO and 12" Sewer Forcemain per spec section 7-08.3(1) and in conjunction with the Soil and Groundwater Management Plans for the Maritime Industrial Expansion at Norton Terminal (Kimberly Clark) and the ExxonMobil/ADC sites for the City of Everett's Port of Everett Combined Sewer Main Improvements project.

Potential Hazards

In review of both of the Soil and Groundwater Management Plans (SGWMP) there is a potential that Northwest Construction, Inc. (NWC) will encounter contaminated soil and groundwater.

The Kimberly Clark SGWMP states that contaminated soil and groundwater have been identified in past investigations primarily within the hydraulic fill and may include metals, carcinogenic polycyclic aromatic hydrocarbons (cPAH), polycyclic aromatic hydrocarbons (PAHs), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), VOCs, hydrogen sulfide, ammonia and petroleum hydrocarbons. Photographs of these hazardous substances encountered at the Site during previous cleanup activities are included in Attachment 1 of the Kimberly Clark Soil and Groundwater Management Plan (included with the contract documents). In addition, material that contain hazardous substances at concentrations exceeding the Site Clean Up Levels (CULs) and have previously been encountered at the Site include Crushed Demolition Debris, General Construction Debris and Underground Storage Tanks with Petroleum Hydrocarbons.

The ExxonMobil/ADC SGWMP states in past investigations that contaminated soil and groundwater may include "gasoline-range, diesel-range, and oil-range total petroleum hydrocarbons (TPH-G, TPH-D and TPH-O, respectively), benzene, ethylbenzene and xylenes, 1-methylnapthalene and carcinogenic polycyclic aromatic hydrocarbons c(PAHs); liquid-phase petroleum hydrocarbons are also present in the soil".

Soil Management Requirements

The Soil and Groundwater Management Plans list the following requirements for any intrusive activities:

- All intrusive activities that have the potential to contact contaminated soil will be performed under the NWC Health and Safety Plan and Contaminated Soil Action Plan (See Attachment A).

- Information will be submitted documenting the intrusive activities, presenting all environmental data, summarizing port-intrusive activity environmental conditions, and identifying any changes proposed any applicable restrictive covenant as a result of the intrusive activities will be submitted to the City of Everett to be forwarded on the appropriate agencies.
- No excavated soil is to be beneficially reused at locations outside the Site without adequate testing to confirm that the soil does not exceed any MTCA soil CULs.
- Soil excavated from within the Exxon/ADC site is assumed to be contaminated and will be disposed of at an offsite permitted disposal facility. Prior to disposal, the soil will be transported to an on-site lined stockpile are sufficiently constructed to prohibit the spreading of hazardous substances for holding during the waste profiling process. Liquid-phase petroleum hydrocarbons may be present in excavated soils, and if present will be collected and disposed or recycled in accordance with applicable regulations. A pump will be set up to collect any liquid phase petroleum to pump the liquid to a weir tank which will be sampled and tested. A liquid waster hauler subcontractor will be called in to pump the liquid phase petroleum into the tanker truck and disposed of at an approved facility.
- Stockpiled contaminated soils will be characterized for offsite disposal. Laboratory analysis will be required to determine waste designation and disposal requirements. Based on a review of existing data, the soil is expected to be classified as non-hazardous solid waste, though special management of the waste may be required dependent on the amount of liquid-phase petroleum hydrocarbons present. The planned waste management or disposal facility will be coordinated with during material testing to determine whether testing in addition to identified contaminates of concern (COCs) for the Site will be required for waste designation. Pending on the types of contamination in the soil, non -hazardous material will be disposed of at a Subtitle D facility such as Cadman's permitted site in Everett, Allied's permitted site in Seattle or Rabanco's permitted site in Seattle. Any hazardous material will be disposed of at a Subtitle C facility such as Waste Management's site in Arlington OR. Geotechnically unsuitable material will be disposed of a Mountain Loop Mine up in Granite Falls.
- Construction equipment used for excavation, transport and handling of soil excavated from the Sites shall be cleaned and decontaminated prior to being demobilized or used for other project purposes.
- Any soil removed from the Sites must also meet all other applicable regulations, including the Solid Waste Handling Standards (Washington Administrative Code [WAC] 173-350).
- Materials generated during intrusive activities will be managed to prevent potential dispersion of potentially hazardous substances using appropriate TESC measures. These measures shall include dust control, stockpile management (containment, covering, and underlayment as applicable) and appropriate construction access measures. Additionally, temporary stockpiles shall be located where they will not impact general stormwater flow patterns.

Soil Management Means & Methods

Temporary Erosion Control Measures & BMPs

In general, stormwater will be infiltrated onsite. Before any excavation of the utility trench, temporary erosion control BMPs will be installed on the project per the submitted TESC Plan (See Attachment B). A

Stormwater Pollution Prevention Plan (SWPPP) has also been submitted (See Attachment C). The TESC Plan and SWPPP are living documents and are to be modified as the project progresses and site conditions change. No stormwater will be discharged from the site.

During excavation of "dry" soils, wetting will be required to minimize dust. Over wetting will be avoided to prevent runoff. NWC will utilize a 500 gallon tow behind "Water Buffalo" or a water truck to water the grade when the soil seems to be too dry or when dust is created. Other methods such as misting cannons, sprinklers, etc. may be used for dust control. Water will be obtained from one of the City's fire hydrants located in the proximity of the project.

Per the special provisions, NWC is not allowed to haul on or across streets, roadways or driveways so a stabilized construction entrance will be installed at the location shown in the TESC plan to prevent mud/debris from being tracked out into the City of Everett's clarifier area. Any trackout of soils on paved surfaces will be swept or cleaned up promptly so dirt does not turn into dust. During dry days the speed of construction equipment will be limited to help in controlling any dust.

Groundwater Management

Groundwater is expected during the construction of the utility trench. Based on results of previous groundwater monitoring, metals (arsenic, copper, lead, mercury, nickel and zinc); cPAHs; PCBs; volatile organic compounds (VOCs; vinyl chloride, 1,1-dichlorothenes and xylenes); PAHs (acenaphthene, naphthalene, and 2-methylnapthalene); SVOCs (pentachlorophenol and dibenzofuran); gasoline-, diesel, and oil-range petroleum hydrocarbons; hydrogen sulfide; and ammonia were detected in one or more groundwater samples at concentrations greater than the preliminary cleanup levels. The City of Everett's Environmental Consultant will take an initial sample of the groundwater to determine the pH of the groundwater and if any contaminates are present. Water quality testing and field screening will be conducted at multiple locations to determine the requirements for proper management as the project progresses.

An engineered dewatering plan has been developed detailing the use of a well point system to dewater the utility trench. See Attachment D for further details regarding the Groundwater Dewatering. Per the specifications in our contract, NWC is required to discharge the dewatering water to the City of Everett's sanitary sewer system or dispose of it at an approved offsite facility. Dewatering water will not be infiltrated onsite. Only at the direction of the Engineer can the groundwater be discharged back into the utility trench. Before water is discharged, it will be sampled by the groundwater treatment subcontractor from the weir tank that is part of the water treatment system. The sample will be tested to confirm the groundwater is below the following limits per the City of Everett's Discharge Permit:

Analyte	Limit
As	0.5 mg/L
Cd	0.24 mg/L
Cr	5.0 mg/L
Cu	3.0 mg/L
Pb	1.9 mg/L
Hg	0.1 mg/L
Ni	2.83 mg/L
Ag	0.49 mg/L
Zn	4.0 mg/L
CN-	0.65 mg/L
Nonpolar FOG	200 mg/L

If the levels of contaminates are below the above limits, the water will be discharged to the City's sanitary sewer. If the test results for the sampled water are above the limits listed above, the water will flow through a carbon filter to filter out the contaminates. Once the water has gone through the carbon filter, it will be sampled and tested again to ensure that the water is below the required limits before discharge to the City of Everett's sanitary sewer system. If any liquid phase petroleum is observed in the weir tank, the weir tank will be segregated from the other weir tanks where it will be stored until a liquid waste hauler subcontractor (such as Emerald Services) will be called in to pump the liquid phase petroleum into the tanker truck and disposed of at an approved permitted facility.

Trench Excavation & Classification

There is an area in which H-Piles are in conflict with the utility trench. During the extraction of the H-Piles, the area will be monitored for any potential contaminated soil. Any loose material will be removed from each H-Pile before it is taken from the work area. Most of the loose material is expected to be removed by means of the vibratory hammer used to extract the H-pile. The removal of the material on the H-Pile will happen in the same location as the H-Pile was extracted from. The extracted H-Piles will be placed on plastic and any material left on the H-Pile will be removed with a broom, shovel or rivet buster. The material left on the plastic will be hauled to the sorting yard for classification. The H-Pile will then be loaded into an Articulated truck and taken to the material sorting yard for handling prior to removal from the site and final disposal.

If H-Piles cannot be removed by vibratory extraction or pulling, we will have to excavate down to below the subgrade of the utility trench and cut the H-Pile. The soil and groundwater management for excavating down to remove the H-Piles will follow the same step as outlined in this work plan.

Once the TESC BMPs and dewatering system are installed, NWC plans on starting the installation of the 42" CSO and 12" Sewer Forcemain at the south end of the project in Federal Ave which is within the Exxon/ADC Site. Both the 42" CSO and the 12" Sewer Forcemain will be constructed in the same trench which will be shored with an Engineered Shoring Plan and/or traditional trench boxes. Attachment E

shows a typical cross section of the 42" CSO and the 12" Sewer Forcemain. All excavation and backfilling will be conducted using typical excavation equipment.

It is anticipated that with the well point dewatering system, the utility trench will be "dry" and that the soils will not be oversaturated. If we do run into over saturated soil, the oversaturated soil will be hauled to the sorting yard in the sealed bed of an articulated truck. The quantity of oversaturated material loaded into the articulated truck will be reduced to not allow any of the water to splash out of the bed of the truck.

During the excavation of the utility trench, the City of Everett will have an Environmental Consultant onsite monitoring the trench excavation. Any excavation from the ExxonMobil/AC Site is considered to be potentially contaminated and will be transported by articulated trucks and stockpiled in the sorting yard. There are certain portions of the Kimberly Clark Site that are considered to contain clean soil. This clean material will either be hauled and stockpiled at the sorting yard or will be stockpiled along the utility trench alignment pending on the amount of room available. This stockpiled material along the utility trench alignment will also act as a berm to keep any stormwater from entering the trench. The sorting yard is located in the parking lot just north of the City of Everett's Port Gardner Storage Facility. See Attachment F for the Material Handling, Stockpiling and Disposal Plan. Any stockpiled material will be covered with plastic and weighted down with sandbags to prevent any erosion when not in use. Stockpiles shall not exceed 15 ft. in height.

The City of Everett's Environmental Consultant will classify the types of material that are expected to be encountered. The types of material that are expected are clean geotechnically suitable soil, clean geotechnically unsuitable soil, inert fill and debris and contaminated soil. Field screening for potential contamination will include visual, odor and VOC monitoring with a PID.

Soil classified geotechnically suitable and where environmental field screening does not indicate that the excavated soil is potentially contaminated (e.g., visual, olfactory, air monitoring, etc.) will be stockpiled at the sorting yard and transported back to the utility trench when needed. If the volume of excavated soil exceeds the volume needed to backfill the specific excavation the soil was removed from, excess soil will be disposed of off site at a permitted facility.

Soil classified as geotechnically unsuitable and where environmental field screening indicates that the excavated soil is potentially contaminated (e.g., visual, olfactory, air monitoring, etc.) or comes from a known area of residual contamination will be stockpiled separately from unaffected soil and tested to determine appropriate offsite management requirements. Individual materials that are unsuitable for reuse onsite will be segregated into stockpiles dependent on specific characteristics and waste disposal requirements, but are expected to include the following:

- Construction and demolition debris
- Wood waste/wood chips
- Concrete rubble
- Potentially contaminated soil
- Geotechnically unsuitable but does not exhibit indication of potential contamination

Soil unsuitable for reuse will be characterized for offsite disposal. Laboratory analysis may be required to determine waste designation and disposal requirements, such as whether the soil can be managed as

solid waste or requires management as hazardous waste. The planned waste management or disposal facility will be coordinated with during material testing to determine whether testing in additional to identified contaminants of concern (COCs) for the Site will be required for waste designation.

If development activities encounter material that may contain significant or unanticipated hazardous substances (including significant free product) or is associated with unanticipated Crushed Demolition Debris (CM) not removed during the CM Removal project conducted by Kimberly Clark, the discovery will be documented, Ecology will be notified, and the City of Everett will determine if modifications to the planned construction activities are warranted. Any unanticipated CM associated with the Kimberly Clark demolition activity is not suitable for backfill and will be characterized for offsite disposal according to its characteristics.

Only after material has been classified by the Environmental Consultant will the material be transported by means of a truck and trailer to a permitted disposal site. Material being loaded into the trucks will not be heaped in the excavator or loader bucket to help minimize any spillage. Trucks will be checked for any spilled material and cleaned before hauling the load to the disposal site. A sweeper will be used to sweep the sorting yard periodically in which the material will be considered to be unsuitable and will be dumped in the appropriate stockpile. Before transport to the disposal site the dump truck beds will be covered.

The project area potentially contains archaeological or historical objects that may be encountered during excavation within the native soils. Prior to the excavation of the utility trench, a professional archaeologist will provide a briefing to onsite personnel on what archaeological or historical objects may be encountered and how to keep an eye out for them. The procedures outlined in the 2013 Cultural Resources Monitoring and Discovery Plan will be followed. The professional archaeologist will be onsite when excavations are expected to be within the native soils where the Cultural Resources Monitoring and Discovery Plan has indicated a medium or high probability of containing archaeological materials. Northwest Construction's crew will coordinate and assist the professional archaeologist in monitoring the trench excavation for any signs of archaeological or historical objects. If the professional archaeologist confirms that cultural materials have been encountered, appropriate notifications will be conducted in accordance with the Cultural Resources Monitoring and Discovery Plan and an onsite inspection and implementation of discovery procedures will be conducted. The following is a list of who will be notified if cultural materials are discovered:

- Washington State Department of Ecology – Andy Kallus Site Manager (360) 407-7324
- Washington State Department of Archaeology and Historic Preservation – (360) 586-3065
- City of Everett Planning Department – Steve Ingalsbe (425) 257-7135
- Tulalip Tribes – Marie Zackuse Tulalip Tribes Chairperson (360) 716-4000
- Suquamish Tribes – Leonard Forsman Suquamish Tribe Chairman (360)598-3311

If human remains are encountered, work will be stopped per the requirements in the Cultural Resources Monitoring and Discovery Plan and no earth moving will be conducted within 30 feet of the discovery area until the professional archaeologist arrives. The following will be notified if any human remains are encountered:

- Everett Police Department – Non-Emergency Number (425) 257-8700
- Snohomish County Medical Examiner – (425) 438-6200

- Notifications to DAHP and the local tribes will also be conducted following initial notification.

Import Fill Sampling and Analytical Requirements

Any material imported to the site will be tested for hazardous substances to confirm that it is not contaminated. Samples will be collected for chemical analysis at a rate of five samples for the first 1,000 cy of material imported and one sample for each additional 1,000 cy. Import aggregates that do not contain fines less than ¼ inch and have been washed will not be tested for hazardous substances. Each sample will be analyzed for the following:

Analyte	Analytical Method	Site Preliminary Soil CUL (saturated) / Port Standard
Total Petroleum Hydrocarbons (mg/kg)		
Gasoline-range hydrocarbons	NWTPH-Gx	20
Diesel-range total petroleum hydrocarbons	NWTPH-Dx	200
Oil-range total petroleum hydrocarbons	NWTPH-Dx	200
Metals (mg/kg)		
Arsenic	EPA 6020B	20
Copper	EPA 6020B	36
Lead	EPA 6020B	56
Mercury	EPA 7471	0.1
Nickel	EPA 6020B	48
Zinc	EPA 6020B	85
PAHs (mg/kg)		
Acenaphthene	EPA 8270 SIM	1.2
Acenaphthylene	EPA 8270 SIM	210,000
Anthracene	EPA 8270 SIM	1,100,000
Benzo(g,h,i)perylene	EPA 8270 SIM	110,000
Fluoranthene	EPA 8270 SIM	140,000
Fluorene	EPA 8270 SIM	140,000
Phenanthrene	EPA 8270 SIM	1,100,000
Pyrene	EPA 8270 SIM	110,000
1-Methylnaphthalene	EPA 8270 SIM	4,500
2-Methylnaphthalene	EPA 8270 SIM	0.64
Naphthalene	EPA 8270 SIM	0.87
Total cPAH TEQ	EPA 8270 SIM	0.16
PCBs (mg/kg)		
Total PCBs (sum of aroclors)	EPA 8082	0.12

No imported materials with any exceedance of clean-up levels for any contaminants will be acceptable. Any alternate sources of import material will be tested for hazardous substances at the same sampling and frequency as listed above.

Backfilling Utility Trench

Prior to backfilling the utility trench in the ExxonMobil/ADC site, a nonwoven geotextile will be placed along the sidewalls and at the base of the trench to separate existing contaminated soils from clean fill and to delineate this boundary in the event of future excavation in the area. A trench cutoff wall will also be installed at the boundary between the Exxon/Mobil ADC site and the Kimberly Clark site.

Excavation of the utility trench will be backfilled in accordance with the City of Everett's and WSDOT 2021 Standard Specifications for Road, Bridge and Municipal Construction Section 2-09.3(1)E. Backfill material will consist of the following:

- Pipe Zone Bedding per spec section 9-03.12(3)
- Clean Native soil
- Select Borrow per spec section 9-03.14(2)

Backfill material will be imported to the stockpile yard from material from our Smith Island site. An alternate source for the Select Borrow and the Pipe Zone Bedding is Granite in Granite Falls. Clean native soil used for trench backfill will be placed in the same horizon in which it was excavated.

Equipment Decontamination

Decontaminating Small Tools and Equipment

All tools and equipment are to be cleaned and decontaminated on site prior to their removal per the Contaminated Soil Action Plan (See Attachment A). Tubs or wash basins will be provided to clean any small tools with Simple Green or another similar cleaning agent. Wastewater from the wash basins will be disposed of in the system that is set up for handling any potentially contaminated water.

Most of the equipment will stay within the pipe alignment to avoid any spreading of potentially contaminated soil. The exception to this is the Articulated Trucks that will be used to transport excavated material from the trench to the sorting yard for classification. These Haul Trucks are to stay above grade and should not track out any contaminated soil. NWC operators will be instructed to not overfill the Haul Trucks to prevent any potentially contaminated soil from spilling out of the truck.

The tracks on the excavators will be cleaned with a track shovel at least once per week if not after every work shift. This material will then be incorporated into the excavation of the utility trench. When equipment is to be removed from the site, any excess material will be removed from the equipment tracks with a shovel.

In the case that the any equipment encounters any liquid phase product, the equipment will be decontaminated. After the area in which liquid phase product has been excavated, the equipment will be either washed off in an enclosed container onsite or will be washed off in an eco block bay set up in the sorting yard. Plastic will be placed down in the sorting bay to help collect the washing water. A pump will be set up to collect the washing water and pump the water into a baker tank where it will be sampled and tested per the steps described above.

Attachments

A. Health & Safety Plan – Contaminated Soil Action Plan
B. TESC Plan
C. SWPPP
D. Dewatering Plan
E. Trench Cross Section
F. Material Handling and Stockpiling Plan

Attachment A

Health & Safety Plan
Contaminated Soil Action Plan

Port of Everett Combined Sewer Main Improvements Project

Contaminated Soil Action Plan

Northwest CONSTRUCTION, INC.

Owner:

City of Everett

February 16, 2022

Table of Contents

I. EXECUTIVE SUMMARY

Multiple site assessments have been conducted on the project site. These were conducted to determine whether contaminated soil and/or groundwater exists. The investigations revealed the presence of Carcinogetic Poly Aromatic Hydrocrabons (cPAH), PAHs, Semi-Volatile Organic Compounds (SVOC), Volatile Organic Compounds (VOC), PCBs, Total Petroleum Hydrocarbons (TPH), and elevated levels of metals in soil such as Copper, Mercury and Zinc in the soil and groundwater throughout the project site. Several of the samples exceeded MTCA cleanup levels. Groundwater was also found to contain the hazardous materials listed above and may also include hydrogen sulfide and ammonia. Construction debris containing hazardous materials such as asbestos, creosote and lead may also be encountered. The handling and treatment of contaminated groundwater will be discussed in the site dewatering plan.

This Contaminated Soil Action Plan identifies and assesses the potential hazards that have been previously identified at the site location and describes the response actions. This Contaminated Soil Action Plan specifically addresses the work practices and safety procedures for all personnel performing work at the Port of Everett Combined Sewer Main Improvements project site. The purpose of this plan is to protect the health of all persons in and around the jobsite.

Northwest Construction's scope of work at this site consists of selective removal of structures and obstructions, excavation and backfill of a utility trench and the import, export and stockpiling of materials (Trucking).

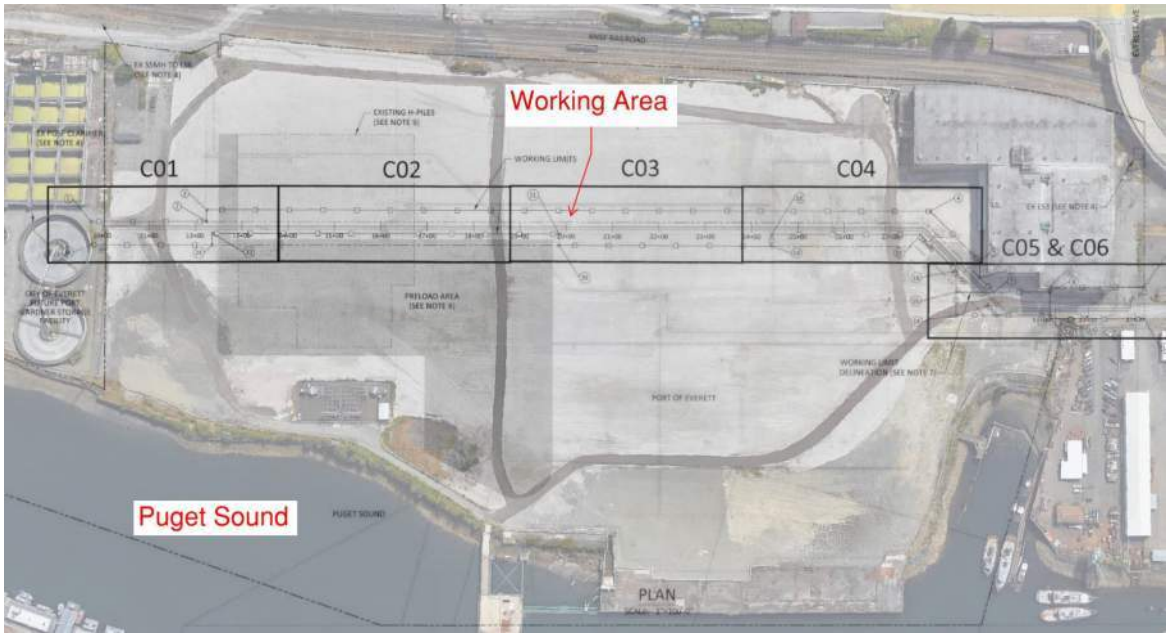
Soils for this site are classified for contaminants as follows: (1) "impacted" soil – which are subsurface soils that contain concentrations of contaminants less than the MTCA cleanup levels, (2) "contaminated" soil – which are subsurface soils with contaminant concentrations above the MTCA cleanup levels identified in the project as Special Industrial Waste and Hazardous Waste; and (3) "non-contaminated" soils - soils not believed to be impacted by contaminants identified in the project as Clean, Native Fill and Inert material.

To minimize possible exposure, NWC will work with the City of Everett and the City's Environmental Engineer to identify the location where potentially contaminated material is located before any excavation starts. Work areas containing impacted and/or contaminated soils will be identified as "Hot Zones". Areas with impacted soils may be re-classified by the HAZWOPER Supervisor as a "Caution Zone" once it is determined that employees are not exposed to concentrations of contaminants at or above the Permissible exposure limits. All work performed in the "Hot Zones" that involve the disturbance and/or excavation of soil, must be done by workers who meet the training requirements contained in this Action Plan. All work performed in "Caution Zones" that involves the disturbance or excavation of soil, must be performed under the direct supervision of a HAZWOPER trained Supervisor. Moreover, every worker who will work in either "Hot Zones" or "Caution

Zones" must complete the training as described in this Action Plan. It is the classification of the work areas by Zones combined with the graduated levels of worker training that creates the effective and efficient procedures necessary to work safely at the Port of Everett Combined Sewer Main Improvements jobsite. In conjunction with the requirements based in this action plan, all other subcontractors onsite performing activities where employees may be exposed to the contaminants will also be required to submit their own site-specific Health and Safety Plan prior to the start of work on the jobsite. These plans must be submitted to the City of Everett. All Subcontractors must also train their employees on the requirements of their plan.

II. SITE DESCRIPTION AND HISTORICAL USE

The site is located at 2600 Federal Avenue in Everett, Washington. The site boundaries are SR 529 to the east, the Everett Naval Station to the North, Puget Sound to the west and Terminal Avenue to the south. The site previously was used as a paper products production facility and at the southern portion of the site as a tank farm for Exxon Mobil. Any contamination found onsite will most likely be a result past fuel storage and maintenance practices as well as the cleanup operations from past spill or releases of chemicals used for manufacturing paper products.



III. SITE SUPERVISION & EMERGENCY RESPONSE

a. **Site Supervision -** The following is a brief description of supervisory staff associated with the project. Northwest Construction, Inc. recognizes Ben Reynolds as the HAZWOPER supervisor.

Kevin LaFontaine - Northwest Construction Project Foreman
Wes Davis - Northwest Construction Project Foreman
Ben Reynolds - Northwest Construction Project Superintendent
Nick Agostino - Northwest Construction Project Manager
Joe Davidson - Northwest Construction Safety Director

b. **Emergency Contacts -** The local fire department will be contacted and briefed concerning the hazards associated with work on this project before work starts. The fire department will be contacted via 911 should any worker become ill or unconscious due to exposure of airborne contaminants. Employees of Northwest Construction Inc. and/or associated employers are not authorized to perform emergency rescue of individuals inside the excavation in response to airborne contaminant exposures.

Emergency Contacts

Calling Order:

Kevin LaFontaine (NWC Project Foreman):	*(206) 793-7623*
Wes Davis (NWC Project Foreman):	*(206) 793-4138*
Ben Reynolds (NWC Project Superintendent):	*(206) 793-7611*
Nick Agostino (NWC Project Manager):	*(206) 389-6279*
Joe Davidson (NWC Safety Director):	*(206) 793-6335*

Emergency Care

Providence Regional Medical Center
1700 13th Street
Everett, WA 98220
(425)-261-2000

Non-Emergency Care

Concentra-Broadway
3726 Broadway, Suite 101
Everett, WA
(425) 259-0300

IV. DEFINITIONS

Action Level (AL) – Employee exposure, without regard to the use of respirators, to an airborne concentrations of certain contaminants calculated as an 8-hour time-weighted average (TWA_8).

Caution Zone – Area containing non-contaminated soils. If work in a Caution Zone involves the disturbance or excavation of soil, it must be performed under the direct supervision of a HAZWOPER trained Supervisor. Workers who will work in, or adjacent to a Caution Zone must complete the Site-Specific Awareness Training. Such Zones will be clearly identified or delineated with barrier tape.

Contaminated Soil – Soil with residual levels of contaminant concentrations at or above the MTCA Method "A" cleanup levels.

Decontamination – The removal of hazardous substances from employees and their equipment to the extent necessary to preclude the occurrence of foreseeable adverse health effects.

Decontamination Zone or Station – A station or sequence of stations located in the contamination reduction zone (CRZ) used in the decontamination of personnel or equipment.

Impacted Soil – Soil with residual levels of contamination below MTCA Method "A" cleanup levels. All work being conducted in impacted soil and/or contaminated soil is considered Hot Zone areas.

Hot Zone – Area containing contaminated and/or impacted soils where Site work is to be performed. Personal protective equipment is required for work activities in these Zones. Personnel directly involved in soil disturbance activities, or in activities where employees may be exposed to any level of contaminant must complete HAZWOPER Training. Such Zones will be clearly identified and delineated with red barrier tape, warning signs, or fencing with appropriate warning signs.

Model Toxics Control Act (MTCA) – Washington's "Superfund" toxic cleanup law, the Washington Model Toxics Control Act (MTCA) creates a regulatory program for responding to hazardous substances released into the soil and waters of Washington state.

Non-Contaminated Soil – Soil not believed to be impacted by contaminants that could cause negative health effects. These areas are considered to be caution zones.

Permissible Exposure Limit (PEL) – The amount of a substance (Time Weighted Average TWA_8) that employees can be exposed to during an eight-hour workday without negative health effects.

Soil Disturbance – The act by which person(s) or equipment are directly involved in the excavating, movement, analysis, and/or the employees coming in direct contact with freshly excavated areas. Soil disturbance can also include the movement of soil by water and wind.

Time Weighted Average (TWA_8) – WISHA Permissible Exposure Limit (PEL) established for the substance based on eight hours of exposure.

V. HAZARD IDENTIFICATION, EXPOSURE ASSESSMENT & EVALUATION

1. Hazard Identification (Potential Hazards)

A. Carcinogenic Polycyclic Aromatic Hydrocarbons in Soils

Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAH) in Soil, cPAH- Materials such as naphthalene, methylnapthalene, Chrysene, dichloroethene, and chlorobenzene were and could be discovered onsite. Some of these compounds could be a product of incomplete combustion associated with wood preservation, and can be found in areas where oil, gas, or coal were stored. It is reasonable to assume that these compounds found onsite can be associated with vehicle service operations.

B. Metals in Soils

i. **Lead -** The MTCA screening level for Gasoline range hydrocarbons was exceeded in samples collected onsite. Lead was used in the past in a wide variety of products such as an additive in gasoline and paints. Lead may be found on the project site in areas where gasoline contamination exists and may also be encountered on building debris that contain painted surfaces.

ii. **Arsenic-** Above natural background levels of Arsenic can be found in soils throughout the Everett area. Arsenic was used in the past as an ingredient in wood preserving products. Arsenic was commonly used in sand-blasting grit, pigment in paints, wood preservatives, herbicides and pesticides. If elevated levels of arsenic are found the most common contributor to this is associated with past smelter operations or the import of contaminated fill dirt.

iii. **Mercury-** Boring samples in one area of our proposed excavation area indicated mercury exceeding MTCA cleanup levels. While this one area is the only area that is known to contain mercury, it is possible to encounter mercury in other areas of the site based on the historical use of the property. Mercury was widely used in industrial settings. More importantly mercury was used as part of the paper bleaching process in many production facilities until the 1960s.

iv. **Copper and Zinc-** Elevated levels of Copper and Zinc were also detected in one area of our proposed excavation area. These metals found in close proximity may be a result of wastewater included in past pulp and paper production processes as well.

C. Hydrocarbons in Soils (TPH)- Petroleum Hydrocarbons - Gasoline, oil and diesel-range petroleum hydrocarbons at concentrations of regulatory concern exist onsite. The most likely source of contamination can be attributed to storage tanks, vehicle service and storage practices, and re-fueling of vehicles or tank

D. Volatile Organic Compounds (VOC) in Soils - VOCs are sometimes discovered on sites where petroleum hydrocarbon contamination exists and have been found in samples collected throughout the site that exceed MTCA. These areas typically include vehicle processing areas or in areas, where automotive part may have been cleaned using solvents containing VOCs. Benzene and Xylene are typical VOCs found in areas of gasoline, diesel, or heavy oil contamination.

E. **Polychlorinated Biphenyls (PCB) -** PCBS were used in a wide variety of electrical equipment in early industrial operations. PCB contamination that could be found on the project site could be a direct result of a release of the oils from transformers, ballasts or switches while the site was occupied by the paper manufacturing facility.

F. Semi-Volatile Organic Compounds (SVOC) in Soils - Coal Tar Pitch volatiles and other chemicals may be discovered on the project site. These chemicals are commonly used in wood preservation and are commonly found in the form of treated wood for pilings. Based on the historic use of this property it is safe to assume that treated wood pilings may be discovered.

G. Asbestos Containing Material (ACM) - Asbestos was used in many building products for it's excellent heat and fire resistant properties. Roofing Materials, Flooring materials, insulation and mastics commonly contained asbestos at the time the former mill site was built and in operation.

2. Health Effects

A. Metals in Soil

i. **Lead (Pb)-** The routes of entry for Lead into the body are inhalation, ingestion, and skin and/or eye contact**.** Lead adversely affects numerous body systems and causes forms of health impairment and disease that arise after periods of exposure as short as days (acute exposure) or as long as several years (chronic exposure). The frequency and severity of medical symptoms increases with the

concentration of lead in the blood. Common symptoms of acute lead poisoning are loss of appetite, nausea, vomiting, stomach cramps, constipation, difficulty in sleeping, fatigue, moodiness, headache, joint or muscle aches, anemia, and decreased sexual drive.
Acute health poisoning from uncontrolled occupational exposures has resulted in fatalities. Long term (chronic) overexposure to lead may result in severe damage to the blood-forming, nervous, urinary, and reproductive systems. The Action level (AL) for Lead is 30 µg/m^3 (micrograms per cubic meter of air).

ii. **Arsenic- (As)- Arsenic (As)-** The routes of entry for Arsenic into the body are inhalation, skin and/or eye contact**.** Symptoms of exposure to Arsenic may include: Ulceration of nasal passages, dermatitis, gastrointestinal disturbances, respiratory irritation, formation of warts, and hyperpigmentation of skin, (potential occupational carcinogen). Like other metals, arsenic can remain in the body for long periods of time. Long-term effects of Arsenic can cause also cause lung cancer, lymphatic cancer, and peripheral neuropathy (a disease that affects a person's sensory and motor skills). The (296-841 WAC) Action level (AL) for Arsenic is 5µg/m^3 (micrograms per cubic meter of air). The Labor and Industries Permissible Exposure Limit (PEL) for an eight-hour workday is 10 µg/m^3**.**

iii. **Mercury (Hg)-** The routes of entry for Mercury include inhalation, skin absorption, ingestion, skin and/or eye contact. Symptoms of exposure include irritations to the eyes, skin; cough, chest pain, difficulty in breathing, bronchitis, pneumosis; tremor, insomnia, irritability, indecision, headache, lassitude, stomatitis salivation, gastrointestinal disturbance, anorexia, weight loss. The PEL for Mercury is TWA 0.1 mg/$m^{3.}$

iv. **Copper (Cu)-** The routes of entry for copper in dust form include inhalation, ingestion, and skin and/or eye contact. Symptoms of exposure can include irritation to eyes, nose, or throat, septum perforation, dermatitis and have been known to cause lung, liver and kidney damage to animals. The Permissible Exposure Limit is 1 mg/m^3.

v. **Zinc (Zn)-** The routes of entry for Zinc in dust form include inhalation, ingestion, and skin and/or eye contact. Symptoms of exposure can include irritation to eyes, nose, or throat, septum perforation, dermatitis and have been known to cause lung, liver and kidney damage to animals. The Permissible Exposure Limit is 1 mg/m^3.

C. Carcinogenic Polycyclic Aromatic Hydrocarbons in Soils

The routes of entry for Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAH)

are inhalation, ingestion, and skin/eye contact. These chemicals have been linked to a variety of cancers to the lymphatic system, kidney and the liver. Symptoms of exposure include irritation to the eyes, nose and throat. The permissible exposure limit for these chemicals are 3.5 $mg/m^{3.}$

B. **Petroleum Hydrocarbons-**The routes of entry for gasoline and diesel include inhalation, skin absorption, ingestion, and skin and/or eye contact. The major effect of exposure to gasoline and diesel is light-headedness, confusion, headache, central nervous system depression; possible irritation of eyes, nose, and lungs; and dermal irritation. Kidney and liver damage may be a long-term effect of exposure. Gasoline also contains Benzene, which is a known carcinogen; Gasoline vapors are highly flammable and easily ignited by heat, sparks, or flame. Gasoline vapors become readily ignitable at -45° and Lower Explosive Limit (LEL) of 1.4%. Diesel is a combustible liquid and vapors can ignite at 130°. Gasoline and Diesel vapors are heavier than air and can settle in low lying areas and may travel to a source of ignition and flash back given a high enough concentration. Run off to a sewer may create a fire or explosion hazard. The PEL of Gasoline is 100 mg/m^3 (per sample SDS).

C. **Volatile Organic Compounds (VOC)** The routes of entry for the VOCs found onsite include inhalation, skin absorption, ingestion, and skin and/or eye contact. The major effect of exposure to these chemicals are light-headedness, confusion, headache, central nervous system depression; possible irritation of eyes, nose, and lungs; and dermal irritation. Kidney and liver damage may be a long-term effect of exposure. Vapors are flammable with a flash point of 81° for Xylene. The PEL for Benzene and Xylene is both 100 ppm (per sample SDS).

D. **Semi-Volatile Organic Compounds (SVOC)** Routes of entry for Coal tar pitch volatiles include inhalation, skin absorption, and ingestion. Exposure can cause skin irritation with a rash. Eye irritation can also result from exposure. This substance may cause lung, skin, and/or kidney cancer. SVOCs may also cause genetic damage to cells and reproductive harm. The Occupational Safety and Health Administration (OSHA) has set a limit of 0.2 milligrams of PAHs per cubic meter of air (0.2 $mg/m^3 TWA_8$).

Site Hazard Evaluation

Prior to the disturbance of "Hot Zone" or "Caution Zone" soils, a HAZWOPER Supervisor in conjunction with the City of Everett personnel will perform an evaluation of the area. This evaluation will include a visual inspection of the soils in the area to be excavated or disturbed, installation of barriers designating the area as limited access, and installation of appropriate Zone barrier tape. "Caution Zones" will either be delineated with yellow caution tape or verbally discussed with the jobsite. However, "Hot Zones"

are always identified by red barrier tape. In the case of our trench, it may be appropriate to use signage in the place of red barrier tape to restrict access into the "Hot Zone".

VI. HAZARD COMMUNICATION & WORK PRACTICES

1. Hazard Communication

All personnel will be required to attend and successfully complete the Northwest Construction Site specific orientation before working on site. Awareness Training including a discussion on impacted soil on site will also be conducted at this time.

Based on the results from the soil testing and the amount of impacted soil, the risk of contaminated soils exists. Workers disturbing soils in the location of the must have completed training meeting the requirements for an OSHA "40-Hour Haz Mat Course" and certification must be current.

Weekly safety meetings will be conducted by Northwest Construction. All Northwest Construction employees will attend this meeting. All employees need to realize that they have a responsibility to themselves and others to use good judgment when working in all areas at the Site. Any area where employees suspect contamination (smell, stained soils, etc.), it is important that the area is immediately vacated, and the employee's supervisor informed so that testing can take place.

Prior to starting excavation work at the location of the contaminated area will be considered a "Hot Zone" until air monitoring data and soil testing data proves that no significant health hazards exist in the area. The area will be clearly identified using red barrier tape, with signage stating the requirements for entering the area. All other areas of the jobsite will be considered a caution zone unless signs of impacted or contaminated soil are discovered. If potentially impacted or contaminated soils are discovered work shall cease in this area and the Superintendent and City of Everett supervision immediately notified.

If an employee is not certain whether a particular location on the Site is a "Hot Zone" or "Caution Zone", they must notify their supervisor prior to entry.

2. Personal Responsibility to Inform

Any worker, who suspects an area may be impacted or contaminated, they must immediately notify their supervisor. Upon such notice, appropriate testing will be performed by a qualified third-party consultant. Employees will not be permitted to re-enter the work area in question until the testing has been completed and the HAZWOPER

Supervisor has determined the appropriate work practices and personal protective equipment to be utilized.

3. Hot Zone Work - Practices and Procedures

The "Hot Zone" areas of this project will be in locations where soils containing contaminants that exceed MTCA screening levels. This is a Regulated Area. All personnel entering a "Hot Zone" will have received Site Specific Awareness Training as described in this Site Action Plan. Employees, whose work will involve the excavation or disturbance of soils within the "Hot Zone" must have also successfully completed 40-hour Hazardous Worker ("HAZWOPER") training. A HAZWOPER Supervisor will be on Site at all times during the excavation or disturbance of soils in a "Hot Zone". Employees, who cannot prove that he/she is authorized to enter a "Hot Zone" or does not have the appropriate PPE, will not be allowed to enter "Hot Zone". Unauthorized persons entering into a "Hot Zone" are subject to disciplinary action and/or removal from the jobsite. Eating, drinking, smoking, chewing gum or tobacco is strictly prohibited in "Hot Zones". These activities shall be confined to designated Worker Break Areas.

4. Caution Zone Work - Practices and Procedures

All other areas of the project are considered a "Caution Zones". In these areas, contaminants may exist. All personnel entering a "Caution Zone" must have received Site Specific Awareness Training as described in this Site Action Plan. A HAZWOPER Supervisor, provided by Northwest Construction, Inc., will be required to be on site at all times during the excavation or disturbance of soils in the "Caution Zone" area.

VII. ENGINEERING CONTROLS

The implementation of Engineering Controls is the responsibility of Northwest Construction, Inc. Below is a list of the Engineering Controls that NWC intends to use on the project.

1. Warning Signs

"Hot Zone" areas will be signed and isolated with barrier tape/signs, cones etc. to prohibit entry of untrained personnel. Additional engineering controls will be utilized as deemed necessary by the Northwest Construction, Inc. HAZWOPER Supervisor.

2. Dust Control

During excavation of "dry" soils, wetting will be required to minimize dust. Over wetting is to be avoided to prevent runoff. NWC will utilize a 500 gallon tow behind

"Water Buffalo" or a water truck to water the grade when the soil seems to be too dry or when dust is created. Water will be obtained from one of the City's fire hydrants located in the proximity of the project.

3. **Decontaminating Small Tools**

All tools and equipment are to be cleaned and decontaminated on site prior to their removal from the "Hot Zone" areas. Tubs or wash basins will be provided to clean any small tools with Simple Green or another similar cleaning agent. Wastewater from the wash basins will be disposed of in the system that is set up for handling any potentially contaminated water.

VIII. PERSONAL PROTECTIVE EQUIPMENT

Minimum Requirements (not in hot or caution zones)

Appropriate Personal Protective Equipment (PPE) shall be worn by all individuals on the jobsite. Minimum PPE for this jobsite consists of:

- Suitable work boots
- Highly visible vest
- Hard hats
- Work Gloves
- Eye protection

Additionally, personal protective equipment to be utilized by Northwest will be determined based upon the Environmental Assessments, the Northwest Construction Action Plan, Employee's exposure assessments, air monitoring, and soil testing.

Employees who are working in the "Hot Zone" or "Caution Zone" and who are directly involved with the disturbance of contaminated soil, must wear, at a minimum, the following PPE:

- Protective eyewear
- Protective outerwear which will wither consist or rubberized rain jacket w/ bibs or Tyvek Suit.
- Nitrile Gloves
- Outer work gloves
- Rubber Steel Toe Boots
- Highly visible vest
- Hard hats.
- Respiratory protection (as necessary)

IX. TRAINING

Hot Zone Training

All personnel entering a "Hot Zone" must have successfully completed a 40-hour HAZWOPER training course conducted by a qualified training provider before they engage in the work activities that may disturb the "Hot Zone" soils. A HAZWOPER Supervisor must also be onsite at all times when the soil is being disturbed. The 40-hour trained workers will also attend a Site Specific Training meeting the requirements of WAC 296.62. This Hot Zone Awareness Training will include the following information:

- The elements of the Site Specific Safety Plan
- Names of personnel and alternates responsible for Site safety and health
- Safety, health and other hazards present on the Site. This section will include training on the contaminants found onsite.
- Characteristics and locations of suspected contaminants
- Appropriate handling of suspected contaminants
- Procedures for transport and disposal of suspected contaminants
- Hazards and medical effects of contaminants identified at the Site
- Medical surveillance requirements, including recognition of symptoms and signs that might indicate overexposure to hazards
- Types, frequency, and interpretation of the air monitoring data that will be conducted during the Site work
- Personal protective equipment ("PPE") to be utilized by all personnel during work in the Hot Zone
- Proper care and donning of PPE
- Limitations of PPE
- Requirements of personal decontamination procedures
- Appropriate work practices to minimize health and safety risks
- Site control measures
- Barrier identification and controls
- Safe use of engineering controls and equipment on the Site
- Emergency response plan
- Applicable sections of WAC 296-62 and 296-155

Caution Zone Work

All personnel entering the "Caution Zone" on this project must possess a current HAZWOPER 40hr certificate and have attended Site Specific Awareness Training before they enter a "Caution Zone". This "Caution Zone" awareness training will include the following minimum information:

- The elements of the Site Specific Safety Plan

- Names of personnel and alternates responsible for Site safety and health
- Safety, health and other hazards present on the Site
- Characteristics and locations of suspected contaminants
- Hazards and medical effects of contaminants identified at the Site
- Types, frequency, and interpretation of the air monitoring data that will be conducted during the Site work
- Personal protective equipment ("PPE") to be utilized by all personnel during work in the Caution Zone
- Proper care and donning of PPE
- Limitations of PPE
- Requirements of personal decontamination procedures
- Appropriate work practices to minimize health and safety risks
- Site control measures
- Barrier identification and controls
- Safe use of engineering controls and equipment on the Site
- Emergency response plan
- Applicable sections of WAC 296-155

X. MEDICAL SURVELLIANCE

Northwest Construction, Inc. will comply with Washington State's (WAC 296-843-210) requirements for employees who will be involved in the disturbance of soils in "Hot Zones". Northwest Construction, Inc. will establish a medical surveillance plan for all employees who meet any of the following:

- Are or may be exposed to hazardous substances or health hazards for at least 30 days a year, at or above the permissible exposure limits (PELs) or other published exposure levels
- Wear a respirator for at least 30 days a year Are injured, become ill, or develop signs or symptoms of possible overexposure to hazardous substances or health hazards
- Are hazardous materials team (HAZMAT) members.

Medical examination will include the following information for each affected employee. A medical and work history, with special emphasis on symptoms related to handling hazardous substances and health hazards Information about fitness for duty including the ability to wear any personal protective equipment (PPE) under conditions that may be expected at the workplace. Any additional information that is determined by the examining physician. Northwest Construction, Inc. will be providing this program at their own expense.

XI. AIR MONITORING

Air monitoring shall be conducted by the owner's representative. The NWC HAZWOPER Supervisor and/or Owner consultant to identify and quantify airborne levels of hazardous substances and to document exposure levels within the "Hot" and "Caution Zones" during the excavation or disturbance of soils. This information will be utilized to determine the effectiveness of engineering controls and work practices. Results of air monitoring will be submitted to City of Everett. Any exposure results above the action level will be noted and corrective action taken prior to next work shift.

To minimize possible exposure, excavation work areas will be considered "Hot Zones" until air-monitoring results prove below PEL or Sufficient Historic data can be provided to insure anticipated exposure will be below action level / PEL. (To comply with WAC 296-843-130)

All employers are directly and completely responsible for protecting their employees. Employees most likely to experience the highest potential exposure to hazardous substances and health hazards shall be monitored by their HAZWOPER Supervisor during all excavating and soil disturbance of contaminated soil. Employers are also responsible for providing all necessary monitoring and service of their equipment.

Personal Exposure Monitoring

Personal exposure monitoring may be performed for the previously identified contaminants using a low-volume air collection device in accordance with OSHA and WISHA procedures. This monitoring is the responsibility of each individual employer. The exposure monitoring results will be available for review by the monitored worker. Rose Environmental will be conducting the personal exposure monitoring for NWC employees in the event significant contamination exists that could pose a health risk to employees working on the site.

Ambient Air Monitoring

Air Monitoring shall by conducted for the purposes of establishing baseline concentrations. This baseline will be used to evaluate abatement success. Monitoring shall be conducted by the City of Everett or a third-party consultant.

If perimeter concentrations reach or exceed 50% of the applicable Action Level, the HAZWOPER Supervisor shall review the work practices, and recommend work practice modifications where appropriate to reduce perimeter concentrations.

XII. WASH STATIONS/DECONTAMINATION

A Hand wash station will be provided by Northwest Construction for Employees to wash their hands. It is strongly suggested that all employees use these facilities prior to breaks, end of the shift, prior to eating, drinking, chewing gum or use of tobacco products and prior to entry of Designated Worker Break Areas, or in the event of inadvertent skin contact with contaminants. The decontamination of tools and equipment must start in the "Hot Zone" and end in the "Decontamination Zone". Wash stations must be placed at the far end of the "Decontamination Zone".

XIII. DESIGNATED WORKER BREAK AREAS

Eating, drinking, gum chewing, and tobacco are not permitted in "Hot and Caution Zones". Such items and activities shall be confined to Designated Worker Break Areas.

Contaminated Soil Action Plan Sign-in Sheet

My signature indicates that I have received the site action plan training and fully understand the procedures for this project. I understand that this is part of an ongoing training effort and I was given the opportunity to ask questions to ensure my full understanding of what was addressed. I acknowledge and accept the written policies and/or procedures written.

Date	Printed Name	Signature

Attachment B

TESC Plan

TESC Plan

City of Everett – Port of Everett Combined Sewer Main Improvements

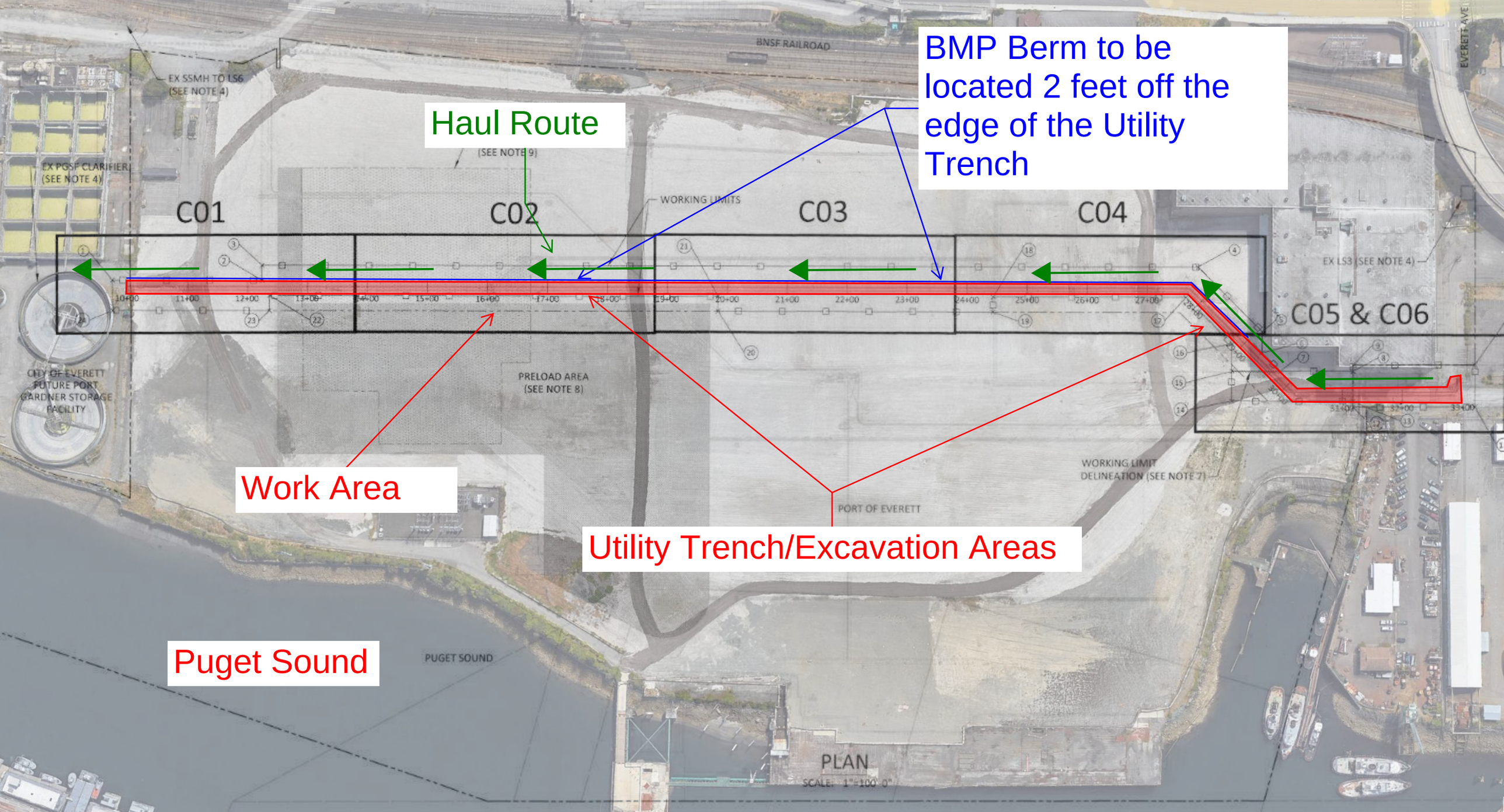
The below plan outlines the steps that Northwest Construction, Inc. (NWC) will take for installing and maintaining the BMPs as shown in the attached plan. This plan is a living document and will be modified as conditions change on the project.

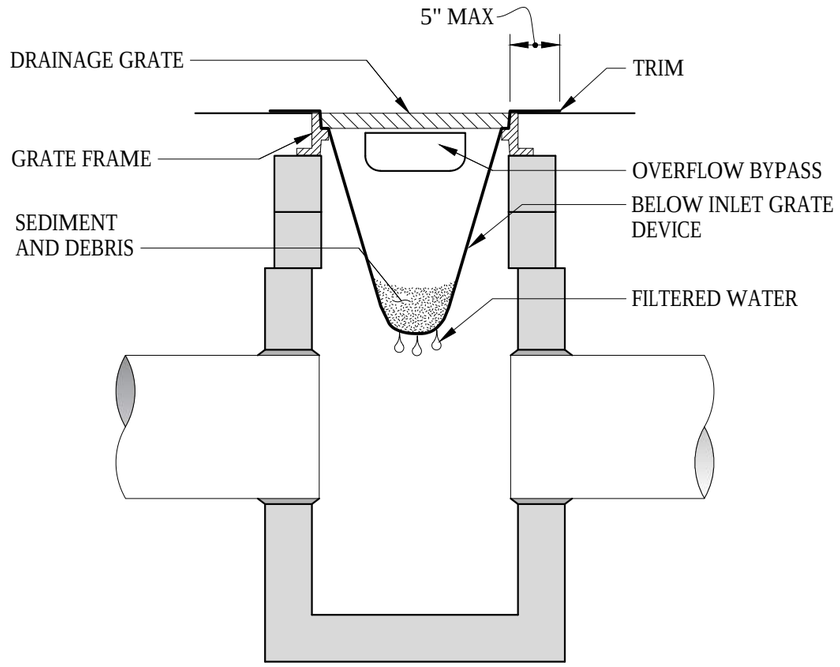
BMPs to be installed on the project include the following:

- Storm Drain Inlet Protection
    - Inlet Protection will be installed per City of Everett plan 210 in all existing catch basins located in Federal Ave and in the parking lot jut north of the City of Everett's Port Gardner Storage Facility.
    - Inlet Protection will be inspected for build up of sediment. Any sediment removed from the inlet protection will be transported to the sorting yard where it will be determined if it needs to be tested for any contaminates. The sediment will be disposed of at an approved facility
- Construction Entrance
    - A Construction Entrance will be installed per the City of Everett plan 201 at the entrance to the parking lot just north of the City of Everett's Port Gardner Storage Facility as shown on the attached plan.
    - The Construction Entrance will be inspected for build up of sediment. If sediment is so great that it inhibits the functionality of the construction entrance, the construction entrance will be replaced with clean ballast per section 9-03.9(2).
    - Any material from the Construction Entrance will be transported to the sorting yard where it will be determined if it needs to be tested for any contaminates. The sediment and ballast will be disposed of at an approved facility.
- Berms
    - During the installation of the 42" CSO and 12" Sewer Forcemain, a small berm made up of clean material from the trench excavation will be placed at the top of the trench to hinder the conveyance of any stormwater into the trench. The existing ground is also covered with a layer of permeable sand which will allow any stormwater to fully infiltrate the soil. Berms will be removed as the trench is backfilled.
    - For the portion of the pipe that is in Federal Ave, the berm will be made up of cold mix.

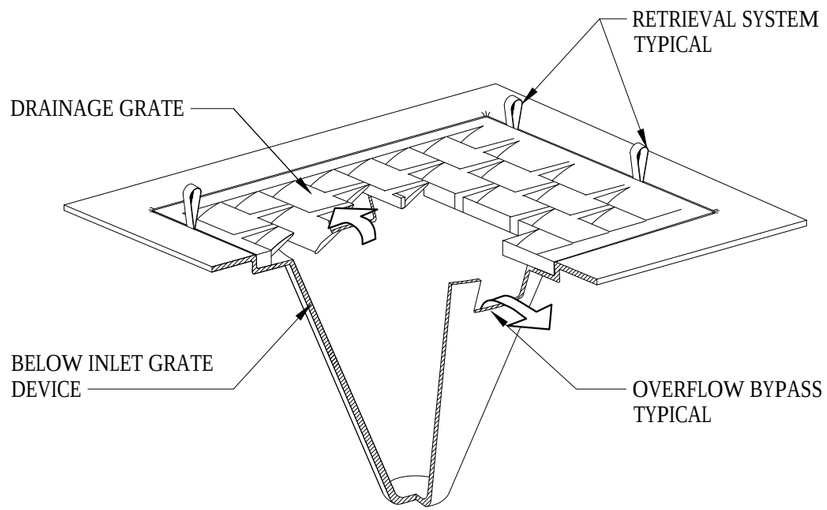
During the course of construction, the CESCL will inspect the BMPs to make sure the are functioning correctly. Any BMP that is damaged or is not functioning properly will be removed and replaced.


NWC Sorting Yard/Lay Down Yard:
Stockpiling and Concrete Handling Area
Install Approx. 3 ea Inlet Protection in Existing Catch Basins per City of Everett Standard Plan 210
Federal Ave and Existing Parking Lot:
Install Approx. 3 ea Inlet Protection in Existing Catch Basins per City of Everett Standard Plan 210
Install Construction Entrance per City of Everett Plan Standard Plan 201
Olympian Apartments
Rucker Ave
Grand Ave
25th St
Bayside Park
529
Sno-Isle Food Co-op
W Marine View Dr
At Large Brewing & Taproom
K Fresh
Hewitt Ave
Terminal Ave
Thatcher St
East Waterway
Google Earth
Image Landsat / Copernicus


BMP Berm to be located 2 feet off the edge of the Utility Trench
Haul Route
Work Area
Utility Trench/Excavation Areas
Puget Sound
C01
C02
C03
C04
C05 & C06
BNSF RAILROAD
EX SSMH TO LS6 (SEE NOTE 4)
EX PGSF CLARIFIER (SEE NOTE 4)
WORKING LIMITS
PRELOAD AREA (SEE NOTE 8)
CITY OF EVERETT FUTURE PORT GARDNER STORAGE FACILITY
PORT OF EVERETT
WORKING LIMIT DELINEATION (SEE NOTE 7)
EX LS3 (SEE NOTE 4)
PUGET SOUND
PLAN
SCALE: 1"=100'-0"



SECTION VIEW



ISOMETRIC VIEW

NOTES

1. CATCH BASIN INSERTS SHALL BE REMOVED AT THE END OF THE PROJECT.
2. CATCH BASIN INSERTS ARE ONLY TO BE INSTALLED IN DRAINAGE DEVICES PER THE MANUFACTURES'S RECOMMENDATIONS. CATCH BASIN INLET INSERTS SHALL BE INSTALLED IN CURB INLETS.
3. CATCH BASIN INSERTS SHALL BE INSTALLED PRIOR TO CLEARING AND GRADING ACTIVITY, OR UPON PLACEMENT OF A NEW CATCH BASIN.
4. SEDIMENT SHALL BE REMOVED FROM THE UNIT WHEN IT BECOMES ONE THIRD FULL OR IN ACCORDANCE WITH THE MANUFACTURES' INSTRUCTIONS.
5. SEDIMENT REMOVAL SHALL BE ACCOMPLISHED BY REMOVING THE INLET INSERTS, EMPTYING, AND RE-INSTALLING IT INTO THE CATCH BASIN. DO NOT WASH SEDIMENT INTO STORM DRAINS WHILE CLEANING.
6. SIZE THE BELOW INLET GRATE DEVICE (BIGD) FOR THE STORM WATER STRUCTURE IT WILL SERVICE.
7. THE BIGD SHALL HAVE A BUILT-IN HIGH-FLOW RELIEF SYSTEM (OVERFLOW BYPASS).
8. THE RETRIEVAL SYSTEM MUST ALLOW REMOVAL OF THE BIGD WITHOUT SPILLING THE COLLECTED MATERIAL.
9. PERFORM MAINTENANCE IN ACCORDANCE WITH STANDARD SPECIFICATION 8-01.3(15).

WSDOT STD PLAN I-40.20-00 ACCEPTABLE SUBSTITUTE IF MAINTENANCE MEETS NOTES 1-5

CITY OF EVERETT
PUBLIC WORKS DEPARTMENT

City Engineer	Section Manager	CAD Manager	Drawn By	Current Rev Date
RYAN SASS	HEATHER GRIFFIN	PAUL WILHELM	ESH	12/30/2016

TITLE: STORM DRAIN INLET PROTECTION

STANDARD DRAWING No. 210

Filename
T:\ACAD\EPS-COE DESIGN & CONSTR SPECS FOR DEVELOPMENT\IN-WORK\STD210.DWG
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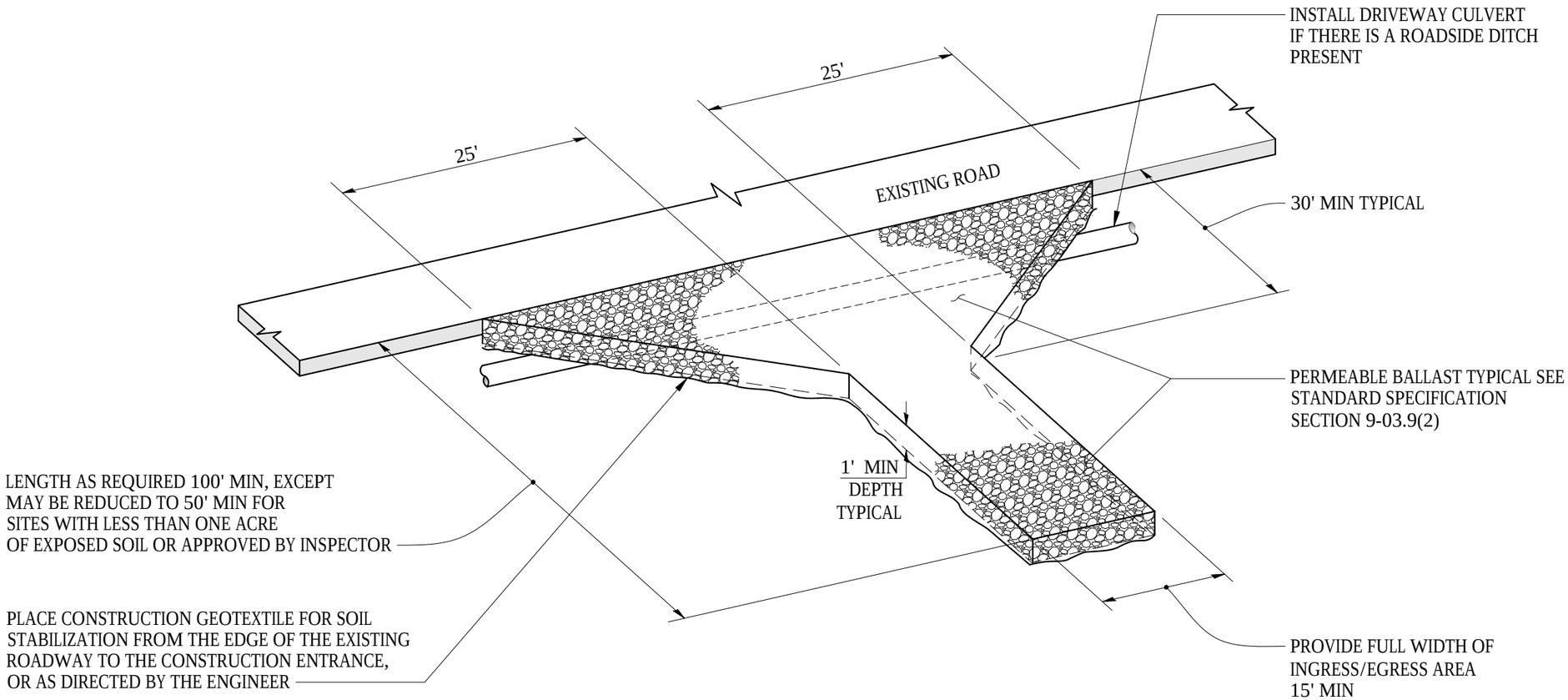
NOTES

1. STABILIZED CONSTRUCTION ENTRANCE SHALL MEET THE REQUIREMENTS OF WSDOT STANDARD SPECIFICATION SECTION 8-01.3(7).



ISOMETRIC VIEW
CONSTRUCTION ENTRANCE

WSDOT STD PLAN I-80.10-02 ACCEPTABLE SUBSTITUTE

CITY OF EVERETT
PUBLIC WORKS DEPARTMENT

City Engineer	Section Manager	CAD Manager	Drawn By	Current Rev Date
RYAN SASS	HEATHER GRIFFIN	PAUL WILHELM	ESH	04/03/2017

TITLE: CONSTRUCTION ACCESS

STANDARD DRAWING No.: 201

Filename
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Attachment C

SWPPP

Construction Stormwater General Permit (CSWGP)

Stormwater Pollution Prevention Plan (SWPPP)

for

Port of Everett Combined Sewer Main Improvements

Prepared for:

Department of Ecology

Northwest Regional Office

Permittee / Owner	Developer	Operator / Contractor
Port of Everett/City of Everett	Port of Everett/City of Everett	Northwest Construction, Inc.

Port of Everett Combined Sewer Main Improvements

Certified Erosion and Sediment Control Lead (CESCL)

Name	Organization	Contact Phone Number
Awet Tsegay	Northwest Construction, Inc.	425-417-1848

SWPPP Prepared By

Name	Organization	Contact Phone Number
Nick Agostino	Northwest Construction, Inc.	206-793-6279

SWPPP Preparation Date

2 /18/2022

Project Construction Dates

Activity / Phase	Start Date	End Date
Utility Work	01/31/2022	06/30/2022

List of Acronyms and Abbreviations

Acronym / Abbreviation	Explanation
303(d)	Section of the Clean Water Act pertaining to Impaired Waterbodies
BFO	Bellingham Field Office of the Department of Ecology
BMP(s)	Best Management Practice(s)
CESCL	Certified Erosion and Sediment Control Lead
CO_2	Carbon Dioxide
CRO	Central Regional Office of the Department of Ecology
CSWGP	Construction Stormwater General Permit
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved Oxygen
Ecology	Washington State Department of Ecology
EPA	United States Environmental Protection Agency
ERO	Eastern Regional Office of the Department of Ecology
ERTS	Environmental Report Tracking System
ESC	Erosion and Sediment Control
GULD	General Use Level Designation
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Units
NWRO	Northwest Regional Office of the Department of Ecology
pH	Power of Hydrogen
RCW	Revised Code of Washington
SPCC	Spill Prevention, Control, and Countermeasure
Su	Standard Units
SWMMEW	Stormwater Management Manual for Eastern Washington
SWMMWW	Stormwater Management Manual for Western Washington
SWPPP	Stormwater Pollution Prevention Plan
TESC	Temporary Erosion and Sediment Control
SWRO	Southwest Regional Office of the Department of Ecology
TMDL	Total Maximum Daily Load
VFO	Vancouver Field Office of the Department of Ecology
WAC	Washington Administrative Code
WSDOT	Washington Department of Transportation
WWHM	Western Washington Hydrology Model

Project Information (1.0)

Project/Site Name: Port of Everett Combined Sewer Main Improvements
Street/Location: 2600 Federal Ave
City: Everett State: WA Zip code: 98201
Receiving waterbody: Port Gardner Bay, East Waterway

Existing Conditions (1.1)

Total acreage (including support activities such as off-site equipment staging yards, material storage areas, borrow areas).

Total acreage: 46 acres (upland area located landward of OHW)

Disturbed acreage: approximately 3 acres (43 acres for another project)

Existing structures: All former mill structures were demolished in 2012 down to their foundation elements except for a warehouse having a footprint of about 131,820 square feet that remains at the south east corner of the site. The warehouse is currently vacant. Foundations from the former mill structures remain below a sand backfill material that was imported and placed over the majority of the site as part of a 2nd Interim Action in fall 2020.

Landscape topography: The site is relatively flat. Prior interim cleanup actions have graded the site to form a narrow 'bowl' shape that is oriented north-south and is located about 200-feet from the shoreline. The northwest and southwest corners of the stie slope towards the west to an existing berm along the shoreline.

Drainage patterns: Stormwater on the site has been reported to fully infiltrate with no discharge from the site since the former mill structures were removed in 2012. During significant precipitation events, stormwater has been observed to pond in the graded'bowl' condition and the northwest and southwest corners of the site where stormwater is eventually infiltrated into the ground.

Existing Vegetation: The site is a former industrial property that has been cleared and graded in association with prior interim cleanup actions. All existing vegetation has been removed.

Critical Areas (wetlands, streams, high erosion risk, steep or difficult to stabilize slopes): None

List of known impairments for 303(d) listed or Total Maximum Daily Load (TMDL) for the receiving waterbody:

Based on review of Ecology's 303(d) list, the East Waterway adjacent to the project Site is listed for sediment (parameter: sediment bioassay). Port Gardner is not listed on Ecology's list of TMDLs in Snohomish County. Applicable 303(d) map and listing for Port Gardner, East Waterway, is provided in Appendix F

Table 1 – Summary of Site Pollutant Constituents: Appendix G Includes a list of suspected and/or known contaminats associated with site soil.

Proposed Construction Activities (1.2)

Description of site development (example: subdivision):
The project includes two interrelated proposed actions—an interim action cleaup under MTCA and development of a secure marine cargo terminal (named Norton Terminal) through the Port of Everett Maritime Industrial Expansion (MIE) program. Site redevelopment will be limited to the upland area above ordinary high water. Development will include installation of a 42" CSO and 12" sewer forcemain, regrading any disturbed areas and stormwater collection, conveynce and treatment.

Description of construction activities (example: site preparation, demolition, excavation):
Construction activities will include installation of a 42" CSO and 12" sewer forcemain including the removal of any buried obstructions in the pipe trench.

Description of site drainage including flow from and onto adjacent properties:
Under the previous cleanup action (Second Interim Action), the following activities were completed and now constitute the existing condition prior to this proposed construction:

- Plugging outfalls and pipes along the shoreline to prevent discharge from the site.
- Grading the site to form a slight bowl condition about 200-feet from the shoreline. This condition maintains stormwater on-site where it is infiltrated into the ground.
- Construction of a berm along the shoreline as an added measure of protection. The berm is approximately 2-feet high and 3-feet wide at its top.
- Placement of a granular/sand backfill material over the site that allows stormwater to infiltrate.

See Site Maps in Appendix A. Construction activites are as described above. Stormwater from non-paved areas of the site will infiltrate and not discharge. Stormwater from paved areas (Federal Ave and the City of Everett's parking lot to the north of the clarifiers) will be conveyed by use of a small cold mix berm to the catch basin which will have a inlet protection sock installed to catch any sediment.

Description of final stabilization (example: extent of revegetation, paving, landscaping):

Any disturbed areas will be regraded to the grade shown in the plans. The existing gravel pad that is to be removed due to the installation of the 2 sewer pipelines will be replaced with the same gravel.

***Contaminated Site Information*:**
Proposed activities regarding contaminated soils or groundwater (example: on-site treatment system, authorized sanitary sewer discharge):

Contamination at the Site upland has been thoroughly investigated under close supervision of Department of Ecology Toxics Cleanup Program (TCP) staff since 2012, including collection of thousands of soil samples, groundwater monitoring at more than 130 monitoring wells, and sampling sediment porewater and seeps along the intertidal shoreline. Figure 1 depicts locations for the hundreds of exploration completed for soil and.or groundwater sampling at the Site. 1 in addition, a pair of MTCA interim actions (2013-2014 and 2020) accomplished substantial cleanup of the Site-specifically removing soil contamination that posed the greatest risk to groundwater quality. Finally, approximately 250,000 tons of demolition debris (crushed concrete predominantly) that created high-pH groundwater was fully removed from the Site in 2020. Following the removal actions, widespread, low-level contamination in soil and groundwater remains across much of the Site. The Port's Third Interim Action will construct a low-permeability pavemtn section across a portion of the Site that will minimize long-term infiltration into site soil. Information related to site soil contamination is provided in Appendix G.

Construction Stormwater Best Management Practices (BMPs) (2.0)

The SWPPP is a living document reflecting current conditions and changes throughout the life of the project. These changes may be informal (i.e. hand-written notes and deletions). Update the SWPPP when the CESCL has noted a deficiency in BMPs or deviation from original design.

The 13 Elements (2.1)

Element 1: Preserve Vegetation / Mark Clearing Limits (2.1.1)

Applicable construction BMPs from the Stormwater Management Manual for Western Washington are provided in Appendix B.

List and describe BMPs: Clearing limits for the entire project have already been defined as part of another contract. There are no clearing limits defined on the project as the clearing has already been performed.

Site Response: Clearing limits are already marked by an existing chain link fence, concrete block barrier and a berm perimeter protection as part of prior interim cleanup actions. Vegetation on site consists mostly of invasive species that will not be preserved.

Installation Schedules: Not applicable, already installed.

Inspection and Maintenance plan: Weekly inspections will include examining the condition of construction area perimeter fencing, ecology blocks, and earthen berms. Any necessary repairs will be noted (form in Appendix D) and promptly implemented.

Element 2: Establish Construction Access (2.1.2)

List and describe BMPs:

A. Limit construction vehicle access and exit to one route, if possible.
B. Stabilize access points with a pad of quarry spalls, crushed rock or other equivalent BMPs, to minimize tracking sediment onto roads.
C. Locate wheel wash or tire bath on site, if the stabilized construction entrance is not effective in preventing tracking sediment onto roads.
D. If sediment is tracked off site, clean the affected roadway thoroughly at the end of each day, or more frequently as necessary (for example, during wet weather). Remove sediment from roads by shoveling, sweeping, or pickup and transport of the sediment to a controlled sediment disposal area.
E. Conduct street washing only after ediment removal.
F. Control street wash wastewater by pumping back on site or otherwise preventing it from discharging into sytems tributary to waters of the State.

Site Response: Construction access will be provided in conformnce with the City of Everett Standard Drawing 201. Wheel wash will be provided as needed.

Installation Schedules: Construction Entrance will be installed at the beginning of the project in February 2022 and removed no later than 6/30/2022.

Inspection and Maintenance plan: The condition of the haul road, and the potential need to establish a wheel wash to better control truck tracking of sediment, will be assessed during each weekly inspection (form in Appendix D).

Responsible Staff: The site CESCL is responsible for conducting the weekly inspections.

Element 3: Control Flow Rates (2.1.3)

Will you construct stormwater retention and/or detention facilities?
Yes (No)

Will you use permanent infiltration ponds or other low impact development (example: rain gardens, bio-retention, porous pavement) to control flow during construction?
Yes (No)

List and describe BMPs:

A. Protect properties and waterways downstream of construction sites from erosion and the associated discharge of turbid waters due to increases in the velocity and peak volumetric flow rate of stormwater runoff from the project site, as required by local plan approval authority.
B. Where necessary to comply with Special Condition S9.D.3.a, construct stormwater infiltration or detention BMPs as one of the first steps in grading. Assure that detention BMPs function properly before constructing site improvements (for example, impervious surfaces).
C. If permanent infiltration ponds are used for flow control during construction, protect these facilities from sedimentation during the construction phase.
D. Place cold mix berms to convey stormwater to catch basins with inlet protection installed to control the flow of water.

Site Response: Before construction activities begin, a small cold mix berm will be installed to direct stormwater on paved areas to the existing catch basins which will have inlet protection installed.

Installation Schedules: Not applicable, already in place.

Inspection and Maintenance plan: Confirmation of continued infiltration of all site stormwater will be part of the weekly inspection (form in Appendix D).

Responsible Staff: The site CESCL is responsible for conducting the weekly inspections.

Element 4: Install Sediment Controls (2.1.4)

List and describe BMPs:

The Permittee must design, install and maintaineffective erosion controls and sediment controls to minimize the discharge of pollutants. At a minimum, the Permittee must:

A. Construct sediment control BMPs (sediment ponds, traps, filters, infiltration facilities, etc.) as one of the first steps in grading. These BMPs must be functional before other land disturbing activities take place.
B. Minimize sediment discharges from the site. The design, installation and maintenance of erosion and sediment controls must address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristic, including the range of soil particle sizes expected on the site.
C. Direct stormwater runoff from disturbed areas through a sediment pond or other appropriate sediment removal BMP, before the runoff leaves a construction site or before discharge to an infiltration facility. Runoff from fully stabilized areas may be discharged without a sediment removal BMP, but must meet the flow control performance standard of Special Condition S9.D.3.a.
D. Locate BMPs intended to trap sediment on site in a manner to avoid interference with the movement of juvenile salmonids attempting to enter off-channel areas or drainages.
E. Provide and maintain natural buffers around surface waters, direct stormwater to vegetated areas to increase sediment removal and maximize stormwater infiltration, unless infeasible.
F. Where feasible, design outlet structures that withdraw impounded stormwater from the surface to avoid discharging sediment that is still suspended lower int eh water column.

Site Response: Construction access will be provided in conformance with City of Everett Standard Drawing 201. As part of prior interim clenaup actions, the site has been graded to form a closed, internal depression that infiltrates all precipitation falling on the site. There is no surface water discharge from the site. In paved areas of the excavation, soil will be directly loaded into trucks and not placed directly onto the paved surface without the material being contained. Temporary silt fence will be used to supplement the existing berm protection and compost socks, wattles, or sand bags will be used around soil stockpile management areas.

Installation Schedules: Installation and maintenance of sediment controls to occur between 1/31/2022 through 6/30/2022.

Inspection and Maintenance plan: Inspection to confirm that erosion control BMPs are in place are part of the weekly inspection (form in Appendix D).

Responsible Staff: The site CESCL is responsible for conducting the weekly inspections.

Element 5: Stabilize Soils (2.1.5)

West of the Cascade Mountains Crest

Season	Dates	Number of Days Soils Can be Left Exposed
During the Dry Season	May 1 – September 30	7 days
During the Wet Season	October 1 – April 30	2 days

Soils must be stabilized at the end of the shift before a holiday or weekend if needed based on the weather forecast.

Anticipated project dates: Start date: 2/1/2022 End date: 6/30/2022

Will you construct during the wet season?

(Yes) No

List and describe BMPs:

A. The permittee must stabilize exposed and unworked soils by application of effective BMPs that prevent erosion. Applicable BMPs include but are not limited to: temporary and permanent seeding, sodding matching, plastic covering, erosion control fabrics and matting, soil application of polyacrylamide (PAM), the early application of gravel base on areas to be paved, and dust control.
B. The Permittee must control stormwater volume and velocity within the site to minimize soil erosion.
C. The Permittee must control stormwater discharges, including both peak flow rates and total stormwater volume, to minimize erosion at outlets and to minimize downstream channel and stream bank erosion.
D. The Permittee must stabilize soils at the end of the shift before a holiday or weekend if needed based on the weather forecast.
E. The Permittee must stabilize soil stockpiles from erosion, protected with sediment trapping measures, and where possible, be located away from storm drain inlets, waterways, and drainage channels.
F. The Permittee must minimize the amount of soil exposed during construction activity.
G. The Permittee must minimize the disturbance of steep slopes.
H. The Permittee must minimize soil compaction and, unless infeasible, preserve topsoil.

Site Response: Stockpile management areas will be stabilized with plastic covering. Dust control BMP's will be implemented.

Upon completion of our portion of the project, precipitation will continue to infiltrate into the ground at these areas until developed.

Installation Schedules: Throughout the course of the project.

Inspection and Maintenance plan: There will be construction activity during the wet season for this project and soil stabilization BMPs will be inspected weekly and maintained as needed.

Responsible Staff: The site CESCL is responsible for conducting the weekly inspections and completing the inspection form in Appendix D.

Element 6: Protect Slopes (2.1.6)

Will steep slopes be present at the site during construction?
Yes (No)

List and describe BMPs: Not applicable, site is flat

Installation Schedules: Not applicable

Inspection and Maintenance plan: Not applicable

Responsible Staff: Not applicable

Element 7: Protect Drain Inlets (2.1.7)

List and describe BMPs:

A. Protect all storm drain inlets made operable during construction so that stormwater runoff does not enter the conveyance system without first being filtered or treated to remove sediment.
B. Clean or remove and replace inlet protection devices when sediment has filled one-third of the available storage (unless a different standard is specified by the product manufacturer).

Installation Schedules: Storm drain inlet protection will be provided in Federal Avenue within the project limits and in the parking lot north of the City of Everett's Port Gardner Storage Facility.

Existing inlet protection at the warehouse loading dock area will be maintained by the Port of Everett's contractor. All other on-site inlets were removed during prior interim cleanup actions.

Inspection and Maintenance plan: There will be construction activity during the wet season for this project. Inlet protection will be inspected weekly and maintained as needed.

Responsible Staff: The site CESCL is responsible for conducting the weekly inspections and completing the inspection form in Appendix D.

Element 8: Stabilize Channels and Outlets (2.1.8)

Provide stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes, and downstream reaches, will be installed at the outlets of all conveyance systems.

There are not channels or outlets associated with our portion of the work.

List and describe BMPs: Not applicable

Installation Schedules: Not appicable

Inspection and Maintenance plan: Not applicable

Responsible Staff: Not applicable

Element 9: Control Pollutants (2.1.9)

The following pollutants are anticipated to be present on-site:

Table 2 – Pollutants

Pollutant (and source, if applicable)
See Appendix G for a listing of pollutant parameters present in site soil.

List and describe BMPs:

A. Handle and dispose of all pollutants, including waster materials and demolition debris that occur on site in a manner that does not cause contamination of stormwater.
B. Provide cover, containment, and protection from vandalism for all chemicals, liquid products, petroleum products, and other materials that have the potential to pose a threat to human health or the environment. On-site fueling tanks must include econdary containment. Secondary containment means placing tanks or containers within as impervious structure capable of containing 110% of the volume contained in the largest tank within the containment structure. Double-walled tanks do not require additional secondary containment.
C. Conduct maintenance, fueling and repair of heavy equipment and vehicles using spill prevention and control measures. Clean contaminated surface immediately following ny spill incident.
D. Discharge wheel wash or tire bath wasterwater to a separate on-site treatment system that prevents discharge to surface water, or to the sanitary sewer, with local sewer district approval.
E. Use BMPs to prevent contamination of stormwater runoff by pH-modifying sources. The sources for this contamination include but are not limited to: recycled concrete stockpiles, bulk cement, cement kiln dust, fly ash, new concrete washing and curing waters, waste streams generated from concrete grinding and sawing, exposed aggregate processes, dewatering concrete vaults, concrete pumping and mixer washout waters.
F. Adjust the pH of stormwater if necessary to prevent violations of water quality standards.
G. Assure wthat washout of concrete trucks is performed off site or in designated concrete washout areas only. Do not wash out concrete truck drums or concrete handling equipment onto the gournd, or into storm drains, open ditches, strees or streams. Washout of small concrete handling equipment may be disposed of in a formed area awaiting concrete where it will not contaminate surface or ground water. Do not dump excess concrete on site, except in designated concrete washout areas. Concrete spillage or concrete discharge directly to ground water or surface waters of the State is prohibited. Do not wash out to formed areas awaiting infiltration BMPs.
H. Obtain written approval from Ecology before using chemical treatment other than CO2, dry ice, or food grade vinegar to adjust pH.
I. Ensure that any contaminated water does not enter any stormwater catch basins.

Site Response: A soil & groundwater management plan has been developed to properly handle and dispose of waste materials.

The project will utilize a BMP C153 Material Delivery, Storage and Containment to implement good housekeeping measures. Specific source control BMPs will include:

- Regular inspection of all vehicles, equipment and petroleum storage/dispensing areas to detect any leaks or spills, and to identify maintenance needs for spill prevention.
- Spill prevention measures such as drip pans will be used for maintenance and repair of vehicles and equipment.
- BMP C151 Concrete Handling Measures will be utilized as needed.
- BMP C106 Wheel Wash Implementation will be utilities as needed.
- Portable sanitation facilities wil be regularly maintained.
- Soild waste other than soil will be stored in clearly marked containers.
- Locate spill kits close to work area where oil booms can be used to contain any contaminated water that comes in contact with any paved surface. Direct any contaminated water away from cstch basins to a ponding area where it can be collected and properly disposed of.

Installation Schedules: The site depression and ponding/infiltration within the unpaved site is already in place, along with a perimeter soil berm.

Inspection and Maintenance plan: If ever stormwater is found to be ponding, pumps will be utilized to retain and control that stormwater. Stormwater will either be pumped back into the site for infiltration or will be pumped to onsite tanks for temporary containment until it can be later infiltrated into site soil, disposed of in the City of Everett's sanitary sewer or hauled to a licensed facility offsite for proper treatment and disposal.

Responsible Staff: The site CESCL has lead responsibility to enure that no stormwater is discharging from the site to surface water.

Will maintenance, fueling, and/or repair of heavy equipment and vehicles occur on-site?
(Yes) No

Only fueling of equipment will occur onsite. Any equipment that needs to be repaired or maintenance will be transported offsite to our company shop.

List and describe BMPs:

A. Handle and dispose of all pollutants, including waste materials and demolition debris that occur on site in a manner that does not cause contamination of stormwater.
B. Provide cover, containment and protection from vandalism for all chemicals, liquid products, petroleum products and other materials that have the potential to pose a threat to human health of the environment. Minimize storage of hazardous material on site. Safety Data Sheets (SDS) should be supplied for all materials stored. Chemicals should be kept in their original labeled containers. On site fueling tanks must include secondary containment. Secondary containment means placing tanks or containers within an

impervious structure capable of containing 110% of the volume of the largest tan within the containment structure. Double walled tanks do not require additional secondary containment.

C. Conduct maintenance, fueling and repair of heavy equipment and vehicles using spill prevention and control measures. Clean contaminated surfaces immediately following any spill incident.

Site Response: A soil & groundwater management plan has been developed to properly handle and dispose of waste materials.

The project will utilize a BMP C153 Material Delivery, Storage and Containment to implement good housekeeping measures. Specific source control BMPs will include:

- Regular inspection of all vehicles, equipment and petroleum storage/dispensing areas to detect any leaks or spills, and to identify maintenance needs for spill prevention.
- Spill prevention measures such as drip pans will be used for maintenance and repair of vehicles and equipment.
- BMP C151 Concrete Handling Measures will be utilized as needed.
- BMP C106 Wheel Wash Implementation will be utilities as needed.
- Portable sanitation facilities wil be regularly maintained.
- Soild waste other than soil will be stored in clearly marked containers.

Will wheel wash or tire bath system BMPs be used during construction?
Yes, as needed.

Per the contract documents, we are allowed to discharge to the City of Everett's sanitary sewer system as long as it meets the requirements of the discharge permit.

List and describe BMPs:

A. Discharge wheel wash or tire bath wasterwater to a separate on-site treatment system that prevents discharge to surface water, such as to the sanitary sewer with local sewer district approval.

See Correspondence in Appendix C for the approval to discharge to the City of Everett's sanitary sewer system.

Installation Schedules: Not applicable

Inspection and Maintenance plan: Not Applicable

Responsible Staff: Not Applicable

Will pH-modifying sources be present on-site?
(Yes) No

Table 3 – pH-Modifying Sources

	None
X	Bulk cement
	Cement kiln dust
	Fly ash
	Other cementitious materials
	New concrete washing or curing waters
	Waste streams generated from concrete grinding and sawing
	Exposed aggregate processes
	Dewatering concrete vaults
	Concrete pumping and mixer washout waters
	Recycled concrete
	Other (i.e. calcium lignosulfate) [please describe]

List and describe BMPs:

A. A eco-pan will be used for concrete trucks to washout. The eco-pan will be collected and disposed of by the company it is rented from.
B. Use BMPs to prevent contamination of stormwater runoff by pH-modifying sources. The sources for this contamination include but are not limited to: recycled concrete stockpiles, bulk cement, cement kiln dust, fly ash, new concrete washing and curing waters, waste streams generated from concrete grinding and sawing, exposed aggregate processes, dewatering concrete vaults, concrete pumping and mixer washout waters.
C. Adjust the pH of stormwater if necessary to prevent violations of water quality standards.
D. Assure wthat washout of concrete trucks is performed off site or in designated concrete washout areas only. Do not wash out concrete truck drums or concrete handling equipment onto the gournd, or into storm drains, open ditches, strees or streams. Washout of small concrete handling equipment may be disposed of in a formed area awaiting concrete where it will not contaminate surface or ground water. Do not dump excess concrete on site, except in designated concrete washout areas. Concrete spillage or concrete discharge directly to ground water or surface waters of the State is prohibited. Do not wash out to formed areas awaiting infiltration RBMPs.
E. Obtain written approval from Ecology before using chemical treatment other than CO2, dry ice, or food grade vinegar to adjust pH.

Site Response: A soil & groundwater management plan has been developed to properly handle and dispose of waste materials.

The project will utilize a BMP C153 Material Delivery, Storage and Containment to implement good housekeeping measures. Specific source control BMPs will include:

- BMP C151 Concrete Handling Measures will be utilized as needed.
- BMP C106 Wheel Wash Implementation will be utilities as needed.

Installation Schedules: Concrete for the trench cutoff wall will be installed along with the installation of the 42” CSO line.

Inspection and Maintenance plan: CESCL and field supervision to insure that the concrete truck washes out in the eco-pan and that the eco-pan is protected from any discharge until it is removed from the site.

Responsible Staff: The site CESCL has lead responsibility.

Concrete trucks must not be washed out onto the ground, or into storm drains, open ditches, streets, or streams. Excess concrete must not be dumped on-site, except in designated concrete washout areas with appropriate BMPs installed.

Element 10: Control Dewatering (2.1.10)

Dewatering of the existing groundwater will occur along side the alignment of the 42" CSO and 12" sewer forcemain trench. There is a potential that the water is contaminated. The dewatering system will be composed of a well point system which will pump groundwater to header pipe. The header pipe will be in a 2-3 foot deep ditch and will convey the water to a water treatment system located next to the City of Everett's Port Gardner Storage Facility. The groundwater will run through the water treatment system and then into the City's clarifiers where the clean water will then be discharged to the City of Everett's sanitary sewer system.

Table 4 – Dewatering BMPs

	Infiltration
	Transport off-site in a vehicle (vacuum truck for legal disposal)
X	Ecology-approved on-site chemical treatment or other suitable treatment technologies
X	Sanitary or combined sewer discharge with local sewer district approval (last resort)
	Use of sedimentation bag with discharge to ditch or swale (small volumes of localized dewatering)

List and describe BMPs: Trench dewatering water, which have characteristics similar to stormwater runoff at the site, in conjunction with BMPs to reduce sedimentation before discharge to a sediment trap or sediment pond.

Site Response: Excavation that require dewatering will treat groundwater and discharge to the City of Everett's sewer in conformance with an approved discharge authorization.

Installation Schedules: At the end of February 2022, 1-2 weeks before the installation of the 42" CSO nd 12" sewer forcemains.

Inspection and Maintenance plan: The dewatering sub will be responsible for inspection and maintenance of their dewatering system. NWC's crews will keep watch on the dewatering system to make sure the system is not causing any erosion.

Responsible Staff: The dewatering sub will be responsible for their dewatering system. The site CESCL has lead responsibility to verify the dewatering system is not causing any erosion.

Element 11: Maintain BMPs (2.1.11)

All temporary and permanent Erosion and Sediment Control (ESC) BMPs shall be maintained and repaired as needed to ensure continued performance of their intended function.

Maintenance and repair shall be conducted in accordance with each particular BMP specification (see *Volume II of the SWMMWW or Chapter 7 of the SWMMEW*).

Visual monitoring of all BMPs installed at the site will be conducted at least once every calendar week and within 24 hours of any stormwater or non-stormwater discharge from the site. If the site becomes inactive and is temporarily stabilized, the inspection frequency may be reduced to once every calendar month.

All temporary ESC BMPs shall be removed within 30 days after final site stabilization is achieved or after the temporary BMPs are no longer needed.

Trapped sediment shall be stabilized on-site or removed. Disturbed soil resulting from removal of either BMPs or vegetation shall be permanently stabilized.

Additionally, protection must be provided for all BMPs installed for the permanent control of stormwater from sediment and compaction. BMPs that are to remain in place following completion of construction shall be examined and restored to full operating condition. If sediment enters these BMPs during construction, the sediment shall be removed and the facility shall be returned to conditions specified in the construction documents.

TESC will include the following elements:

1. Provide construction entrance per City of Everett Standard Drawing 201.
2. Provide wheel wash as necessary.
3. Excavations that require dewatering will treat groundwater and discharge to the City of Everett's sanitary sewer in conformance with an approved discharge authorization.
4. Dust control will be implemented per standard BMPs.
5. Cover protection of stockpiled material will be implemented per standards BMPs.
6. Concrete handling BMPs will be implemented.
7. Street sweeping will be implemented per standard BMPs.

Element 12: Manage the Project (2.1.12)

The project will be managed based on the following principles:

- Projects will be phased to the maximum extent practicable and seasonal work limitations will be taken into account.
- Inspection and monitoring:
    - Inspection, maintenance and repair of all BMPs will occur as needed to ensure performance of their intended function.
    - Site inspections and monitoring will be conducted in accordance with Special Condition S4 of the CSWGP. Sampling locations are indicated on the Site Map. Sampling station(s) are located in accordance with applicable requirements of the CSWGP.
- Maintain an updated SWPPP.
    - The SWPPP will be updated, maintained, and implemented in accordance with Special Conditions S3, S4, and S9 of the CSWGP.

As site work progresses the SWPPP will be modified routinely to reflect changing site conditions. The SWPPP will be reviewed monthly to ensure the content is current.

Table 5 – Management

	Design the project to fit the existing topography, soils, and drainage patterns
X	Emphasize erosion control rather than sediment control
X	Minimize the extent and duration of the area exposed
X	Keep runoff velocities low
X	Retain sediment on-site
X	Thoroughly monitor site and maintain all ESC measures
	Schedule major earthwork during the dry season
	Other (please describe)

Element 13: Protect Low Impact Development (LID) BMPs (2.1.13)

Site Response: Not Applicable. No LID BMPs will be construced or impacted.

Pollution Prevention Team (3.0)

Table 7 – Team Information

Title	Name(s)	Phone Number
Certified Erosion and Sediment Control Lead (CESCL)	Awet Tsegay, Northwest Construction, Inc.	425-417-1848
Resident Engineer		
Emergency Ecology Contact	Tonya Lane, P.E.	206-594-0152
Emergency Permittee/ Owner Contact	Keith Alewine, City of Everett	425-257-7225
Non-Emergency Owner Contact	Keith Alewine, City of Everett	425-257-7225
Monitoring Personnel	TBD	TBD
Ecology Regional Office	Northwest Regional Office	425-649-7000

Monitoring and Sampling Requirements (4.0)

Monitoring includes visual inspection, sampling for water quality parameters of concern, and documentation of the inspection and sampling findings in a site log book. A site log book will be maintained for all on-site construction activities and will include:

- A record of the implementation of the SWPPP and other permit requirements
- Site inspections
- Stormwater sampling data

The site log book must be maintained on-site within reasonable access to the site and be made available upon request to Ecology or the local jurisdiction.

Numeric effluent limits may be required for certain discharges to 303(d) listed waterbodies. See CSWGP Special Condition S8 and Section 5 of this template.

Complete the following paragraph for sites that discharge to impaired waterbodies for fine sediment, turbidity, phosphorus, or pH:

The receiving waterbody, Port Gardner Bay, East Waterway is impaired for: sediment; parameter: sediment bioassay.

All stormwater and dewatering discharges from the site are subject to an **effluent limit** of 8.5 su for pH and/or 25 NTU for turbidity.

Site Inspection (4.1)

Site inspections will be conducted at least once every calendar week and within 24 hours following any discharge from the site. An inspection form is provided in Appendix D. For sites that are temporarily stabilized and inactive, the required frequency is reduced to once per calendar month.

Stormwater Quality Sampling (4.2)

As discussed in this SWPPP this site has demonstrated the ability to infiltrate all stormwater, and no stormwater discharge to surface water is expected during mot of the construction period. The site topography and the site perimeter berms are indicated on the site maps. There will be no need for stormwater quality sampling when there is no construction stormwater discharge to surface water.

Turbidity Sampling (4.2.1)

CSWGP requirements include calibrated turbidity meter use to sample site construction stormwater discharges to surface water. Sampling will be conducted at all discharge points at least once per calendar week.

Method for sampling turbidity: by Standard Methods or field measurement.

Table 8 – Turbidity Sampling Method

X	Turbidity Meter/Turbidimeter (required for disturbances 5 acres or greater in size)
	Transparency Tube (option for disturbances less than 1 acre and up to 5 acres in size)

The benchmark for turbidity value is 25 nephelometric turbidity units (NTU) and a transparency less than 33 centimeters.

If the discharge's turbidity is 26 to 249 NTU **or** the transparency is less than 33 cm but equal to or greater than 6 cm, the following steps will be conducted:

1. Review the SWPPP for compliance with Special Condition S9. Make appropriate revisions within 7 days of the date the discharge exceeded the benchmark.
2. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible. Address the problems within 10 days of the date the discharge exceeded the benchmark. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when the Permittee requests an extension within the initial 10-day response period.
3. Document BMP implementation and maintenance in the site log book.

If the turbidity exceeds 250 NTU **or** the transparency is 6 cm or less at any time, the following steps will be conducted:

1. Telephone or submit an electronic report to the applicable Ecology Region's Environmental Report Tracking System (ERTS) within 24 hours. https://www.ecology.wa.gov/About-us/Get-involved/Report-an-environmental-issue
    - Northwest Region (King, Kitsap, Island, San Juan, Skagit, Snohomish, Whatcom): (425) 649-7000
2. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible. Address the problems within 10 days of the date the discharge exceeded the benchmark. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when the Permittee requests an extension within the initial 10-day response period
3. Document BMP implementation and maintenance in the site log book.
4. Continue to sample discharges daily until one of the following is true:
    - Turbidity is 25 NTU (or lower).
    - Transparency is 33 cm (or greater).
    - Compliance with the water quality limit for turbidity is achieved.
        - 1 - 5 NTU over background turbidity, if background is less than 50 NTU
        - 1% - 10% over background turbidity, if background is 50 NTU or greater
    - The discharge stops or is eliminated.

pH Sampling (4.2.2)

pH monitoring is required for “Significant concrete work” (i.e. greater than 1000 cubic yards poured concrete or recycled concrete over the life of the project).The use of engineered soils (soil amendments including but not limited to Portland cement-treated base [CTB], cement kiln dust [CKD] or fly ash) also requires pH monitoring.

For significant concrete work, pH sampling will start the first day concrete is poured and continue until it is cured, typically three (3) weeks after the last pour.

For engineered soils and recycled concrete, pH sampling begins when engineered soils or recycled concrete are first exposed to precipitation and continues until the area is fully stabilized.

If the measured pH is 8.5 or greater, the following measures will be taken:

1. Prevent high pH water from entering storm sewer systems or surface water.
2. Adjust or neutralize the high pH water to the range of 6.5 to 8.5 su using appropriate technology such as carbon dioxide (CO_2) sparging (liquid or dry ice).
3. Written approval will be obtained from Ecology prior to the use of chemical treatment other than CO_2 sparging or dry ice.

Method for sampling pH: by Standard Methods or field measurement.

Table 8 – pH Sampling Method

X	pH meter
X	pH test kit
X	Wide range pH indicator paper

Other Stormwater Quality Sampling (4.3)

In addition to turbidity and pH, the April 2021 Proposed Agreed Order Parameters Memorandum (spect Consulting 2021), included in Appendix G) recommened that the following parameters be included for monitoring in a CSWGP Agreed Order for the Port’s planned project:

- Total metals arsenic, copper, lead, nickel, and zinc by U.S. Environmental Protection Agency (EPA) 200.8 and mercury by EPA 1631E
- Total polychlorinated biphenyls (PCBs) by EPA 608.3
- Carcinogenic polycyclic aromatic hydrocrbons (cPAHs) by EPA 625.1, that individually are:
    - Benzo(a)anthracene
    - Benzo(b)fluoranthene
    - Benzo(k)fluoranthene
    - Benzo(a)pyrene
    - Chrysene
    - Dibenzo(a-h)anthracene
    - Indeno(1,2,3-cd)pyrene

Reporting and Record Keeping (6.0)

Record Keeping (6.1)

Site Log Book (6.1.1)

A site log book will be maintained for all on-site construction activities and will include:

- A record of the implementation of the SWPPP and other permit requirements
- Site inspections
- Sample logs

Records Retention (6.1.2)

Records will be retained during the life of the project and for a minimum of three (3) years following the termination of permit coverage in accordance with Special Condition S5.C of the CSWGP.

Permit documentation to be retained on-site:

- CSWGP
- Permit Coverage Letter
- SWPPP
- Site Log Book

Permit documentation will be provided within 14 days of receipt of a written request from Ecology. A copy of the SWPPP or access to the SWPPP will be provided to the public when requested in writing in accordance with Special Condition S5.G.2.b of the CSWGP.

Updating the SWPPP (6.1.3)

The SWPPP will be modified if:

- Found ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site.
- There is a change in design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the State.

The SWPPP will be modified within seven (7) days if inspection(s) or investigation(s) determine additional or modified BMPs are necessary for compliance. An updated timeline for BMP implementation will be prepared.

Reporting (6.2)

Discharge Monitoring Reports (6.2.1)

Cumulative soil disturbance is one (1) acre or larger; therefore, Discharge Monitoring Reports (DMRs) will be submitted to Ecology monthly. If there was no discharge during a given monitoring period the DMR will be submitted as required, reporting "No Discharge". The DMR due date is fifteen (15) days following the end of each calendar month.

DMRs will be reported online through Ecology's WQWebDMR System.

To sign up for WQWebDMR go to:
https://www.ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance/WQWebPortal-guidance

Notification of Noncompliance (6.2.2)

If any of the terms and conditions of the permit is not met, and the resulting noncompliance may cause a threat to human health or the environment, the following actions will be taken:

1. Ecology will be notified within 24-hours of the failure to comply by calling the applicable Regional office ERTS phone number (Regional office numbers listed below).
2. Immediate action will be taken to prevent the discharge/pollution or otherwise stop or correct the noncompliance. If applicable, sampling and analysis of any noncompliance will be repeated immediately and the results submitted to Ecology within five (5) days of becoming aware of the violation.
3. A detailed written report describing the noncompliance will be submitted to Ecology within five (5) days, unless requested earlier by Ecology.

Specific information to be included in the noncompliance report is found in Special Condition S5.F.3 of the CSWGP.

Anytime turbidity sampling indicates turbidity is 250 NTUs or greater, or water transparency is 6 cm or less, the Ecology Regional office will be notified by phone within 24 hours of analysis as required by Special Condition S5.A of the CSWGP.

- Northwest Region at (425) 649-7000 for Island, King, Kitsap, San Juan, Skagit, Snohomish, or Whatcom County

Include the following information:

1. Your name and / Phone number
2. Permit number
3. City / County of project
4. Sample results

5. Date / Time of call
6. Date / Time of sample
7. Project name

In accordance with Special Condition S4.D.5.b of the CSWGP, the Ecology Regional office will be notified if chemical treatment other than CO_2 sparging is planned for adjustment of high pH water.

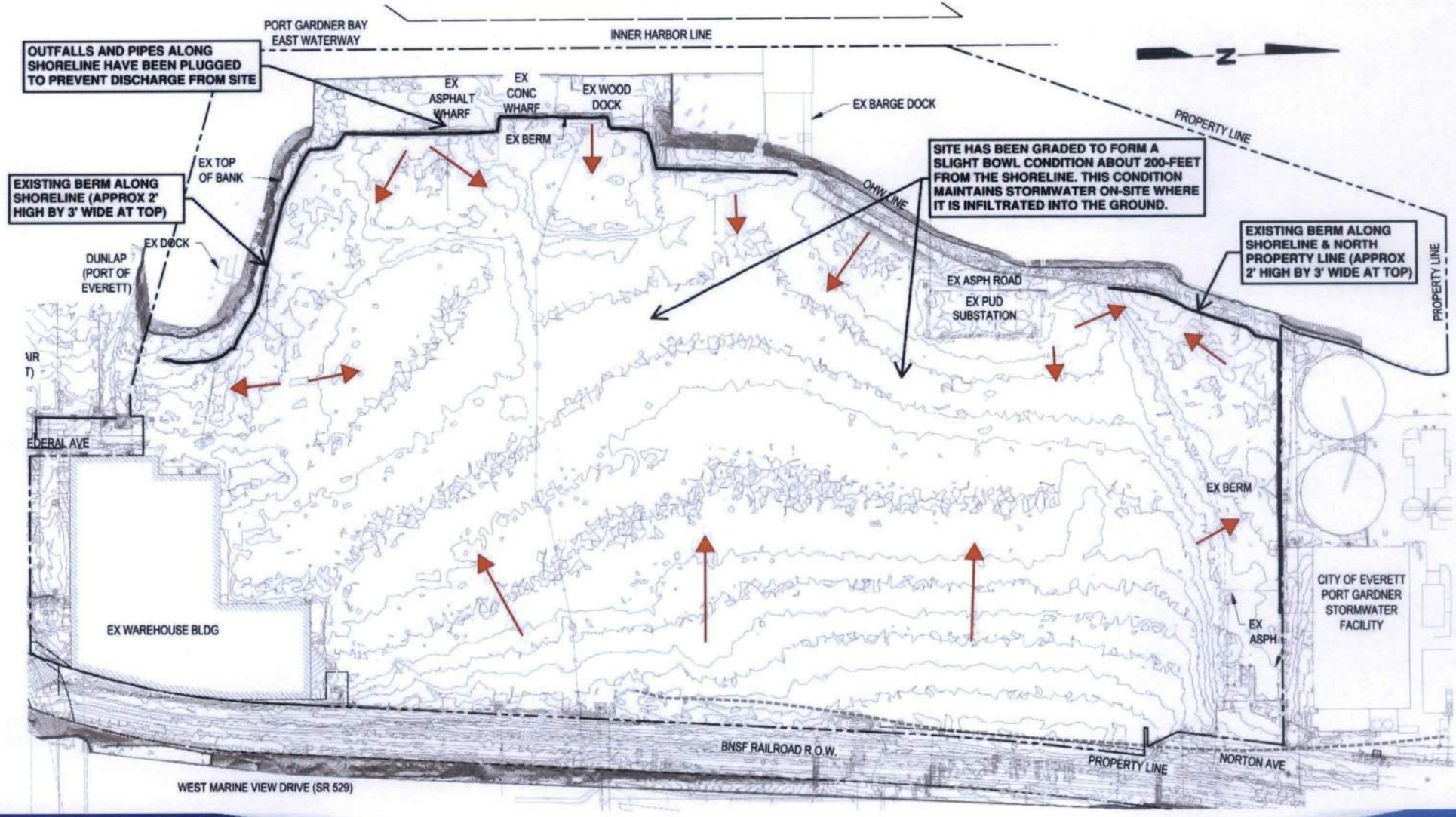
Appendix/Glossary

A. Site Map
B. BMP Detail
C. Correspondence
D. Site Inspection Form
E. Construction Stormwater General Permit (CSWGP)
F. 303(d) List Waterbodies / TMDL Waterbodies Information
G. Contaminated Site Information
H. Engineering Calculations

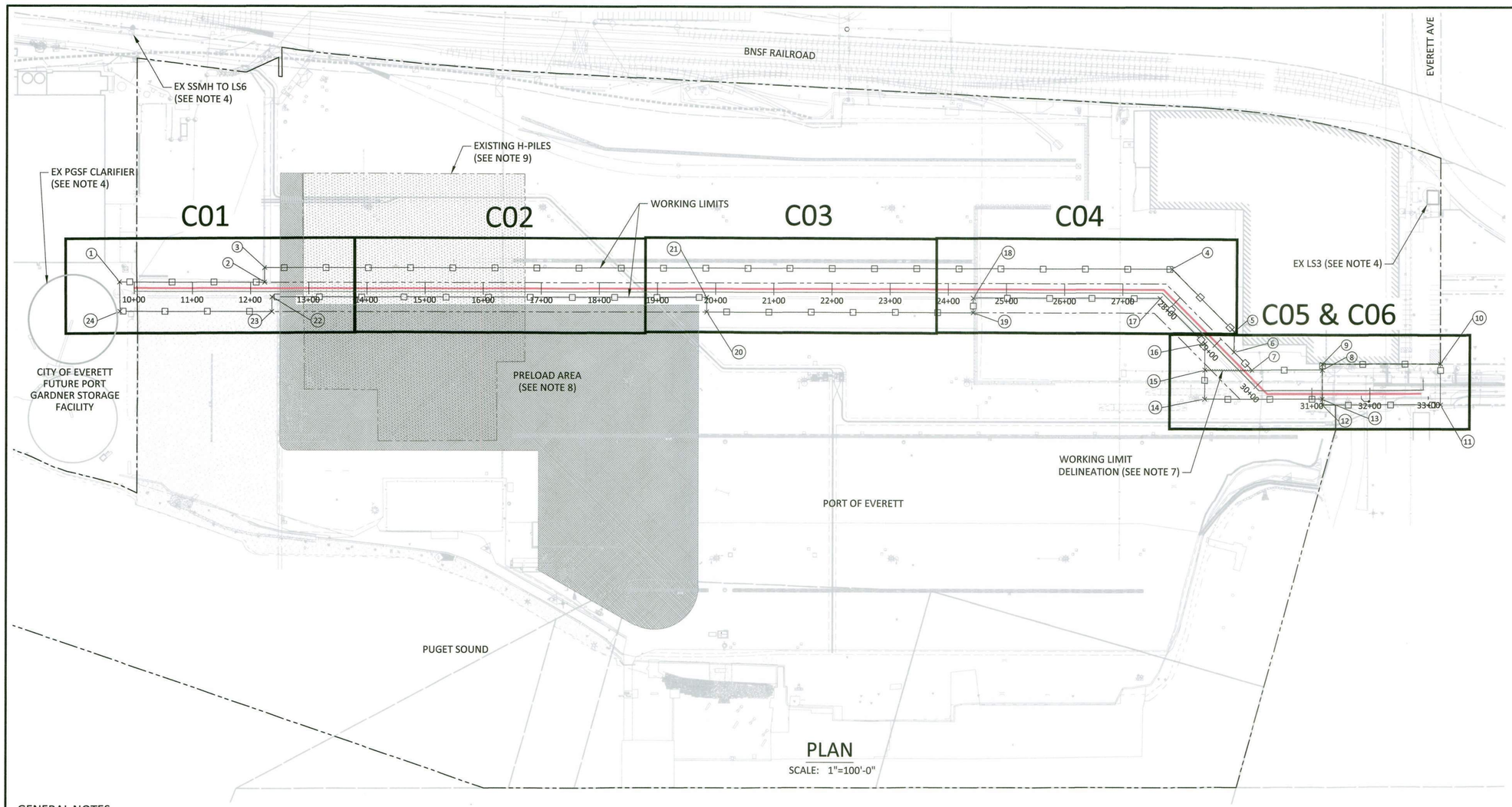
APPENDIX A

Site Maps

Existing Conditions Site Plan



kpff Consulting Engineers



PLAN

SCALE: 1"=100'-0"

WORKING LIMITS POINTS

NO.	NORTHING	EASTING
1	363490.25	1301808.63
2	363241.02	1301800.05
3	363240.18	1301824.94
4	361680.42	1301770.64
5	361577.46	1301660.25
6	361578.96	1301625.20
7	361549.13	1301593.22
8	361427.72	1301589.00
9	361427.37	1301598.99
10	361223.97	1301592.19
11	361226.41	1301521.95
12	361429.79	1301529.03
13	361429.44	1301539.02
14	361632.39	1301546.09
15	361630.25	1301596.07
16	361628.31	1301641.46
17	361702.86	1301721.39
18	362024.03	1301732.57
19	362024.90	1301707.58
20	362482.63	1301723.52
21	362481.76	1301748.50
22	363229.31	1301774.53
23	363230.23	1301749.55
24	363490.97	1301758.62

GENERAL NOTES

1. CONTRACTOR SHALL BE LIMITED TO WORK WITHIN THE WORKING LIMITS AS SHOWN AND DEFINED ON THIS SHEET.
2. PROJECT CONSTRUCTION TAKES PLACE WITHIN THE PORT OF EVERETT. THE CONTRACTOR IS REQUIRED TO ADHERE TO THE CONDITIONS OUTLINED WITHIN THE TEMPORARY CONSTRUCTION LICENSE AGREEMENT BETWEEN THE CITY OF EVERETT AND THE PORT OF EVERETT. A COPY OF THE AGREEMENT IS PROVIDED IN APPENDIX D OF THE SPECIFICATIONS.
3. THE PROJECT CROSSES AND IS ADJACENT TO THE KIMBERLY-CLARK WORLDWIDE MTCA SITE AND THE EXXONMOBIL/ADC MTCA SITE, WHICH ARE LISTED ON THE WASHINGTON STATE DEPARTMENT OF ECOLOGY'S (ECY) CONFIRMED AND SUSPECTED CONTAMINATED SITES LIST. CONSTRUCTION SHALL BE IN ACCORDANCE WITH TO SECTION 2-09 AND THE SOIL AND GROUNDWATER MANAGEMENT PLANS.
4. THE CONTRACTOR WILL BE REQUIRED TO DISCHARGE GROUNDWATER FROM DEWATERING INTO THE CITY'S SEWER SYSTEM CITY'S SEWER SYSTEM. REFER TO SECTION 2-09 AND SECTION 7-08 FOR DEWATERING AND STORMWATER MANAGEMENT REQUIREMENTS.
5. THE SITE IS LOCATED WHERE ARCHEOLOGICAL OBJECTS MAY BE ENCOUNTERED. PROJECT WORK SHALL BE IN CONFORMANCE WITH SECTION 1-07.16 AND THE PORT OF EVERETT NORTON TERMINAL CULTURAL RESOURCES MONITORING AND DISCOVERY PLAN. A COPY OF THE PLAN IS PROVIDED IN APPENDIX A.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN AND IMPLEMENTING TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES ALONG THE BOUNDARY OF THE COE UTILITY EASEMENT OR TEMPORARY CONSTRUCTION EASEMENT, WHICHEVER PROVIDES THE GREATEST WORKING LIMITS IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH IN THE CONSTRUCTION STORM WATER GENERAL PERMIT (CSWGP) DATED JUNE 1, 2021 AGREED ORDER (AO) DATED AUGUST 3, 2021 AND FINAL SOIL AND GROUNDWATER MANAGEMENT PLAN DATED JUNE 22, 2021 WHICH WERE PREPARED AS PART OF THE PORT OF EVERETT NORTON TERMINAL DEVELOPMENT & MTCA 3RD INTERIM ACTION PROJECT CURRENTLY UNDER CONSTRUCTION.
7. CONTRACTOR IS RESPONSIBLE FOR AREA WITHIN WORKING LIMITS TO THE NORTH OF THIS LINE THROUGHOUT THE CONTRACT DURATION. THE REMAINING AREA WITHIN THE WORKING LIMITS TO THE SOUTH OF THIS LINE WILL REMAIN THE RESPONSIBILITY OF THE PORT UNTIL PIPELINE CONSTRUCTION BEGINS IN THIS AREA.
8. CONTRACTOR SHALL NOT ACCESS OR PERFORM ANY WORK WITHIN THE PRELOAD AREA SHOWN ON THE DRAWINGS UNLESS AUTHORIZED BY THE CITY. IT IS ANTICIPATED THAT AUTHORIZATION TO ACCESS THIS AREA FOR CONSTRUCTION PURPOSES WILL OCCUR NO LATER THAN APRIL 1, 2022. THE PORT WILL BE RESPONSIBLE FOR REMOVING THE DIRT WITHIN THE PRELOAD AREA.
9. EXISTING H-PILE FOUNDATIONS ON 5-FOOT CENTERS WITH TOP ELEVATIONS RANGING FROM 11' TO 14' ELEVATIONS REQUIRED TO BE REMOVED AND DISPOSED OF ONLY WITHIN THE EXTENT OF THE TRENCH EXCAVATION AND TO THE BOTTOM OF PIPE TRENCH IN THIS AREA. SEE DETAIL 1/C10.
10. CONTRACTOR SHALL BE REQUIRED TO COORDINATE WITH THE PORT OF EVERETT CONTRACTOR REGARDING THE INSTALLATION OF ANY UTILITIES AS WELL AS ANY DESIGN MODIFICATIONS TO THESE UTILITIES WITHIN THE COE UTILITY EASEMENT OR TEMPORARY CONSTRUCTION EASEMENT.RESTORE ALL DISTURBED AREAS TO NATIVE CONDITIONS.
11. WITH THE EXCEPTION OF THE PROPOSED FINAL GRADING IN THE PRELOAD AREA, AND THE PROPOSED 12" WATERLINE ITEMS SHOWN AS "(BY OTHERS)" ARE ASSUMED TO BE INSTALLED OR CONSTRUCTED AFTER THE INSTALLATION OF THE 42" CS AND 12" FM AS PART OF THE PORT OF EVERETT NORTON TERMINAL DEVELOPMENT & MTCA 3RD INTERIM ACTION PROJECT CURRENTLY UNDER CONSTRUCTION.
12. EXISTING MONITORING WELLS WITHIN THE EXCAVATION FOOTPRINT TO BE DECOMMISSIONED. CONTRACTOR IS RESPONSIBLE FOR PRESERVING AND PROTECTING EXISTING WELLS WITHIN 10 FEET OF THE ACTIVE CONSTRUCTION ZONE. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. LOCATIONS OF EXISTING MONITORING WELLS SHOWN IN GEOTECHNICAL ENGINEERING REPORT PREPARED BY LANDAU ASSOCIATES.
13. GEOTECHNICAL ENGINEERING REPORT, DATED JUNE 17, 2021 PREPARED BY LANDAU ASSOCIATES.

100 50 0 100 200
FEET

NO.	DATE	APRVD	REVISION

PLANS ISSUED FOR

BID			CONST			RECORD		
ACTION	DATE	APRVD	ACTION	DATE	APRVD	ACTION	DATE	APRVD
	11/3/21							

Designed L. MESCHKE
Drawn R. CARPENTER
Checked D. APPLEGATE
Design Review Level

LAURA MESCHKE 20123336 REGISTERED PROFESSIONAL ENGINEER
11-2-21

HDR

EVERETT PUBLIC WORKS
3200 Cedar Street
Everett, WA 98201
425.257.8800 everettwa.gov

PORT OF EVERETT
COMBINED SEWER MAIN IMPROVEMENTS
W.O. #UP-3768

GENERAL

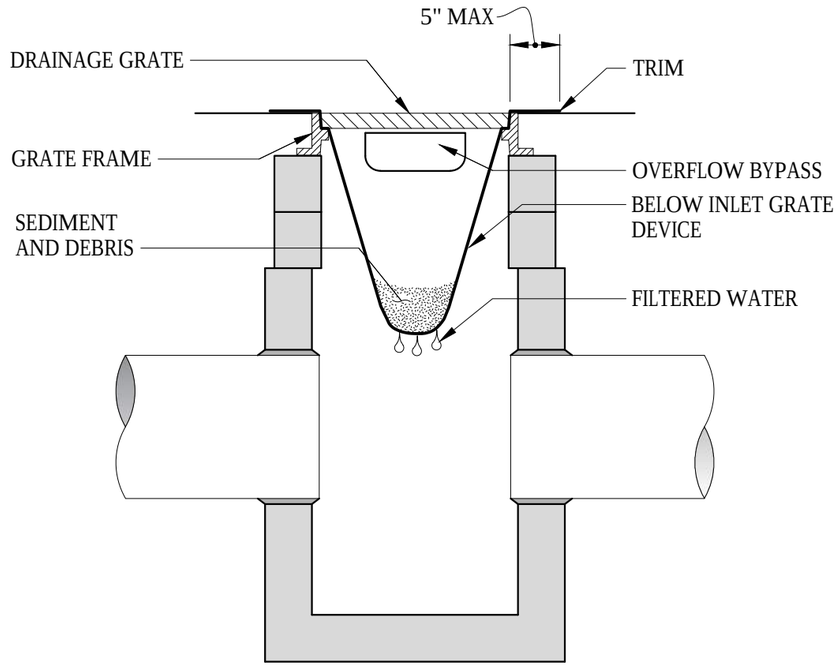
KEY PLAN

Drawing G03
Sheet No. 3 / 13 Of Total

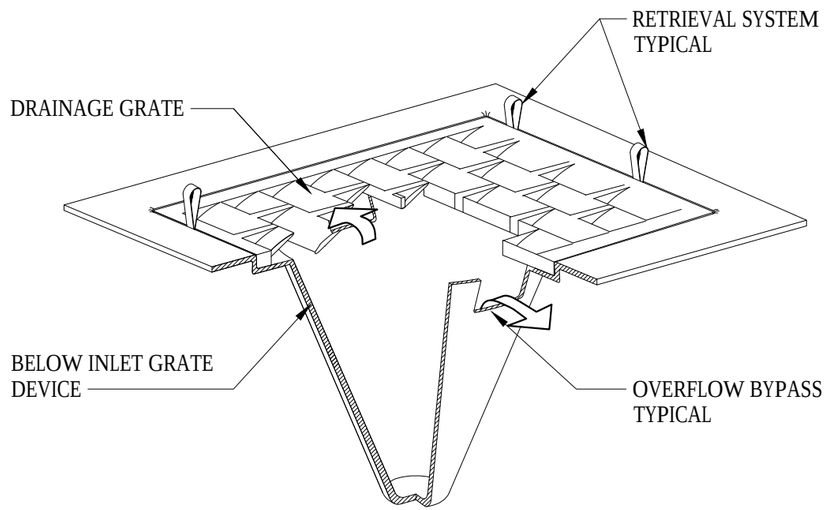
Plot date 11/1/2021 3:23 PM Plotted by Carpenter, Richard J. Last saved by RCARPENT Plot-style Everett-2016.stb Sheetset Name PORT GARDNER STORAGE FACILITY PLAN - SSM
FilepathVFilename: C:\PWWORKING\WEST01\D1859260\3728-G03.DWG
Surveyed By Date Control Monument City of Everett Field Book/Starting Page /

APPENDIX B

BMP Details



SECTION VIEW



ISOMETRIC VIEW

NOTES

1. CATCH BASIN INSERTS SHALL BE REMOVED AT THE END OF THE PROJECT.
2. CATCH BASIN INSERTS ARE ONLY TO BE INSTALLED IN DRAINAGE DEVICES PER THE MANUFACTURES'S RECOMMENDATIONS. CATCH BASIN INLET INSERTS SHALL BE INSTALLED IN CURB INLETS.
3. CATCH BASIN INSERTS SHALL BE INSTALLED PRIOR TO CLEARING AND GRADING ACTIVITY, OR UPON PLACEMENT OF A NEW CATCH BASIN.
4. SEDIMENT SHALL BE REMOVED FROM THE UNIT WHEN IT BECOMES ONE THIRD FULL OR IN ACCORDANCE WITH THE MANUFACTURES' INSTRUCTIONS.
5. SEDIMENT REMOVAL SHALL BE ACCOMPLISHED BY REMOVING THE INLET INSERTS, EMPTYING, AND RE-INSTALLING IT INTO THE CATCH BASIN. DO NOT WASH SEDIMENT INTO STORM DRAINS WHILE CLEANING.
6. SIZE THE BELOW INLET GRATE DEVICE (BIGD) FOR THE STORM WATER STRUCTURE IT WILL SERVICE.
7. THE BIGD SHALL HAVE A BUILT-IN HIGH-FLOW RELIEF SYSTEM (OVERFLOW BYPASS).
8. THE RETRIEVAL SYSTEM MUST ALLOW REMOVAL OF THE BIGD WITHOUT SPILLING THE COLLECTED MATERIAL.
9. PERFORM MAINTENANCE IN ACCORDANCE WITH STANDARD SPECIFICATION 8-01.3(15).

WSDOT STD PLAN I-40.20-00 ACCEPTABLE SUBSTITUTE IF MAINTENANCE MEETS NOTES 1-5

CITY OF EVERETT
PUBLIC WORKS DEPARTMENT

City Engineer	Section Manager	CAD Manager	Drawn By	Current Rev Date
RYAN SASS	HEATHER GRIFFIN	PAUL WILHELM	ESH	12/30/2016

TITLE: STORM DRAIN INLET PROTECTION

STANDARD DRAWING No. 210

Filename
T:\ACAD\EPS-COE DESIGN & CONSTR SPECS FOR DEVELOPMENT\IN-WORK\STD210.DWG
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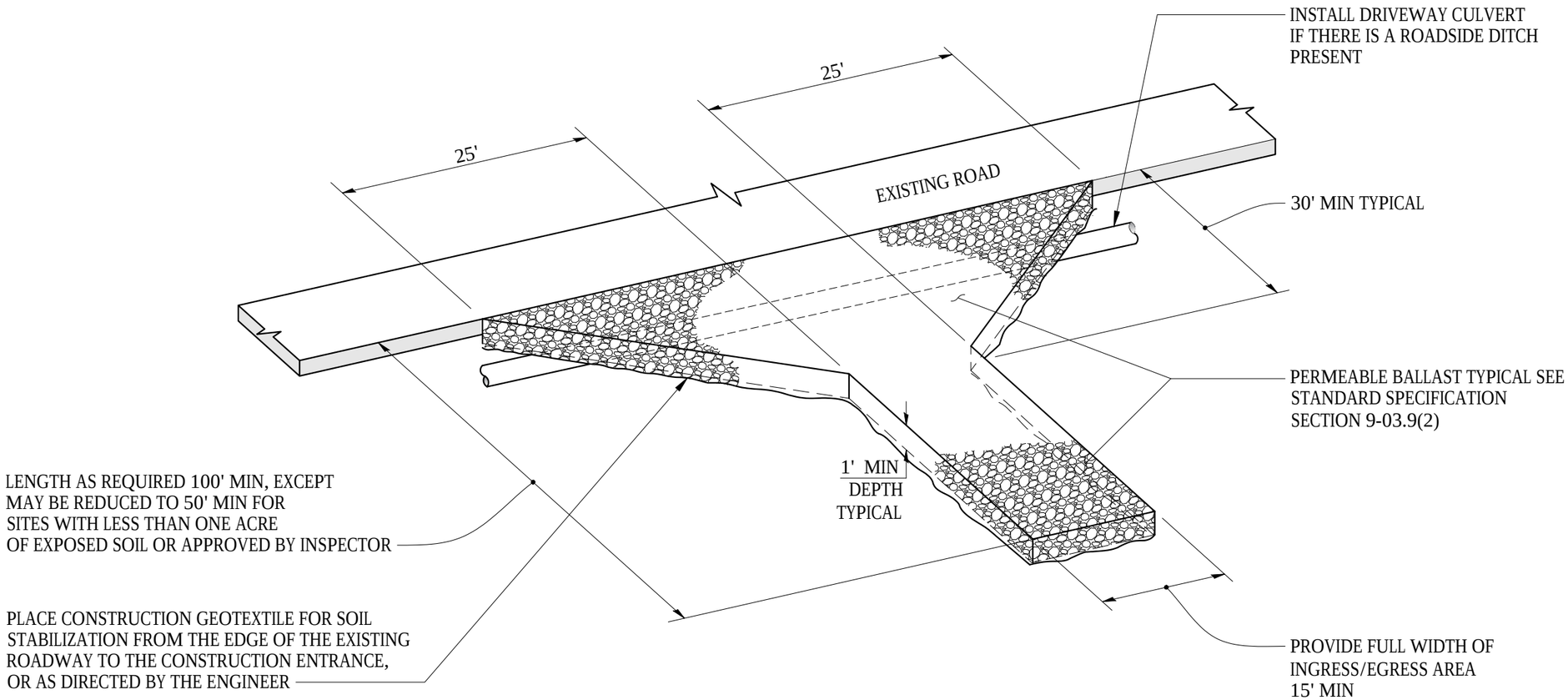
NOTES

1. STABILIZED CONSTRUCTION ENTRANCE SHALL MEET THE REQUIREMENTS OF WSDOT STANDARD SPECIFICATION SECTION 8-01.3(7).



ISOMETRIC VIEW
CONSTRUCTION ENTRANCE

WSDOT STD PLAN I-80.10-02 ACCEPTABLE SUBSTITUTE

CITY OF EVERETT
PUBLIC WORKS DEPARTMENT

City Engineer	Section Manager	CAD Manager	Drawn By	Current Rev Date
RYAN SASS	HEATHER GRIFFIN	PAUL WILHELM	ESH	04/03/2017

TITLE: CONSTRUCTION ACCESS

STANDARD DRAWING No.: 201

Filename
T:\ACAD\EPS-COE DESIGN & CONSTR SPECS FOR DEVELOPMENT\IN-WORK\STD201.DWG
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BMP C106: Wheel Wash

Purpose

Wheel washes reduce the amount of sediment transported onto paved roads by washing dirt from the wheels of motor vehicles prior to the motor vehicles leaving the construction site.

Conditions of Use

- Use a wheel wash when BMP C105: Stabilized Construction Access is not preventing sediment from being tracked off site.
- Wheel washing is generally an effective BMP when installed with careful attention to topography. For example, a wheel wash can be detrimental if installed at the top of a slope abutting a right-of-way where the water from the dripping truck can run unimpeded into the street.
- Pressure washing combined with an adequately sized and surfaced pad with direct drainage to a large 10-foot x 10-foot sump can be very effective.
- Wheel wash wastewater is not stormwater. It is commonly called process water, and must be discharged to a separate on-site treatment system that prevents discharge to waters of the State, or to the sanitary sewer with local sewer district approval.
- Wheel washes may use closed-loop recirculation systems to conserve water use.
- Wheel wash wastewater shall not include wastewater from concrete washout areas.
- When practical, the wheel wash should be placed in sequence with BMP C105: Stabilized Construction Access. Locate the wheel wash such that vehicles exiting the wheel wash will enter directly onto BMP C105: Stabilized Construction Access. In order to achieve this, BMP C105: Stabilized Construction Access may need to be extended beyond the standard installation to meet the exit of the wheel wash.

Design and Installation Specifications

Suggested details are shown in Figure II-3.2: Wheel Wash. The Local Permitting Authority may allow other designs. A minimum of 6 inches of asphalt treated base (ATB) over crushed base material or 8 inches over a good subgrade is recommended to pave the wheel wash.

Use a low clearance truck to test the wheel wash before paving. Either a belly dump or lowboy will work well to test clearance.

Keep the water level from 12 to 14 inches deep to avoid damage to truck hubs and filling the truck tongues with water.

Midpoint spray nozzles are only needed in extremely muddy conditions.

Wheel wash systems should be designed with a small grade change, 6- to 12-inches for a 10-foot-wide pond, to allow sediment to flow to the low side of pond to help prevent re-suspension of sediment. A drainpipe with a 2- to 3-foot riser should be installed on the low side of the pond to allow for easy cleaning and refilling. Polymers may be used to promote coagulation and flocculation in a closed-loop system. Polyacrylamide (PAM) added to the wheel wash water at a rate of 0.25 - 0.5 pounds per 1,000 gallons of water increases effectiveness and reduces cleanup time. If PAM is already being used for dust or erosion control and is being applied by a water truck, the same truck can be used to change the wash water.

Maintenance Standards

The wheel wash should start out each day with fresh water.

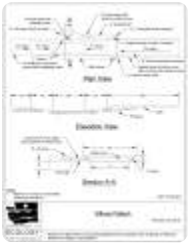
The wheel wash water should be changed a minimum of once per day. On large earthwork jobs where more than 10-20 trucks per hour are expected, the wheel wash water will need to be changed more often.

Approved as Functionally Equivalent

Ecology has approved products as able to meet the requirements of this BMP. The products did not pass through the Technology Assessment Protocol – Ecology (TAPE) process. Local jurisdictions may choose not to accept these products, or may require additional testing prior to consideration for local use. Products that Ecology has approved as functionally equivalent are available for review on Ecology's website at:

https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Stormwater-permittee-guidance-resources/Emerging-stormwater-treatment-technologies

Figure II-3.2: Wheel Wash



pdf download

BMP C153: Material Delivery, Storage, and Containment

Purpose

Prevent, reduce, or eliminate the discharge of pollutants to the stormwater system or watercourses from material delivery and storage. Minimize the storage of hazardous materials on-site, store materials in a designated area, and install secondary containment.

Conditions of Use

Use at construction sites with delivery and storage of the following materials:

- Petroleum products such as fuel, oil and grease
- Soil stabilizers and binders (e.g., Polyacrylamide)
- Fertilizers, pesticides and herbicides
- Detergents
- Asphalt and concrete compounds
- Hazardous chemicals such as acids, lime, adhesives, paints, solvents, and curing compounds
- Any other material that may be detrimental if released to the environment

Design and Installation Specifications

- The temporary storage area should be located away from vehicular traffic, near the construction entrance(s), and away from waterways or storm drains.
- Safety Data Sheets (SDS) should be supplied for all materials stored. Chemicals should be kept in their original labeled containers.
- Hazardous material storage on-site should be minimized.
- Hazardous materials should be handled as infrequently as possible.
- During the wet weather season (Oct 1 – April 30), consider storing materials in a covered area.
- Materials should be stored in secondary containments, such as an earthen dike, horse trough, or even a children’s wading pool for non-reactive materials such as detergents, oil, grease, and paints. Small amounts of material may be secondarily contained in “bus boy” trays or concrete mixing trays.

- Do not store chemicals, drums, or bagged materials directly on the ground. Place these items on a pallet and, when possible, within secondary containment.
- If drums must be kept uncovered, store them at a slight angle to reduce ponding of rainwater on the lids to reduce corrosion. Domed plastic covers are inexpensive and snap to the top of drums, preventing water from collecting.
- Liquids, petroleum products, and substances listed in 40 CFR Parts 110, 117, or 302 shall be stored in approved containers and drums and shall not be overfilled. Containers and drums shall be stored in temporary secondary containment facilities.
- Temporary secondary containment facilities shall provide for a spill containment volume able to contain 10% of the total enclosed container volume of all containers, or 110% of the capacity of the largest container within its boundary, whichever is greater.
- Secondary containment facilities shall be impervious to the materials stored therein for a minimum contact time of 72 hours.
- Sufficient separation should be provided between stored containers to allow for spill cleanup and emergency response access.
- During the wet weather season (Oct 1 – April 30), each secondary containment facility shall be covered during non-working days, prior to and during rain events.
- Keep material storage areas clean, organized and equipped with an ample supply of appropriate spill clean-up material (spill kit).
- The spill kit should include, at a minimum:
    - 1-Water Resistant Nylon Bag
    - 3-Oil Absorbent Socks 3”x 4’
    - 2-Oil Absorbent Socks 3”x 10’
    - 12-Oil Absorbent Pads 17”x19”
    - 1-Pair Splash Resistant Goggles
    - 3-Pair Nitrile Gloves
    - 10-Disposable Bags with Ties
    - Instructions

Maintenance Standards

- Secondary containment facilities shall be maintained free of accumulated rainwater and spills. In the

event of spills or leaks, accumulated rainwater and spills shall be collected and placed into drums. These liquids shall be handled as hazardous waste unless testing determines them to be non-hazardous.

- Re-stock spill kit materials as needed.

BMP C151: Concrete Handling

Purpose

Concrete work can generate process water and slurry that contain fine particles and high pH, both of which can violate water quality standards in the receiving water. Concrete spillage or concrete discharge to waters of the State is prohibited. Use this BMP to minimize and eliminate concrete, concrete process water, and concrete slurry from entering waters of the State.

Conditions of Use

Any time concrete is used, utilize these management practices. Concrete construction project components include, but are not limited to:

- Curbs
- Sidewalks
- Roads
- Bridges
- Foundations
- Floors
- Runways

Disposal options for concrete, in order of preference are:

1. Off-site disposal
2. Concrete wash-out areas (see BMP C154: Concrete Washout Area)
3. De minimus washout to formed areas awaiting concrete

Design and Installation Specifications

- Wash concrete truck drums at an approved off-site location or in designated concrete washout areas only. Do not wash out concrete trucks onto the ground (including formed areas awaiting concrete), or into storm drains, open ditches, streets, or streams. Refer to BMP C154: Concrete Washout Area for information on concrete washout areas.

    - Return unused concrete remaining in the truck and pump to the originating batch plant for recycling. Do not dump excess concrete on site, except in designated concrete washout areas as allowed in BMP C154: Concrete Washout Area.

- Wash small concrete handling equipment (e.g. hand tools, screeds, shovels, rakes, floats, trowels, and wheelbarrows) into designated concrete washout areas or into formed areas awaiting concrete pour.
- At no time shall concrete be washed off into the footprint of an area where an infiltration feature will be installed.
- Wash equipment difficult to move, such as concrete paving machines, in areas that do not directly drain to natural or constructed stormwater conveyance or potential infiltration areas.
- Do not allow washwater from areas, such as concrete aggregate driveways, to drain directly (without detention or treatment) to natural or constructed stormwater conveyances.
- Contain washwater and leftover product in a lined container when no designated concrete washout areas (or formed areas, allowed as described above) are available. Dispose of contained concrete and concrete washwater (process water) properly.
- Always use forms or solid barriers for concrete pours, such as pilings, within 15-feet of surface waters.
- Refer to BMP C252: Treating and Disposing of High pH Water for pH adjustment requirements.
- Refer to the Construction Stormwater General Permit (CSWGP) for pH monitoring requirements if the project involves one of the following activities:
    - Significant concrete work (as defined in the CSWGP).
    - The use of soils amended with (but not limited to) Portland cement-treated base, cement kiln dust or fly ash.
    - Discharging stormwater to segments of water bodies on the 303(d) list (Category 5) for high pH.

Maintenance Standards

Check containers for holes in the liner daily during concrete pours and repair the same day.

APPENDIX C

Correspondence

Nick Agostino

From: Brian Doolan <BDoolan@everettwa.gov>
Sent: Wednesday, March 2, 2022 12:46 PM
To: Nick Agostino; Keith Alewine
Cc: Benny Reynolds
Subject: RE: [EXTERNAL] POE Combined Sewer Main Improvements Discharge Permit

Good afternoon,

Yes as long as you are below the limits you are good to go. The clarifiers are able to gravity flow through a temporary pipe at the north end of the lot into the sewer main which goes to a small old lift station. We can control the flow rate with this and as such makes it easier as this is one of the few locations we do not have to put a limit on you for discharging. Let me know if you have any other questions, Brian

Brian Doolan
Maintenance & Operations Supervisor, Sewer & Drainage | Public Works
425 257-8828 | 3200 Cedar Street, Everett, WA 98201
everettwa.gov | Facebook | Twitter

From: Nick Agostino <NAgostino@northwestconstruction.com>
Sent: Friday, February 25, 2022 10:13 AM
To: Brian Doolan <BDoolan@everettwa.gov>; Keith Alewine <KAlewine@everettwa.gov>
Cc: Benny Reynolds <breynolds@northwestconstruction.com>
Subject: RE: [EXTERNAL] POE Combined Sewer Main Improvements Discharge Permit

Hi Brian,

As we are gearing up to get started out at the Combined Sewer Main Improvements project, I am just checking in that we have authorization to discharge the groundwater/stormwater to the City's sanitary sewer as long as it is below the applicable limits in the permit.

One question that I have is if we are pumping water into the clarifier at the Port Gardner Storage Facility, how does the clarifier connect to the City's sewer?

Thanks,

Nick Agostino :: Project Manager
Northwest Construction, Inc.
V 425.453.8380 **F** 425.453.8404 **C** 206.793.6279
2353 130th Ave. NE, Suite 100
Bellevue, WA 98005
Northwest CONSTRUCTION, INC.
www.northwestconstruction.com

EVERETT WASHINGTON

City of Everett Public Works
Discharge Authorization Requests
c/o Brian Doolan
3200 Cedar Street
Everett, WA 98201

For COE-PW Use Only
Date Received: _____
Staff: _____
Approval No: _____

INDUSTRIAL DISCHARGE APPROVAL REQUEST FORM

A. General Information:

1. **Company Name:** Northwest Construction, Inc.
   Contact Person: Benny Reynolds **Title:** Superintendent
   24 hour Contact Phone: 206-793-7611 (30 minute response required)
   Email Address: breynolds@northwestconstruction.com
   Mailing Address: 2353 130th Ave NE, Suite 100
   Bellevue, WA 98005
2. **Site Name:** Port of Everett Combined Sewer Main Improvements
   Site Address: 2600 Federal Ave
   Everett, WA
3. **Requester Name/ Company:** Nick Agostino / Northwest Construction, Inc.
   Requester Address: 2353 130th Ave SE, Suite 100, Bellevue, WA 98005 **Phone:** 206-793-6279
   Email Address: nagostino@northwestconstruction.com
4. **Billing Contact Name:** Marcia Wiviott **Phone:** 425-453-8380

B. Waste Characteristics/Site Information:

1. Describe discharge: Groundwater from well point system
2. Describe your project and why discharge authorization is required: Installation of a 42" & 12" Sewer pipe requiring dewatering of the trench
3. Are there any MSDS sheets applicable to the waste? ___ Yes _X_ No
   (Attach relevant MSDS sheets.)
4. Source of waste (groundwater, construction dewatering, etc.): _Construction Dewatering_
5. Volume of waste: _TBD_ (gallons) Rate of discharge (max gpm): _1000_
6. Frequency of discharge: ___ One-time __ On-going Continuous flow? _X__ Yes ___ No
   If on-going, please note the number or frequency/requested duration of discharge events per year:
7. Requested start date: 3/1/2022
8. Identify proposed point of discharge: LS3 and the PGSF Clarifier

9. The wastewater must be sampled at least once for the following constituents prior to discharge and subject to the associated limits listed below. **Samples must be submitted prior to discharge, to verify discharge limits.** Should lab samples indicate higher than allowed discharge limits, a plan of how to bring the discharge within the required limits will be required before issuance of the permit.

√	Analyte	Limit
	As	0.5 mg/L
	Cd	0.24 mg/L
	Cr	5.0 mg/L
	Cu	3.0 mg/L
	Pb	1.9 mg/L
	Hg	0.1 mg/L
	Ni	2.83 mg/L
	Ag	0.49 mg/L
	Zn	4.0 mg/L
	CN-	0.65 mg/L
	Nonpolar FOG	200 mg/L

C. Additional Pertinent Information: (Attach additional information if necessary)

_____

D. Discharge Authorization Conditions

1. You must comply with the general use and discharge requirements of the Industrial Pretreatment Ordinance #3070-08 as amended (attached), as well as any applicable Federal and State regulations.
2. The City solely reserves the right to modify, suspend, or terminate the authorization at any time, once issued.
3. The City may modify the discharge location at any time to an alternate location that best suits the City. Discharge operations shall comply with the City's Noise Ordinance.
4. Discharges during rainfall may be prohibited.

E. Discharge Authorization Permit Fee

1. The total fee for the Discharge Authorization Permit is $500. Payment must be received with application. Make payments only by mail. Make check payable to "City of Everett Utilities".

F. Sewer Discharge Rates

1. Sewer collection and Industrial Pretreatment fees will be billed monthly, and will include the then current sewer rate (2022 rate of $9.25 per 100 cubic feet) AND the industrial surcharge of $0.19 per thousand gallons of flow.

G. Certification of Information

I hereby certify that the information supplied in this request is correct and complete to the best of my knowledge.

Name (Print):	Nick Agostino	Title:	Project Manager
Signature	DocuSigned by: Nick Agostino E65D360EAA324DC...	Date:	2/3/2022
Email:	nagostino@northwestconstruction.com	Phone:	206-793-6279

Send or email completed request to address at the top of this form. For further questions regarding this request, contact Brian Doolan at 425-257-8828 (or bdoolan@everettwa.gov). Fax: 425-257-8882.

APPENDIX D

Site Inspection Form

Construction Stormwater Site Inspection Form

Project Name **Raging River** Permit # _____ Inspection Date _____ Time _____

Name of Certified Erosion Sediment Control Lead (CESCL) or qualified inspector if *less than one acre*
Print Name: _____

Approximate rainfall amount since the last inspection (in inches): _____

Approximate rainfall amount in the last 24 hours (in inches): _____

Current Weather Clear ☐ Cloudy ☐ Mist ☐ Rain ☐ Wind ☐ Fog ☐

A. Type of inspection: Weekly ☐ Post Storm Event ☐ Other ☐

B. Phase of Active Construction (*check all that apply*):

Pre Construction/installation of erosion/sediment controls	☐	Clearing/Demo/Grading	☐	Infrastructure/storm/roads	☐
Concrete pours	☐	Vertical Construction/buildings	☐	Utilities	☐
Offsite improvements	☐	Site temporary stabilized	☐	Final stabilization	☐

C. Questions:

1. Were all areas of construction and discharge points inspected? Yes ___ No ___
2. Did you observe the presence of suspended sediment, turbidity, discoloration, or oil sheen Yes ___ No ___
3. Was a water quality sample taken during inspection? (*refer to permit conditions S4 & S5*) Yes ___ No ___
4. Was there a turbid discharge 250 NTU or greater, or Transparency 6 cm or less?* Yes ___ No ___
5. If yes to #4 was it reported to Ecology? Yes ___ No ___
6. Is pH sampling required? pH range required is 6.5 to 8.5. Yes ___ No ___

If answering yes to a discharge, describe the event. Include when, where, and why it happened; what action was taken, and when.

_____

_____

_____

_____

*If answering yes to # 4 record NTU/Transparency with continual sampling daily until turbidity is 25 NTU or less/ transparency is 33 cm or greater.

Sampling Results: Date: _____

Parameter	Method (circle one)	Result			Other/Note
		NTU	cm	pH	
Turbidity	tube, meter, laboratory				
pH	Paper, kit, meter				

Construction Stormwater Site Inspection Form

D. Check the observed status of all items. Provide "Action Required "details and dates.

Element #	Inspection	BMPs Inspected			BMP needs maintenance	BMP failed	Action required (describe in section F)
		yes	no	n/a			
1 Clearing Limits	Before beginning land disturbing activities are all clearing limits, natural resource areas (streams, wetlands, buffers, trees) protected with barriers or similar BMPs? (high visibility recommended)						
2 Construction Access	Construction access is stabilized with quarry spalls or equivalent BMP to prevent sediment from being tracked onto roads?						
	Sediment tracked onto the road way was cleaned thoroughly at the end of the day or more frequent as necessary.						
3 Control Flow Rates	Are flow control measures installed to control stormwater volumes and velocity during construction and do they protect downstream properties and waterways from erosion?						
	If permanent infiltration ponds are used for flow control during construction, are they protected from siltation?						
4 Sediment Controls	All perimeter sediment controls (e.g. silt fence, wattles, compost socks, berms, etc.) installed, and maintained in accordance with the Stormwater Pollution Prevention Plan (SWPPP).						
	Sediment control BMPs (sediment ponds, traps, filters etc.) have been constructed and functional as the first step of grading.						
	Stormwater runoff from disturbed areas is directed to sediment removal BMP.						
5 Stabilize Soils	Have exposed un-worked soils been stabilized with effective BMP to prevent erosion and sediment deposition?						

Construction Stormwater Site Inspection Form

Element #	Inspection	BMPs Inspected			BMP needs maintenance	BMP failed	Action required (describe in section F)
		yes	no	n/a			
5 Stabilize Soils Cont.	Are stockpiles stabilized from erosion, protected with sediment trapping measures and located away from drain inlet, waterways, and drainage channels?						
	Have soils been stabilized at the end of the shift, before a holiday or weekend if needed based on the weather forecast?						
6 Protect Slopes	Has stormwater and ground water been diverted away from slopes and disturbed areas with interceptor dikes, pipes and or swales?						
	Is off-site storm water managed separately from stormwater generated on the site?						
	Is excavated material placed on uphill side of trenches consistent with safety and space considerations?						
	Have check dams been placed at regular intervals within constructed channels that are cut down a slope?						
7 Drain Inlets	Storm drain inlets made operable during construction are protected.						
	Are existing storm drains within the influence of the project protected?						
8 Stabilize Channel and Outlets	Have all on-site conveyance channels been designed, constructed and stabilized to prevent erosion from expected peak flows?						
	Is stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes and downstream conveyance systems?						
9 Control Pollutants	Are waste materials and demolition debris handled and disposed of to prevent contamination of stormwater?						
	Has cover been provided for all chemicals, liquid products, petroleum products, and other material?						
	Has secondary containment been provided capable of containing 110% of the volume?						
	Were contaminated surfaces cleaned immediately after a spill incident?						
	Were BMPs used to prevent contamination of stormwater by a pH modifying sources?						

Construction Stormwater Site Inspection Form

Element #	Inspection	BMPs Inspected			BMP needs maintenance	BMP failed	Action required (describe in section F)
		yes	no	n/a			
9 Cont.	Wheel wash wastewater is handled and disposed of properly.						
10 Control Dewatering	Concrete washout in designated areas. No washout or excess concrete on the ground.						
	Dewatering has been done to an approved source and in compliance with the SWPPP.						
	Were there any clean non turbid dewatering discharges?						
11 Maintain BMP	Are all temporary and permanent erosion and sediment control BMPs maintained to perform as intended?						
12 Manage the Project	Has the project been phased to the maximum degree practicable?						
	Has regular inspection, monitoring and maintenance been performed as required by the permit?						
	Has the SWPPP been updated, implemented and records maintained?						
13 Protect LID	Is all Bioretention and Rain Garden Facilities protected from sedimentation with appropriate BMPs?						
	Is the Bioretention and Rain Garden protected against over compaction of construction equipment and foot traffic to retain its infiltration capabilities?						
	Permeable pavements are clean and free of sediment and sediment laden-water runoff. Muddy construction equipment has not been on the base material or pavement.						
	Have soiled permeable pavements been cleaned of sediments and pass infiltration test as required by stormwater manual methodology?						
	Heavy equipment has been kept off existing soils under LID facilities to retain infiltration rate.						

E. Check all areas that have been inspected. ✔

All in place BMPs ☐ All disturbed soils ☐ All concrete wash out area ☐ All material storage areas ☐
All discharge locations ☐ All equipment storage areas ☐ All construction entrances/exits ☐

F. Elements checked "Action Required" (section D) describe corrective action to be taken. List the element number; be specific on location and work needed. Document, initial, and date when the corrective action has been completed and inspected.

Element #	Description and Location	Action Required	Completion Date	Initials

Attach additional page if needed

Sign the following certification:

"I certify that this report is true, accurate, and complete, to the best of my knowledge and belief"

Inspected by: (print) _____ (Signature) _____ Date: _____

Title/Qualification of Inspector: _____

APPENDIX E

Construction Stormwater General Permit (CSWGP)

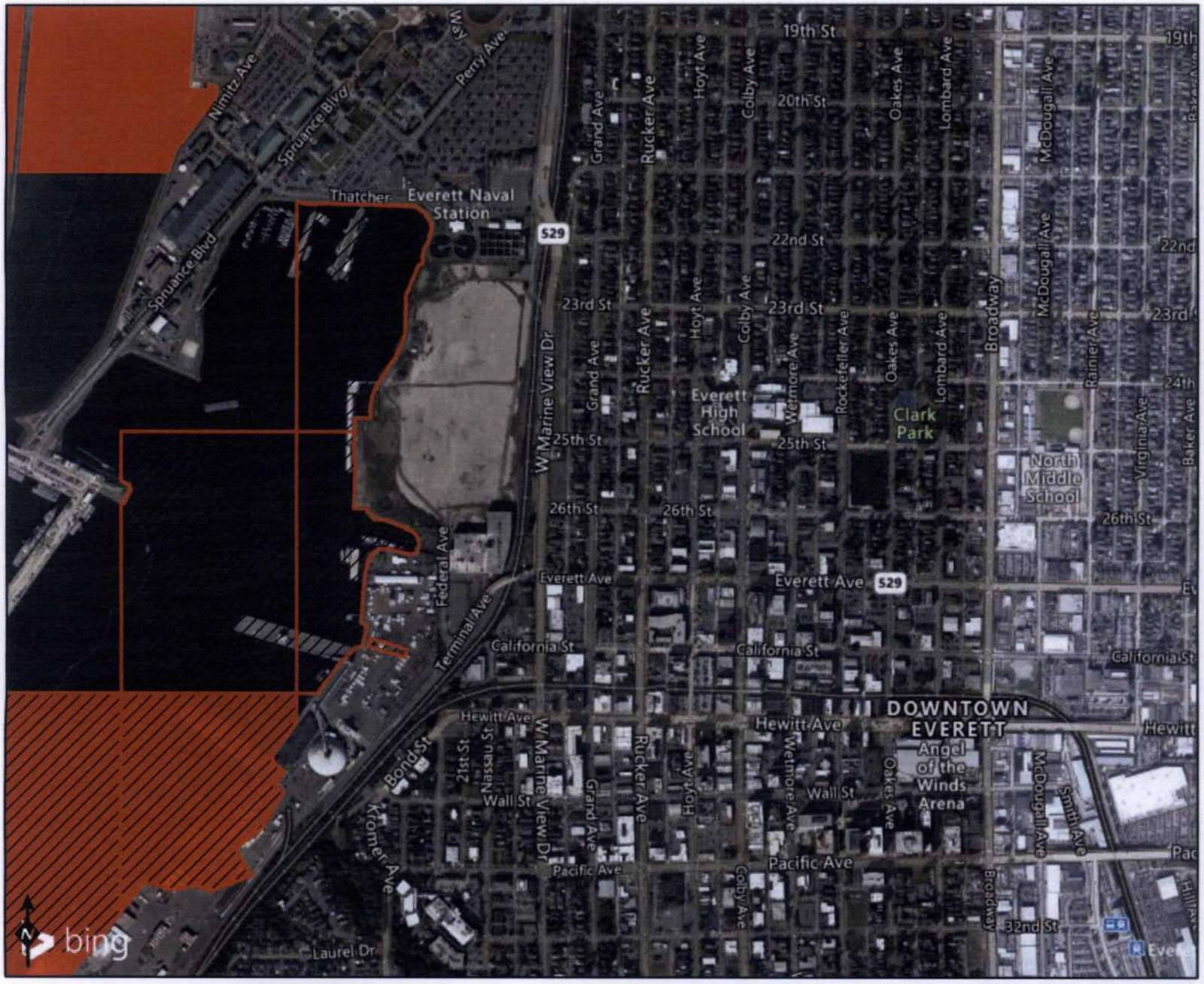
Download the latest copy of the CSWGP from:
https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Stormwater-general-permits/Construction-stormwater-permit

APPENDIX F

303(d) List Waterbodies/ TMDL Waterbodies Information

May 17, 2021

Port Gardner, East Waterway, Everett, WA



Assessed Water/Sediment

Water

- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment

- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles
0 0.125 0.25 0.5

DEPARTMENT OF ECOLOGY
State of Washington

Back To Results

Water Quality Listing Policy

Listing ID: 504391

Main Listing Information

Listing ID: 504391 **Waterbody Name:** PORT GARDNER AND INNER EVERETT HARBOR **Medium:** Sediment **Parameter:** Sediment Bioassay **WQI Project:**
None
Designated Use: None **Collection Date:** 10/6/2008

Current Category:
5

View Category History

Assessment Unit

Assessment Unit ID: 47122J2I1_SW **County:** Snohomish **WRIA:** 7 - Snohomish

Basis Statement

Data from the Department of Ecology's Environmental Information Management (EIM) system samples
H=PortGardner_08*A1-10*A1-10-S*10/6/2008
M=NONE
L=NONE
indicate a total of 2 points for 1 samples collected on or before October 6, 2008 exceeds the Sediment Management Standards CSL bioassay criterion. This grid is in an area being investigated for sediment contamination, therefore it is assessed as Category 5. Statute: MTCA. This grid is in an area commonly known as Everett East Waterway. Site to be further investigated.

Remarks

2010: Comment #1009 - old bioassay data; new bioassay data available. Data submitted Apr2010.

Data Sources

No Source Records

Map Link

Map Link

Back To Results

Submit questions or comments about this specific Listing:

***Your Name:**

Your Email:

***Comment/Question:**

Submit

If you wish to comment about something unrelated to this listing, please Contact Us.

February 18, 2022

Port Gardner, East Waterway, Everett, WA

Assessed Water/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles
0 0.05 0.1 0.2

DEPARTMENT OF ECOLOGY
State of Washington

Main Listing Information

Listing ID: 504391
Waterbody Name: PORT GARDNER AND INNER EVERETT HARBOR
Medium: Sediment
Parameter: Sediment Bioassay
WQI Project: None
Designated Use: None
Collection Date: 10/6/2008

Year	Category
2014	5
2012	5
2008	2 Rank 4
2004	3
1998	Y
1996	N

Assessment Unit

Assessment Unit ID: 47122J2I1_SW **County:** Snohomish
WRIA: 7 - Snohomish

Basis Statement

Data from the Department of Ecology's Environmental Information Management (EIM) system samples
H=PortGardner_08*A1-10*A1-10-S*10/6/2008
M=NONE
L=NONE
indicate a total of 2 points for 1 samples collected on or before October 6, 2008 exceeds the Sediment Management Standards CSL bioassay criterion. This grid is in an area being investigated for sediment contamination, therefore it is assessed as Category 5. Statute: MTCA. This grid is in an area commonly known as Everett East Waterway. Site to be further investigated.

Remarks

2010: Comment #1009 - old bioassay data; new bioassay data available. Data submitted Apr2010.

Data Sources

No Source Records

Map Link

Map Link (https://apps.ecology.wa.gov/waterqualityatlas/wqa/map?lstid=504391)

APPENDIX G

Contaminated Site Information

Kimberly-Clark Worldwide Site

Aspect CONSULTING

April 21, 2021

Erik Gerking, Director of Environmental Programs
Port of Everett
1205 Craftsman Way, #200
Everett, Washington 98201

Re: **Recommended Parameters for Administrative Order in Conjunction with Construction Stormwater General Permit Coverage**
Third Interim Action, Kimberly-Clark Worldwide Site Upland Area, Port of Everett
Project No. 210178

Dear Erik:

Aspect Consulting LLC (Aspect) is submitting this letter presenting the chemical compounds that we propose as appropriate parameters for an Administrative Order (AO) in conjunction with coverage under the Construction Stormwater General Permit (CSWGP) to be obtained for Port of Everett's (Port) Third Interim Action under the state Model Toxics Control Act (MTCA) for the Kimberly-Clark Worldwide Site Upland Area (Site). Monitoring for these parameters under the AO is intended to document that the construction activities are not creating a water quality impact to surface waters of the state.

Contamination at the Site upland has been thoroughly investigated under close supervision of Department of Ecology Toxics Cleanup Program (TCP) staff since 2012, including collection of thousands of soil samples, groundwater monitoring at more than 130 monitoring wells, and sampling sediment porewater and seeps along the intertidal shoreline. Figure 1 depicts locations for the hundreds of explorations completed for soil and/or groundwater sampling at the Site.[1] In addition, a pair of MTCA interim actions (2013–2014 and 2020) accomplished substantial cleanup of the Site—specifically removing soil contamination that posed the greatest risk to groundwater quality. Finally, approximately 250,000 tons of demolition debris (crushed concrete predominantly) that created high-pH groundwater was fully removed from the Site in 2020. Following the removal actions, widespread, low-level contamination in soil and groundwater remains across much of the Site. The Port's Third Interim Action will construct a low-permeability pavement section across a portion of the Site that will accelerate recovery of the residual groundwater contamination.

In short, the Site upland has been intensively studied, remedial actions have been carried out to remove grossly contaminated materials, and the remaining contaminants of concern (aka indicator hazardous substances under MTCA) are well defined.

Groundwater at the Site is not considered to be a drinking water source; rather, the highest beneficial use of the groundwater is discharge to marine surface waters of the adjacent East

[1] The explorations shown do not reflect completion of the 2020 interim action. Locations of the 2020 interim actions, including samples collected to verify removal of soil contamination are presented in *Report for Second Interim Action, Kimberly-Clark Worldwide Site Upland Area, Everett, Washington, March 3, 2021, available on Ecology's webpage for the Site at: https://apps.ecology.wa.gov/gsp/CleanupSiteDocuments.aspx?csid=2569.*

Waterway. Accordingly, the MTCA preliminary groundwater cleanup levels for the Site are the most stringent marine surface water quality standards applicable to the Site. This includes standards from Chapter 173-201A Washington Administrative Code (WAC), Clean Water Act Section 304(a), and the federal water quality criteria under 40 Code of Federal Regulations (CFR) 131.45. The Site preliminary cleanup levels (PCLs) for soil and groundwater are presented in Tables 1 and 2, respectively. PCLs were established for all parameters that were detected at the Site; many of those parameters did not have an exceedance of the PCL; thus, Indicator Levels are not necessary for all parameters with PCLs. The principal focus for the MTCA cleanup of the Site uplands, including selection of cleanup levels for both soil and groundwater, is to ensure the uplands are not an ongoing source of contaminants to the East Waterway.

Therefore, we propose that the MTCA contaminants of concern (indicator hazardous substances) determined through the years of investigation and cleanup are likewise appropriate Site-specific parameters for inclusion in the AO for the purpose of protecting surface water quality during the Port's Third Interim Action construction activities that will involve limited handling of the upland soil and groundwater. Tables 3 and 4 respectively present statistical summaries of groundwater data and soil data representative of current conditions following the interim actions and debris removal projects[2], including the exceedance frequency[3] for each compound. The compounds are sorted based on exceedance frequency, from high to low, in the tables.

Accordingly, we recommend that the following parameters, which have an exceedance frequency greater than 5 percent in either soil or groundwater at the Site, be included for monitoring in a CSWGP AO for the Port's planned project (highlighted in Tables 3 and 4):

- pH and turbidity by Standard Methods or field measurement
- Total metals arsenic, copper, lead, nickel, and zinc by U.S. Environmental Protection Agency (EPA) 200.8 and mercury by EPA 1631E
- Total polychlorinated biphenyls (PCBs) by EPA 608.3
- Carcinogenic polycyclic aromatic hydrocarbons (cPAHs)[4] by EPA 625.1, that individually are:
    - Benzo(a)anthracene
    - Benzo(b)fluoranthene
    - Benzo(k)fluoranthene

[2] Some groundwater results in Table 4 were collected from wells within areas excavated during the second interim action in 2020, so are no longer representative of current conditions in those areas.
[3] Equal to the number of samples exceeding the PCL divided by the total number of samples.
[4] The MTCA process establishes a PCL for the Total Toxic Equivalent Concentration (Quotient) of Benzo(a)pyrene (Total cPAHs TEQ) by applying toxicity equivalency factors to and then summing the individual cPAH concentrations. Consistent with standard practice of the Water Quality Program, we recommend establishing Indicator Levels for the individual cPAHs that comprise Total cPAHs TEQ.

- Benzo(a)pyrene
- Chrysene
- Dibenzo(a-h)anthracene
- Indeno(1,2,3-cd)pyrene

Note that PCBs emerged as an indicator hazardous substance for the Site during the 2017 groundwater monitoring, when elevated concentrations were detected in two monitoring wells. Those two locations, hundreds of feet from the shoreline, were subsequently remediated during the 2020 interim action.

As noted in Table 4, hydrogen sulfide and un-ionized ammonia are also contaminants of concern in nearshore groundwater within some areas of the Site. However, both compounds persist only in geochemically reducing (anaerobic) conditions and, upon contact with oxygen, are readily oxidized into nontoxic forms of sulfur and nitrogen, respectively, within minutes. As such, they will not be present at concentrations of concern in stormwater runoff and are not appropriate for inclusion in an AO.

We are available to discuss this further at your convenience.

Limitations

Work for this project was performed for the Port of Everett (Client), and this letter was prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This letter does not represent a legal opinion. No other warranty, expressed or implied, is made.

All reports prepared by Aspect Consulting for the Client apply only to the services described in the Agreement(s) with the Client. Any use or reuse by any party other than the Client is at the sole risk of that party, and without liability to Aspect Consulting. Aspect Consulting's original files/reports shall govern in the event of any dispute regarding the content of electronic documents furnished to others.

Sincerely,

Aspect consulting, LLC

Steve Germiat, LHG
Principal Hydrogeologist
sgermiat@aspectconsulting.com

Owen Reese, PE
Principal Water Resources Engineer
oreese@aspectconsulting.com

Attachments:
Table 1 – Groundwater Preliminary Cleanup Levels
Table 2 – Soil Preliminary Cleanup Levels
Table 3 – Statistical Summary of Groundwater Quality Data Representing Current Site Conditions
Table 4 – Statistical Summary of Soil Quality Data Representing Current Site Conditions
Figure 1 – Explorations Locations Prior to 2020 Interim Action

V:\210178 Port of Everett MIE Stormwater\Deliverables\Indicator Compounds and Levels Letter\Proposed AO Parameters Memo_2021.04.21.docx

TABLES

Table 1. Groundwater Preliminary Cleanup Levels

Project No. 210178, K-C Worldwide Site Upland Area, Everett, Washington

ANALYTE (BY GROUP)	APPLICABLE GROUNDWATER CRITERIA: Marine Surface Water Criteria for Establishing Method B Surface Water Cleanup Levels[a] — Aquatic Protection: Surface Water ARAR - Aquatic Life - Ch. 173-201A WAC (ma-wac)	Aquatic Protection: Surface Water ARAR - Aquatic Life - National Recommended WQ Criteria (CWA 304a) (ma-cwa 304a)	Human Health Protection: Surface Water ARAR - Human Health - National Recommended WQ Criteria (CWA 304a) (hh-cwa 304a)	Human Health Protection: Surface Water ARAR - Human Health - Ch. 173-201A WAC (hh-wac)	Human Health Protection: Surface Water ARAR - Human Health - 40 CFR 131.45 (CWA 303c) (hh-cwa 303c)	Human Health Protection: Surface Water, Method B Human Health, Most Restrictive, Standard Formula (sw-b)	Human Health Protection: Surface Water, Method B Human Health, Most Restrictive, Adjusted for ARARs[b] (hh)	Surface Water Screening Level for Marine Protection (marine)	Potable Groundwater Screening Level[c] (pot)	Groundwater Screening Level Protective of Vapor Intrusion for Industrial Use (Method C)[a] (vi-c)	Applicable Practical Quantitation Level (PQL)[d] (pql)	Groundwater Preliminary Cleanup Level and Basis
Total Petroleum Hydrocarbons												
Gasoline Range Hydrocarbons in ug/L									1000		100	1000 (pot)
Diesel Range Hydrocarbons in ug/L									500		50	500 (pot)
Oil Range Hydrocarbons in ug/L									500		250	500 (pot)
TPH (D+O) in ug/L									500		250	500 (pot)
Metals												
Antimony in ug/L			640	180	90	1000	90	90 (hh)			0.05	90 (marine)
Arsenic in ug/L	36	36	0.14	10	0.14	0.098	0.14	5 footnote e			0.5	5 (marine)
Barium in ug/L									2000		0.5	2000 (pot)
Cadmium in ug/L	9.3	7.9				41	41	7.9 (ma-cwa 304a)			0.02	7.9 (marine)
Chromium (Total) in ug/L						240000	240000	240000 (hh)			0.2	240000 (marine)
Copper in ug/L	3.1	3.1				2900	2900	3.1 (ma-wac)			0.1	3.1 (marine)
Lead in ug/L	8.1	8.1						8.1 (ma-wac)			0.02	8.1 (marine)
Mercury in ug/L	0.025	0.94						0.025 (ma-wac)		1.9	0.0005	0.025 (marine)
Nickel in ug/L	8.2	8.2	4600	190	100	1100	100	8.2 (ma-wac)			0.2	8.2 (marine)
Selenium in ug/L	71	71	4200	480	200	2700	200	71 (ma-wac)			1	71 (marine)
Silver in ug/L	1.9	1.9				26000	26000	1.9 (ma-wac)			0.02	1.9 (marine)
Thallium in ug/L			0.47	0.27	6.3	0.22	0.22	0.22 (hh)			0.02	0.22 (marine)
Zinc in ug/L	81	81	26000	2900	1000	17000	1000	81 (ma-wac)			0.5	81 (marine)
Conventionals												
Formaldehyde in ug/L								1600 footnote f			100	1600 (marine)
Un-Ionized Ammonia in mg/L	0.035							0.035 (ma-wac)			0.01	0.035 (marine)
Free (Hydrogen) Sulfide in mg/L		0.002						0.002 (ma-cwa 304a)			0.001	0.002 (marine)
pH in standard units	7.0 to 8.5	6.5 to 8.5						6.5 to 8.5 (ma-wac)				6.5 to 8.5 (marine)
Volatile Organic Compounds												
1,1-Dichloroethene in ug/L			20000	4100	4000	23000	4000	4000 (hh)		280	0.5	280 (vi-c)
1,2,4-Trimethylbenzene in ug/L									80	62	1	62 (vi-c)
1,3,5-Trimethylbenzene in ug/L									80	62	1	62 (vi-c)
1,4-Dichlorobenzene in ug/L			900	580	200	21	200	200 (hh)		49	0.05	49 (vi-c)
2-Butanone in ug/L									4800	3,800,000	10	4800 (pot)
2-Chlorotoluene in ug/L									160		1	160 (pot)
4-Chlorotoluene in ug/L											1	
Acetone in ug/L									7200		10	7200 (pot)
Benzene in ug/L			16	1.6	1.6	23	1.6	1.6 (hh)		24	0.35	1.6 (marine)
cis-1,2-Dichloroethene (DCE) in ug/L									16		0.5	16 (pot)
Ethylbenzene in ug/L			130	270	31	6800	31	31 (hh)		6100	0.5	31 (marine)
Isopropylbenzene in ug/L									800	1600	2	800 (pot)
m,p-Xylenes in ug/L									1000	680	0.5	680 (vi-c)
Methylene chloride in ug/L			1000	250	100	3600	100	100 (hh)		11000	2	100 (marine)
n-Propylbenzene in ug/L									800		1	800 (pot)
o-Xylene in ug/L									1600	960	0.5	960 (vi-c)
p-Isopropyltoluene in ug/L									800	1600	1	800 (pot)
sec-Butylbenzene in ug/L									800		1	800 (pot)
Styrene in ug/L									100	18000	0.5	100 (pot)
tert-Butylbenzene in ug/L									800		1	800 (pot)

Table 1. Groundwater Preliminary Cleanup Levels

Project No. 210178, K-C Worldwide Site Upland Area, Everett, Washington

ANALYTE (BY GROUP)	APPLICABLE GROUNDWATER CRITERIA: Marine Surface Water Criteria for Establishing Method B Surface Water Cleanup Levels[a] — Aquatic Protection: Surface Water ARAR - Aquatic Life - Ch. 173-201A WAC (ma-wac)	Aquatic Protection: Surface Water ARAR - Aquatic Life - National Recommended WQ Criteria (CWA 304a) (ma-cwa 304a)	Human Health Protection: Surface Water ARAR - Human Health - National Recommended WQ Criteria (CWA 304a) (hh-cwa 304a)	Human Health Protection: Surface Water ARAR - Human Health - Ch. 173-201A WAC (hh-wac)	Human Health Protection: Surface Water ARAR - Human Health - 40 CFR 131.45 (CWA 303c) (hh-cwa 303c)	Human Health Protection: Surface Water, Method B Human Health, Most Restrictive, Standard Formula (sw-b)	Human Health Protection: Surface Water, Method B Human Health, Most Restrictive, Adjusted for ARARs[b] (hh)	Surface Water Screening Level for Marine Protection (marine)	Potable Groundwater Screening Level[c] (pot)	Groundwater Screening Level Protective of Vapor Intrusion for Industrial Use (Method C)[a] (vi-c)	Applicable Practical Quantitation Level (PQL)[d] (pql)	Groundwater Preliminary Cleanup Level and Basis
Toluene in ug/L			520	410	130	19000	130	130 (hh)		34000	0.5	130 (marine)
Vinyl chloride in ug/L			1.6	0.26		3.7	0.26	0.26 (hh)		3.5	0.2	0.26 (marine)
Xylenes, total									1000	680	3	680 (vi-c)
Polycyclic Aromatic Hydrocarbons (PAHs)												
Acenaphthene in ug/L			90	110	30	640	30	30 (hh)			0.012	30 (marine)
Acenaphthylene in ug/L			90	110	30	640	30	30 (hh)			0.012	30 (marine)
Anthracene in ug/L			400	4600	100	26000	100	100 (hh)			0.012	100 (marine)
Benzo(g,h,i)perylene in ug/L			30	460	8	2600	8	8 (hh)			0.012	8 (marine)
Fluoranthene in ug/L			20	16	6	90	6	6 (hh)			0.012	6 (marine)
Fluorene in ug/L			70	610	10	3500	10	10 (hh)			0.012	10 (marine)
Phenanthrene in ug/L			400	4600	100	26000	100	100 (hh)			0.012	100 (marine)
Pyrene in ug/L			30	460	8	2600	8	8 (hh)			0.012	8 (marine)
1-Methylnaphthalene in ug/L									1.5		0.05	1.5 (pot)
2-Methylnaphthalene in ug/L									32		0.05	32 (pot)
Naphthalene in ug/L						4700	4700	4700 (hh)		89	0.012	89 (vi-c)
Benz(a)anthracene in ug/L											0.01	
Benzo(a)pyrene in ug/L											0.01	
Benzo(b)fluoranthene in ug/L											0.01	
Benzo(k)fluoranthene in ug/L											0.01	
Chrysene in ug/L											0.01	
Dibenzo(a,h)anthracene in ug/L											0.01	
Indeno(1,2,3-cd)pyrene in ug/L											0.01	
Total cPAHs TEQ in ug/L			0.00013	0.0021	0.000016	0.22	0.000016	0.000016 (hh)			0.015	0.015 (pql)
Other Semivolatile Organics												
2,4,6-Trichlorophenol in ug/L			2.8	0.28	0.28	3.9	0.28	0.28 (hh)			0.5	0.5 (pql)
2,4-Dimethylphenol in ug/L			3000	97	97	550	97	97 (hh)			0.5	97 (marine)
3 & 4 Methylphenol									400		1	400 (pot)
Benzoic acid in ug/L									64000		2.5	64000 (pot)
Benzyl alcohol in ug/L									800		0.5	800 (pot)
Benzyl butyl phthalate in ug/L			0.1	0.58	0.013	8.2	0.013	0.013 (hh)			0.5	0.5 (pql)
Bis(2-ethylhexyl) phthalate in ug/L			0.37	0.25	0.046	3.6	0.046	0.046 (hh)			0.8	0.8 (pql)
Carbazole in ug/L											0.5	
Dibenzofuran in ug/L									16		0.05	16 (pot)
Diethyl phthalate in ug/L			600	5000	200	28000	200	200 (hh)			0.5	200 (marine)
Dimethyl phthalate in ug/L			2000	130000	600		600	600 (hh)			0.5	600 (marine)
Di-n-butyl phthalate in ug/L			30	510	8	2900	8	8 (hh)			0.5	8 (marine)
Pentachlorophenol in ug/L	7.9	7.9	0.04	0.1	0.002	1.5	0.002	0.002 (hh)			0.5	0.5 (pql)
Phenol in ug/L			300000	200000	70000	560000	70000	70000 (hh)			0.5	70000 (marine)

Table 1. Groundwater Preliminary Cleanup Levels

Project No. 210178, K-C Worldwide Site Upland Area, Everett, Washington

	APPLICABLE GROUNDWATER CRITERIA												
	Marine Surface Water Criteria for Establishing Method B Surface Water Cleanup Levels[a]												
	Aquatic Protection		Human Health Protection										
ANALYTE (BY GROUP)	Surface Water ARAR - Aquatic Life - Ch. 173-201A WAC *(ma-wac)*	Surface Water ARAR - Aquatic Life - National Recommended WQ Criteria (CWA 304a) *(ma-cwa 304a)*	Surface Water ARAR - Human Health - National Recommended WQ Criteria (CWA 304a) *(hh-cwa 304a)*	Surface Water ARAR - Human Health - Ch. 173-201A WAC *(hh-wac)*	Surface Water ARAR - Human Health - 40 CFR 131.45 (CWA 303c) *(hh-cwa 303c)*	Surface Water, Method B Human Health, Most Restrictive, Standard Formula *(sw-b)*	Surface Water, Method B Human Health, Most Restrictive, Adjusted for ARARs[b] *(hh)*	Surface Water Screening Level for Marine Protection *(marine)*	Potable Groundwater Screening Level[c] *(pot)*	Groundwater Screening Level Protective of Vapor Intrusion for Industrial Use (Method C)[a] *(vi-c)*	Applicable Practical Quantitation Level (PQL)[d] *(pql)*	Groundwater Preliminary Cleanup Level and Basis
Polychlorinated Biphenyls (PCBs)													
Total PCBs in ug/L (Sum of Aroclors)	0.03	0.03	6.4E-05	1.7E-04	7.0E-06	1.0E-04	7.0E-06	7.0E-06 *(hh)*			0.05	0.05 *(pql)*
Total PCBs in ug/L (Sum of Congeners)	0.03	0.03	6.4E-05	1.7E-04	7.0E-06	1.0E-04	7.0E-06	7.0E-06 *(hh)*			0.0091	0.0091 *(pql)*
Dioxins/Furans												
Total 2,3,7,8 TCDD (TEQ) in ug/L			5.1E-09	6.4E-08	1.4E-08	1.0E-08	5.10E-09	5.1E-09 *(hh)*			6.3E-05	6.3E-05 *(pql)*

Notes:

Preliminary cleanup levels are presented for compounds that were detected in either soil or groundwater during collection of data used in the RI (2012-present).

ug/L - micrograms per liter

a Criteria values taken from Ecology's online CLARC database (updated July 2015).

b Surface water Method B human health levels established using the standard Method B formula in MTCA were compared to state and federal human-health-based ARARs. The most stringent ARAR that is sufficiently protective under MTCA (i.e., less than a risk of 10^{-5} and a hazard quotient of 1) is selected as the screening level for human health protection (*hh*). If there are multiple contaminants, then the cumulative risk and HI must not exceed a risk of 10-5 or a hazard index of 1.

c Upland Area groundwater is not a practicable source of potable groundwater, but, for the purposes of the RI, potable groundwater screening levels are applied for those compounds without a marine surface water screening level,.

d Analytical method reporting limits. PQLs for total cPAH (TEQ) and total TCDD (TEQ) are adjusted for TEFs.

e Based on background groundwater concentrations in Washington state (WAC 173-340-900, Table 720-1).

f Formaldehyde value based on protection of aquatic life (Anchor Environmental, 2008). Value is coincidentally equal to potable water screening level.

Table 2. Soil Preliminary Cleanup Levels

Project No. 210178, K-C Worldwide Site Upland Area, Everett, Washington

ANALYTE (BY GROUP)	Groundwater Preliminary Cleanup Level (ug/L) (see Table 1)	APPLICABLE SOIL CRITERIA: Soil Protective of Groundwater: Calculated Values: Unsaturated Soil Concentration Protective of Leachability to Groundwater for Industrial Land Use (mg/kg)[b] (gwl-u)	Saturated Soil Concentration Protective of Leachability to Groundwater for Industrial Land Use (mg/kg)[c] (gwl-s)	Groundwater Exceedances Confirmed Empirically for Analyte?[d] (Y = yes; blank = no)	Soil, Method A, Industrial Land Use, Table Value (mg/kg)[e] (mA)	Soil Protective of Human Direct Contact[f]: Soil, Method C, Most-Restrictive Standard Formula Value, Direct Contact, Industrial Land Use (mg/kg)[a] (mC)	Natural Background Concentration (mg/kg)[g] (back)	Practical Quantitation Level (PQL) (mg/kg)[h] (pql)	Soil Preliminary Cleanup Level (mg/kg) and Basis: Unsaturated Soil	Saturated Soil
Total Petroleum Hydrocarbons [k]										
Gasoline Range Hydrocarbons	1000			Y	100			5	100 (mA)	100 (mA)
Diesel Range Hydrocarbons	500			Y	2000			25	2000 (mA)	2000 (mA)
Oil Range Hydrocarbons	500			Y	2000			100	2000 (mA)	2000 (mA)
TPH (D+O)	500			Y	2000			100	2000 (mA)	2000 (mA)
Metals										
Antimony	90	81	4.1			1400		1	1400 (mC)	1400 (mC)
Arsenic	5	2.9	0.15	Y		88	20	1	20 (back)	20 (back)
Barium	2000	1600	83			700000		1	700000 (mC)	700000 (mC)
Cadmium	7.9	1.1	0.055			3500	1	1	3500 (mC)	3500 (mC)
Chromium (Total)	240000	4800000	240000			5.3E+06	48	1	5300000 (mC)	5300000 (mC)
Copper	3.1	1.4	0.069	Y		140000	36	1	36 (back)	36 (back)
Lead	8.1	1600	81	Y	1000		24	1	1000 (mA)	81 (gwl-s)
Mercury	0.025	0.026	0.0013	Y		1050	0.07	0.1	0.1 (pql)	0.1 (pql)
Nickel	8.2	11	0.54	Y		70000	48	1	48 (back)	48 (back)
Selenium	71	7.4	0.38			18000		1	18000 (mC)	18000 (mC)
Silver	1.9	0.32	0.016			18000		1	18000 (mC)	18000 (mC)
Thallium	0.22	0.31	0.016			35		1	35 (mC)	35 (mC)
Zinc	81	100	5	Y		1100000	85	1	100 (gwl-u)	85 (back)
Volatile Organic Compounds										
1,1-Dichloroethene	280			Y		180000		0.05	180000 (mC)	180000 (mC)
1,2,4-Trimethylbenzene	62					35000		0.05	35000 (mC)	35000 (mC)
1,3,5-Trimethylbenzene	62					35000		0.05	35000 (mC)	35000 (mC)
2-Butanone	4800					2100000		0.5	2100000 (mC)	2100000 (mC)
2-Chlorotoluene	160					70000		0.05	70000 (mC)	70000 (mC)
4-Chlorotoluene								0.05		
Acetone	7200					3200000		0.05	3200000 (mC)	3200000 (mC)
Benzene	1.6					2400		0.05	2400 (mC)	2400 (mC)
cis-1,2-Dichloroethene (DCE)	16					7000		0.05	7000 (mC)	7000 (mC)
Ethylbenzene	31					350000		0.05	350000 (mC)	350000 (mC)
Isopropylbenzene	800					350000		0.05	350000 (mC)	350000 (mC)
m,p-Xylenes	680			Y		700000		0.1	700000 (mC)	700000 (mC)
Methylene chloride	100					21000		0.05	21000 (mC)	21000 (mC)
n-Propylbenzene	800					350000		0.05	350000 (mC)	350000 (mC)
o-Xylene	960			Y		700000		0.05	700000 (mC)	700000 (mC)
p-Isopropyltoluene	800					350000		0.05	350000 (mC)	350000 (mC)
sec-Butylbenzene	800					350000		0.05	350000 (mC)	350000 (mC)
Styrene	100					700000		0.05	700000 (mC)	700000 (mC)
tert-Butylbenzene	800					350000		0.05	350000 (mC)	350000 (mC)
Toluene	130					280000		0.05	280000 (mC)	280000 (mC)

Table 2. Soil Preliminary Cleanup Levels

Project No. 210178, K-C Worldwide Site Upland Area, Everett, Washington

ANALYTE (BY GROUP)	Groundwater Preliminary Cleanup Level (ug/L) (see Table 1)	APPLICABLE SOIL CRITERIA: Soil Protective of Groundwater: Calculated Values: Unsaturated Soil Concentration Protective of Leachability to Groundwater for Industrial Land Use (mg/kg)[b] (gwl-u)	Saturated Soil Concentration Protective of Leachability to Groundwater for Industrial Land Use (mg/kg)[c] (gwl-s)	Groundwater Exceedances Confirmed Empirically for Analyte?[d] (Y = yes; blank = no)	Soil, Method A, Industrial Land Use, Table Value (mg/kg)[e] (mA)	Soil Protective of Human Direct Contact[f]: Soil, Method C, Most-Restrictive Standard Formula Value, Direct Contact, Industrial Land Use (mg/kg)[a] (mC)	Natural Background Concentration (mg/kg)[g] (back)	Practical Quantitation Level (PQL) (mg/kg)[h] (pql)	Soil Preliminary Cleanup Level (mg/kg) and Basis: Unsaturated Soil	Saturated Soil
Vinyl chloride	0.26			Y		88		0.05	88 (mC)	88 (mC)
Xylenes (total)	680			Y		700000		0.05	700000 (mC)	700000 (mC)
Polycyclic Aromatic Hydrocarbons (PAHs)										
Acenaphthene	30			Y		210000		0.03	210000 (mC)	210000 (mC)
Acenaphthylene	30					210000		0.03	210000 (mC)	210000 (mC)
Anthracene	100					1100000		0.03	1100000 (mC)	1100000 (mC)
Benzo(g,h,i)perylene	8					110000		0.03	110000 (mC)	110000 (mC)
Fluoranthene	6					140000		0.03	140000 (mC)	140000 (mC)
Fluorene	10					140000		0.03	140000 (mC)	140000 (mC)
Phenanthrene	100					1100000		0.03	1100000 (mC)	1100000 (mC)
Pyrene	8					110000		0.03	110000 (mC)	110000 (mC)
1-Methylnaphthalene	1.5					4500		0.03	4500 (mC)	4500 (mC)
2-Methylnaphthalene	32			Y		14000		0.03	14000 (mC)	14000 (mC)
Naphthalene	89			Y		70000		0.03	70000 (mC)	70000 (mC)
Benz(a)anthracene								0.01		
Benzo(a)pyrene								0.01		
Benzo(b)fluoranthene								0.01		
Benzo(k)fluoranthene								0.01		
Chrysene								0.01		
Dibenzo(a,h)anthracene								0.01		
Indeno(1,2,3-cd)pyrene								0.01		
Total cPAHs TEQ	0.015			Y		131		0.015	131 (mC)	131 (mC)
Other Semivolatile Organics										
1,4-Dichlorobenzene	49					24000		0.03	24000 (mC)	24000 (mC)
2,4-Dimethylphenol	97					70000		0.3	70000 (mC)	70000 (mC)
3 & 4 Methylphenol	400					175000		0.18	175000 (mC)	175000 (mC)
Benzoic acid	64000					14000000		3	14000000 (mC)	14000000 (mC)
Benzyl alcohol	800					350000		0.03	350000 (mC)	350000 (mC)
Benzyl butyl phthalate	0.5					69000		0.03	69000 (mC)	69000 (mC)
Bis(2-ethylhexyl) phthalate	0.8					9400		0.3	9400 (mC)	9400 (mC)
Carbazole								0.06		
Dibenzofuran	16			Y		3500		0.03	3500 (mC)	3500 (mC)
Diethyl phthalate	200					2800000		0.03	2800000 (mC)	2800000 (mC)
Dimethyl phthalate	600							0.03		
Di-n-butyl phthalate	8					350000		0.03	350000 (mC)	350000 (mC)
Pentachlorophenol	0.5			Y		330		0.3	330 (mC)	330 (mC)
Phenol	70000					1100000		0.3	1100000 (mC)	1100000 (mC)

Table 2. Soil Preliminary Cleanup Levels

Project No. 210178, K-C Worldwide Site Upland Area, Everett, Washington

ANALYTE (BY GROUP)	Groundwater Preliminary Cleanup Level (ug/L) (see Table 1)	APPLICABLE SOIL CRITERIA: Soil Protective of Groundwater: Calculated Values: Unsaturated Soil Concentration Protective of Leachability to Groundwater for Industrial Land Use (mg/kg)[b] (gwl-u)	Saturated Soil Concentration Protective of Leachability to Groundwater for Industrial Land Use (mg/kg)[c] (gwl-s)	Groundwater Exceedances Confirmed Empirically for Analyte?[d] (Y = yes; blank = no)	Soil, Method A, Industrial Land Use, Table Value (mg/kg)[e] (mA)	Soil Protective of Human Direct Contact[f]: Soil, Method C, Most-Restrictive Standard Formula Value, Direct Contact, Industrial Land Use (mg/kg)[a] (mC)	Natural Background Concentration (mg/kg)[g] (back)	Practical Quantitation Level (PQL) (mg/kg)[h] (pql)	Soil Preliminary Cleanup Level (mg/kg) and Basis: Unsaturated Soil	Saturated Soil
Polychlorinated Biphenyls (PCBs)										
Total PCBs	0.05	2.4	1.2	Y	10	66		0.10	2.4 (gwl-u)	1.2 (gwl-s)
Dioxins/Furans										
Total 2,3,7,8 TCDD (TEQ)[j]	6.3E-05					1.7E-03	5.2E-06	5.0E-06	1.7E-03 (mC)	1.7E-03 (mC)

Notes:

Preliminary cleanup levels are presented for compounds that were detected in either soil or groundwater during collection of data used in the RI (2012-present).

a Values obtained from Ecology's CLARC database, July 2015 update.

b Calculated values from three-phase model, per MTCA Equation 747-1, with groundwater value (Cw) as most stringent land-use-specific groundwater cleanup level, site-specific f_{oc} = 0.0078, and MTCA-default dilution factor = 20. WAC 173-340-747 provides multiple additional means to evaluate soil concentrations protective of groundwater.

c Calculated values from three-phase model, per MTCA Equation 747-1, with groundwater value (Cw) as most stringent land-use-specific groundwater cleanup level, site-specific f_{oc} = 0.0078, and MTCA-default dilution factor = 1. WAC 173-340-747 provides multiple additional means to evaluate soil concentrations protective of groundwater.

d If the existing empirical groundwater data demonstrate no groundwater exceedances for a compound, the soil-leachability-to-groundwater pathway is considered incomplete for that compound, and the calculated soil-protective-of-groundwater criteria are not included for establishing that compound's preliminary soil screening levels.

e Because Upland Area groundwater is not a practicable source of drinking water, many Method A soil cleanup levels are not applicable. Method A soil cleanup levels are used for TPH, lead, and arsenic (natural background).

f Direct contact soil cleanup levels are applicable for soils to 15-foot depth.

g Natural background values for metals from Natural Background Soil Metals Concentrations in Washington State (Ecology, 1994), except arsenic which is from MTCA (WAC 173-340-900, Table 720-1). Natural background value for dioxins/furans from Natural Background for Dioxins/Furans in Washington Soils—Technical Memorandum #8 (Ecology, 2010).

h Analytical method reporting limits. PQLs for total cPAH (TEQ) and total TCDD (TEQ) are adjusted for TEFs.

i Total PCBs is the summation of detected aroclors.

j K_{oc} and Hcc values for 2,3,7,8-TCDD are from EPA Regional Screening Level table, and are in the Oak Ridge National Lab Risk Assessment database.

k Area-specific (and petroleum product-specific) Method C soil TPH PCLs developed for selected areas using VPH/EPH data in acordance with WAC 173-340-745(5), as described in the text and Appendix B, are not presented here.

Table 3. Statistical Summary of Groundwater Quality Data Representing Current Site Conditions

Project No. 210178, K-C Worldwide Site Upland Area, Everett, Washington

Group	Analyte	Number of Samples	Number of Detections	Detection Frequency	Max Detected Concentration	Units	(PCLs) (all exposure pathways)			
							Groundwater PCL	Number of Locations with Exceedances	Number of Samples with Exceedances	Exceedance Frequency
Conventionals	Hydrogen Sulfide	8	8	100%	0.97	mg/L	0.002	6	6	75.0%
PCBAro	Total PCBs (Sum of Aroclors)	3	2	67%	0.084	ug/L	0.04	1	2	66.7%
PCBCong	Total PCBs (sum of congeners)	8	8	100%	0.434	ug/L	0.0091	3	3	37.5%
Metals	Copper	308	293	95%	269	ug/L	3.1	50	112	36.4%
Metals	Arsenic	194	182	94%	202	ug/L	5	32	56	28.9%
Metals	Nickel	155	155	100%	308	ug/L	8.2	23	41	26.5%
Conventionals	Un-ionized Ammonia (as N)	82	82	100%	10.7	mg/L	0.035	10	18	22.0%
Metals	Mercury	241	192	80%	4.24	ug/L	0.025	21	45	18.7%
cPAHs	Total cPAHs TEQ	362	82	23%	0.404	ug/L	0.015	20	40	11.0%
Metals	Lead	199	162	81%	121	ug/L	8.1	7	11	5.5%
Metals	Zinc	173	168	97%	356	ug/L	81	3	9	5.2%
VOCs	Vinyl chloride	83	6	7%	0.96	ug/L	0.26	4	4	4.8%
Other SVOCs	Pentachlorophenol	83	3	4%	7.3	ug/L	0.5	2	3	3.6%
TPHs	TPH (D+O Range)	328	100	30%	2500	ug/L	500	4	10	3.0%
Other SVOCs	Dibenzofuran	83	9	11%	62	ug/L	16	1	2	2.4%
VOCs	1,1-Dichloroethene	83	3	4%	5.9	ug/L	3.2	1	2	2.4%
TPHs	Diesel Range Hydrocarbons	328	99	30%	990	ug/L	500	3	6	1.8%
ncPAHs	Naphthalene	377	155	41%	210	ug/L	89	4	6	1.6%
ncPAHs	2-Methylnaphthalene	83	7	8%	37	ug/L	32	1	1	1.2%
Other SVOCs	2,4,6-Trichlorophenol	83	1	1%	0.56	ug/L	0.5	1	1	1.2%
Other SVOCs	Bis(2-ethylhexyl) phthalate	83	1	1%	0.96	ug/L	0.8	1	1	1.2%
TPHs	Oil Range Hydrocarbons	328	4	1%	2200	ug/L	500	1	3	0.9%
TPHs	Gasoline Range Hydrocarbons	207	34	16%	1100	ug/L	1000	1	1	0.5%
Metals	Antimony	54	16	30%	29.6	ug/L	180	0	0	0.0%
Metals	Beryllium	54	5	9%	0.018	ug/L	270	0	0	0.0%
Metals	Cadmium	56	19	34%	0.776	ug/L	8.8	0	0	0.0%
Metals	Chromium (Total)	56	43	77%	110	ug/L	240000	0	0	0.0%
Metals	Selenium	56	19	34%	25.6	ug/L	71	0	0	0.0%
Metals	Silver	56	11	20%	0.031	ug/L	1.9	0	0	0.0%
Metals	Thallium	54	2	4%	0.026	ug/L	0.22	0	0	0.0%
Conventionals	Formaldehyde	2	0	0%	NA	ug/L	1600	0	0	0.0%
ncPAHs	Acenaphthene	362	253	70%	58	ug/L	90	0	0	0.0%
ncPAHs	Acenaphthylene	362	47	13%	0.73	ug/L	90	0	0	0.0%
ncPAHs	Anthracene	362	149	41%	6.4	ug/L	400	0	0	0.0%
ncPAHs	Benzo(g,h,i)perylene	362	14	4%	0.14	ug/L	30	0	0	0.0%
ncPAHs	Fluoranthene	362	184	51%	6.4	ug/L	16	0	0	0.0%
ncPAHs	Fluorene	362	203	56%	35	ug/L	70	0	0	0.0%
ncPAHs	Phenanthrene	362	168	46%	41	ug/L	400	0	0	0.0%
ncPAHs	Pyrene	362	191	53%	4.2	ug/L	30	0	0	0.0%
ncPAHs	1-Methylnaphthalene	9	3	33%	1.1	ug/L	1.5	0	0	0.0%
cPAHs	Benz(a)anthracene	362	64	18%	0.55	ug/L	-	0	0	0.0%
cPAHs	Benzo(a)pyrene	362	35	10%	0.28	ug/L	-	0	0	0.0%
cPAHs	Benzo(b)fluoranthene	361	40	11%	0.3	ug/L	-	0	0	0.0%
cPAHs	Benzo(k)fluoranthene	362	20	6%	0.13	ug/L	-	0	0	0.0%
cPAHs	Chrysene	362	77	21%	0.53	ug/L	-	0	0	0.0%
cPAHs	Dibenzo(a,h)anthracene	362	3	1%	0.047	ug/L	-	0	0	0.0%
cPAHs	Indeno(1,2,3-cd)pyrene	362	17	5%	0.16	ug/L	-	0	0	0.0%
Other SVOCs	1,4-Dioxane	2	0	0%	NA	ug/L	10	0	0	0.0%
Other SVOCs	2,4,5-Trichlorophenol	83	0	0%	NA	ug/L	3600	0	0	0.0%
Other SVOCs	2,4-Dichlorophenol	83	0	0%	NA	ug/L	190	0	0	0.0%
Other SVOCs	2,4-Dimethylphenol	83	4	5%	23	ug/L	97	0	0	0.0%
Other SVOCs	2,4-Dinitrophenol	83	0	0%	NA	ug/L	3500	0	0	0.0%
Other SVOCs	2,4-Dinitrotoluene	83	0	0%	NA	ug/L	3.4	0	0	0.0%
Other SVOCs	2,6-Dinitrotoluene	83	0	0%	NA	ug/L	0.25	0	0	0.0%
Other SVOCs	2-Chloronaphthalene	83	0	0%	NA	ug/L	1000	0	0	0.0%
Other SVOCs	2-Chlorophenol	83	0	0%	NA	ug/L	100	0	0	0.0%
Other SVOCs	2-Methylphenol	83	0	0%	NA	ug/L	400	0	0	0.0%
Other SVOCs	2-Nitroaniline	83	0	0%	NA	ug/L	160	0	0	0.0%
Other SVOCs	2-Nitrophenol	83	0	0%	NA	ug/L	-	0	0	0.0%
Other SVOCs	3 & 4 Methylphenol	83	5	6%	68	ug/L	400	0	0	0.0%
Other SVOCs	3-Nitroaniline	83	0	0%	NA	ug/L	-	0	0	0.0%
Other SVOCs	4,6-Dinitro-2-methylphenol	83	0	0%	NA	ug/L	-	0	0	0.0%
Other SVOCs	4-Bromophenyl phenyl ether	83	0	0%	NA	ug/L	-	0	0	0.0%
Other SVOCs	4-Chloro-3-methylphenol	83	0	0%	NA	ug/L	-	0	0	0.0%
Other SVOCs	4-Chloroaniline	83	0	0%	NA	ug/L	3	0	0	0.0%
Other SVOCs	4-Chlorophenyl phenyl ether	83	0	0%	NA	ug/L	-	0	0	0.0%
Other SVOCs	4-Nitroaniline	83	0	0%	NA	ug/L	-	0	0	0.0%
Other SVOCs	4-Nitrophenol	83	0	0%	NA	ug/L	-	0	0	0.0%
Other SVOCs	Benzoic acid	80	4	5%	37	ug/L	64000	0	0	0.0%
Other SVOCs	Benzyl alcohol	83	0	0%	NA	ug/L	800	0	0	0.0%
Other SVOCs	Benzyl butyl phthalate	83	0	0%	NA	ug/L	0.5	0	0	0.0%
Other SVOCs	Bis(2-chloro-1-methylethyl) ether	83	0	0%	NA	ug/L	37	0	0	0.0%
Other SVOCs	Bis(2-chloroethoxy)methane	83	0	0%	NA	ug/L	-	0	0	0.0%
Other SVOCs	Bis(2-chloroethyl) ether	83	0	0%	NA	ug/L	0.53	0	0	0.0%
Other SVOCs	Carbazole	83	4	5%	2.3	ug/L	-	0	0	0.0%
Other SVOCs	Diethyl phthalate	83	1	1%	4.1	ug/L	600	0	0	0.0%
Other SVOCs	Dimethyl phthalate	83	0	0%	NA	ug/L	2000	0	0	0.0%
Other SVOCs	Di-n-butyl phthalate	83	1	1%	1	ug/L	30	0	0	0.0%
Other SVOCs	Di-n-octyl phthalate	83	0	0%	NA	ug/L	160	0	0	0.0%
Other SVOCs	Hexachlorobenzene	83	0	0%	NA	ug/L	0.05	0	0	0.0%
Other SVOCs	Hexachlorobutadiene	120	0	0%	NA	ug/L	8.1	0	0	0.0%
Other SVOCs	Hexachlorocyclopentadiene	83	0	0%	NA	ug/L	0.48	0	0	0.0%

Table 3. Statistical Summary of Groundwater Quality Data Representing Current Site Conditions

Project No. 210178, K-C Worldwide Site Upland Area, Everett, Washington

Group	Analyte	Number of Samples	Number of Detections	Detection Frequency	Max Detected Concentration	Units	(PCLs) (all exposure pathways)			
							Groundwater PCL	Number of Locations with Exceedances	Number of Samples with Exceedances	Exceedance Frequency
Other SVOCs	Hexachloroethane	83	0	0%	NA	ug/L	3.3	0	0	0.0%
Other SVOCs	Isophorone	83	0	0%	NA	ug/L	600	0	0	0.0%
Other SVOCs	Nitrobenzene	83	0	0%	NA	ug/L	690	0	0	0.0%
Other SVOCs	N-Nitroso-di-n-propylamine	83	0	0%	NA	ug/L	0.51	0	0	0.0%
Other SVOCs	N-Nitrosodiphenylamine	83	0	0%	NA	ug/L	6	0	0	0.0%
Other SVOCs	Phenol	83	9	11%	77	ug/L	200000	0	0	0.0%
VOCs	Benzene	192	3	2%	0.92	ug/L	1.6	0	0	0.0%
VOCs	Ethylbenzene	192	8	4%	2.6	ug/L	130	0	0	0.0%
VOCs	Toluene	192	4	2%	6.9	ug/L	410	0	0	0.0%
VOCs	m,p-Xylenes	83	2	2%	2.9	ug/L	680	0	0	0.0%
VOCs	o-Xylene	83	3	4%	9.8	ug/L	960	0	0	0.0%
VOCs	Xylenes (total)	180	9	5%	13	ug/L	680	0	0	0.0%
VOCs	1,1,1,2-Tetrachloroethane	83	0	0%	NA	ug/L	1.7	0	0	0.0%
VOCs	1,1,1-Trichloroethane	83	0	0%	NA	ug/L	12000	0	0	0.0%
VOCs	1,1,2,2-Tetrachloroethane	83	0	0%	NA	ug/L	4	0	0	0.0%
VOCs	1,1,2-Trichloroethane	83	0	0%	NA	ug/L	10	0	0	0.0%
VOCs	1,1-Dichloroethane	83	0	0%	NA	ug/L	7.7	0	0	0.0%
VOCs	1,1-Dichloropropene	83	0	0%	NA	ug/L	-	0	0	0.0%
VOCs	1,2,3-Trichlorobenzene	83	0	0%	NA	ug/L	-	0	0	0.0%
VOCs	1,2,3-Trichloropropane	83	0	0%	NA	ug/L	0.5	0	0	0.0%
VOCs	1,2,4-Trichlorobenzene	120	0	0%	NA	ug/L	2	0	0	0.0%
VOCs	1,2,4-Trimethylbenzene	83	2	2%	4.9	ug/L	61	0	0	0.0%
VOCs	1,2-Dibromo-3-chloropropane	83	0	0%	NA	ug/L	2	0	0	0.0%
VOCs	1,2-Dibromoethane (EDB)	83	0	0%	NA	ug/L	0.05	0	0	0.0%
VOCs	1,2-Dichlorobenzene	120	0	0%	NA	ug/L	1300	0	0	0.0%
VOCs	1,2-Dichloroethane (EDC)	83	0	0%	NA	ug/L	37	0	0	0.0%
VOCs	1,2-Dichloropropane	83	0	0%	NA	ug/L	15	0	0	0.0%
VOCs	1,3,5-Trimethylbenzene	83	1	1%	2.2	ug/L	80	0	0	0.0%
VOCs	1,3-Dichlorobenzene	120	0	0%	NA	ug/L	960	0	0	0.0%
VOCs	1,3-Dichloropropane	83	0	0%	NA	ug/L	-	0	0	0.0%
VOCs	1,4-Dichlorobenzene	120	0	0%	NA	ug/L	21	0	0	0.0%
VOCs	2,2-Dichloropropane	83	0	0%	NA	ug/L	-	0	0	0.0%
VOCs	2-Butanone	83	2	2%	12	ug/L	4800	0	0	0.0%
VOCs	2-Chlorotoluene	83	0	0%	NA	ug/L	160	0	0	0.0%
VOCs	2-Hexanone	83	0	0%	NA	ug/L	-	0	0	0.0%
VOCs	4-Chlorotoluene	83	0	0%	NA	ug/L	-	0	0	0.0%
VOCs	4-Methyl-2-pentanone	83	0	0%	NA	ug/L	640	0	0	0.0%
VOCs	Acetone	83	4	5%	110	ug/L	7200	0	0	0.0%
VOCs	Bromobenzene	83	0	0%	NA	ug/L	-	0	0	0.0%
VOCs	Bromodichloromethane	83	0	0%	NA	ug/L	17	0	0	0.0%
VOCs	Bromoform	83	0	0%	NA	ug/L	140	0	0	0.0%
VOCs	Bromomethane	83	0	0%	NA	ug/L	28	0	0	0.0%
VOCs	Carbon tetrachloride	83	0	0%	NA	ug/L	1.6	0	0	0.0%
VOCs	Chlorobenzene	83	0	0%	NA	ug/L	640	0	0	0.0%
VOCs	Chloroethane	83	0	0%	NA	ug/L	40000	0	0	0.0%
VOCs	Chloroform	83	0	0%	NA	ug/L	12	0	0	0.0%
VOCs	Chloromethane	83	0	0%	NA	ug/L	340	0	0	0.0%
VOCs	cis-1,2-Dichloroethene (DCE)	83	0	0%	NA	ug/L	16	0	0	0.0%
VOCs	cis-1,3-Dichloropropene	83	0	0%	NA	ug/L	-	0	0	0.0%
VOCs	Dibromochloromethane	83	0	0%	NA	ug/L	13	0	0	0.0%
VOCs	Dibromomethane	83	0	0%	NA	ug/L	80	0	0	0.0%
VOCs	Dichlorodifluoromethane	83	0	0%	NA	ug/L	12	0	0	0.0%
VOCs	Isopropylbenzene	83	1	1%	1.2	ug/L	800	0	0	0.0%
VOCs	Methyl tert-butyl ether (MTBE)	83	0	0%	NA	ug/L	24.3	0	0	0.0%
VOCs	Methylene chloride	83	0	0%	NA	ug/L	250	0	0	0.0%
VOCs	n-Hexane	8	0	0%	NA	ug/L	-	0	0	0.0%
VOCs	n-Propylbenzene	83	2	2%	1.5	ug/L	800	0	0	0.0%
VOCs	p-Isopropyltoluene	83	4	5%	200	ug/L	800	0	0	0.0%
VOCs	sec-Butylbenzene	83	1	1%	2.2	ug/L	800	0	0	0.0%
VOCs	Styrene	83	1	1%	2	ug/L	100	0	0	0.0%
VOCs	tert-Butylbenzene	83	0	0%	NA	ug/L	800	0	0	0.0%
VOCs	Tetrachloroethene (PCE)	83	0	0%	NA	ug/L	3.3	0	0	0.0%
VOCs	trans-1,2-Dichloroethene	83	0	0%	NA	ug/L	250	0	0	0.0%
VOCs	trans-1,3-Dichloropropene	83	0	0%	NA	ug/L	-	0	0	0.0%
VOCs	Trichloroethene (TCE)	83	0	0%	NA	ug/L	8.4	0	0	0.0%
VOCs	Trichlorofluoromethane	83	0	0%	NA	ug/L	260	0	0	0.0%
VOCs	Vinyl acetate	2	0	0%	NA	ug/L	8000	0	0	0.0%

Notes

Yellow-highlighted constituents have frequency of exceedance of PCL greater than 5%.

PCL: Preliminary cleanup level addressing all applicable exposure pathways.

Table 4. Statistical Summary of Soil Quality Data Representing Current Site Conditions

Project No. 210178, K-C Worldwide Site Upland Area, Everett, Washington

Group	Analyte	Number of Sample Locations	Number of Samples	Number of Detections	Detection Frequency	Max Detected Concentration	Units	(PCLs) (all exposure pathways)				
								Unsaturated Soil PCL	Saturated Soil PCL	Number of Locations with Exceedances	Number of Samples with Exceedances	Exceedance Frequency
VOCs	Ethylbenzene	316	421	7	2%	1.44	mg/kg	350000	350000	0	0	0.0%
VOCs	Toluene	316	421	2	0%	0.666	mg/kg	280000	280000	0	0	0.0%
VOCs	m,p-Xylenes	300	395	9	2%	2.78	mg/kg	-	-	0	0	0.0%
VOCs	o-Xylene	300	395	8	2%	4.32	mg/kg	-	-	0	0	0.0%
VOCs	1,1,1,2-Tetrachloroethane	298	393	0	0%	NA	mg/kg	5000	5000	0	0	0.0%
VOCs	1,1,1-Trichloroethane	298	393	0	0%	NA	mg/kg	7000000	7000000	0	0	0.0%
VOCs	1,1,2,2-Tetrachloroethane	298	393	0	0%	NA	mg/kg	660	660	0	0	0.0%
VOCs	1,1,2-Trichloroethane	298	393	0	0%	NA	mg/kg	2300	2300	0	0	0.0%
VOCs	1,1-Dichloroethane	298	393	0	0%	NA	mg/kg	23000	23000	0	0	0.0%
VOCs	1,1-Dichloroethene	298	393	0	0%	NA	mg/kg	180000	180000	0	0	0.0%
VOCs	1,1-Dichloropropene	298	393	0	0%	NA	mg/kg	-	-	0	0	0.0%
VOCs	1,2,3-Trichlorobenzene	298	393	0	0%	NA	mg/kg	-	-	0	0	0.0%
VOCs	1,2,3-Trichloropropane	298	393	0	0%	NA	mg/kg	4.4	4.4	0	0	0.0%
VOCs	1,2,4-Trichlorobenzene	324	461	0	0%	NA	mg/kg	4500	4500	0	0	0.0%
VOCs	1,2,4-Trimethylbenzene	298	393	5	1%	0.089	mg/kg	-	-	0	0	0.0%
VOCs	1,2-Dibromo-3-chloropropane	298	393	0	0%	NA	mg/kg	160	160	0	0	0.0%
VOCs	1,2-Dibromoethane (EDB)	298	393	0	0%	NA	mg/kg	66	66	0	0	0.0%
VOCs	1,2-Dichlorobenzene	324	461	0	0%	NA	mg/kg	320000	320000	0	0	0.0%
VOCs	1,2-Dichloroethane (EDC)	298	393	0	0%	NA	mg/kg	1400	1400	0	0	0.0%
VOCs	1,2-Dichloropropane	298	393	0	0%	NA	mg/kg	3600	3600	0	0	0.0%
VOCs	1,3,5-Trimethylbenzene	298	393	3	1%	0.087	mg/kg	35000	35000	0	0	0.0%
VOCs	1,3-Dichlorobenzene	324	461	0	0%	NA	mg/kg	-	-	0	0	0.0%
VOCs	1,3-Dichloropropane	298	393	0	0%	NA	mg/kg	-	-	0	0	0.0%
VOCs	1,4-Dichlorobenzene	324	461	2	0%	0.039	mg/kg	24000	24000	0	0	0.0%
VOCs	2,2-Dichloropropane	298	393	0	0%	NA	mg/kg	-	-	0	0	0.0%
VOCs	2-Butanone	298	393	0	0%	NA	mg/kg	2100000	2100000	0	0	0.0%
VOCs	2-Chlorotoluene	298	393	2	1%	7.6	mg/kg	70000	70000	0	0	0.0%
VOCs	2-Hexanone	298	393	0	0%	NA	mg/kg	-	-	0	0	0.0%
VOCs	4-Chlorotoluene	298	393	1	0%	0.11	mg/kg	-	-	0	0	0.0%
VOCs	4-Methyl-2-pentanone	298	393	0	0%	NA	mg/kg	280000	280000	0	0	0.0%
VOCs	Acetone	298	393	8	2%	1.5	mg/kg	3200000	3200000	0	0	0.0%
VOCs	Bromobenzene	298	393	0	0%	NA	mg/kg	-	-	0	0	0.0%
VOCs	Bromodichloromethane	298	393	0	0%	NA	mg/kg	2100	2100	0	0	0.0%
VOCs	Bromoform	298	393	0	0%	NA	mg/kg	17000	17000	0	0	0.0%
VOCs	Bromomethane	298	393	0	0%	NA	mg/kg	4900	4900	0	0	0.0%
VOCs	Carbon tetrachloride	297	392	0	0%	NA	mg/kg	1900	1900	0	0	0.0%
VOCs	Chlorobenzene	298	393	0	0%	NA	mg/kg	70000	70000	0	0	0.0%
VOCs	Chloroethane	298	393	0	0%	NA	mg/kg	-	-	0	0	0.0%
VOCs	Chloroform	298	393	0	0%	NA	mg/kg	4200	4200	0	0	0.0%
VOCs	Chloromethane	298	393	0	0%	NA	mg/kg	-	-	0	0	0.0%
VOCs	cis-1,2-Dichloroethene (DCE)	298	393	0	0%	NA	mg/kg	7000	7000	0	0	0.0%
VOCs	cis-1,3-Dichloropropene	298	393	0	0%	NA	mg/kg	-	-	0	0	0.0%
VOCs	Dibromochloromethane	298	393	0	0%	NA	mg/kg	1600	1600	0	0	0.0%
VOCs	Dibromomethane	298	393	0	0%	NA	mg/kg	35000	35000	0	0	0.0%
VOCs	Dichlorodifluoromethane	297	390	0	0%	NA	mg/kg	700000	700000	0	0	0.0%
VOCs	Isopropylbenzene	298	393	6	2%	0.48	mg/kg	350000	350000	0	0	0.0%
VOCs	Methyl tert-butyl ether (MTBE)	299	394	0	0%	NA	mg/kg	73000	73000	0	0	0.0%
VOCs	Methylene chloride	298	393	2	1%	1.1	mg/kg	21000	21000	0	0	0.0%
VOCs	n-Hexane	10	21	0	0%	NA	mg/kg	-	-	0	0	0.0%
VOCs	n-Propylbenzene	298	393	6	2%	1.7	mg/kg	350000	350000	0	0	0.0%
VOCs	p-Isopropyltoluene	298	393	7	2%	1.5	mg/kg	-	-	0	0	0.0%
VOCs	sec-Butylbenzene	298	393	7	2%	1.9	mg/kg	350000	350000	0	0	0.0%
VOCs	Styrene	298	393	0	0%	NA	mg/kg	700000	700000	0	0	0.0%
VOCs	tert-Butylbenzene	298	393	1	0%	0.055	mg/kg	350000	350000	0	0	0.0%
VOCs	Tetrachloroethene (PCE)	298	393	0	0%	NA	mg/kg	21000	21000	0	0	0.0%
VOCs	trans-1,2-Dichloroethene	298	393	0	0%	NA	mg/kg	70000	70000	0	0	0.0%
VOCs	trans-1,3-Dichloropropene	298	393	0	0%	NA	mg/kg	-	-	0	0	0.0%
VOCs	Trichloroethene (TCE)	298	393	0	0%	NA	mg/kg	1800	1800	0	0	0.0%
VOCs	Trichlorofluoromethane	298	393	0	0%	NA	mg/kg	1100000	1100000	0	0	0.0%
VOCs	Vinyl acetate	45	45	0	0%	NA	mg/kg	3500000	3500000	0	0	0.0%
VOCs	Vinyl chloride	298	393	0	0%	NA	mg/kg	88	88	0	0	0.0%
Dioxins/Furans	Total 2,3,7,8 TCDD [TEQ]	25	30	30	100%	0.0000433	mg/kg	0.0017	0.0017	0	0	0.0%

Notes

Yellow-highlighted constituents have frequency of exceedance of PCL greater than 5%.

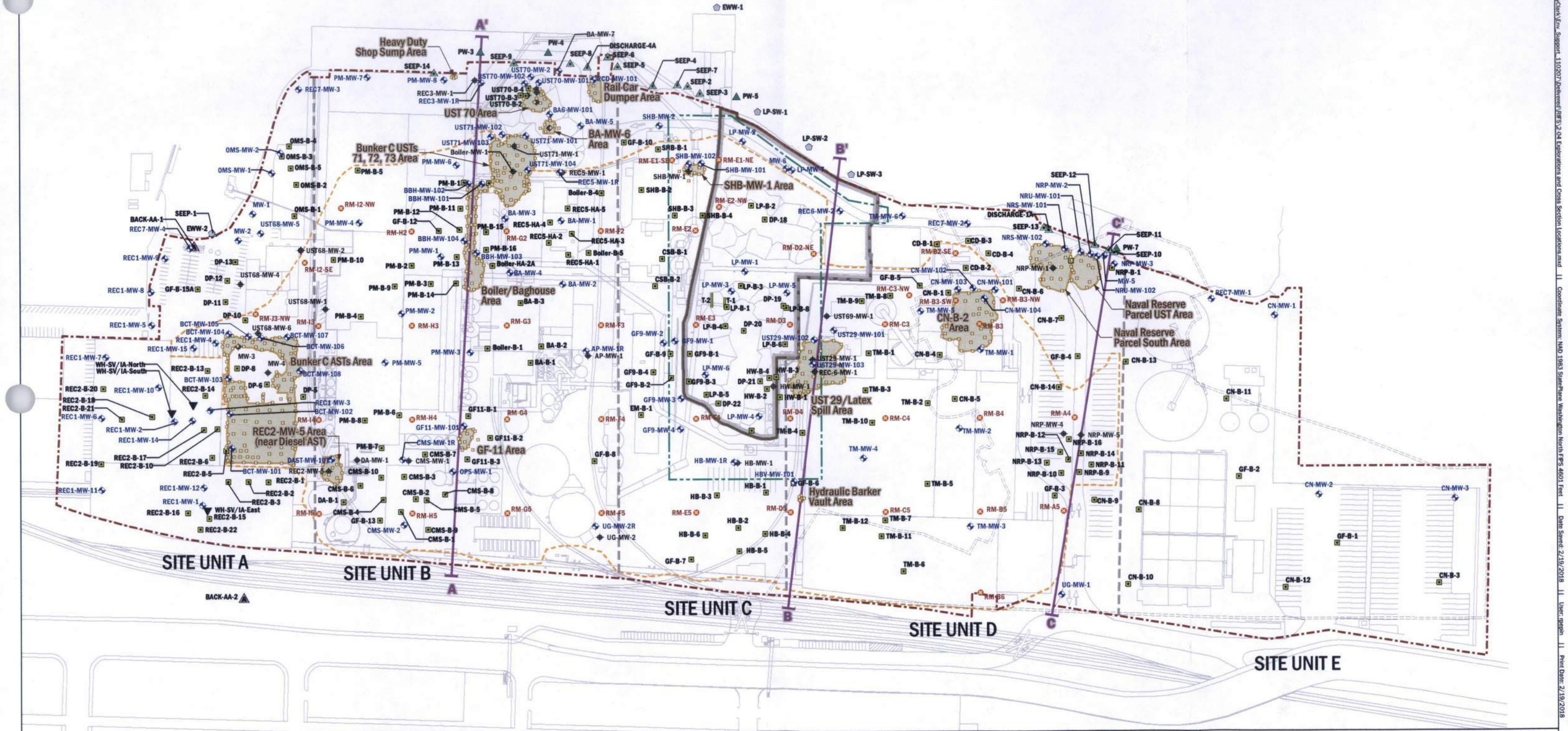
PCL: Preliminary cleanup level addressing all applicable exposure pathways.

Table 4. Statistical Summary of Soil Quality Data Representing Current Site Conditions

Project No. 210178, K-C Worldwide Site Upland Area, Everett, Washington

Group	Analyte	Number of Sample Locations	Number of Samples	Number of Detections	Detection Frequency	Max Detected Concentration	Units	(PCLs) (all exposure pathways)				
								Unsaturated Soil PCL	Saturated Soil PCL	Number of Locations with Exceedances	Number of Samples with Exceedances	Exceedance Frequency
Metals	Mercury	591	807	132	16%	3.8	mg/kg	0.1	0.1	118	126	15.6%
Metals	Copper	557	778	795	102%	173	mg/kg	36	36	85	96	12.3%
Metals	Zinc	505	713	746	105%	973	mg/kg	100	85	64	82	11.5%
cPAHs	Total cPAHs TEQ	817	1057	442	42%	7.77	mg/kg	3.2	0.16	48	52	4.9%
TPHs	TPH (D+O Range)	775	1046	136	13%	29000	mg/kg	2000	2000	31	33	3.2%
TPHs	Gasoline Range Hydrocarbons	347	471	55	12%	4000	mg/kg	100	100	14	14	3.0%
Metals	Lead	455	671	692	103%	924	mg/kg	1000	81	13	15	2.2%
Metals	Arsenic	442	651	627	96%	43	mg/kg	20	20	11	12	1.8%
PCBs	Total PCBs (Sum of Aroclors)	289	367	58	16%	24	mg/kg	2.4	0.12	4	4	1.1%
ncPAHs	2-Methylnaphthalene	140	233	37	16%	1.5	mg/kg	13	0.63	2	2	0.9%
Metals	Nickel	427	616	645	105%	135	mg/kg	48	48	5	5	0.8%
ncPAHs	Naphthalene	813	1077	275	26%	79	mg/kg	17	0.86	8	8	0.7%
VOCs	Xylenes (total)	290	374	7	2%	7.1	mg/kg	28	1.4	2	2	0.5%
Metals	Antimony	185	241	46	19%	9.42	mg/kg	1400	1400	0	0	0.0%
Metals	Barium	4	8	8	100%	68.6	mg/kg	700000	700000	0	0	0.0%
Metals	Beryllium	114	170	0	0%	NA	mg/kg	7000	7000	0	0	0.0%
Metals	Cadmium	341	417	3	1%	2.41	mg/kg	3500	3500	0	0	0.0%
Metals	Chromium (Total)	137	197	231	117%	75.8	mg/kg	5300000	5300000	0	0	0.0%
Metals	Selenium	125	185	0	0%	NA	mg/kg	18000	18000	0	0	0.0%
Metals	Silver	125	185	0	0%	NA	mg/kg	18000	18000	0	0	0.0%
Metals	Thallium	114	170	0	0%	NA	mg/kg	35	35	0	0	0.0%
Conventionals	Formaldehyde	34	34	24	71%	12	mg/kg	700000	700000	0	0	0.0%
ncPAHs	Acenaphthene	804	1045	244	23%	72	mg/kg	210000	210000	0	0	0.0%
ncPAHs	Acenaphthylene	804	1044	55	5%	0.33	mg/kg	-	-	0	0	0.0%
ncPAHs	Anthracene	804	1045	219	21%	25	mg/kg	1100000	1100000	0	0	0.0%
ncPAHs	Benzo(g,h,i)perylene	804	1044	332	32%	4.3	mg/kg	-	-	0	0	0.0%
ncPAHs	Fluoranthene	804	1045	486	47%	74	mg/kg	140000	140000	0	0	0.0%
ncPAHs	Fluorene	804	1045	209	20%	79	mg/kg	140000	140000	0	0	0.0%
ncPAHs	Phenanthrene	804	1045	440	42%	210	mg/kg	-	-	0	0	0.0%
ncPAHs	Pyrene	804	1045	541	52%	45	mg/kg	110000	110000	0	0	0.0%
ncPAHs	1-Methylnaphthalene	17	37	10	27%	2.6	mg/kg	4500	4500	0	0	0.0%
cPAHs	Benz(a)anthracene	817	1057	378	36%	9.3	mg/kg	-	-	0	0	0.0%
cPAHs	Benzo(a)pyrene	817	1057	367	35%	6.3	mg/kg	-	-	0	0	0.0%
cPAHs	Benzo(b)fluoranthene	817	1057	412	39%	3.2	mg/kg	-	-	0	0	0.0%
cPAHs	Benzo(k)fluoranthene	817	1057	217	21%	1.4	mg/kg	-	-	0	0	0.0%
cPAHs	Chrysene	817	1057	424	40%	12	mg/kg	-	-	0	0	0.0%
cPAHs	Dibenzo(a,h)anthracene	817	1057	110	10%	0.98	mg/kg	-	-	0	0	0.0%
cPAHs	Indeno(1,2,3-cd)pyrene	817	1057	312	30%	1.5	mg/kg	-	-	0	0	0.0%
Other SVOCs	1,4-Dioxane	45	45	0	0%	NA	mg/kg	1312.5	1312.5	0	0	0.0%
Other SVOCs	2,4,5-Trichlorophenol	133	218	0	0%	NA	mg/kg	350000	350000	0	0	0.0%
Other SVOCs	2,4,6-Trichlorophenol	133	218	0	0%	NA	mg/kg	3500	3500	0	0	0.0%
Other SVOCs	2,4-Dichlorophenol	133	219	0	0%	NA	mg/kg	11000	11000	0	0	0.0%
Other SVOCs	2,4-Dimethylphenol	133	219	1	0%	0.16	mg/kg	70000	70000	0	0	0.0%
Other SVOCs	2,4-Dinitrophenol	133	219	0	0%	NA	mg/kg	7000	7000	0	0	0.0%
Other SVOCs	2-Chloronaphthalene	133	218	0	0%	NA	mg/kg	280000	280000	0	0	0.0%
Other SVOCs	2-Chlorophenol	133	219	0	0%	NA	mg/kg	18000	18000	0	0	0.0%
Other SVOCs	2-Methylphenol	133	219	0	0%	NA	mg/kg	180000	180000	0	0	0.0%
Other SVOCs	2-Nitroaniline	133	218	0	0%	NA	mg/kg	35000	35000	0	0	0.0%
Other SVOCs	2-Nitrophenol	133	219	0	0%	NA	mg/kg	-	-	0	0	0.0%
Other SVOCs	3 & 4 Methylphenol	133	219	1	0%	1.3	mg/kg	175000	175000	0	0	0.0%
Other SVOCs	3-Nitroaniline	133	218	0	0%	NA	mg/kg	-	-	0	0	0.0%
Other SVOCs	4,6-Dinitro-2-methylphenol	133	219	0	0%	NA	mg/kg	-	-	0	0	0.0%
Other SVOCs	4-Bromophenyl phenyl ether	133	219	0	0%	NA	mg/kg	-	-	0	0	0.0%
Other SVOCs	4-Chloro-3-methylphenol	133	219	0	0%	NA	mg/kg	-	-	0	0	0.0%
Other SVOCs	4-Chloroaniline	133	219	0	0%	NA	mg/kg	660	660	0	0	0.0%
Other SVOCs	4-Chlorophenyl phenyl ether	133	219	0	0%	NA	mg/kg	-	-	0	0	0.0%
Other SVOCs	4-Nitroaniline	133	219	0	0%	NA	mg/kg	-	-	0	0	0.0%
Other SVOCs	4-Nitrophenol	133	219	0	0%	NA	mg/kg	-	-	0	0	0.0%
Other SVOCs	Benzoic acid	133	218	0	0%	NA	mg/kg	14000000	14000000	0	0	0.0%
Other SVOCs	Benzyl alcohol	133	219	1	0%	0.69	mg/kg	350000	350000	0	0	0.0%
Other SVOCs	Benzyl butyl phthalate	133	219	1	0%	0.065	mg/kg	69000	69000	0	0	0.0%
Other SVOCs	Bis(2-chloro-1-methylethyl) ether	133	219	0	0%	NA	mg/kg	1900	1900	0	0	0.0%
Other SVOCs	Bis(2-chloroethoxy)methane	133	219	0	0%	NA	mg/kg	-	-	0	0	0.0%
Other SVOCs	Bis(2-chloroethyl) ether	133	219	0	0%	NA	mg/kg	120	120	0	0	0.0%
Other SVOCs	Bis(2-ethylhexyl) phthalate	133	218	2	1%	1	mg/kg	9400	9400	0	0	0.0%
Other SVOCs	Carbazole	133	219	4	2%	0.29	mg/kg	-	-	0	0	0.0%
Other SVOCs	Dibenzofuran	133	219	30	14%	1.6	mg/kg	3500	3500	0	0	0.0%
Other SVOCs	Diethyl phthalate	133	219	0	0%	NA	mg/kg	2800000	2800000	0	0	0.0%
Other SVOCs	Dimethyl phthalate	133	218	2	1%	0.1	mg/kg	-	-	0	0	0.0%
Other SVOCs	Di-n-butyl phthalate	133	219	2	1%	1.2	mg/kg	350000	350000	0	0	0.0%
Other SVOCs	Di-n-octyl phthalate	133	218	0	0%	NA	mg/kg	35000	35000	0	0	0.0%
Other SVOCs	Hexachlorobenzene	133	219	0	0%	NA	mg/kg	82	82	0	0	0.0%
Other SVOCs	Hexachlorobutadiene	324	461	0	0%	NA	mg/kg	1700	1700	0	0	0.0%
Other SVOCs	Hexachlorocyclopentadiene	133	218	0	0%	NA	mg/kg	21000	21000	0	0	0.0%
Other SVOCs	Hexachloroethane	133	219	0	0%	NA	mg/kg	2500	2500	0	0	0.0%
Other SVOCs	Isophorone	133	219	0	0%	NA	mg/kg	140000	140000	0	0	0.0%
Other SVOCs	Nitrobenzene	133	219	0	0%	NA	mg/kg	7000	7000	0	0	0.0%
Other SVOCs	N-Nitroso-di-n-propylamine	133	219	0	0%	NA	mg/kg	19	19	0	0	0.0%
Other SVOCs	N-Nitrosodiphenylamine	133	219	0	0%	NA	mg/kg	27000	27000	0	0	0.0%
Other SVOCs	Pentachlorophenol	133	219	0	0%	NA	mg/kg	0.3	0.3	0	0	0.0%
Other SVOCs	Phenol	133	219	1	0%	0.34	mg/kg	1100000	1100000	0	0	0.0%
Other SVOCs	2,4-Dinitrotoluene	133	219	0	0%	NA	mg/kg	420	420	0	0	0.0%
Other SVOCs	2,6-Dinitrotoluene	133	218	0	0%	NA	mg/kg	88	88	0	0	0.0%
VOCs	Benzene	316	421	1	0%	0.036	mg/kg	2400	2400	0	0	0.0%

FIGURE



Explorations reflect conditions prior to the 2nd Interim Action in 2020.

Exploration Locations Prior to 2020 Interim Action

RI/FS
K-C Worldwide Site Upland Area
Everett, Washington

Aspect Consulting	FEB-2018	BY: SJG / RAP	FIGURE NO. 1
	PROJECT NO. 110207	REVISED BY: ---	

GIS Path: T:\projects_8\Kimberly-Clark\Env. Support_110207\Delivered\RFS\2-04 Explorations and Cross Section Locations.mxd || Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet || Date Saved: 2/19/2018 || User: ggpin || Print Date: 2/19/2018

ExxonMobil ADC Site

ExxonMobil ADC Summary

The ExxonMobil ADC Site was a former petroleum bulk storage and distribution facility located south of and adjacent to the Kimberly-Clark Worldwide Site in Everett, Washington. Extensive characterization and sampling activities have been conducted at the Site since 1985. Analyses conducted in soil and groundwater include volatile organic compounds (VOCs); semivolatile organic compounds (SVOCs); TPH-Gasoline (TPH-G), -Diesel (TPH-D), and –Oil (TPH-O); and select metals.

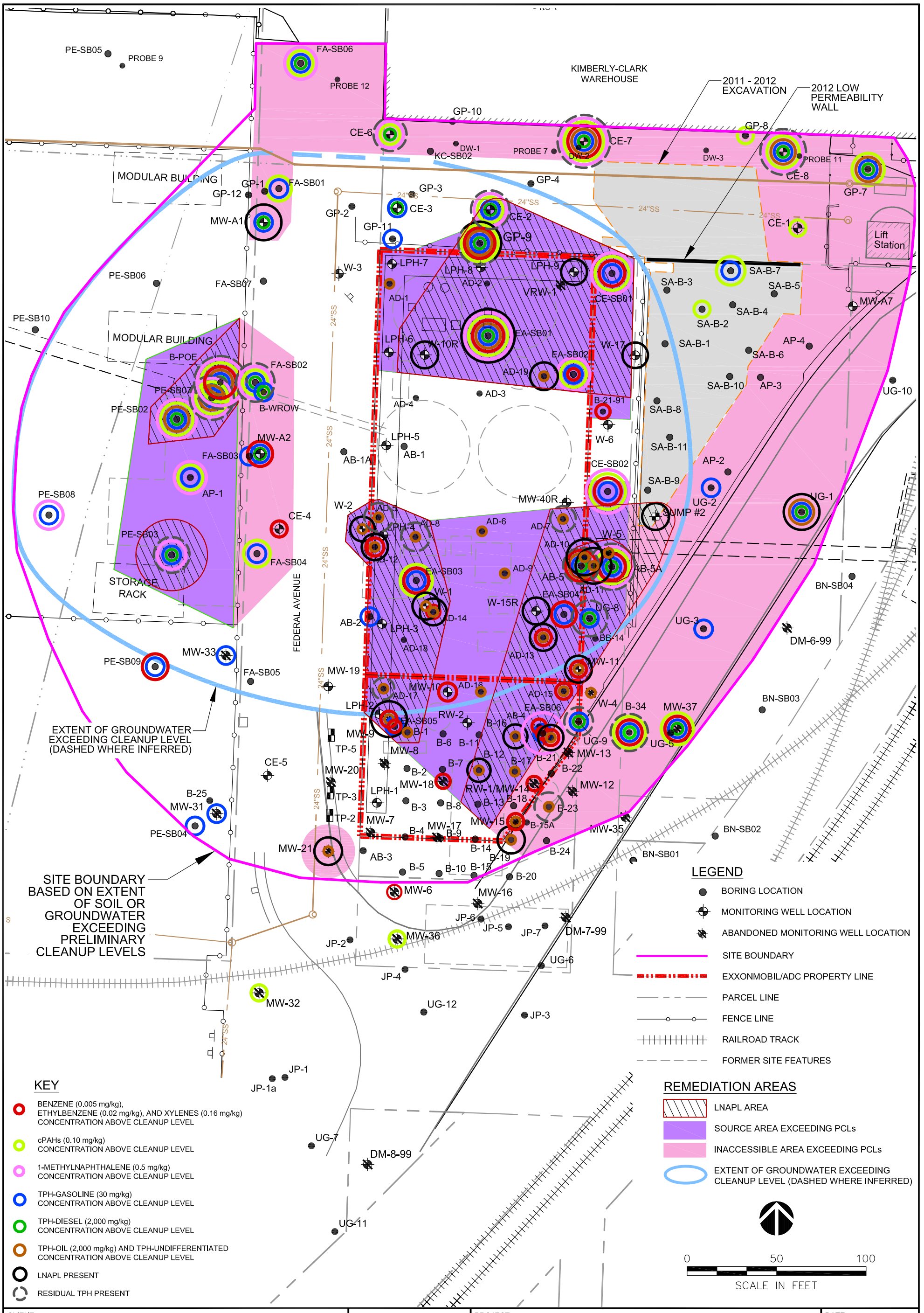
Liquid-phase petroleum hydrocarbons (LPH) have been observed in groundwater wells, trenches, sumps, and excavations at the Site since environmental investigations began. The LPH varies in nature from TPH-G to TPH-D to heavier TPH-O fractions, and all of the LPH is generally characterized as "weathered" in various laboratory reports.

The Site has been delineated based on the results of the past investigations. The Site includes the Property and extends onto adjacent areas owned by the City of Everett (e.g., Federal Avenue), BNSF, K-C, and the Port of Everett.

The groundwater and soil contaminants of concern (COCs) to be addressed at the Site are listed in the table below.

- benzene
- ethylbenzene
- xylenes
- 1-methylnaphthalene
- TPH-G
- TPH-D
- TPH-O
- Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)

The maps provided on the next page show petroleum contamination identified at the Site. The first map is from the August 23, 2019 Focused Feasibility Study report. The next set of maps, which shows petroleum contamination in soil and locations of LPH plotted on aerial photos, was generated by Ecology in 2018 based on results from past investigations.



CLIENT

EXXONMOBIL AND AMERICAN DISTRIBUTION COMPANY

Wood Environment & Infrastructure Solutions, Inc.
600 University Street, Suite 600
Seattle, Washington 98101

PROJECT

EXXONMOBIL/ADC PROPERTY
ECOLOGY SITE ID 2728

TITLE

SOURCE AREAS

DATE: SEPTEMBER 2018

PROJECT NO.: 6103180009

REV NO.: 1

FIGURE No.: 12-1

DRAWN BY: APS CHECKED BY: LV

S:\6103-0009\001_DataInvestIgatIonReport\Everett_EXM-SourceAreas-Internal_091118_.dwg - AFW_11x17_P - Sep. 11, 2018 3:55pm - adam.stenberg

Diesel/Oil Range in Soil

- <2,000 mg/kg
- >2,000 to <5,000 mg/kg
- >5,000 to <7,500 mg/kg
- >7,500 to <10,000 mg/kg
- >10,000

Gasoline Range in Soil

- <30 mg/kg
- >30 to <300 mg/kg
- >300 to <1,000 mg/kg
- >1,000 mg/kg

Hot Spot Areas

Hot Spot Areas in utility corridors or ROWs

Johnston Petroleum Bld. Footprint

Independent excavation area

LPH observed in wells or dewatering wells during the city force main project

Soils at residual saturation identified by ExxonMobil ADC

LPH observed during city CSO force main project or the side sewer connection as part of a 1993 recovery trench.

Extent of soil contamination.

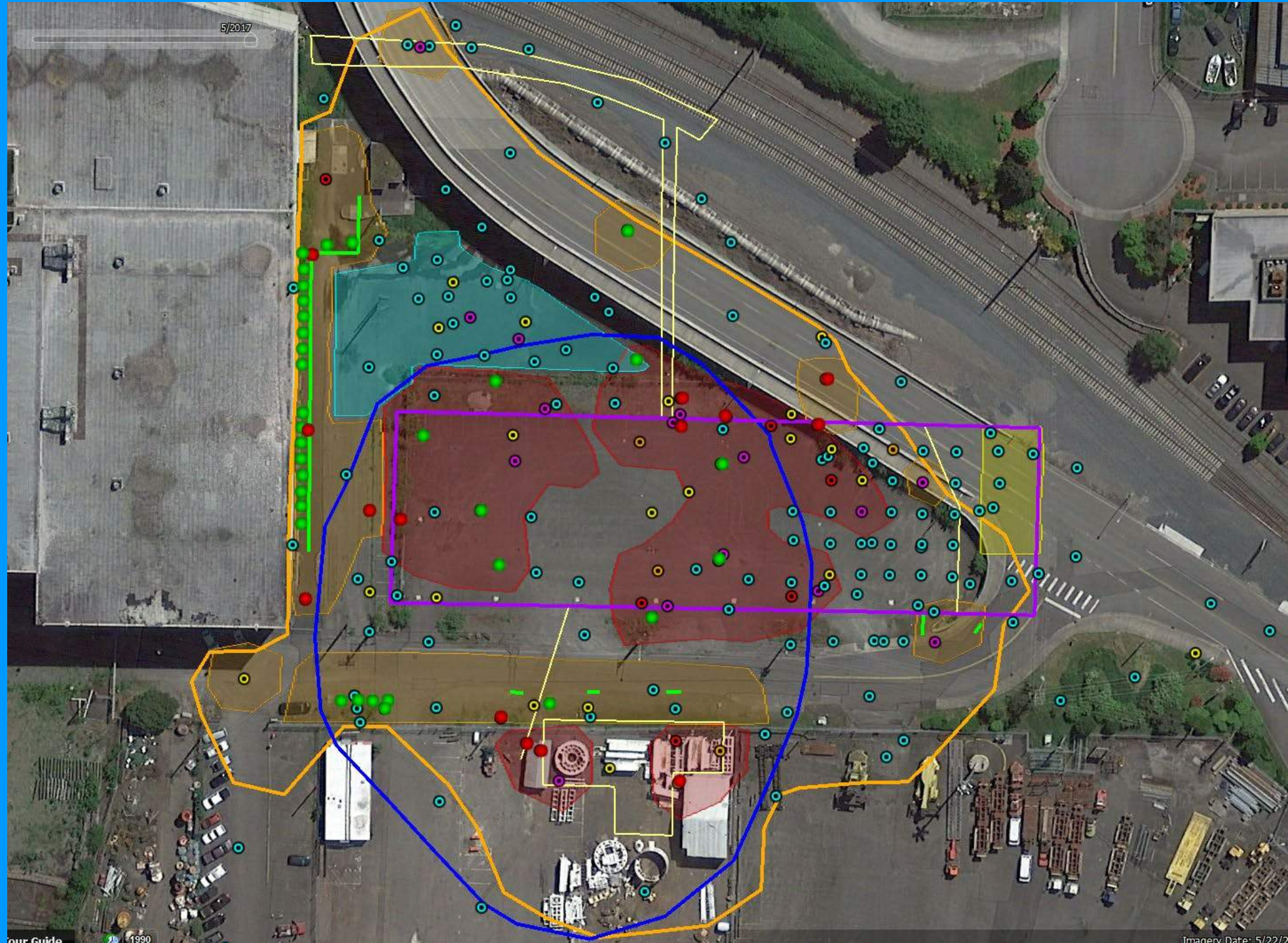
Dissolved phase plume as presented in the draft FFS.

Block 619 Boundary

Utilities were identified from the draft FFS

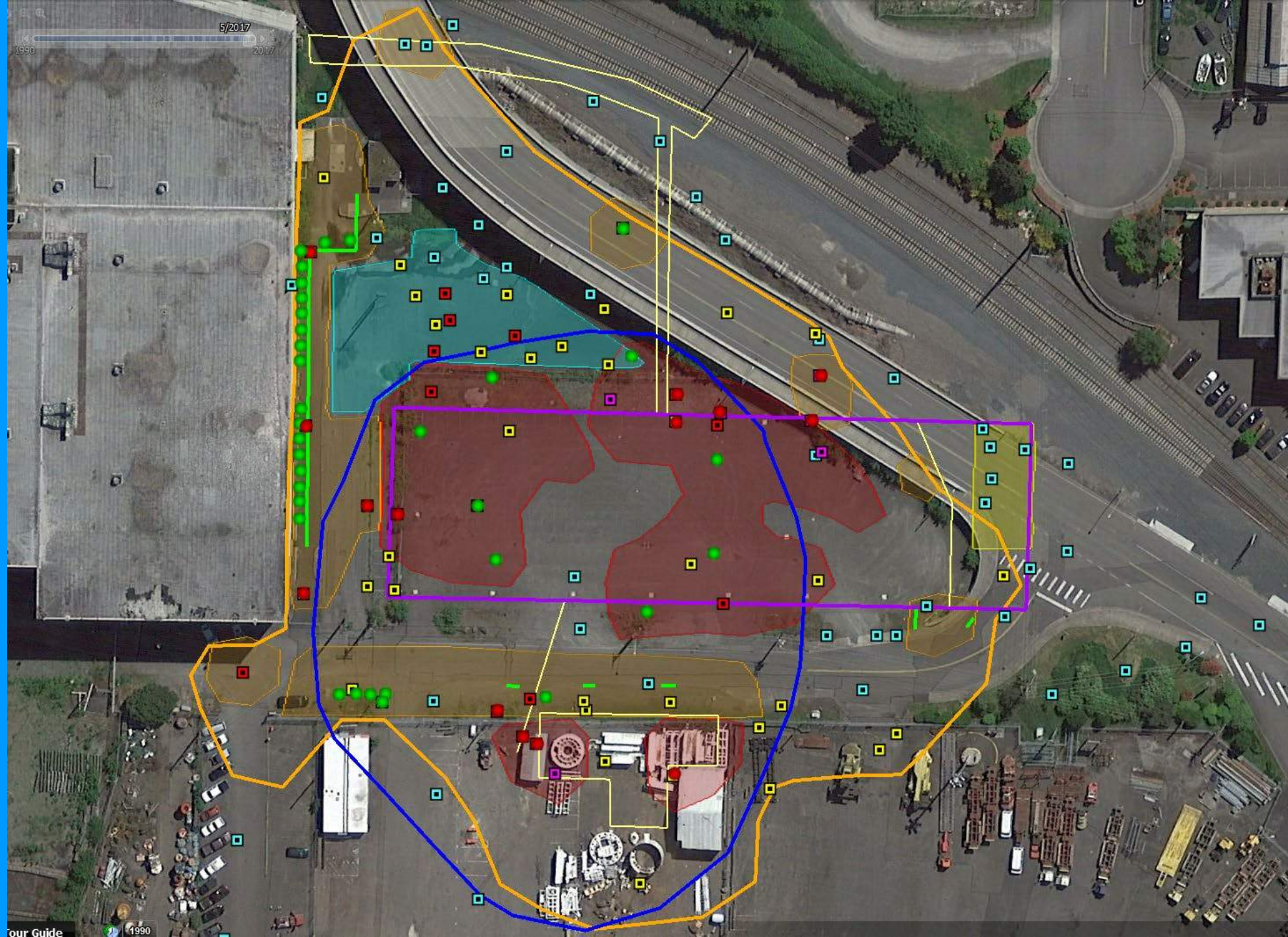
Diesel/Oil Range in Soil

- <2,000
- >2,000 to <5,000
- >5,000 to <7,500
- >7,500 to <10,000
- >10,000



Gasoline Range in Soil (mg/kg)

- <30
- >30 to <300
- >300 to <1,000
- >1,000



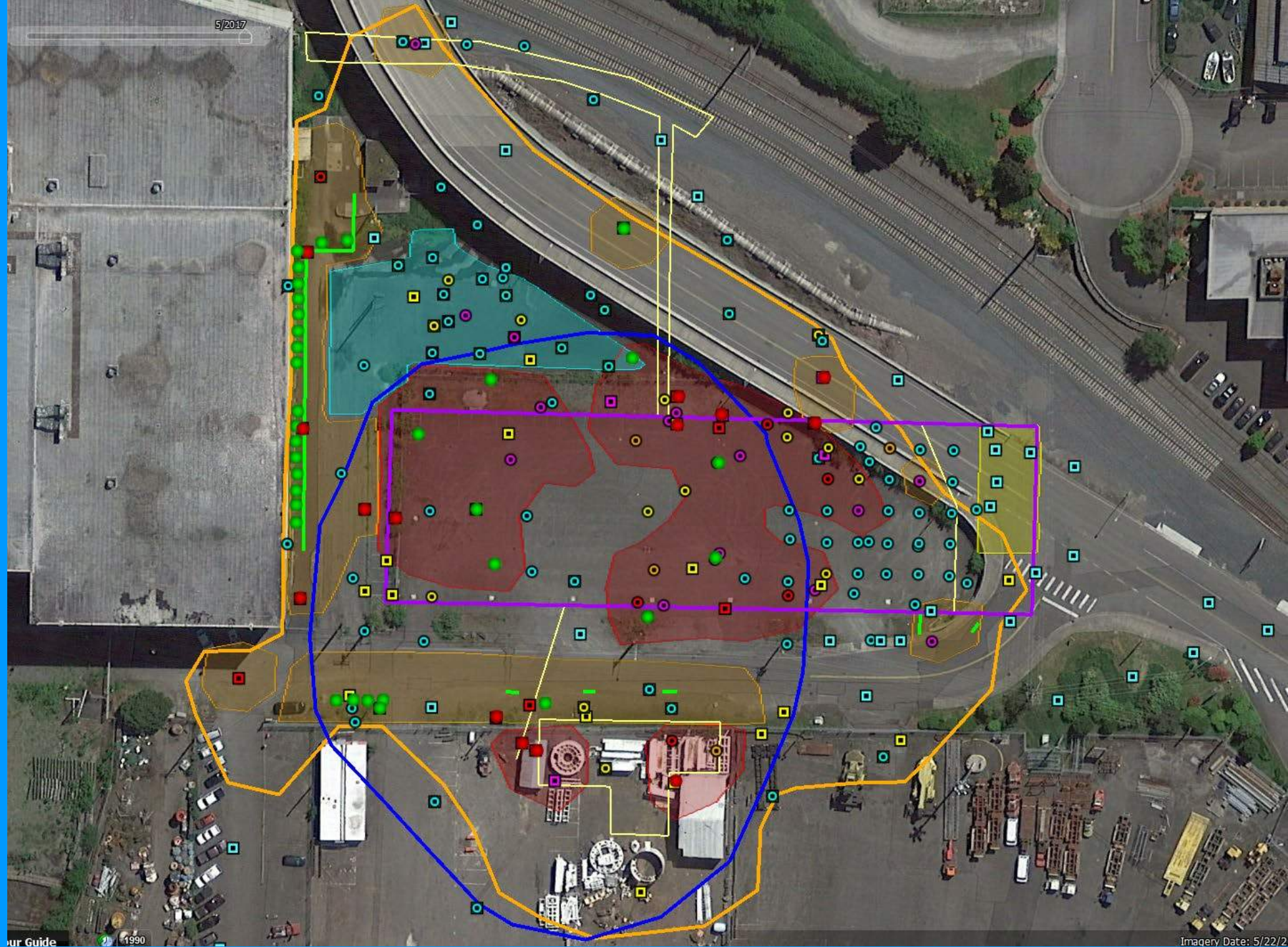
Diesel/Oil and Gasoline Range in Soil

Diesel/Oil (mg/kg)

- <2,000
- >2,000 to <5,000
- >5,000 to <7,500
- >7,500 to <10,000
- >10,000

Gasoline Range (mg/kg)

- <30
- >30 to <300
- >300 to <1,000
- >1,000



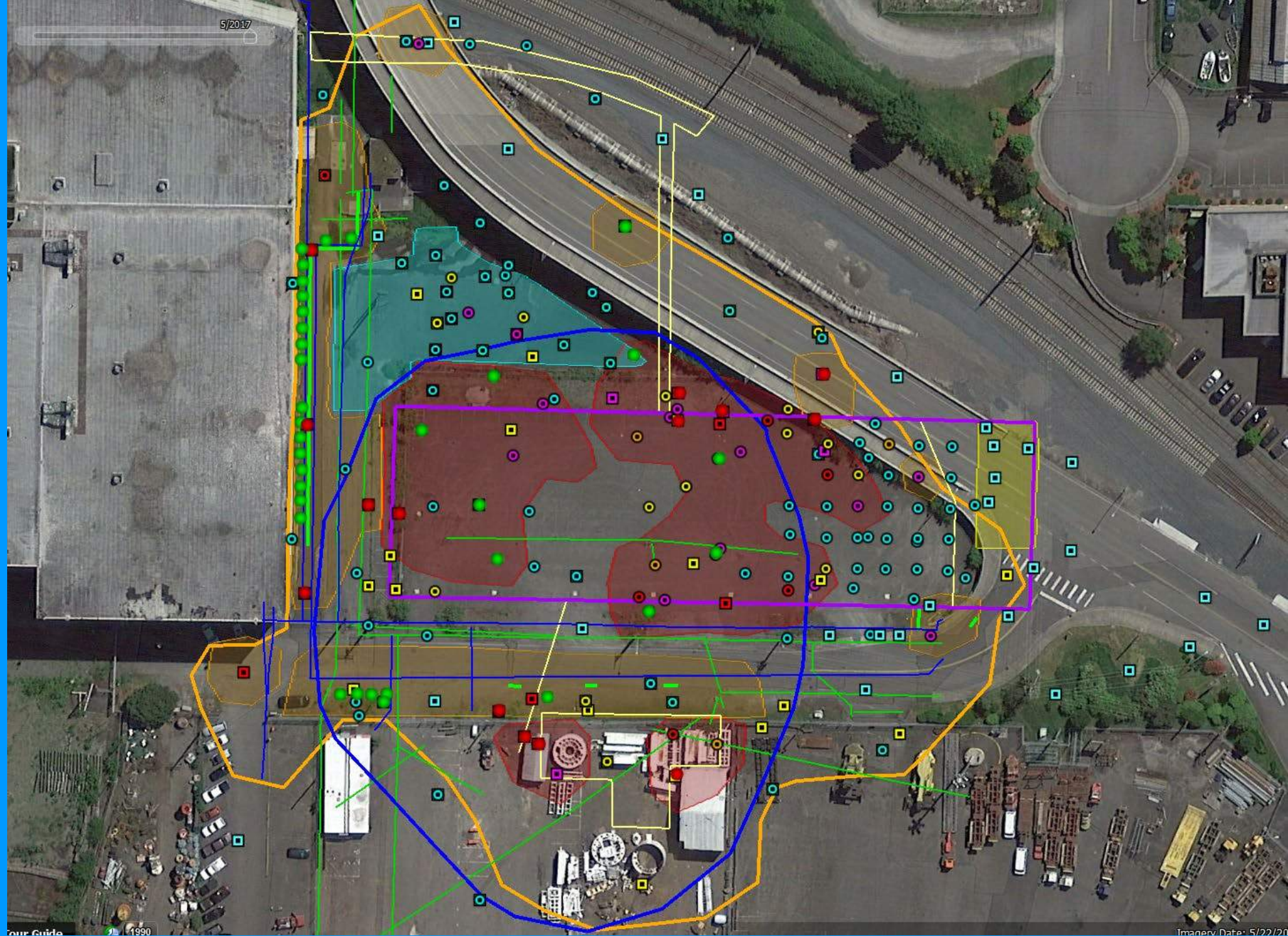
Diesel/Oil and Gasoline Range in Soil – with utilities

Diesel/Oil (mg/kg)

- <2,000
- >2,000 to <5,000
- >5,000 to <7,500
- >7,500 to <10,000
- >10,000

Gasoline Range (mg/kg)

- <30
- >30 to <300
- >300 to <1,000
- >1,000



APPENDIX H

Engineering Calculations

Not Applicable

Attachment D

Dewatering Plan

Dewatering Plan

City of Everett – Port of Everett Combined Sewer Main Improvements

The below plan outlines the dewatering plan that Northwest Construction, Inc. (NWC) proposes for the handling, storage and treatment of any groundwater and potentially contaminated groundwater. This plan will adhere to Northwest Construction's (NWC) Health and Safety Contaminated Soil Action Plan and the Soil and Groundwater Management Plans for the Maritime Industrial Expansion at Norton Terminal (Kimberly Clark) and the ExxonMobil/ADC sites for the City of Everett's Port of Everett Combined Sewer Main Improvements project.

Groundwater is expected during the construction of the utility trench. Based on results of previous groundwater monitoring, metals (arsenic, copper, lead, mercury, nickel and zinc); cPAHs; PCBs; volatile organic compounds (VOCs; vinyl chloride, 1,1-dichlorothenes and xylenes); PAHs (acenaphthene, naphthalene, and 2-methylnapthalene); SVOCs (pentachlorophenol and dibenzofuran); gasoline-, diesel, and oil-range petroleum hydrocarbons; hydrogen sulfide; and ammonia were detected in one or more groundwater samples at concentrations greater than the preliminary cleanup levels. The City of Everett's Environmental Consultant will take an initial sample of the groundwater to determine the pH of the groundwater and if any contaminates are present. Water quality testing and field screening will be conducted at multiple locations to determine the requirements for proper management as the project progresses. Water discharged to the City of Everett's sanitary sewer system must be below the following limits per the City of Everett's Discharge Permit:

Analyte	Limit
As	0.5 mg/L
Cd	0.24 mg/L
Cr	5.0 mg/L
Cu	3.0 mg/L
Pb	1.9 mg/L
Hg	0.1 mg/L
Ni	2.83 mg/L
Ag	0.49 mg/L
Zn	4.0 mg/L
CN-	0.65 mg/L
Nonpolar FOG	200 mg/L

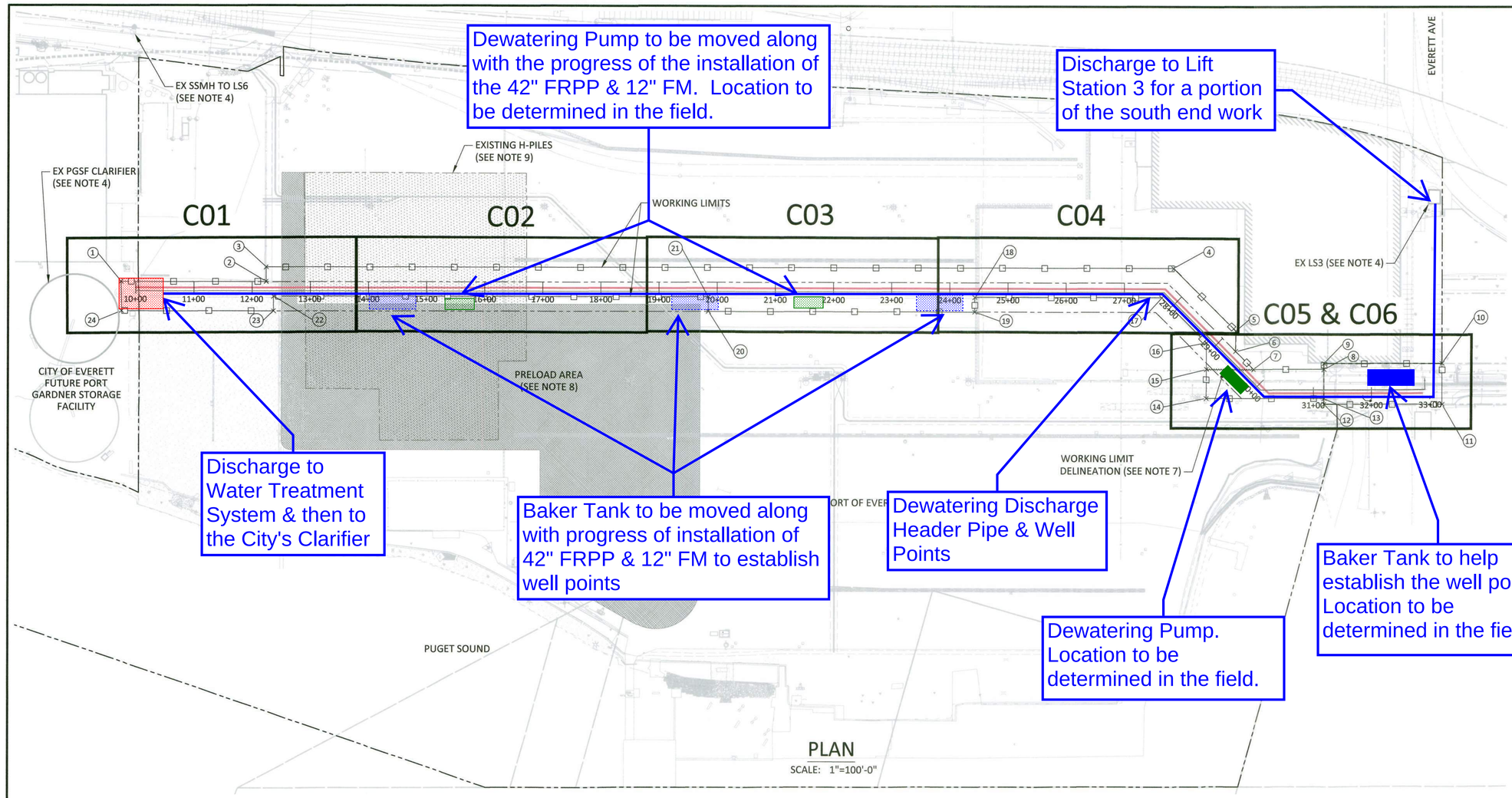
Results of the sampling and analysis including field measurements for pH and sheen will be submitted to the City of Everett.

Any groundwater that is determined to be not suitable for discharge to the City of Everett's sanitary sewer will be stored in a baker tank(s) to be disposed of at an approved facility.

The dewatering system was developed based off the information provided in the Norton Terminal Development and Model Toxics Control Act 3rd Interim Action Geotechnical Engineering Report developed by Landau Associates. The attached dewatering plan details the use of a well point system to dewater the utility trench. The well points will be connected to a header pipe that will be buried 2-3 feet below the existing grade. The header pipe will convey the groundwater to baker tank(s) then onto a treatment system to handle any turbidity and the potential for contaminated water. The clean dewatering water will then be discharged to the City of Everett's clarifier located in the Port Gardner Storage Facility where it will then be discharged to the City of Everett's sanitary sewer system. Only at the direction of the Engineer can the groundwater be discharged back into the utility trench.

Based on the Geotechnical Report and site visits, it is intended that most of the stormwater will be infiltrated onsite. A small berm will be placed a minimum of 18 inches of the edge of the utility trench to keep any stormwater out of the trench.

NWC will inspect the clarifiers for any sediment and contamination prior to use. By using baker tanks for pre-settlement, most of the soil particles from establishing the well points will fall out of the groundwater before it is discharged to the City of Everett's clarifier. If any sediment from the dewatering operation gets into the clarifier, NWC will clean the clarifier by hose/sweep any sediment in the clarifier to a pile and using a vactor truck to remove the sediment. At the completion of the operations, NWC will TC inspect, clean, flush and decontaminate the clarifiers that were used as required by the specifications.



PLAN
SCALE: 1"=100'-0"

WORKING LIMITS POINTS		
NO.	NORTHING	EASTING
1	363490.25	1301808.63
2	363241.02	1301800.05
3	363240.18	1301824.94
4	361680.42	1301770.64
5	361577.46	1301660.25
6	361578.96	1301625.20
7	361549.13	1301593.22
8	361427.72	1301589.00
9	361427.37	1301598.99
10	361223.97	1301592.19
11	361226.41	1301521.95
12	361429.79	1301529.03
13	361429.44	1301539.02
14	361632.39	1301546.09
15	361630.25	1301596.07
16	361628.31	1301641.46
17	361702.86	1301721.39
18	362024.03	1301732.57
19	362024.90	1301707.58
20	362482.63	1301723.52
21	362481.76	1301748.50
22	363229.31	1301774.53
23	363230.23	1301749.55
24	363490.97	1301758.62

NWC's Dewatering Layout Plan

1. NWC will coordinate with the Port's Contractor on the location of the crossings required to access their work. These will change as the work progresses.
2. Sampling, testing, handling/conveying, treatment and discharge of any potential contaminated water will be at the direction of the City of Everett.

100 50 0 100 200
FEET

NO.	DATE	APRVD	REVISION

PLANS ISSUED FOR

BID ACTION	DATE	APRVD	CONST ACTION	DATE	APRVD	RECORD ACTION	DATE	APRVD
	11/3/21							

Designed L. MESCHKE
Drawn R. CARPENTER
Checked D. APPLEGATE
Design Review Level

11-2-21

EVERETT PUBLIC WORKS
3200 Cedar Street
Everett, WA 98201
425.257.8800 everettwa.gov

PORT OF EVERETT
COMBINED SEWER MAIN IMPROVEMENTS
W.O. #UP-3768

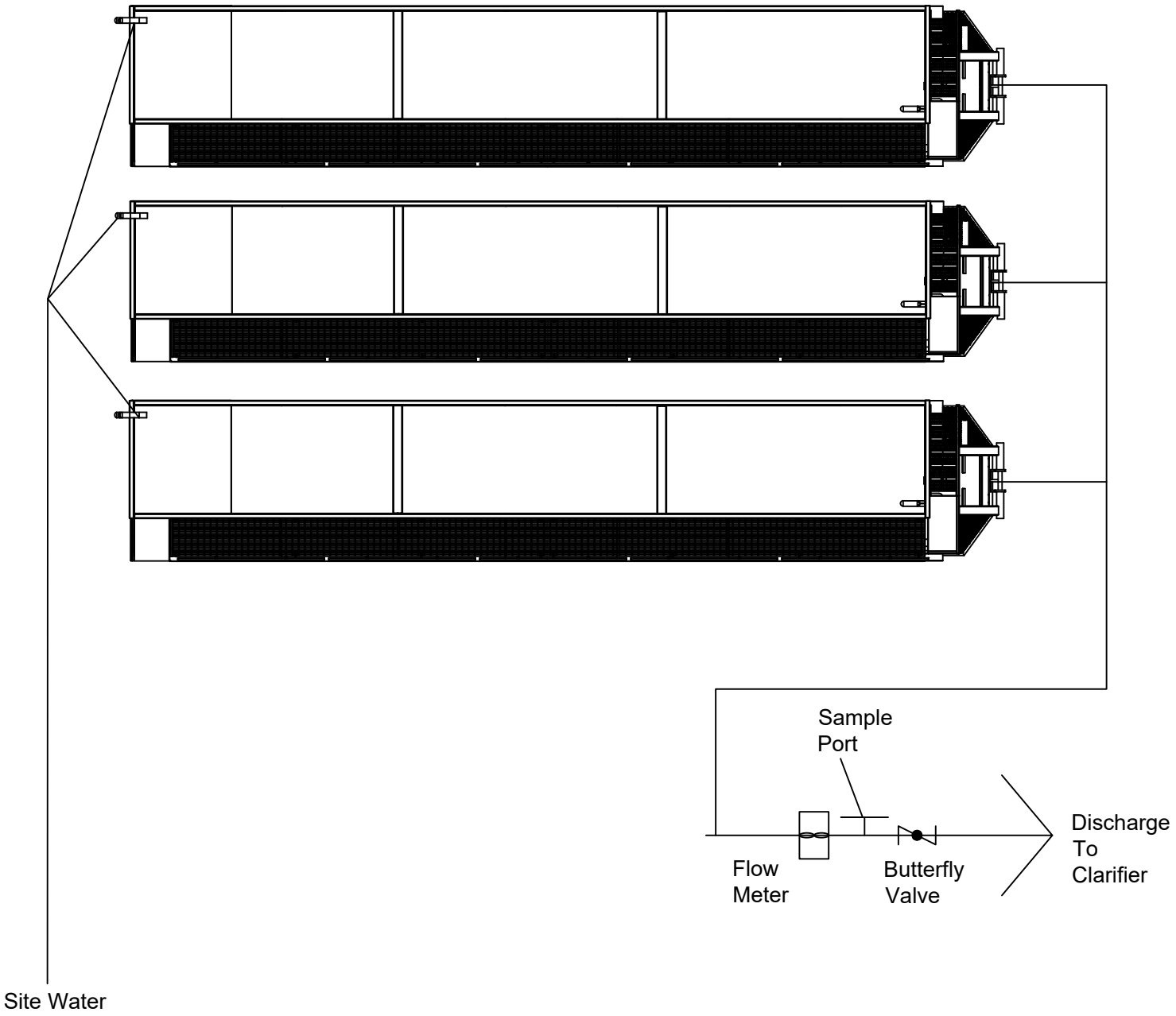
GENERAL

KEY PLAN

Drawing G03
Sheet No. 3 / 13 Of Total

Plot date 11/1/2021 3:23 PM Plotted by Carpenter, Richard J. Last saved by RCARPENT Plot style Everett-2016.ctb Sheetset Name PORT GARDNER STORAGE FACILITY PLAN - SSM
Filepath\Filename: C:\PWWORKING\WEST01\D1859260\3728-G03.DWG
Surveyed By Date Control Monument City of Everett Field Book/Starting Page /

3X-18K WEIR TANKS



Clear Water SERVICES

NW CONSTRUCTION NORTON TERMINAL
PROJECT NO. WAC1POE01

PROCESS FLOW DIAGRAM

SHEET 1 1 OF 1

DATE: 02/16/2022 | DESIGNER: CWS | FILE NAME: WAC21POE01_THREE_WEIR_PFD.dw

Frank W. Pita Consulting, LLC.

Temporary GeoDesign Engineering & Groundwater Control

23Jan22
#MAG 1038

To: Magna Services Management

From: Frank Pita, PE/LHG

RE: Port of Everett / Combined Sewer Main Improvements (WO #UP-3768)

Subject: Groundwater Control Plan (GWCP) Submittal per Section 7-08.3(1)D Trench Dewatering

Project Understanding

At the request of Magna Services (MAG) management, Frank W. Pita Consulting (FWP) prepared this engineered groundwater control (GWCP) submittal to lower and control the majority of the groundwater within the subsurface soils that are along the alignment of the proposed sewer. This GWCP was prepared by reviewing the:

- Geotechnical Report by the firm Landau Associates (file #0121049.040.041, dated 17Jun21),
- The specification section 7-08.3(1)D Trench Dewatering,
- A portion of the construction documents by HDR (sheets 3 to 10 of 13), and
- from experience on projects in the Everett Waterfront area.

This submittal only responds to the technical aspects of the groundwater control and not the schedule. That is part of the general contractor's submittals.

Understanding of Site Data for Groundwater Lowering

From the geotechnical report, the subsurface materials along the pipe's alignment are given as follows:

> Based on LAI's review of available geologic data, site subsurface conditions can be characterized as hydraulic fill placed during previous site development. The hydraulic fill has been described by others as consisting of very loose to medium dense sands and very soft to stiff silts with variable amounts of gravel and organics. The hydraulic fill in the northern half of the site has a high organic content, with areas that include up to 30 feet (ft) of pure wood waste.

The groundwater conditions are described as follows:

> The results of previous site investigations completed by others (Shannon & Wilson 2014) indicate that groundwater levels vary from east to west. Toward the eastern edge of the site, groundwater is anticipated to be present at approximately 1 to 4 ft below ground surface (bgs); at the western edge of the site, groundwater is likely present at 6 to 12 ft bgs.

The Landau staff further add the following:

> During site visits in the fall of 2020, LAI observed groundwater conditions in excavations completed during the recent interim action cleanup. The groundwater conditions were consistent with those described in Shannon & Wilson's 2014 report. Groundwater levels along the western edge of the site may be tidally influenced by nearby Possession Sound and Port Gardner. When preparing the settlement estimates presented herein, LAI conservatively assumed a groundwater level of 10 ft bgs. The site grading history makes previously reported depths to groundwater uncertain because site grades may have changed since the depths to groundwater were measured.

Based on the above summary of the subsurface soil & groundwater conditions, it can only be concluded that the hydraulic flow of water through this changing material will be variable. Some perched water pockets in trapped permeable material may be encountered, but the nearness to Puget Sound's changing tide water and runoff from the adjacent highlands should result in the majority of the water table being around elevation +9 (MLLW datum). This is typical in all the earth material at local Ports.

Also, some material such as the wood waste debris, will be difficult to drill or jet through to install a well, so some refusal should be expected requiring the contractor to either move over or excavate down and remove the obstruction. Because of these condition, having a system that can handle variable flow conditions where each well can pump a different quantity and where its spacing is such that it will result in drawdown curves overlapping regardless of the material is warranted.

Groundwater Control Approach

The Landau staff makes the following requirements for the dewatering to achieve.

> Groundwater is anticipated to be present from 1 to 12 ft bgs, with shallower groundwater conditions anticipated along the eastern edge of the site. Construction dewatering may be necessary for temporary utility excavations. Considerable dewatering effort should be anticipated in areas where the utilities will be installed below the groundwater table, in sandy or organic soils. The water level should be lowered at least 2 ft below the base of the excavation, including any overexcavation to remove unsuitable soils from beneath pipes (i.e., the base of the excavation is not necessarily at the same elevation as the bottom of the pipe bedding).

However, because the focus of the geotechnical report was not on the movement of groundwater through the subsoils for construction, assumptions must be made using the boring log descriptions in order to arrive at design parameters.

In general, the proposed groundwater control plan is the use a vacuum dewatering system that is depressed in the ground in a shallow ditch about 3 to 4 feet. This lowering will allow tip of the wells to be below the subgrade. The proposed vacuum system has wells 5 to 10 feet apart, which means regardless of the type of subsurface materials present, the drawdown curves should overlap, and result is water lowering. However, some sumping and or the use of course angular rock below the water table may be needed due to unforeseen perched water conditions.

Computer Modelling Discussion of Parameters to Enter

To model the system along the pipeline, a seven (7) well section for about 50 feet of trench was analyzed. To do this the probable aquifer hydraulic parameter had to be developed from the description on the logs & tables of published data. From a subjective review of the boring logs, it appears the soil that could be an aquifer are a SM to SP, which seems probable since this was a beach and the materials were placed by dredging. To generate a parameter for model input a table from the Powers textbook (2007) was used & is presented below:

Table 3.5 Range of Hydraulic Conductivity of Natural Soils

Soil type	Hydraulic conductivity range gpd/ft² (m/sec)	Permeability description
Openwork gravel (GP)	20,000 (1×10^{-2}) or higher	Very high
Uniform gravel (GP)	4000 to 20,000 (2×10^{-3} to 1×10^{-2})	High
Well-graded gravel (GW)	1000 to 6000 (5×10^{-4} to 3×10^{-3})	Moderate to high
Uniform sand (SP)	100 to 4000 (5×10^{-5} to 2×10^{-3})	Moderate to high
Well-graded sand (SW)	20 to 2000 (1×10^{-5} to 1×10^{-3})	Low to moderate
Silty sand (SM)	20 to 100 (1×10^{-5} to 5×10^{-5})	Low
Clayey sand (SC)	2 to 20 (1×10^{-6} to 1×10^{-5})	Low to very low
Silt (ML)	1 to 2 (5×10^{-7} to 1×10^{-6})	Very low
Clay (CL)	2×10^{-4} to 0.2 (1×10^{-10} to 1×10^{-7})	Very low to practically impermeable

From this table we have chosen a permeability / hydraulic conductivity parameter that is between the SM & SP values of 4.5×10^{-5} m/sec.

Furthermore, to allow the vacuum well system to perform more efficiently, the general contractor will excavation a depressed trench area that allows the vacuum header pipe to be placed at elevation +12 feet. The pump will also be depressed as well. For the model work below, the new surface elevation is +12 feet.

In addition, the following additional well system parameters were entered:

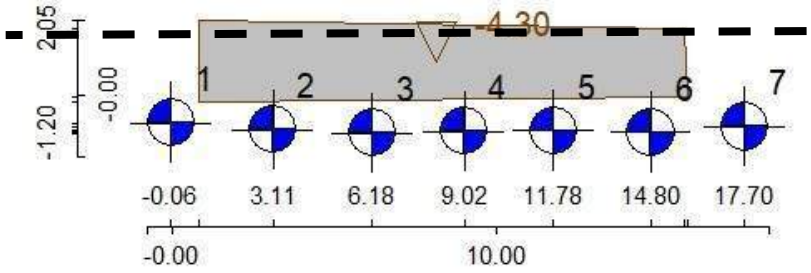
- Well Horizontal Spacing = 10 feet (3 meters)
- Well depth = 26 feet (8.0 meters) from the lower bench elevation of +12 feet.
- The wells are 2-inches in diameter with the screen being 3-feet long with 20-slot size & 10-20 filter pack,
- Groundwater is approximately elevation +9 feet or 3 feet (0.9 m) below the elevation +12 surface,
- Deepest excavation is to the elevation -2 feet that is a foot or two below the subgrade elevation. This results in 14-feet (4.3 m) of excavation below the trench bottom for the header pipe (elevation +12, not original ground surface).

Also, the water needs to be lowered 2-feet below the subgrade elevation of -2-feet, which means the water needs to be drawn down a minimum of 16-feet (4.9 m) below the surface elevation of +12 feet.

The pumping rate at equilibrium is estimated and then a trial-and-error process is used to obtain the needed drawdown to be approximately 2-feet below the subgrade.

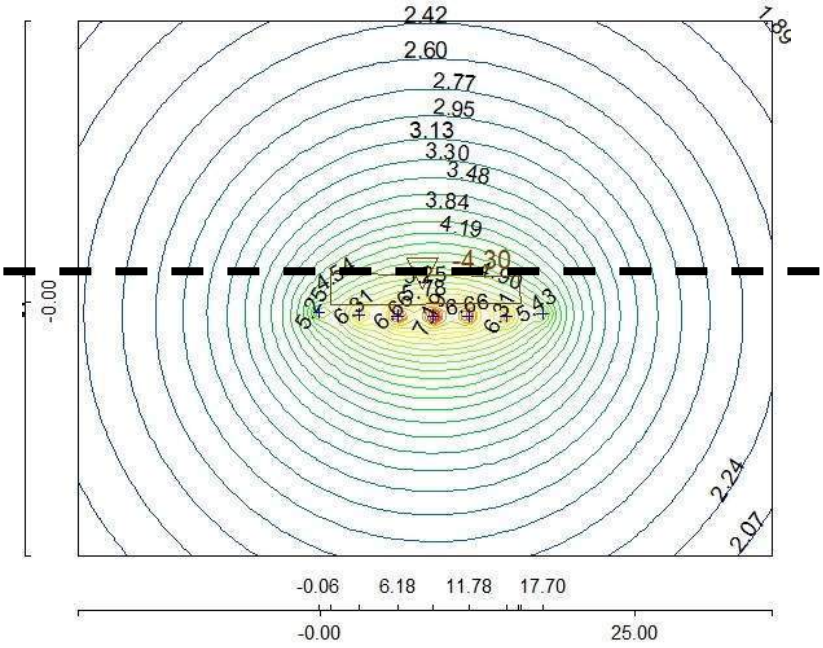
Computer Analyses Results – (10-foot centers)

Since only about 50 feet of trench will be open at a time, the model is only of seven (7) wells paralleling a typical trench. The input plan is shown below:



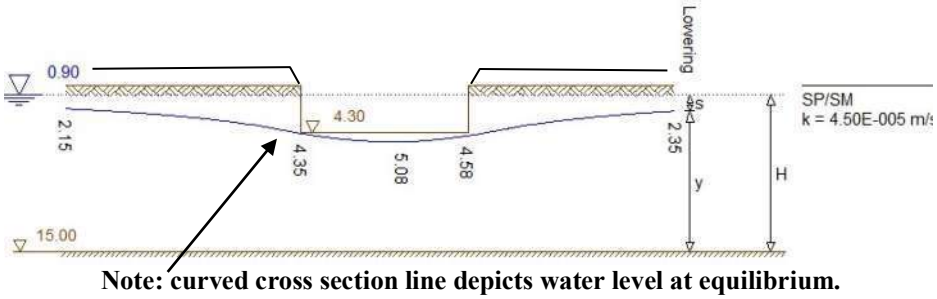
The gray area on the above plan represents approximately 50 feet of trench that is excavated to a depth of 4.6 meters (~15' from elevation +12 feet). The footage or spacing units are all meters & show the spacing of the seven vacuum wells, to be approximately 3 meters or 10'. The dash line on the plans is the approximate location of the cross section that follows.

Groundwater Drawdown Contours (in meters from ground surface, not water table)



XS Paralleling Trench Axis (approximate location is dashed line above):

The section below shows that in the center of the wells, the water is the required 2-feet below the subgrade. Note that on the sketch, the model's ground surface is lower than the original site as explained above.



Note: curved cross section line depicts water level at equilibrium.

Results Discussion

The model indicates that wells on 10-foot centers should result in the drawdown level shown by the contours and the cross section with each well pumping at a rate of 5.4 gallons per minute (gpm). This should lower the water as required. Please realize that the vacuum wells can pump more or less water each, which allows the system to be flexible and operate in variable materials.

Photos of Pump Depressed in Ground to Increase Lift

Pump intake must be even or below level of header pipe. This lowering in the photo below increases the vertical lift by three (3) feet.

Wells & header can be depressed around an excavation or in a ditch, but the pump must be even deeper by 3-feet.

Summary Conclusions & Discussion of Model Results

The computer analyses shows that if each well on 10-foot centers is pumped at approximately 5 gallons per minute (gpm) will result in the water to be lowered to more than two (2) feet below trench subgrade at its deepest location. As said above, the mathematics of groundwater modelling shows that a 50-foot length of trench at the deepest location requires approximately 40 gpm to be pumped in the local area to result is the needed drawdown. This is approximately 1 gpm / foot of trench using these soil parameters which is not uncommon.

However, because this is an engineered groundwater control system, a factor of safety must be built into the system to account for unknown changes in the aquifer properties. As a result, it is known that the installed wells can each pump 3 to 4 times the modelled quantity, which is a factor of safety against the permeability of the aquifer being significantly higher and NOT as depicted in the contract documents. If this were the case, then the system will require a larger pump, or a reduced number of wells turned on at a given time. Therefore, the following proposed design, has a safety factor built into it.

Also, due to uncertainty, the initial section of dewatering system will be installed on 5-foot centers but only every other one will be pumped as a test to see if 10-foot spacing will work properly.

Closure

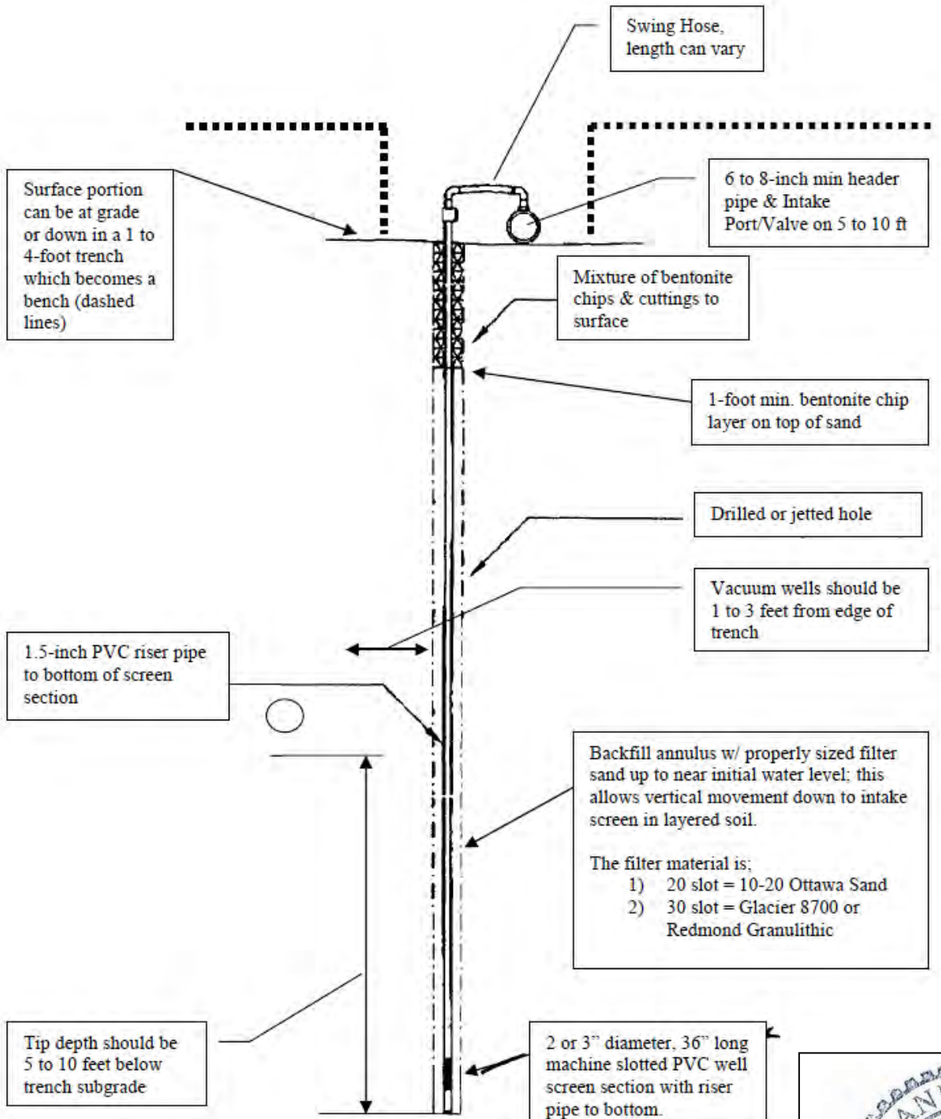
Sheets A & B that follow show the details of wells construction & the proposed equipment. Please contact Magna's staff or me if you have any questions.

Frank W. Pita, PE*, GE, LHG***, D. GE, FASCE**

** Licensed in States of AK, ID, MT, OR, UT and WA*
*** Licensed in OR*
**** Licensed in WA*

Attachments: **Details Design Sheet A & B**

Frank W. Pita Consulting, LLC.
GeoDesign Engineering & Hydrogeology



Typical Suction Well Configuration in a Surface Trench that could become a Bench

Vacuum Well System Notes:

- Well details are given on the sketch to the left.
- Depth of well tip can vary from 18 to 24 feet depending on the depth of the header pipe below the surface.
- Vacuum well pump should be capable of creating a vacuum equivalent of 25 inches of Hg at the pump and 20 inches of Hg at the furthest distant well.
- Each well will be 'tuned' so minimize air intake and maximized water flow.
- Pump power is either diesel or electric. Backup may be required.
- Decommissioning shall be in accordance with WAC-173-160 upon completion of dewatering activities.
- Both installation and decommissioning shall be performed under the direct supervision of a licensed Washington water well driller.

Below are photos of previous projects with header / wells & pump are placed on or below the surface in a trench or on a bench.

14Jun20

3080 125th Ave NE, Bellevue, WA / Phone: (425) 785 1109 / Email: Frank@fwpitaconsulting.com

Sketch #A / Vacuum Well Construction Details

Dewatering Equipment

6" Piston Wellpoint Pump
6PW-DHSC-1D81Z-SK

Thompson's Piston Wellpoint Pump combines excellent fuel efficiency and a sound attenuated package for use in wellpoint and sock dewatering applications. The 6PW-DHSC-1D81Z-SK can operate for more than one week without refueling-consuming a maximum of five gallons of fuel per day. The sound-attenuated enclosure reduces sound levels to 64 dB(A) @ 23-feet.

Features

- Standard engine – Hatz 1D81Z
- Discharge head of 66 feet
- Maximum flows to 400 gpm
- Self-priming, positive displacement pump
- Operates unattended; can run dry for extended periods of time
- Maximum operating time is 225 hours @ 1,750 rpm
- High air-handling capability: 53 CFM
- Up to 92% efficiency
- Robust construction for durability
- On-board stone catcher to protect the internal pump housing
- Double-sealing piston rod prevents oil leakage
- Parts are lasting and inexpensive to replace

Applications

- Wellpoint dewatering
- Underdrain sock dewatering
- Acceptable to all soil conditions
- Filtered water transfer
- Remediation and reclamation

Working Principle

The double acting piston pump converts the pulley's rotational energy to linear motion via two conically milled gears that are mounted on either side of the crankshaft. A vacuum is created inside the cylinders from the motion of the pistons.

On the piston upstroke, the suction valve opens and the delivery valve closes allowing water to be drawn into the cylinder. On the down stroke, the piston's force causes the suction valve to close and the delivery valve to open forcing the fluid in the cylinder out through the discharge.

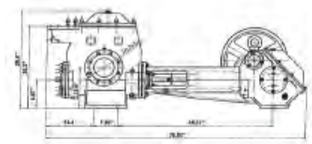
The double-sealing piston rod prevents environmental oil leakage and water from entering the drive. Packing is installed along the shaft to prevent leakage of fluid from the cylinders.

THOMPSON PUMP
Experience Innovation

6" Piston Wellpoint Pump
6PW-DHSC-1D81Z-SK

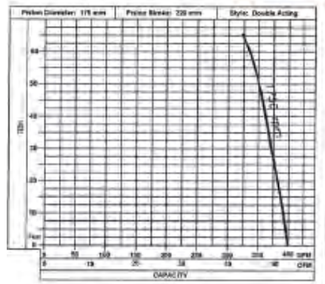
THOMPSON PUMP
Experience Innovation

6PW-DHSC-1D81Z-SK Dimensions



6PW-DHSC-1D81Z-SK Performance Curve

Hydraulic



Materials of Construction

Type: Positive displacement, self-priming, double acting piston
Casing: Rugged, heavy-duty class 30 cast-iron
Cylinder: Stainless Steel
Piston: Leather
Piston Diameter: 175mm
Covers: Cast iron
Suction & Discharge Tank: Galvanized steel with stone catcher on suction side
Crankshaft: Forged steel
Spring Cup: Brass
Gears: Oil lubricated, hardened steel

Engine Specifications

Engine: Hatz 1D81Z, 4Hp @ 1,750 rpm
Type: 1-cylinder, in-line, 4-cycle, direct-injected, Tier II diesel
Standard Equipment: Alternator, encapsulated muffler
Displacement: 40.7 cubic inches
Fuel Economy: .378 lb/hp-hr @ 1,750 rpm
Safety Shutdowns: Low oil pressure; High coolant temperature

Unit Specifications

Fuel Tank Capacity: 48 US gallons
Fuel Consumption: 0.207 gph
Maximum Operating Speed: 1,750 rpm
Maximum Operating Temperature: 212°F
Maximum Working Pressure: 28.5 psi
Maximum Suction Pressure: 12.78 psi
Maximum Casing Pressure: 45 psi

In the interest of product improvement, Thompson Pump & Manufacturing reserves the right to change specifications without incurring any obligation for equipment previously or subsequently sold. Capacity, Head and Pump Curve are for comparative purposes. Consult engineering data for exact capabilities.
4620 City Center Drive, Port Orange, FL, 32129 USA (800) 767-7310 • Fax (386) 761-0362
Email: sales@thompsonpump.com • www.thompsonpump.com

April 2004

Wellpoint Components

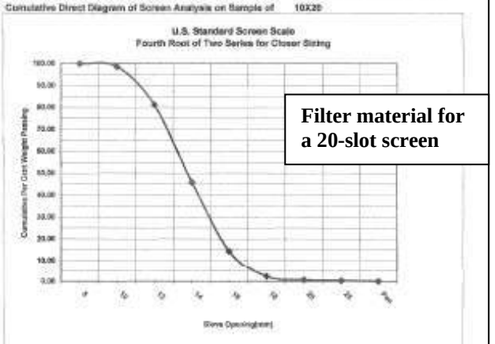
Colorado Springs

Name: 10X20 | Requestor: Andre Fiedler | Analyst: Leonard Hasting

Test pass on effective size of 1.11 Test pass on uniformity coefficient of 1.35

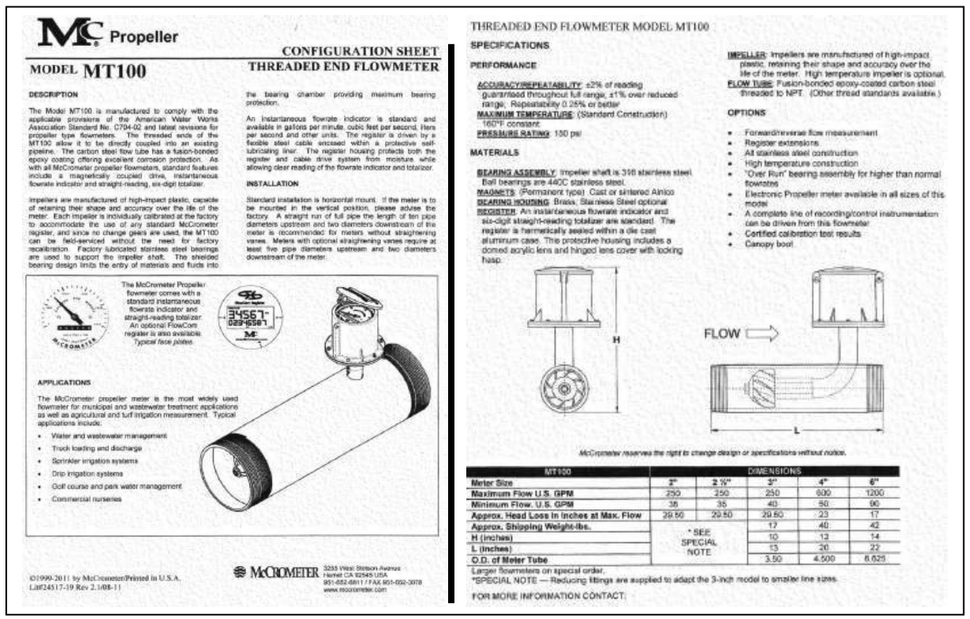
D10 = 1.11 D60 = 1.50 | S.S. = 1.11 U.C. = 1.35 | Date: DECEMBER 29,2008 Blend: 30% 10X14,70% 12X20

Cumulative Direct Diagram of Screen Analysis on Sample of 10X20



Filter material for a 20-slot screen

Sieve Standard Openings			Cum. Sample Weight Retained	Inc. Sample Weight Retained	Cum. % Retained	Inc. % Retained	Cum. % Passing	Customer Spec % Passing
U.S. No. Mesh	Opening Inches	Opening Millimeter						
8	0.0929	2.360	0.00	0.00	0.00	0.00	100.00	
10	0.0787	2.000	1.00	1.00	1.39	1.39	98.61	
12	0.0669	1.700	20.40	19.40	18.94	17.55	81.06	
14	0.0591	1.400	58.60	38.20	54.11	35.17	45.89	
16	0.0465	1.180	92.70	34.10	68.60	31.49	14.40	
18	0.0394	1.000	105.50	13.10	97.89	12.16	2.31	
20	0.0335	0.850	107.90	1.70	99.28	1.57	0.74	
25	0.028	0.710	107.90	0.40	99.63	0.37	0.37	
Pan			108.30	0.40	100.00	0.37	0.00	
				108.30		100.00	100	



MC Propeller

CONFIGURATION SHEET
THREADED END FLOWMETER
MODEL MT100

DESCRIPTION

The Model MT100 is manufactured to comply with the applicable provisions of the American Water Works Association Standard No. C704-92 and latest revisions for propeller type flowmeters. The threaded ends of the MT100 allow it to be directly coupled into an existing pipeline. The carbon steel flow tube has a fusion-bonded epoxy coating offering excellent corrosion protection. As with all McCrometer propeller flowmeters, standard features include a magnetically coupled drive, instantaneous flowrate indicator and straight-reading, six-digit totalizer.

Impellers are manufactured of high-impact plastic, capable of retaining their shape and accuracy over the life of the meter. Each impeller is individually calibrated at the factory to accommodate the use of any standard McCrometer register, and since no change gears are used, the MT100 can be field-serviced without the need for factory recalibration. Factory lubricated stainless steel bearings are used to support the impeller shaft. The shielded bearing design limits the entry of materials and fluids into the bearing chamber providing maximum bearing protection.

An instantaneous flowrate indicator is standard and available in gallons per minute, cubic feet per second, liters per second and other units. The register is driven by a flexible steel cable enclosed within a protective self-lubricating liner. The register housing protects both the register and cable drive system from moisture, while allowing clear reading of the flowrate indicator and totalizer.

INSTALLATION

Standard installation is horizontal mount. If the meter is to be mounted in the vertical position, please advise the factory. A straight run of full pipe the length of ten pipe diameters upstream and two diameters downstream of the meter is recommended for meters without straightening vanes. Meters with optional straightening vanes require at least five pipe diameters upstream and two diameters downstream of the meter.

The McCrometer Propeller flowmeter comes with a standard instantaneous flowrate indicator and straight-reading totalizer. An optional FlowCom register is also available. *Typical face plates.*

APPLICATIONS

The McCrometer propeller meter is the most widely used flowmeter for municipal and wastewater treatment applications as well as agricultural and turf irrigation measurement. Typical applications include:

- Water and wastewater management
- Truck loading and discharge
- Sprinkler irrigation systems
- Drip irrigation systems
- Golf course and park water management
- Commercial nurseries

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Lit#24517-19 Rev 2.1/08-11

McCROMETER 3255 West Stetson Avenue Hemet CA 92545 USA 951-652-6811 / FAX 951-652-3078 www.mccrometer.com

THREADED END FLOWMETER MODEL MT100

SPECIFICATIONS

PERFORMANCE

ACCURACY/REPEATABILITY: ±2% of reading guaranteed throughout full range, ±1% over reduced range. Repeatability 0.25% or better
MAXIMUM TEMPERATURE: (Standard Construction) 160°F constant
PRESSURE RATING: 150 psi

MATERIALS

BEARING ASSEMBLY: Impeller shaft is 316 stainless steel. Ball bearings are 440C stainless steel.
MAGNETS: (Permanent type) Cast or sintered Alnico
BEARING HOUSING: Brass, Stainless Steel optional
REGISTER: An instantaneous flowrate indicator and six-digit straight-reading totalizer are standard. The register is hermetically sealed within a die cast aluminum case. This protective housing includes a domed acrylic lens and hinged lens cover with locking hasp.

IMPELLER: Impellers are manufactured of high-impact plastic, retaining their shape and accuracy over the life of the meter. High temperature impeller is optional.
FLOW TUBE: Fusion-bonded epoxy-coated carbon steel threaded to NPT. (Other thread standards available.)

OPTIONS

- Forward/reverse flow measurement
- Register extensions
- All stainless steel construction
- High temperature construction
- "Over Run" bearing assembly for higher than normal flowrates
- Electronic Propeller meter available in all sizes of this model
- A complete line of recording/control instrumentation can be driven from this flowmeter
- Certified calibration test results
- Canopy boot

McCrometer reserves the right to change design or specifications without notice.

MT100	DIMENSIONS				
Meter Size	3"	3 ½"	5"	4"	6"
Maximum Flow U.S. GPM	250	250	250	600	1200
Minimum Flow. U.S. GPM	35	35	40	50	90
Approx. Head Loss in Inches at Max. Flow	29.50	29.50	29.50	23	17
Approx. Shipping Weight-lbs.	* SEE SPECIAL NOTE		17	40	42
H (inches)			10	13	14
L (inches)			13	20	22
O.D. of Meter Tube			3.50	4.500	6.625

Larger flowmeters on special order.
*SPECIAL NOTE — Reducing fittings are supplied to adapt the 3-inch model to smaller line sizes.

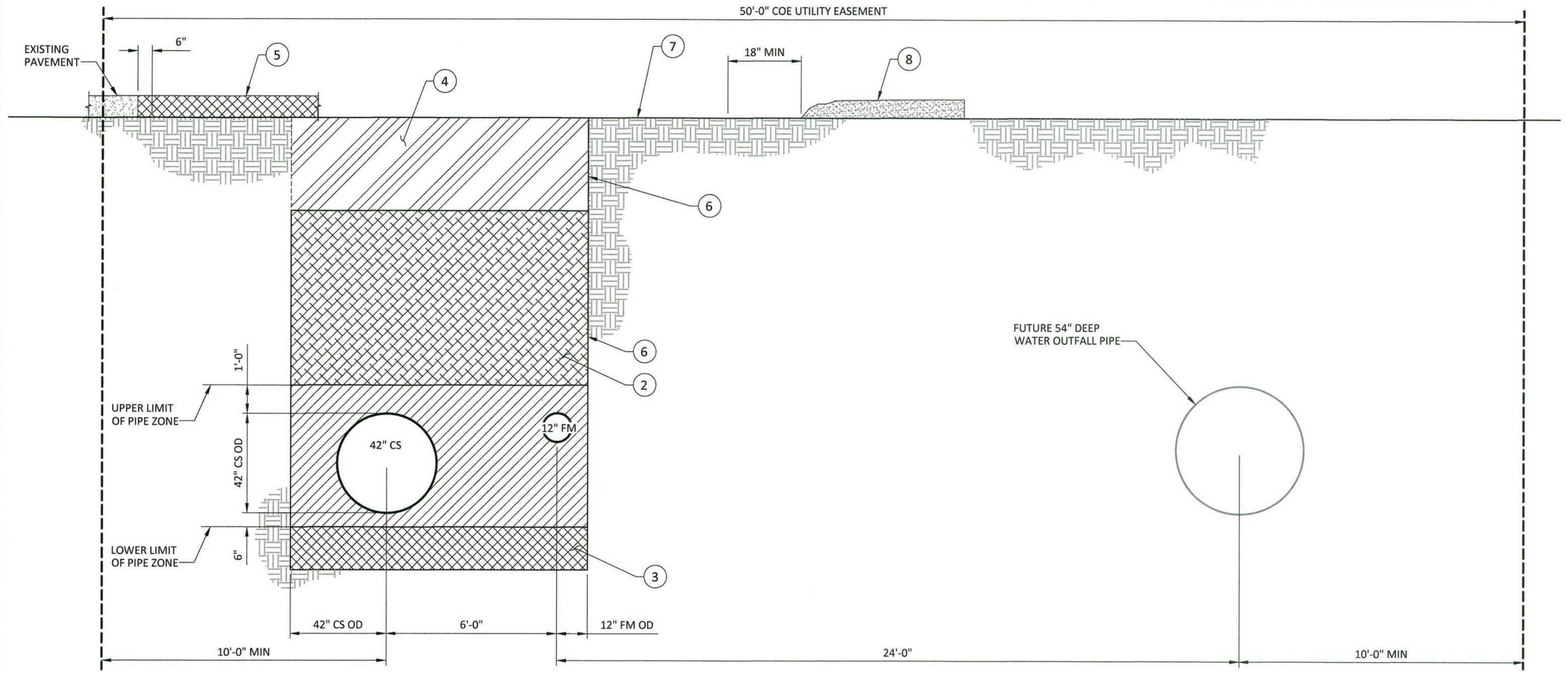
FOR MORE INFORMATION CONTACT:

3080 125th Ave NE, Bellevue, WA / Phone: (425) 785 1109 / Email: Frank@fwpitaconsulting.com

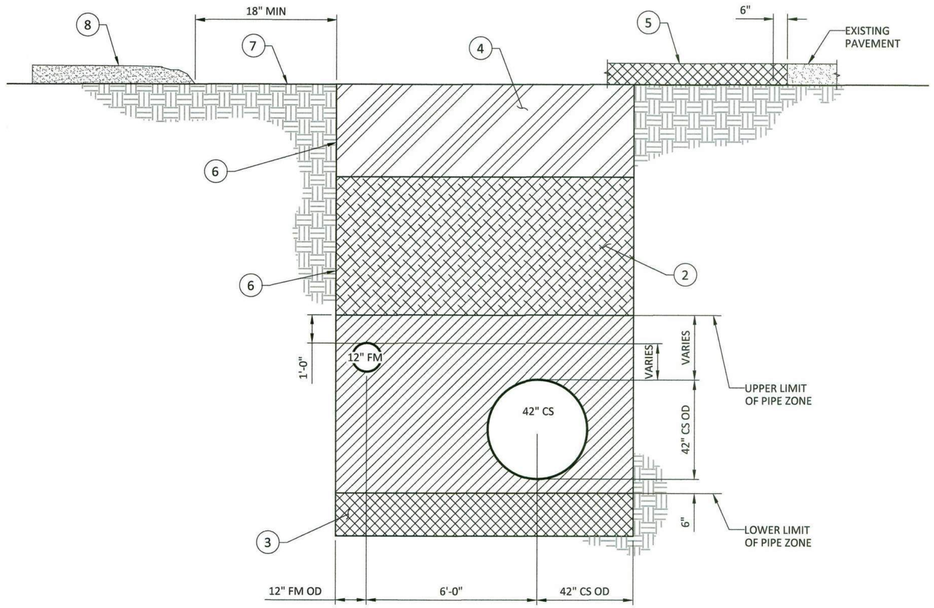
Sketch B / Vacuum Well Supplier Details

Attachment E

Trench Cross Section



1 - UTILITY EASEMENT TRENCH SECTION 1
SCALE: N.T.S. LOOKING SOUTH



2 - TRENCH SECTION
SCALE: N.T.S. LOOKING SOUTH

COMPACTION

1. PROVIDE UNIFORM SUPPORT UNDER PIPE BARREL.
2. HAND TAMP UNDER PIPE HAUNCHES FOR ALL BEDDING MATERIALS.
3. ALL BACKFILL MATERIAL SHALL BE PLACED IN LIFTS NOT TO EXCEED 12 INCHES BEFORE COMPACTION UNLESS AUTHORIZED BY THE ENGINEER DUE TO THE CHARACTER OF THE MATERIAL AND THE COMPACTING EQUIPMENT.
4. COMPACT BEDDING MATERIAL TO 95% MAXIMUM DENSITY. MECHANICAL COMPACTION OF BACK FILL MATERIAL SHALL NOT BEGIN UNTIL THE DEPTH OF COMPACTED BACKFILL MATERIAL IS 2 FEET ABOVE THE TOP OF PIPE.
5. EACH LIFT SHALL BE MECHANICALLY COMPACTED TO THE REQUIRED DENSITY PRIOR TO PLACING SUBSEQUENT LIFTS OF BACKFILL MATERIAL.
6. COMPACTION TESTS SHALL BE AS REQUIRED BY THE CITY ENGINEER, BUT IN NO CASE LESS THAN 2 TESTS EVERY 200 FEET OF TRENCH (ONE AT SUBGRADE AND ONE AT 50% OF TRENCH DEPTH).
7. IN PLACE DENSITY AND MOISTURE CONTENT WILL BE DETERMINED USING NUCLEAR METHOD, ASTM 2922-71.
8. LABORATORY MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT WILL BE DETERMINED USING THE MODIFIED PROCTOR METHOD IN ACCORDANCE WITH ASTM D-1557.

NOTES

1. NOT USED
2. SUITABLE NATIVE MATERIAL OR IMPORTED GRAVEL BORROW AS DIRECTED. COMPACT TO 95% MAXIMUM DENSITY.
3. FOUNDATION GRAVEL IF REQUIRED BY THE ENGINEER TO REPLACE UNSUITABLE MATERIAL. SHALL BE FOUNDATION MATERIAL CLASS A, B OR AS APPROVED BY THE ENGINEER.
4. IF DIRECTED BY THE ENGINEER THE TOP THREE TO FIVE FEET OF BACKFILL SHALL BE IMPORTED GRAVEL BORROW OR SUITABLE NATIVE MATERIAL COMPACTED TO 95% MAXIMUM DENSITY.
5. SEE CITY OF EVERETT STANDARD DWG 326 FOR PAVEMENT PATCH DETAILS.
6. VERTICAL TRENCH WALLS WITH SHORING TO CONFORM TO O.S.H.A. REGULATIONS.
7. SUBGRADE OR GROUND SURFACE IN NON-PAVED AREAS.
8. EXCAVATED NATIVE MATERIAL.
9. FOR ALL TRENCHING TRANSVERSE TO THE ROADWAY BACKFILL ABOVE THE PIPE ZONE SHALL BE CONTROLLED DENSITY FILL. SEE SECTION 3-9.6 & 3-20.1 OF THESE STANDARDS.
10. FOR UTILITY CUTS SUCH AS GAS, TELEPHONE, POWER, AND CABLE TV LONGITUDINAL TO THE ROADWAY, BACKFILL SHALL BE CONTROLLED DENSITY FILL. SEE SECTION 3-9.5 OF COE STANDARDS.

NO.	DATE	APRVD	REVISION
2			

PLANS ISSUED FOR

BID			CONST			RECORD		
ACTION	DATE	APRVD	ACTION	DATE	APRVD	ACTION	DATE	APRVD
	11/3/21							

Designed L. MESCHKE
Drawn RJC
Checked D. APPLEGATE
Design Review Level

11-2-21

HDR

EVERETT PUBLIC WORKS
3200 Cedar Street
Everett, WA 98201
425.257.8800 everettwa.gov

PORT OF EVERETT
COMBINED SEWER MAIN IMPROVEMENTS
W.O. #UP-3768

CIVIL

CIVIL DETAILS 1

Drawing C07
Sheet No. 10 / 13 Of Total

Plot date 11/1/2021 3:20 PM Plotted by: Carpenter, Richard J. Last saved by RCARPENT Plot style: Everett-2016.stb Sheetset Name: PORT GARDNER STORAGE FACILITY PLAN - SSM
File path\Filename: C:\PWWORKING\WEST01\D1859260\3728-C07.DWG
Survey By Date Control Monument City of Everett Field Book/Starting Page /

Attachment F

Material Handling and Stockpiling Plan

SUBMITTAL

Submittal number	05.00.00	Date	01/26/2022
Project	POE COMBN SEWER MAIN IMPR	2600 FEDERAL AVE EVERETT, WA 98201	
Project number	823		
Spec section			
Subsection		Status	Open
Current action	Submitted	Ball in court	NICHOLAS J AGOSTINO
Topic	MATERIAL HANDLING, STOCKPILING AND DISPOSAL PLAN		

Submitter	NICHOLAS J AGOSTINO
Reviewer	Keith Alewine
Cc	

Date submitted	01/26/2022	Submission due date	
Released for review		Review due date	02/07/2022
Date returned	1/28/2022	Required on site date	
Date closed			

Notes
Approved as Noted

Review Comments

1. Stockpiles shall not exceed 15 feet in height
2. Stockpile cover materials shall be plastic sheeting and cover entire pile
3. Properly anchor plastic sheeting cover to prevent removal or damage by wind to the plastic, or water saturation by rain
4. Contractor to do this work in accordance with approved Health, Safety, and Accident Prevention Plan
5. See Division 2 for more information on material handling, sockpiling, and disposal work.

APPROVED AS SUBMITTED
By KAlewine at 10:55:02 AM, 1/28/2022

Material Handling, Stockpiling and Disposal Plan

City of Everett – Port of Everett Combined Sewer Main Improvements

The below plan outlines the steps that Northwest Construction, Inc. (NWC) will take when handling the potentially contaminated soils that may be encountered while installing the 42" FRPP and 12" PVC pipes. With the approval of the City of Everett, NWC plans to set up a stockpile/sorting yard in the existing parking lot just north of the City of Everett's future Port Gardner Storage Facility. See attached Figure 1 for location of the proposed stockpile/sorting yard.

Before any material is excavated at the site, the stockpile/sorting yard will be set up. Four ecology block bays will be constructed and lined with 30 mil plastic. Figure 2 shows a proposed alignment of the sorting bays, but this may change to mitigate the amount of surface water that flows across the parking lot. An asphalt or cold mix berm will run across the entrance of each bay to convey any surface water from coming in contact with the contaminated soil. Each ecology block bay will be used to separate and stockpile the clean fill, inert/debris fill and industrial or hazardous waste generated from the excavations. Any stockpiled material will be covered with plastic and weighted down with sandbags to prevent any erosion when not in use.

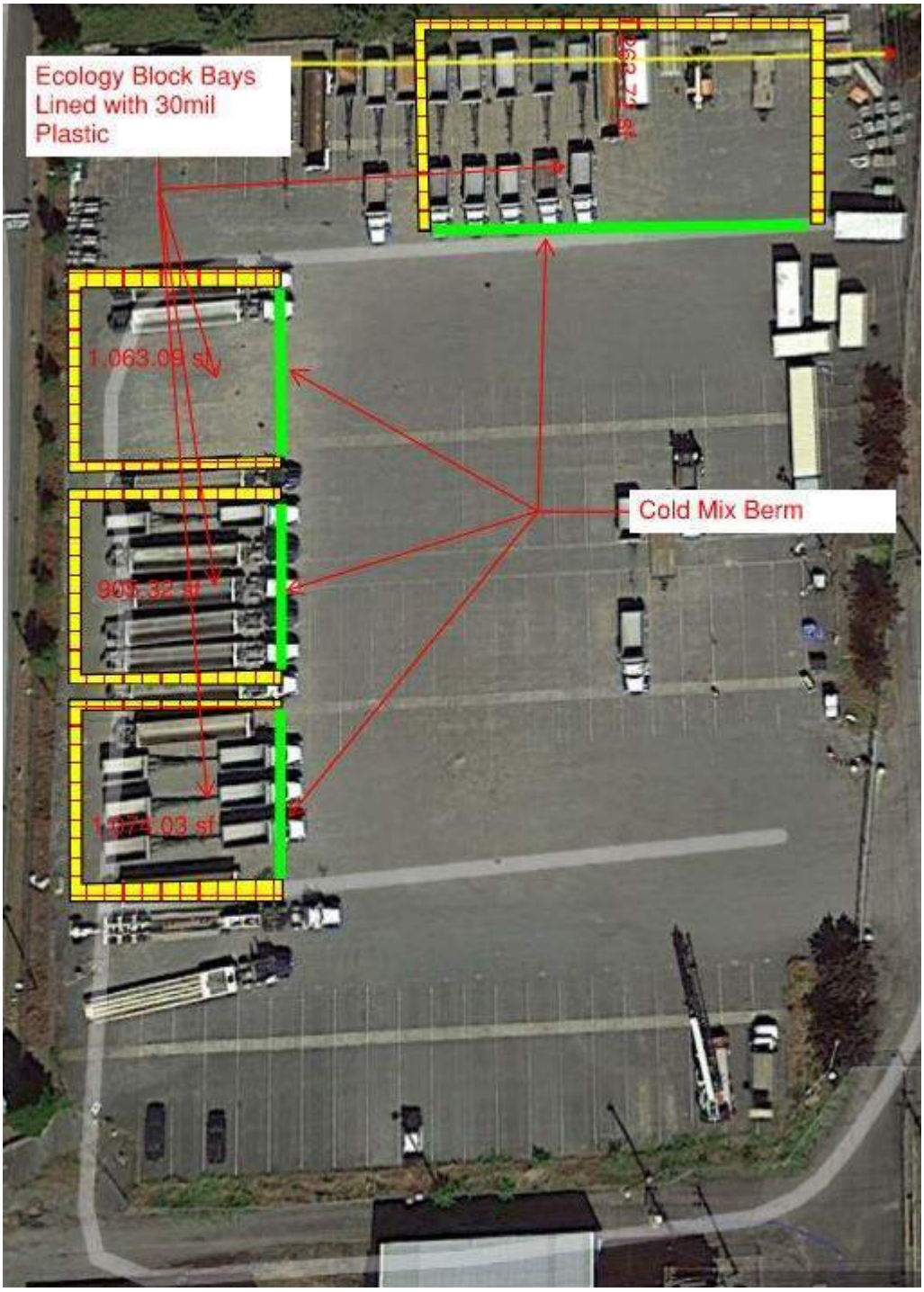
Any existing catch basins within the proposed sorting/stockpiling area will be protected with catch basin inserts, straw wattles and oil booms. The sorting/stockpiling area will also be periodically swept with a vacuum sweeper to help mitigate any track out of contaminated soil from entering the existing storm system. The material picked up by the vacuum sweeper will be considered contaminated and will be stockpiled with the appropriate material.

During the installation of the 42" FRPP and 12" PVC pipe, NWC and the Engineer's environmental agent will monitor the soil that is being excavated from the pipe trench for signs that the material is contaminated or includes any inert materials. Any material that is suspected of being contaminated or inert will be hauled to the stockpile/sorting yard in an articulated truck. There the material will be stockpiled in the separate bays at the direction of the Engineer's environmental agent as clean fill, inert fill/debris or industrial/hazardous waste in order to characterize the material. Once the material is characterized the material will then be exported and disposed of at an approved facility by means of a truck and trailer.

Figure 1.


Sorting Yard
Bayside
Rucker Ave
Olympian Apartments
Grand Ave
529
W Marine View Dr
At Large Brewing & Taproom
K Fleish
Broadway
Port of
Naval Station Everett
East Waterway
Google Earth
Image Landsat / Copernicus

Figure 2.


Ecology Block Bays
Lined with 30mil
Plastic
1,063.09 sf
Cold Mix Berm