Engineering Design Report

Dakota Creek Industries
Anacortes, Washington

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

November 1, 2022

GeoEngineers
Earth Science + Technology

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

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File No. 5147-006-16

November 1, 2022

Prepared for:

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

Attention: Arianne Fernandez

On Behalf of:

Brad Tesch
Port of Anacortes
100 Commercial Avenue
Anacortes, Washington 98221

Prepared by:

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

Abhijit R. Joshi, PE
Senior Environmental Engineer

Shashi M. Shankar
Senior Environmental Engineer

John M. Herzog, PhD, LG
Senior Principal Environmental Geologist

SMS:AJ:JMH:ch

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ACRONYMS AND ABBREVIATIONS

AST	above ground storage tank
bgs	below ground surface
BMPs	Best Management Practices
bcy	bank cubic yards
CAP	Cleanup Action Plan
CFR	Code of Federal Regulations
City	City of Anacortes
CMP/QAPP	Compliance Monitoring and Quality Assurance Project Plan
COC	contaminants of concern
cPAHs	Carcinogenic Polycyclic Aromatic Hydrocarbons
CSWGP	Construction Stormwater General Permit
DAHP	Department of Archaeology and Historic Preservation
DCI	Dakota Creek Industries
DOT	Department of Transportation
Ecology	Washington State Department of Ecology
EDR	Engineering Design Report
FS	Feasibility Study
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HDPE	high-density polyethylene
IHSs	indicator hazardous substances
mg/kg	milligrams per kilogram
µg/L	micrograms per liter
MLLW	Mean Lower Low Water
MTCA	Model Toxic Control Act
NPDES	National Pollutant Discharge Elimination System
OHW	Ordinary High Water
Port	Port of Anacortes
QA/QC	quality assurance/quality control
OSHA	Occupational Safety and Health Administration
RCW	Revised Code of Washington

ROW	right-of-way
SEPA	State Environmental Policy Act
SWMMWW	Stormwater Management Manual for Western Washington
TESC	temporary erosion and sediment control
TEQ	toxic equivalency quotient
VCP	Voluntary Cleanup Program
WAC	Washington Administrative Code
WISHA	Washington Industrial Safety and Health Act
WSDOT	Washington State Department of Transportation

1.0 INTRODUCTION

This Engineering Design Report (EDR) has been prepared on behalf of the Port of Anacortes (Port) for the planned cleanup action at Dakota Creek Industries Site (Site). The Site is formally referenced in the Washington State Department of Ecology (Ecology) databases as Anacortes Port of Dakota Creek (Ecology Facility Site Identification No. 2670 and Cleanup Site Identification No. 5147) and is located at 115 Q Avenue in Anacortes, Washington (Figure 1). The property on which the Site is located is owned by the Port and is currently leased to Dakota Creek Industries (DCI) who uses the property for shipbuilding, maintenance and repair. Ecology is managing the Site as part of the Fidalgo and Padilla Bay component of their Puget Sound Initiative program.

The cleanup action is being performed by the Port to address contamination in the upland area soil and groundwater at the Site that has resulted from historical uses of the property. Cleanup of marine area sediment contamination was completed as an interim action. Cleanup activities are being completed pursuant to the Cleanup Action Plan (CAP; Ecology 2022) and a Consent Decree between the Port and Ecology.

The EDR is a requirement under the Consent Decree for implementing the cleanup action at the Site and describes planned activities and schedule for the cleanup action. The EDR has been prepared in general accordance with the requirements of the Washington Administrative Code (WAC) Chapter 173-340-400 and presents the following information:

- Background information describing site location, historical operations and uses, current conditions, future land use, previous environmental studies and remedial action, geology and hydrogeology;
- Summary of the nature and extent of contamination;
- Overview of the cleanup action;
- Summary of the cleanup standards including cleanup levels and points of compliance for soil and groundwater, and remediation levels applicable to the soil removal activities;
- Summary of applicable regulatory requirements;
- Description of the soil removal activities;
- Description of the containment of in-place contamination;
- Description of the compliance monitoring requirements;
- Description of Institutional and Other Property Controls;
- Summary of quality assurance/quality control (QA/QC) requirements;
- Schedule for the cleanup action;
- Identification of reporting requirements after the cleanup action is completed; and
- References and limitations of the EDR.

2.0 BACKGROUND INFORMATION

2.1. Site Location and Description

The Site includes multiple parcels (P32866, P32867, P32903, P32904, P32905, P32906, P32907, P54924, P55030, P55031, P56539) owned by the Port. The property is leased to DCI. Figure 2 shows the location of the parcels and the boundary of the DCI lease area.

The Site includes a Marine Area and an Upland Area. The Marine Area consists of parts offshore of Ordinary High Water (OHW) and the Upland Area consists of parts landward of OHW. In general, the Marine Area is maintained with a navigation depth of approximately -35 feet Mean Lower Low Water (MLLW) to support shipyard operations. The Upland Area is relatively flat with a ground surface elevation of approximately 15 feet MLLW. Most of the upland area is paved with asphalt or concrete. The limited unpaved parts of the Upland Area consist of a crushed gravel working surface that is maintained for fabrication layout and heavy equipment operations. Public access to the DCI lease area is restricted with fencing, signage and security guards. The Marine and Upland Areas are separated by bulkheads, as shown on Figure 2.

2.2. Historical Operations and Use

The Site has been used for industrial purposes since approximately 1879. Historically, various above ground storage tanks (ASTs), a rail spur, and associated buildings including machine shops, welding shops and equipment sheds were located at the Site to support industrial operations as shown on Figure 3. Historical records indicate that a bulk oil storage and distribution facility with at least six ASTs was in operation in the central upland portion of the Site and that Pacific Tow Boat leased this portion of the Site to Standard Oil in between 1946 and 1969 who operated the bulk oil storage and distribution facility after which it was sold to the Dillingham Corporation. The Port acquired portions of the Site from the mid-1940s to the mid-1970s. By the mid-1970s, the structures associated with the bulk oil storage and distribution facility had been removed.

The southwest portion of the Site was historically used for residential purposes from the early 1900s until the late 1960s. In about 1976, DCI began to lease the Site from the Port and has continued to operate the shipyard facility since that time.

Prior to 2008, multiple piers and docks and two marine railways used to lift vessels out of the water were located in the Marine Area (Figure 3). The west marine railway, located between the East Pier and Pier 1, was removed in the early 1990s. The east marine railway located between the East Pier and Pier 2 was removed in 2008 as part of the Port's Project Pier 1 redevelopment. The Project Pier 1 redevelopment included the removal of L and East Docks, the east marine railway and associated marine structures, dredging of approximately 170,000 cubic yards of sediment to achieve removal of contaminated sediments and the current navigational depth of the Marine Area, installation of 670 linear feet of sheet pile bulkhead (open cell bulkhead) to reconfigure the southern shoreline, placement of 250 linear feet of riprap along the Marine Area's east boundary and construction of the Central Pier.

2.3. Current Conditions and Use

Many of the historical structures and facilities noted in the previous section have been demolished and removed. The DCI lease area currently has three warehouses (No. 4, 9 and 10), sand shed, shop, paint storage shed, stormwater treatment facility and guard station at the main entrance located at the interception of Q Avenue and 3rd Street as shown on Figure 4. In addition, multiple modular shelters are

used at the Site. The location of these modular shelters varies and is dependent on DCI operations to support vessel construction and maintenance activities.

In the Upland Area, the ground surface is mostly paved with asphalt or concrete. In limited portions of the Upland Area, the ground surface consists of a crushed gravel working surface that is maintained for fabrication layout and equipment storage.

There is little or no stormwater run-on to the Site, and precipitation falling onto the DCI lease area is captured by a network of stormwater drains and is treated by DCI prior to permitted discharge to Guemes Channel or the City of Anacortes (City) sanitary sewer. In the limited areas that are unpaved, stormwater infiltrates into the ground.

DCI currently has connections for power, water, sewer, and communications which extend into the adjacent rights-of-way (ROW), including Commercial Street and 3rd Avenue. DCI also maintains utilities including compressed air and electrical to support vessel construction and marine maintenance operations.

2.4. Future Land Use

At present, the property parcels containing the Site and adjacent properties are zoned by the City for industrial use (Manufacturing/Shipping [MS]) and are characterized by marine shipping, warehousing, bulk material storage, transportation, and other industrial uses. Although the specific future use of the Site is dependent on the operations of the Port's lessees, it is likely to continue to be for industrial purposes including shipbuilding, ship repairs and other maritime-related industrial business. Currently, the Port maintains a lease with DCI that extends through 2055.

2.5. Previous Environmental Studies and Remedial Actions

Previous environmental studies and remedial actions completed at the Site are detailed in the Remedial Investigation/Feasibility Study (RI/FS) Report (Final RI/FS Report; GeoEngineers 2022a) and Cleanup Action Plan (CAP; Ecology 2022). The following sections presents a summary of previous environmental studies and remedial actions.

2.5.1. Marine Area Environmental Studies and Interim Action

Environmental investigations completed to assess sediment quality in and near the Marine Area included:

- Phase 2 Environmental Assessment (Otten Engineering 1997)
- Dredge Material Characterization (Anchor 2004)
- Marine Area Surface Dioxin Study (Floyd|Snider 2007)
- Fidalgo Bay Sediment Investigation (SAIC 2008)
- Interim Action Report (GeoEngineers 2010a)
- Ecology Agreed Order Remedial Investigation (GeoEngineers 2010b)

In 2008, an interim action was performed in the Marine Area in conjunction with the Port's Project Pier 1 Redevelopment to remove approximately 26,000 cubic yards of contaminated sediment from the Marine Area identified by the remedial investigation (RI) and previous studies. The interim action included dredging to remove contaminated sediment deposits and up to 30 feet of native glaciomarine deposits.

Confirmational sampling indicates that no identified sediment contamination above cleanup levels remains at the Site and the CAP (Ecology 2022) identified that no further action is required for sediments.

Sediment sampling locations within the Marine Area and the limits of the 2008 Interim Action are shown on Figure 5.

2.5.2. Upland Area Environmental Studies and Cleanup Actions

Environmental investigations completed to assess soil and groundwater conditions in the Upland Area included:

- Phase 2 Environmental Site Assessment (Otten Engineering 1997)
- EPA Site Inspection (Weston 2001)
- Remedial Investigation Study (Landau 2002)
- Groundwater Characterization Study (Floyd|Snider 2006)
- Interim Action Report (GeoEngineers 2010a)
- Ecology Agreed Order Remedial Investigation (GeoEngineers 2010b)
- Supplemental Groundwater Investigation (GeoEngineers 2014)
- Upland Soil Data Gap Investigation (GeoEngineers 2015)
- Semi-Annual Groundwater Investigation (GeoEngineers 2018)
- Final RI/FS Report (Geoengineers 2022a)
- Supplemental Soil Investigation Data Report (Geoengineers 2022b)

Previous activities to address contamination at the Site are summarized in chronological order below.

- In October 1991, two underground storage tanks (USTs) located near the south end of L were removed. During the removal of these tanks, approximately 20 cubic yards of petroleum impacted soil was removed from this area and transferred from the Site for landfill disposal. Verification samples at the final excavation limits confirmed the removal of the petroleum impacted soil from this area.
- In 2001, a hydraulic winch and its timber frame located near the south end of the east marine railway were removed from the Site. During removal of this structure and associate components, approximately 30 cubic yards of petroleum impacted soil were excavated and transferred from the Site for landfill disposal. Verification samples at the final excavation limits and supplemental soil sampling completed in 2021 confirmed the removal of the petroleum impacted soil from this area.
- In 2002, the Port completed cleanup actions to address known soil contamination in the Petroleum Cleanup Action Area extending from the aluminum shop (building formerly identified as the equipment maintenance shed) to the former bulk fuel storage ASTs; and the Marine Railway Cleanup Action Area located near the eastern marine railway structure. Cleanup actions to remove soil contamination (approximately 1,650 cubic yards) in these areas were entered into Ecology's Voluntary Cleanup Program (VCP) and later incorporated into the formal cleanup of the Site. Verification samples at the final excavation limits and supplemental soil sampling completed in 2021 confirmed the removal of the petroleum impacted soil from these areas.

- In 2008, as part of the Marine Area Interim Action, approximately 570 cubic yards of contaminated soil from the Upland Area (based on sample results from environmental studies) were removed as part of the installation of new underground utility infrastructure at the Site.

Soil and groundwater sampling locations and the location of previous cleanup action areas are shown on Figure 6. Soil stratigraphy in the Upland Area based on the result of the RI and previous studies is shown on Figure 7.

2.6. Geology and Hydrogeology

This section summarizes the geology and hydrogeology based on the results of the previous environmental studies completed at the Site.

2.6.1. Soil Conditions

Site soils consist of multiple layers of fill overlying native marine sediment and glacial deposits. Recent fill deposits include material placed as part of the Project Pier 1 Redevelopment activities resulting in the expansion of the Upland Area northward of the historical shoreline after completion of the interim action dredging. To facilitate the infilling of this area, an open cell bulkhead was installed and the area behind the wall was backfilled to match the surrounding upland grade with clean imported material to meet the project design requirements. In other portions of the Site, historical fill deposits comprised of layers of sand, silty sand and silt with variable gravel content ranging from approximately 2 to 16 feet thick were likely placed during initial shoreline development in the 1960s to extend the historical shoreline northward. Contained in the historical fill deposits are occasional debris including concrete asphalt, brick and wood fragments. Historical fill deposits generally increase in thickness north of 3rd Street. Clean fill was also placed in the previously completed cleanup action excavations.

The southwestern portion of the Site was used for residential purposes from before 1925 until after approximately 1966 and was topographically lower than the surrounding ground surface until 1975. In 1975, this area was filled with up to 7 feet of layered silt, clay and silty sand deposits with occasional wood debris and is commonly referred to as the 1975 Earth Fill Area.

Underlying the fill materials across the Site are native beach sands overlying glacial deposits. The beach sand deposits are typically poorly sorted and loose in nature and vary in thickness from 2 to 4 feet. Glacial deposits consist of a medium dense glaciomarine drift with varying amounts of silt, sand, and gravel that extend to all depths explored.

2.6.2. Groundwater Conditions

Based on previous environmental studies, one shallow water-bearing hydrogeologic unit was identified at the Site. The shallow water-bearing unit occurs in the fill material at a depth of approximately 3 to 10 feet below ground surface (bgs; 3 to 19 feet saturated thickness) across the Site. The confining unit, which underlies the shallow water-bearing unit, consists of native glaciomarine silt, sand and gravel deposits.

The predominant groundwater flow direction for the shallow water-bearing unit is to the north toward Guemes Channel. Tidal study results indicate that there is limited communication between tidally influenced marine water in the Guemes Channel and the shallow groundwater at the Site except within approximately 150 feet of the shoreline. As part of the 2008 Interim Action, an open cell bulkhead was installed in the central portion of the Site to extend the Upland Area northward and create additional land

to facilitate DCI operations. As a result, the open cell bulkhead (which now separates the Upland Area from the Marine Area) provides a physical barrier that restricts the direct discharge of groundwater north to Guemes Channel.

3.0 NATURE AND EXTENT OF CONTAMINATION

The following sections presents a summary of the nature and extent of contamination based on the information presented in the Final RI/FS Report (GeoEngineers 2022a) and Cleanup Action Plan (CAP; Ecology 2022).

3.1. Sediment

As identified in Section 2.5.1, contaminated sediment was removed from the Site because of a 2008 interim action. Due to the completeness of the interim action dredging and subsequent dredging of up to 30 additional feet of underlying native sediments, no sediment contamination above CULs is known to be present, and sediment is no longer considered a medium of concern as identified in the RI/FS and CAP.

3.2. Soil

The CAP identifies metals including arsenic and nickel, and carcinogenic polycyclic aromatic hydrocarbons (cPAHs) as soil contaminants of concern (COCs). In the eastern portion of the Site, arsenic and nickel exceeded soil cleanup levels in fill deposits from the ground surface to a depth of approximately 8 feet below ground surface (bgs). In the north central portion of the Site, arsenic and nickel exceeded soil cleanup levels in fill deposits from the ground surface to a depth of approximately 10 feet bgs. In the southwestern portion of the Site, arsenic, nickel and cPAHs exceeded the soil cleanup levels in fill deposits from the ground surface to a depth of approximately 13 feet bgs. Results of soil and sediment samples collected at the Site from the underlying native surface show that the Upland Area soil cleanup level exceedances are limited to the overlying fill soil and do not extend into the underlying native surface.

The approximate extents of arsenic, nickel and cPAHs contamination in soil are presented in Figures 8, 9 and 10, respectively.

3.3. Groundwater

The CAP identifies metals including arsenic and nickel, and cPAHs as groundwater COCs. Trend plots of arsenic, nickel and cPAHs concentrations observed during groundwater monitoring completed on Site since 2012 are shown on Figures 11, 12 and 13, respectively.

Between 2015 and 2016, DCI replaced a significant portion of their gravel working surface with asphalt pavement which acts to prevent stormwater infiltration through the soil column. RI groundwater monitoring results show that the paved surfaces are limiting the infiltration, leaching and subsequent migration of contaminants through the soil column to groundwater. In addition, this data show that contaminants that remain in place in saturated zone soils have stabilized and are not migrating downgradient toward the Guemes Channel since paving was completed.

As described in the CAP, the existing empirical data indicate that groundwater located downgradient of the soil contamination is not adversely impacted (i.e., does not exceed Model Toxic Control Act (MTCA) cleanup levels).

4.0 OVERVIEW OF THE CLEANUP ACTION

As described in the CAP, the cleanup action includes the following components:

- Removal of contaminated soil from the readily accessible portion of the Site (i.e., open space area in the southeast portion of the DCI lease area) where the horizontal limits of the excavation will be determined by sidewall samples meeting three times the cleanup limits and the vertical limits will be determined by the base samples meeting the cleanup level as described in Section 5.0;
- Use of existing engineering controls such as concrete and asphalt surfaces to isolate the remaining soil contamination at the Site from human and ecological receptors;
- Long-term monitoring of groundwater to confirm compliance with the cleanup standard at the conditional point of compliance (between the shoreline and as feasibly close to the contamination contained in place) and assess natural attenuation performance; and,
- Implementation of institutional controls (Environmental Covenant) for long term protection of the remedial actions.

The components of the cleanup action are summarized in Figure 14 and described in Sections 7.0 through 10.0.

5.0 CLEANUP STANDARDS

Cleanup standards for the Site include (1) chemical concentrations in environmental mediums (cleanup levels) that are protective of human health and the environment; and (2) locations where the cleanup levels must be met (points of compliance).

A detailed description of the cleanup standards for the Site is presented in the CAP. A summary of cleanup standards is presented below.

5.1. Soil

Soil cleanup levels for Indicator Hazardous Substances (IHSs) are presented in Table 1 below and are based on the following:

- Concentrations established under applicable state and federal laws;
- Concentrations protective of direct human contact with soil; and
- Concentrations protective of groundwater as surface water.

TABLE 1. SOIL CLEANUP LEVELS

COC	Cleanup Level	Unit
Arsenic	20	mg/kg
Nickel	48	mg/kg
Total cPAH TEQ – Vadose Zone	0.31	mg/kg
Total cPAH TEQ – Saturated Zone	0.016	mg/kg

Notes:
TEQ – toxic equivalency quotient
mg/kg – milligrams per kilogram

The vertical limits within the excavation footprint will be determined by verification sampling at the base of the excavation for arsenic and nickel meeting the cleanup levels listed in Table 1. The horizontal limit of the excavation will be determined by verification sampling along the sidewall for arsenic and nickel meeting the remediation levels presented in Table 2 below.

TABLE 2. SOIL REMEDIATION LEVELS

COC	Remediation Level	Unit
Arsenic	60	mg/kg
Nickel	144	mg/kg

Note:
mg/kg = milligrams per kilogram

Based on the existing data, cPAHs are not identified to be present above the remediation levels within the planned soil removal area and therefore, excavation soil sampling and analysis will not include the analysis of cPAHs.

Under MTCA, the standard point of compliance for the soil cleanup levels based upon human health via direct contact is throughout the Site from the ground surface to 15 feet bgs per WAC 173-340-740(6)(d). For cleanup actions that involve containment of hazardous substances, however, the soil cleanup levels will typically not have to be met at the point of compliance if the criteria required under WAC 173-340-740(6)(f) are met. As detailed in the CAP, the cleanup action, which includes containment of some impacted soils above cleanup levels beneath buildings or pavement, meets the requirements for this alternative point of compliance.

5.2. Groundwater

Groundwater cleanup levels for IHSs are presented in Table 3 below are based on the following:

- Concentrations established under applicable state and federal laws;
- Concentrations protective of direct human contact with groundwater;
- Concentrations protective of surface water; and
- Concentrations protective of sediment.

TABLE 3. GROUNDWATER CLEANUP LEVELS

COC	Cleanup Level	Unit
Arsenic	8	µg/L
Nickel	8.2	µg/L
Total cPAH TEQ	0.01	µg/L

Notes:
TEQ – toxic equivalency quotient
µg/L – milligrams per liter

Under MTCA, the standard point of compliance for groundwater is throughout the site from the uppermost level of the saturated zone extending vertically to the lowest most depth that could potentially affect the site. Because the groundwater cleanup levels are based on protection of marine surface water and not protection of groundwater as a drinking water source, a conditional point of compliance was established downgradient and as close as technically possible to the remaining soil contamination. The compliance monitoring wells for the remedial action will be new or existing wells located within the property boundary at the conditional point of compliance located between the upland source areas and the marine surface waters to monitor groundwater discharges prior to discharging to surface water.

6.0 APPLICABLE REGULATORY REQUIREMENTS

In addition to the cleanup standards described in the preceding section, other regulatory requirements must be considered during implementation of the cleanup action (WAC 173-340-710). Because the cleanup action is required by Ecology under the consent decree, the cleanup action is exempt from the procedural requirements of certain laws and local permits (WAC 173-340-710[9][a]). However, the cleanup action must comply with the substantive requirements of these laws and permits. A detailed description of the applicable regulatory requirements is presented in the CAP. The following sections summarize the applicable regulatory requirements.

- **Solid and Hazardous Waste Management:** Contaminated soil removed during the cleanup action will be managed in accordance with the applicable regulatory requirements including Dangerous Waste Regulations (Chapter 173-303 WAC). Waste designation, handling and disposal of contaminated soil will be completed in accordance with the applicable regulations and substantive requirements of the receiving facility.
- **Washington State Environmental Policy Act (SEPA):** To meet this requirement, the Port (SEPA lead agency for the project) has completed a SEPA checklist and a SEPA determination for the project. Ecology reviewed the SEPA checklist and following public review, the Port issued a Determination of Non-Significance which was released for public review and comment.
- **Shoreline Management Act:** The Port will work with the City of Anacortes to ensure that the cleanup action meets the substantive requirements of the City's Shoreline Master Program that sets forth the requirements of the Shoreline Management Act.
- **Water Pollution Control Act:** Construction site operators are required to be covered by a Construction Stormwater General Permit (CSWGP) if they are engaged in clearing, grading, and excavating activities

that disturb one or more acres and discharge stormwater to surface waters of the state. This permit also applies regardless of acreage if site-specific contaminant discharge warrants planning and oversight. The CSWGP is administered by Ecology under the National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit for Stormwater Discharges. This permit is not required for the cleanup action because the area of disturbance from the cleanup action is less than one acre and because wastewater will be discharged to the sanitary sewer after treatment under an agreement with the City of Anacortes, or transported to a permitted disposal facility with appropriate authorization from the receiving facility. Construction stormwater generated during the cleanup action will be separated from DCI's stormwater collection system, contained on-site, treated (if necessary) and either transported off-site for permitted disposal or discharged into the City of Anacortes sanitary sewer. A discharge authorization will be obtained from the City of Anacortes to discharge stormwater to the City of Anacortes sanitary sewer following appropriate treatment to meet discharge standards.

- **Clean Air Act** – Following the review of the planned cleanup action activities, the local agency, the Northwest Clean Air Agency, determined a permit under the Clean Air Act will not be required. Controls will be implemented during construction (e.g., wetting or covering exposed soils and stockpiles), as necessary, to meet the substantive restrictions on off-site transport of airborne particulates by the local agency.
- **Archeological and Historical Preservation:** To meet the requirements of the Washington Department of Archaeology and Historic Preservation (DAHP) an Inadvertent Discovery Plan was prepared and included in Appendix A. To meet DAHP's requirements, an archeological monitor will be present during ground disturbance activities completed near the fill/native soil contact.
- **Health and Safety** – Site cleanup-related construction activities will need to be performed in accordance with the requirements of the Washington Industrial Safety and Health Act (WISHA; RCW 49.17) and the federal Occupational Safety and Health Act (OSHA; 29 CFR 1910, 1926).
- **Minimum Standards for Construction and Maintenance of Wells** – Groundwater monitoring wells will need to be installed as a part of the post-construction confirmation monitoring. The new wells will be constructed in accordance with the requirements of WAC 173-160 to further ensure protection of groundwater resources at the Site.
- **City of Anacortes Land Disturbance and Grading Permit, Noise Ordinance, Publicly Owned Treatment Water (POTW) Discharge Authorization, and Stormwater Management Program** – The Port will coordinate with the City of Anacortes to ensure that the cleanup action meets the substantive requirements of these local permitting requirements.

7.0 SOIL REMOVAL

The key components of the soil removal activities include the following:

- Site preparation;
- Procedures for the inadvertent discovery of cultural resources;
- Utility management;
- Remedial excavation and verification soil sampling;
- Management of stormwater and groundwater;

- Transport and disposal of excavated soil;
- Backfill and compaction; and
- Site restoration.

The following sections provide details and general construction considerations for implementing the cleanup action components.

7.1. Site Preparation

7.1.1. Existing Conditions

The existing conditions at the planned remedial excavation area were documented by a topographic survey performed by Pacific Surveying & Engineering. Inc. (PSEI) of Bellingham, Washington on behalf of the Port. The survey map dated March 4, 2022, stamped and signed by PSEI's Washington State licensed surveyor is presented in Appendix B. The survey map presents the existing conditions including topography, site features and utilities.

7.1.2. Utility Locate

The contractor will be responsible for contacting Washington State Utilities Underground Location Center at 811 (or 1-800-424-5555) as well as private utility locating services in order to locate utilities at/near the planned excavation area. As shown in PSEI's topographic map (Appendix B) and Figure 15, currently known utilities in the vicinity of the planned remedial excavation area includes an underground power line, storm drain line and sanitary sewer force main. The exact location or depth of the underground utilities is not known and will be verified in the field by the contractor. The contractor will also be responsible for identifying the location of utilities that are suspected to exist within the limits of cleanup action but were not confirmed by the survey. The suspected utilities are noted on the topographic map of the Site. Assumptions for managing utilities during remedial activities are presented in Section 7.3.

7.1.3. Contractor Staging Areas and Temporary Services

The contractor will establish areas for employee parking, construction vehicle and equipment staging, storage for clean and contaminated materials, supplies, temporary offices, and emergency spill response and first aid materials. The contractor will provide and maintain temporary electrical, lighting, water, sanitary, office waste management, and telecommunications services needed for the duration of the project. Contractor will propose the staging areas for Port's approval prior to starting construction activities.

7.1.4. Site Access, Security and Traffic Controls

The Site has three access points – two from 3rd Street and the other from Commercial Avenue. The contractor will be required use the access point from 3rd Street only to minimize impact to ongoing DCI operations at the Site.

A chain-link fence exists on three sides of the Site as shown on Figure 4. The contractor will be responsible for providing and installing additional internal temporary security measures, if necessary. The additional temporary security measures may include fencing, barricades, etc., as necessary for cordoning off the excavation and contractor staging areas from the public and DCI personnel during active work and non-work hours. Appropriate gate(s) will be provided along the temporary fence to provide access to construction personnel, vehicles and other construction equipment. The contractor will coordinate work

hours and construction activities with ongoing DCI operations to minimize workflow disruption during the cleanup action.

City coordination will be completed as part of the design review process to ensure City requirements are met. The contractor will be required to prepare a traffic control plan and haul route plan for City's review and approval. The contractor will be required to implement traffic control in accordance with the City permits and approvals. In general, traffic controls will include providing necessary signs (e.g., rerouting signs, etc.), barricades and flaggers (if necessary) to maintain safe movement of pedestrian, bike and vehicular traffic. The contractor's haul route plan will identify the truck haul route within the City limits that the contractor proposes to use for transport of contaminated material.

7.1.5. Temporary Erosion and Sediment Control (TESC)

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

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

- Prevention of sediment, debris and sediment-laden water from leaving the work area and entering adjacent surface streets, storm drains as well as surface water bodies using silt/filter fabric fences, straw bales, straw wattles, storm drain inlet protection, catch basin silt barriers or similar BMPs.
- Implementation of BMPs to divert stormwater such that stormwater from offsite does not enter the excavation area.
- Implementation of BMPs at the construction entrance/exit and internal haul routes to minimize the tracking of soil onto the adjacent surface streets (described in Section 7.1.6).
- Street sweeping and/or street cleaning, as necessary, to remove soil tracked onto the adjacent surface streets.
- Implementation of stockpile BMPs (described in Section 7.1.7).

7.1.6. Construction Entrance/Exit and Internal Haul Routes BMPs

The location of construction entrance/exit will be selected by the contractor depending on their approach to excavation and hauling. The location will be selected in coordination with DCI operations and will require Port's approval. The construction entrance/exit is expected to be located adjacent to 3rd Street. Construction entrance/exit and internal equipment operation areas will be stabilized with quarry spalls, crushed rock or other equivalent BMPs. A geotextile fabric may be placed as a separation layer between existing surface and spalls/rocks where appropriate. Construction entrance/exit and haul routes can also be located directly on top paved surfaces at the Site. Wheel wash or tire baths may be required if other BMPs installed for construction entrance/exit and internal haul routes are not effective in preventing tracking soil onto roads. As identified in Section 7.1.5, storm drain catch basins around the construction

area including catch basins within the adjacent street will be protected with silt barriers or similar BMPs throughout the construction to prevent to sediment track out from entering the storm drain system.

7.1.7. Stockpiling BMPs

The location of stockpiles will be selected by the contractor depending on their approach to excavation and hauling. The location will be selected in coordination with DCI operations and will require Port's approval.

The contractor may elect to either directly load contaminated material to haul trucks or temporarily stockpile contaminated material outside the limits of excavation area prior to loading. The minimum BMPs applicable to contaminated material stockpile located outside the limits of excavation area include perimeter berm, impermeable and stabilized base and impermeable cover are described below.

- **Perimeter Barrier:** The intent of the perimeter barrier is to prevent stormwater run-on into the stockpiled material and to contain liquids from stockpiled material within the stockpile area. The barrier will be installed on all sides of the stockpile. Stockpile material will be contained within the barrier in a manner that prevents spillage of material over/outside of the berm. The barrier will be constructed of clean imported soil, asphalt, concrete ecology blocks or similar.
- **Impermeable Liner:** An impermeable liner will be placed on existing surfaces following clearing of any debris that might potentially tear or puncture the liner and will extend underneath the entire footprint of the stockpile and over the perimeter barrier. The intent of a liner is to minimize or eliminate (to the extent practicable) direct contact and cross-contamination of underlying existing surface from stockpiled material. If the individual section of the liner is not big enough to cover the entire stockpile, then multiple sections will be used. Adjacent sections of the liner will be overlapped with overlying section located uphill. The liner will be constructed of impermeable high-density polyethylene (HDPE) sheeting (thickness of 20-mil or greater) or similar. A torn liner will be repaired or replaced upon identification of the breach.
- **Stabilized Impermeable Base:** A stabilized impermeable base will be constructed on existing unpaved surfaces following preparatory activities that may be necessary to prepare stable subgrade (e.g., clearing of debris, grading/compaction of existing surface and will extend underneath the entire footprint of the stockpile and berm. The intent of the stabilized impermeable base is to prevent direct contact and cross-contamination of underlying existing surface from stockpiled material, provide a stable working surface that is not compromised of its function due to normal wear and tear from construction activities and is sloped such that the liquids draining from stockpiled material are channeled to a point (e.g., sump) where the liquids can be collected, as necessary. Existing asphalt surfaces can be used as stabilized impermeable base.
- **Impermeable Cover:** An impermeable cover will be required to eliminate or minimize wind dispersion and direct contact of precipitation with stockpiled material. The complete extent of the stockpile will be covered during off-work hours and the portions of stockpile that is not in use during work hours will also be covered. The covers will extend over the berm (to ensure that the precipitation is diverted outside the stockpile area) and will be anchored using sandbags or similar to prevent them from being removed by wind. If the individual section of the cover is not big enough to cover the entire stockpile, then multiple sections will be used similar to the approach described for the liner. The cover will be constructed of impermeable HDPE sheeting (thickness of 6-millimeter or greater) or similar. Any torn covers will be repaired or replaced upon identification of the breach.

7.1.8. Demolition and Management of Demolition Debris

Demolition activities primarily involves temporary relocation of an existing shed, if necessary, and removal of paved surfaces to access the contaminated material within the planned excavation footprint.

7.1.8.1. Building Relocation

A shed (measuring approximately 70 feet long by 55 feet wide) located in the southeast corner of the excavation will be relocated to facilitate excavation, if necessary. It is assumed that DCI will be responsible for relocating these structures and the materials stored inside the structures, if necessary, prior to the contractor beginning construction activities. Coordination will be completed with DCI to develop the most efficient way to complete the portion of the excavation located within the shed.

7.1.8.2. Pavement Demolition and Management of Demolition Debris

The paved asphalt surface located within the excavation limits will be demolished to access underlying contaminated soil. The asphalt demolition area will be the same as the remedial excavation area as shown on Figure 15. Demolition debris will be transported and disposed at an offsite permitted disposal facility along with the excavated contaminated soil.

7.1.9. Monitoring Well Protection/Decommissioning

Seven existing monitoring wells (MW-1, MW-2B, MW-3A, MW-4 and MW-6 through MW-8) are located on Site as shown on Figure 14. Of the seven existing wells, monitoring well MW-7 will be decommissioned as it is located within the limits of excavation. Decommissioning activities will be completed by a Washington-licensed driller in accordance with Ecology requirements (WAC 173-160-460) prior to starting excavation. The other existing monitoring wells (MW-1, MW-2B, MW-3A, MW-4, MW-6, and MW-8) will be protected in place during construction activities.

7.1.10. Dust and Noise Control

Site demolition and excavation work has the potential to generate airborne dust. Site activities will be carried out in a manner that minimizes emissions of dust (fugitive emissions). Engineering controls will be used during construction (e.g., wetting or covering exposed soil), as necessary, to meet the substantive restrictions on off-site transport of airborne particulates by the local agency, the Northwest Clean Air Agency. If wetting is employed, care will be taken to apply the appropriate amount of water to prevent dust only. Visual monitoring will take place and water application will cease if over-saturation is noted (i.e. puddling, surface runoff).

Construction noise will be generated by a variety of construction equipment, including truck engines, back-up alarms, generators, other small engines, and earthmoving equipment. Work associated with the cleanup action will be performed during hours allowed by the City of Anacortes municipal code. If required, a variance on the allowable work hours will be coordinated with the City of Anacortes.

7.2. Procedures for Inadvertent Discovery of Archaeological/Cultural Resources

There is potential for encountering archaeological/cultural materials during excavation where native deposits are encountered. The cleanup action primarily addressed contaminated fill material, but portions of the excavation may encounter the fill-native interface. Where the excavation reaches the fill-native interface layer, an archeological monitor who meets the Secretary of Interior's qualifications (36 CFR Part 61) will be onsite to observe the excavation activities. Fill/native contact at the excavation area ranges from

approximately 4 feet to 10 feet below ground surface as shown on Figure 16. If potential archaeological resources, cultural resources, or human remains are identified during construction, work will be stopped immediately in the vicinity of the discovery and required notifications will be completed in accordance with the Inadvertent Discovery Plan (IDP; Appendix A). Notifications will be made to project lead (Port and GeoEngineers), project archaeologist (Columbia Geotechnical Associates), Ecology, DAHP and tribes as noted in the IDP. Construction work will not proceed in the area of, or near, the discovery until DAHP has issued an approval to continue work. Identification and documentation of the find will be completed in accordance with the IDP.

7.3. Utility Management

The approximate locations of utilities, currently known to exist within/near the excavation area, are shown on Figure 15. These utilities include underground power, sanitary force main, and storm drain. Additionally, unknown buried utilities may exist within the excavation area. The contractor will be required to complete utility locates as described in Section 7.1.2 and manage utilities during soil disturbance activities as described below:

- Underground power, sanitary force main and storm drains will be protected in place to the maximum extent practicable to remove the readily accessible contaminated soil in their vicinity. Some soil contamination is expected to remain in place where utilities are protected.
- The contractor may elect to temporarily reroute, demolish and restore these utilities if it facilitates completion of excavation and restoration activities in a more cost-efficient manner (e.g., where the relocate or demolition and restoration is more cost effective than protecting in place). The contractor will be responsible for coordinating and notifying respective utility providers in advance of demolition and obtain necessary inspections for the restored utilities. Restoration of utilities will be completed in kind and/or in accordance with the requirements of the utility provider.
- If a functional utility not identified in the project plans or contractor's utility locate is uncovered during excavation, the contractor will be required to notify the Port immediately of such occurrence. Appropriate notifications will be made to the utility provider, if necessary, and the utility will be either protected in place or temporarily rerouted, demolished and restored as described above. Any damage to such utilities due to contractor's negligence will be repaired by the contractor at no cost to the Port.
- If unknown abandoned utilities are encountered during excavation, these abandoned utilities will be removed and disposed of in accordance with appropriate disposal regulations.

Excavation activities will be performed in a careful manner to avoid or minimize damage to unknown utilities. During excavation if field observations indicate the presence of potential unknown utilities such as if pipe bedding or other utility markers are uncovered then excavation activities will proceed cautiously in this area. The contractor will be required to use hand excavation techniques (e.g., shovels) to carefully uncover the utility to avoid damage and manage it as described above.

7.4. Remedial Excavation

Remedial excavation will be performed to remove contaminated soil from within the readily accessible portion of the Site (i.e., open space area in the southeast portion of the DCI lease area). Horizontally, excavation will be performed to remove soil exceeding the remediation levels (Table 2) and vertically, excavation will be performed to remove soil exceeding the cleanup levels (Table 1) unless utilities prevent

complete excavation as identified in Section 7.3. Both the remediation and cleanup levels are presented in Section 5.1.Contaminated soil will be excavated with standard earth moving equipment.

The preliminary horizontal and vertical limits of remedial excavation are shown in plan view on Figure 15 and excavation cross-sections are presented on Figure 16. The preliminary excavation limits shown on Figure 15 are developed based on existing chemical analytical data to remove soil with concentrations greater than the remediation and cleanup levels. The existing chemical analytical data including exceedance of cleanup levels and remediation levels are summarized on Figures 15 and 16. The preliminary excavation footprint covers an area of approximately 8,000 square feet. As noted from the cross-sections the preliminary excavation will be stepped across the footprint with depths ranging from 6 feet below ground surface (bgs) to 1 feet bgs. Approximately 1,000 bank cubic yards (bcy) of soil is estimated to be removed from the preliminary excavation limits for off-site disposal.

Excavation work will be performed in accordance with the requirements of the Washington Industrial Safety and Health Act (WISHA) (RCW 49.17) and the Federal Occupational Safety and Health Act (OSHA) (29 CFR 1910, 1926). The contractor will be responsible for excavation slope stability and complete the work in accordance with the requirements of WISHA and OSHA. If necessary, the contractor will shore remedial excavations to protect the work, existing property, utilities, and any other structures and to provide safe working conditions in compliance with applicable local, state or federal safety codes.

The following list describes procedures for verification soil sampling in determining final excavation limits at the Site. Verification soil sampling procedures are described in the Compliance Monitoring and Quality Assurance Project Plan (CMP/QAPP) (Appendix C).

- Soil verification samples will be collected by GeoEngineers field personnel from the preliminary limits of excavation (base and sidewall) and submitted for chemical analysis of arsenic and nickel to an Ecology-accredited laboratory. As described in Section 5.1, cPAH was not identified in previous sampling completed within the excavation area and therefore, will not be included in the soil verification analysis. Chemical analysis will be performed at an expedited turnaround time (two days) to support decision making in the field concerning any additional excavation that may be required to achieve the remediation levels at the horizontal limits and cleanup levels at the vertical limits of the excavation.
- Soil samples from the base of the excavation will be collected at a frequency of one sample per 625 square feet. Sidewall samples will be collected at a frequency of one sample per 40 linear feet of sidewall along the perimeter of the excavation. The base area and the sidewall length for the preliminary remedial excavation area measures approximately 8,000 square feet and 360 feet, respectively. Based on the frequency noted above, approximately 13 base samples and 9 sidewall samples are estimated to be collected from the preliminary limits of remedial excavation. At a minimum one base sample will be collected from each excavation bench. One duplicate soil sample will be collected per every 20 parent soil samples collected from excavation limits for QA/QC purposes.
- If the results of chemical analysis for the sidewall soil samples are greater than the remediation levels for arsenic and/or nickel, additional excavation will be completed horizontally to remove the portion of sidewall represented by the exceedance. Additional excavation will be performed horizontally until subsequent soil verification sample results are less than the remediation levels. Final horizontal extent of remedial excavation will be determined by verification soil sampling.

- If the results of chemical analysis for the base soil samples are greater than the cleanup levels for arsenic and/or nickel, additional excavation will be completed vertically to remove the portion of base represented by the exceedance. Additional excavation will be performed vertically until subsequent soil verification sample results are less than the cleanup levels. Final vertical extent of remedial excavation will be determined by verification soil sampling.
- Any additional excavation performed beyond the preliminary horizontal and vertical limits shown on Figure 15 will be limited to the readily accessible portion of the Site. If the results of verification soil samples show that the contamination exceeding the remediation levels extend into the areas that are not readily accessible, a verification soil sample will be collected to document arsenic and nickel concentrations at these limits and no additional excavation will be performed. Ecology will be notified, and a concurrence will be obtained prior to terminating excavation at the areas that are not readily accessible.
- The contractor will be required to survey the final excavation limits to document the horizontal and vertical extent.

7.5. Management of Stormwater and Groundwater

Groundwater and any other water (e.g. stormwater, water used for decontamination, water used for dust control etc.) that comes in contact with material/equipment on Site and has potential to be contaminated will be managed in accordance with applicable laws and regulations. In addition to implementing TESC BMPs (Section 7.1.5), the contractor will be required to perform excavation in a manner that minimizes or prevents to the extent practicable, the generation of contaminated water. To the extent possible the excavation will be completed during the dry season. Excavation may also be completed in smaller portions where each portion is excavated, sampled and backfilled prior to commencing excavation activities on adjacent sections so that areas where water can accumulate are minimized. Under this approach, necessary BMPs will be implemented to prevent cross-contamination of newly backfilled sections.

The contractor will be required to manage water that collects within excavation limits such that (1) clean or potentially clean limits (chemical analytical results below cleanup levels) are not contaminated due to contact with contaminated water; and (2) Port's field representative is able to observe and collect verification soil samples from excavation limits.

The contractor will be responsible for designing and implementing water collection, storage and treatment system (as necessary) and implementing excavation water management. Water collected, stored and/or treated during excavation activities will be disposed of in accordance with applicable laws and regulations. The contractor may elect to either transport collected/stored water for disposal to an off-site permitted disposal facility or discharge to the City's sanitary sewer. Prior to disposal/discharge, the contractor will be required to treat the water (if necessary) to meet the disposal facility/City's acceptance criteria. The contractor will be responsible for collecting representative samples of the collected water for disposal characterization purposes and coordinating with the disposal facility or the City, as applicable, for obtaining necessary permits and approvals. Discharge into the City's sanitary sewer will require a discharge authorization from the City of Anacortes. Final disposal plans with accompanying authorization documentation will be provided to Ecology for concurrence prior to initiating related cleanup activities.

7.6. Transport and Disposal of Excavated Soil

The contractor will manage, load, transport, and dispose of excavated materials generated by the remedial excavation. Contaminated materials will be disposed at a permitted disposal facility. Waste characterization activities are planned to be completed prior to the construction. The existing chemical analytical data and results of the waste characterization will be used to determine the waste designation of soil planned for excavation. A draft waste profile will be completed, and a preliminary waste authorization will be obtained from permitted landfills prior to construction. Final disposal coordination with landfills and obtaining disposal authorization will be completed by the contractor. Authorization documentation will be provided to Ecology prior to disposal.

The contractor will be required to ensure that material loaded for off-site disposal meets paint filter criteria in accordance with all applicable transportation laws and regulations and the requirements of the receiving disposal facility. The contractor will be required to setup a designated area for transferring excavated or stockpiled material onto trucks/containers used for transporting material off-site. These designated area(s) will be constructed of stabilized surface that can contain accidental spills that may occur during transfer of material, capable of preventing cross-contamination of underlying/adjacent areas and resisting damage due to heavy truck traffic. Trucks/containers used for transporting excavated material will be equipped with seals and doors to prevent spillage of material during transportation in accordance with applicable regulatory requirements.

Transportation of excavated material will be completed by waste haulers in accordance with applicable state and federal solid waste handling and transportation regulations. Transportation contractor(s) will be required to be properly licensed and in compliance with applicable United States Department of Transportation regulations. The contractor will be required to provide their contingency and spill control plans describing the measures to be implemented in the event of spills or discharges during material handling and transporting. The contractor will be required to provide records of disposal (weight tickets, certificate of disposal) from the disposal facility to confirm the weight of the excavated material that was disposed at the landfill.

7.7. Backfill and Compaction

Upon completion of the remedial excavation, the excavation will be backfilled in accordance with the following approach:

- Geotextile fabric will be placed at the excavation limits prior to backfilling for use as a visual marker for the limits of excavation.
- The contractor will provide the Port with verification that imported backfill materials have been tested and certified to be free of contaminants in accordance with backfill testing requirements that will be developed as part of the design.
- The excavation will be backfilled with imported, clean material (gravel borrow or similar) in lifts and each lift will be compacted in accordance with the requirements of the Washington Department of Transportation (WSDOT) Standard Specifications. Field density testing will be conducted to confirm adequate compaction is achieved.

- Quarry spalls may be used to backfill the bottom portion of excavation if the compaction requirements are not met using gravel borrow due to unsuitable conditions (e.g. presence of groundwater within excavation at the time of backfilling).

7.8. Site Restoration

This section outlines the planned restoration following soil excavation and backfilling activities.

7.8.1. Utilities

Utilities that will be rerouted or removed as described in Section 5.3 will be restored in accordance with the utility owner's requirements.

7.8.2. Surface Restoration

Asphalt pavement that was demolished to facilitate excavation will be restored in kind. Based on existing borings completed at the site, the asphalt thickness at the site ranges from approximately 4 to 6 inches. Asphalt design will be coordinated with the Port and DCI to ensure that asphalt design matches the existing paving, supports the current use and meets applicable City of Anacortes standards. The asphalt pavement will also serve as a cap to prevent direct contact and stormwater infiltration if contamination is left in place within the footprint of the excavation such as areas adjacent to the utilities that are protected in place. The contractor will be required to perform survey(s) to document the as-built conditions of surface restoration. Upon completion of all construction activities, the contractor will remove all temporary facilities and controls (fencing, barricades etc.) used during the cleanup action work.

7.8.3. Groundwater Monitoring Wells

As discussed in Section 7.1.9, existing monitoring well MW-7 is planned to be decommissioned. A new monitoring well may be installed to replace MW-7 following the completion of remedial excavation. The number and location of the new monitoring well will be determined based on the final dimensions of the excavation area and concurrence by Ecology. Post-construction groundwater monitoring activities are detailed in the CMP/QAPP (Appendix C). Drilling and construction of the monitoring wells, if performed, will be completed by a Washington State licensed driller in accordance with the Minimum Standards for Construction and Maintenance of Wells (Chapter 173-160 WAC) and observed by a licensed geologist.

8.0 CONTAINMENT OF IN-PLACE CONTAMINATION

The selected cleanup action for the Site includes leaving soil contamination in place beneath portions of central and western DCI lease area at concentrations exceeding the cleanup level. As described in the CAP, the cleanup action relies on utilizing existing engineering controls (i.e., asphalt and concrete surface cap, sheet pile bulkhead) for the purpose of removing exposure and discharge pathways of contamination that will be left in place. As shown on Figure 14, the majority of the Site is covered with approximately 4 to 6 inches thick asphalt paved surfaces and these surfaces will be maintained. As part of soil removal action described in Section 7.0, specifications for asphalt to restore the remedial excavation area will be developed and will be documented in the plans and specifications. The asphalt specification will take into account the understanding of existing conditions, current/future use at the Site and applicable standards of the City of Anacortes and is expected to generally match the existing asphalt in the excavation area. These specifications will also serve as a guide for repairs in the event that there are future earth disturbing

activities outside of the planned soil removal. A portion of the Site north of the excavation area contains gravel surfaces. As identified in the CAP, the protective barrier is not required in these areas to prevent direct contact with residual contamination remaining in the soil since prior interim action and redevelopment work on the Site has resulted in removal of previously identified contamination in this area. Moreover, the gravel is located down gradient of the predicted groundwater flow direction and therefore should not contribute to migration of contaminants left in place. The existing gravel surface will be maintained for use by DCI operations using BMPs. In accordance with the requirements of MTCA, areas in which residual soil contamination remains in place will continue to be addressed using confirmational groundwater monitoring, cap integrity assessment reports and an environmental covenant.

Ecology will be notified of future development of the Site. Notification will include documentation describing measures to ensure the proper management of contaminated soil and/or groundwater (if encountered) and ensure that proper worker protection and safety is maintained. Ecology's review and concurrence will be obtained prior to new work being performed. Specific details regarding long-term monitoring and maintenance of the soil cap and procedures for worker protection and the management of contaminated soil and/or groundwater will be described in an Engineering and Institutional Controls Monitoring and Maintenance Plan (EICMMP) that will be prepared following implementation of the other components of the cleanup action.

9.0 COMPLIANCE MONITORING

Compliance monitoring will be implemented in accordance with WAC 173-340-410 to ensure that the natural attenuation process continues and the cleanup action is protective of human health and the environment. The three types of compliance monitoring to be performed include:

- Protection monitoring to confirm that human health and the environment are adequately protected during the construction phase of the cleanup action.
- Performance monitoring to confirm that the cleanup action has attained cleanup levels, where applicable.
- Confirmational monitoring to confirm the long-term effectiveness of the cleanup action.

The protection monitoring plan for the cleanup action will be addressed in a project-specific Health and Safety Plan (HASP; Appendix D). Performance monitoring includes verification soil sampling that will be performed at the limits of excavation and confirmational monitoring includes post-construction groundwater monitoring. Performance and confirmational monitoring program details are described in the CMP/QAPP (Appendix C).

10.0 INSTITUTIONAL AND OTHER PROPERTY CONTROLS

Institutional controls in the form of an Environmental Covenant will be required for all parcels within the Site boundary where contaminated soil above a cleanup level remains and where groundwater is above cleanup levels. The environmental covenants will be filed following implementation of the cleanup action.

The Environmental Covenant will impose restrictions on future uses of the Site containing residual contamination consistent with industrial land use and will prohibit the use of groundwater as drinking water.

Ecology will prepare the Environmental Covenant consistent with WAC 173-340-440 and RCW 64.70 and in consultation with the property owner.

In addition to the Environmental Covenant, Property Controls will include an EICMMP for any future ground-disturbing activities at the Site. The EICMMP will provide information regarding long-term monitoring and maintenance of the soil cap, management of contaminated soil and/or groundwater soil handling and management procedures, protocols for notifying Ecology of planned (or proposed) ground-disturbing activities, procedures for worker protection, etc. Details of the EICMMP are described in the CAP. The EICMMP will be prepared following completion of the cleanup construction.

11.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

This section describes general QA/QC procedures to be implemented during the cleanup action, including contractor quality control, construction monitoring and field documentation, and analytical QA/QC.

11.1. Contractor Quality Control

The contractor will prepare a plan describing each of the primary elements of work, quality control procedures that will be utilized, and project management structure. The contractor's plan will be subject to review and approval by the Port to ensure that the construction is completed in accordance with the EDR and the contract plans and specifications requirements.

In addition to the contractor's QC activities, the Port and/or Port representatives will perform independent oversight of the contractor's activities.

11.2. Construction Monitoring and Field Documentation

Construction monitoring will be performed by the Port and its representatives. A comprehensive record of field activities will be maintained. Field documentation for this project will include field reports, and chain-of-custody forms for samples submitted for analytical testing. The field documentation will record construction, sampling, and monitoring activities, as well as decisions, corrective actions, and/or modifications to the project plans and procedures discussed in this report. Construction monitoring and field documentation procedures are described in the CMP/QAPP (Appendix C).

11.3. Analytical QA/QC

Analytical QA/QC is described in the CMP/QAPP (Appendix C). The CMP/QAPP describes verification soil and post-construction groundwater sampling, analysis, and QC procedures that will be implemented to produce chemical and field data that are representative, valid, and accurate for use in evaluating the effectiveness of the cleanup action.

11.4. Health and Safety

Cleanup-related construction activities will be performed in accordance with the requirements of WISHA and OSHA. These regulations include requirements that workers are to be protected from exposure to contaminants.

A project-specific HASP describing actions that will be taken to protect the health and safety of GeoEngineers personnel (the Port's environmental construction oversight consultant) is presented as

Appendix D. The contractor will be required to prepare and submit a separate HASP for use by contractor personnel. Personnel engaged in work that involves hazardous material excavation and handling will comply with MTCA safety and health provisions in WAC 173-340-810 and will be HAZWOPER, OSHA, and WISHA certified as required.

12.0 SCHEDULE

A planning schedule for design and construction of the cleanup action has been developed as part of the EDR and to meet the requirements of MTCA Site Cleanup and Monitoring (WAC 173-340-400(4)(a)(vi)). This schedule lists the remaining remedial design and construction activities that are planned to be implemented for the cleanup action.

Cleanup action-related construction work is scheduled to begin in summer of 2023. The construction duration is estimated to occur over a period of four to six weeks. A high-level overview of the cleanup action schedule is listed below.

- Engineering Design Report – November 2022
- Plans, Specifications and Engineers Estimate – January to February 2023
- Coordination with City of Anacortes on Applicable Regulatory Requirements – December 2022 to January 2023
- Bidding and Pre-Construction – March to May 2023
- Construction – June to August 2023
- Project Closeout and Reporting – August 2023 to January 2024

13.0 REPORTING

Upon completion of cleanup action construction work, a construction completion report will be prepared with details of construction activities, as-built information, surveys, other record drawings, and supporting documentation for Ecology review and approval. Groundwater monitoring reports will be prepared to document results of post-construction groundwater monitoring that will be completed after the cleanup action construction as described in the CMP/QAPP (Appendix C). Engineering and Institutional Controls Monitoring and Maintenance Plan (EICMMP) will be prepared following the completion of cleanup construction as described in Section 10.0. Reports documenting post-construction cap inspections activities will be submitted at a frequency to be described in the EICMMP and as determined with Ecology.

14.0 REFERENCES

Anchor Environmental, L.L.C. (Anchor) 2004. "Sampling and Analysis Data Report, Supplemental Sediment Characterization, Dakota Creek Industries Shipyard Facility/Pier 1 Redevelopment Area, Anacortes, Washington," prepared for Seattle District, US Army Corps of Engineers, dated October 2004.

Ecology (Washington State Department of Ecology). 2022. Cleanup Action Plan, Dakota Creek Industries, Anacortes, Washington, Facility Site ID: 2670, Cleanup Site ID: 5147, dated February 2022.

GeoEngineers Inc. (GeoEngineers) 2010a. "Interim Action Report, Dakota Creek Industries, Ecology Agreed Order No. DE-07TCPHQ-5080," prepared for the Port of Anacortes, GEI File No. 5147-006-06, dated October 6, 2010.

GeoEngineers Inc. (GeoEngineers). 2010b. Remedial Investigation Data Report, Dakota Creek Industries, Anacortes, Washington. Prepared for the Port of Anacortes. October 11.

GeoEngineers Inc. (GeoEngineers).10. Email Correspondence RE: Dakota Creek Site: status check meeting and document request & status check/site visit meeting 3/5/2014 February 21.

GeoEngineers Inc. (GeoEngineers). 2015. Email Correspondence RE: Dakota Creek Shipyard Cleanup April 10.

GeoEngineers Inc. (GeoEngineers). 2018. Groundwater Monitoring Report, Dakota Creek Industries, Anacortes, Washington, Ecology Agreed Order No. DE-07TCPHQ-5080. Prepared for the Washington State Department of Ecology on Behalf of Port of Anacortes. August 6.

GeoEngineers Inc. (GeoEngineers). 2022a. Remedial Investigation/Feasibility Study Report, Dakota Creek Industries, Anacortes, Washington, Ecology Agreed Order No. DE-07TCPHQ-5080. Prepared for the Washington State Department of Ecology on Behalf of Port of Anacortes. April 27.

GeoEngineers Inc. (GeoEngineers). 2022b. Supplemental Soil Investigation Data Report, Dakota Creek Industries, Anacortes, Washington, Ecology Agreed Order No. DE-07TCPHQ-5080. Prepared for the Washington State Department of Ecology on Behalf of Port of Anacortes. June 3.

Floyd|Snider (2007). "Dakota Creek Industries Shipyard Facility, Sediment Sampling Data Report," prepared for Port of Anacortes, dated January 3, 2007.

Floyd|Snider (2006). "Dakota Creek Industries Shipyard Facility, Groundwater Sampling Results," prepared for Port of Anacortes, dated December 13, 2006.

Landau Associates (Landau) 2002. "Remedial Investigation/Feasibility Study, Dakota Creek Industries, Inc. Anacortes, Washington," prepared for Port of Anacortes, dated March 20, 2002.

Otten Engineering (Otten) 1997. "Phase 2 Environmental Assessment, Dakota Creek Industries Site and Former Wastewater Treatment Plant Site, Port of Anacortes, Anacortes, Washington," prepared for Port of Anacortes, dated October 1, 1997.

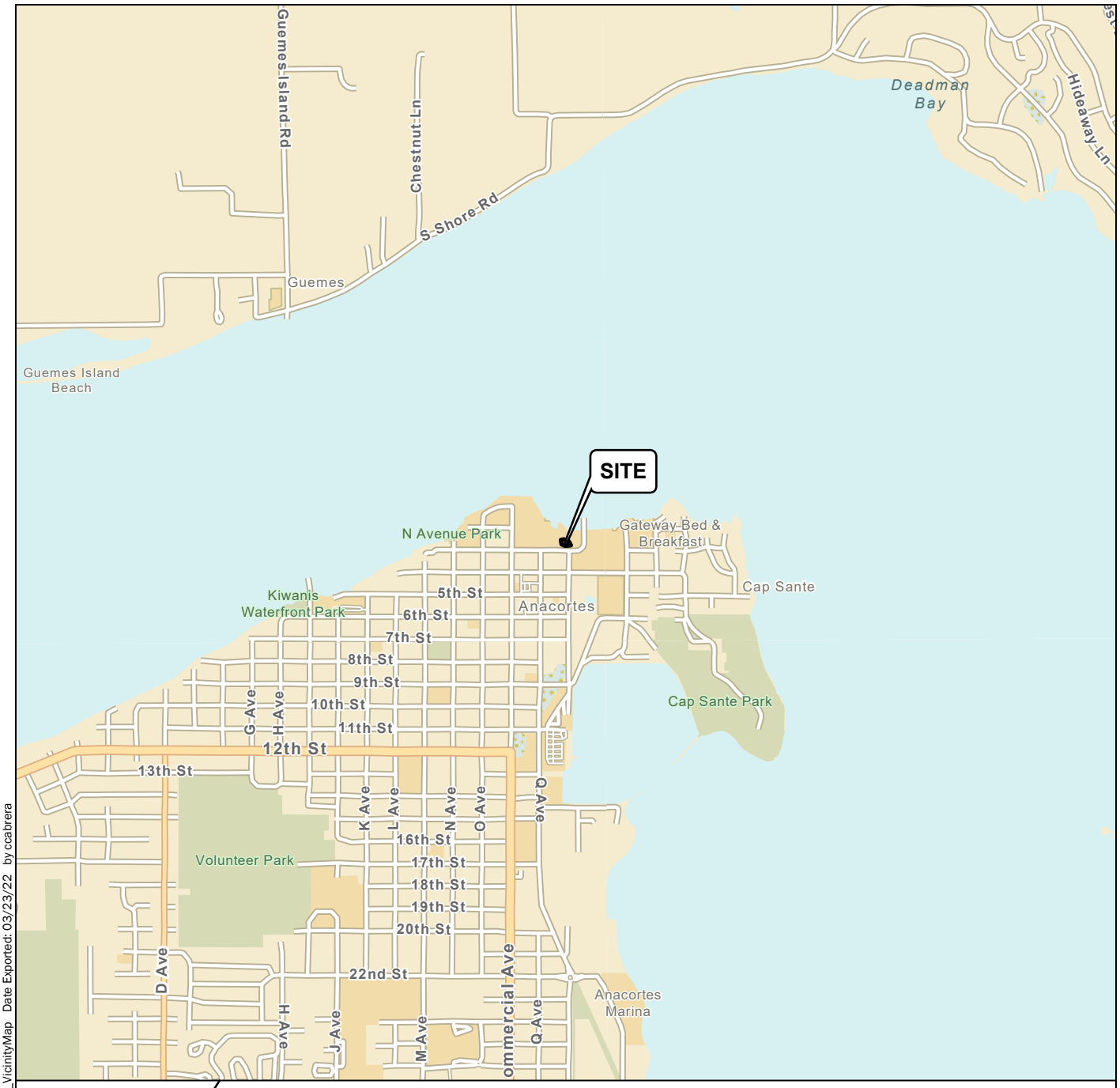
Science Application International Corporation (SAIC), 2008. "Fidalgo Bay Sediment Investigation Data Report, Anacortes, Washington," prepared for the Washington State Department of Ecology, dated March 14, 2008.

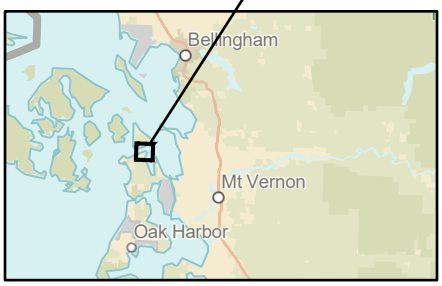
Weston 2001. "Dakota Creek Industries Shipyard Site Inspection Final Sampling and Quality Assurance Plan," prepared for the U.S. Environmental Protection Agency, Contract No. 68-S0-01-02, dated June 2001.

15.0 LIMITATIONS

We have prepared this report for the Dakota Creek Industries Site located at 115 Q Avenue in Anacortes, Washington for use by the Port of Anacortes. Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

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





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Notes:

1. The locations of all features shown are approximate.
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Data Source: ESRI

Projection: NAD 1983 UTM Zone 10N

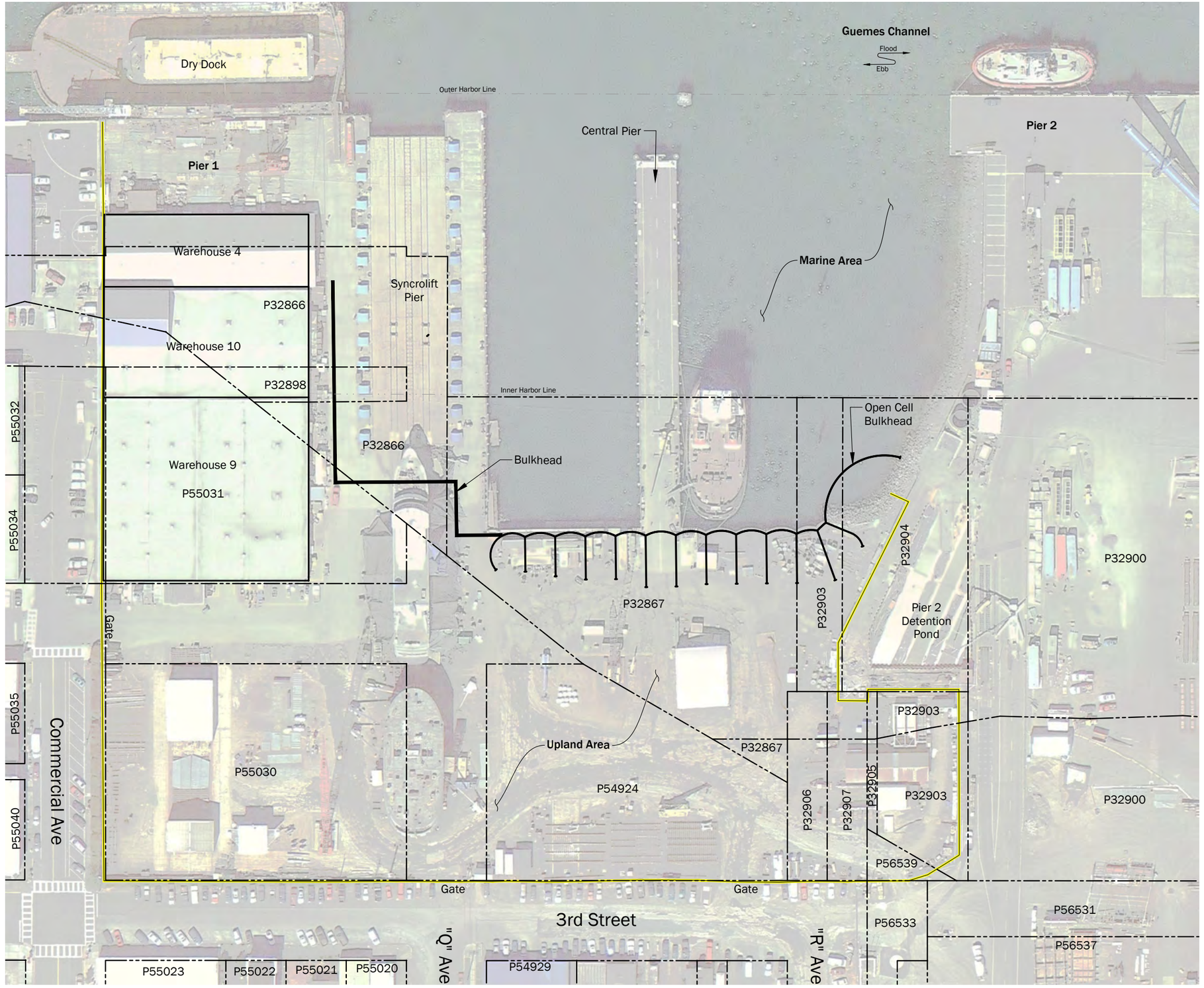
Vicinity Map

Port of Anacortes - Dakota Creek Industries
Anacortes, Washington

GeoEngineers

Figure 1

P:\5\5147006\GIS\5147006_Project\5147006_Project.aprx\5147006616_F01_VicinityMap Date Exported: 03/23/22 by ccabrera



P:\5\5147006\CAD\16\Engineering Design Report\5147006I6_F02_Parcel Map.dwg TAB:F02 Date Exported: 04/12/22 - 21:54 by hmara

Legend

- Dakota Creek Industries (DCI) Lease Area
- P32904 — Parcel Boundary and Number

Notes:

1. The locations of all features shown are approximate.
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Data Source: Aerial from Google Earth Pro dated 8/2011.

Projection: WA State Plane, North Zone, NAD83, US Foot

N
W E
S

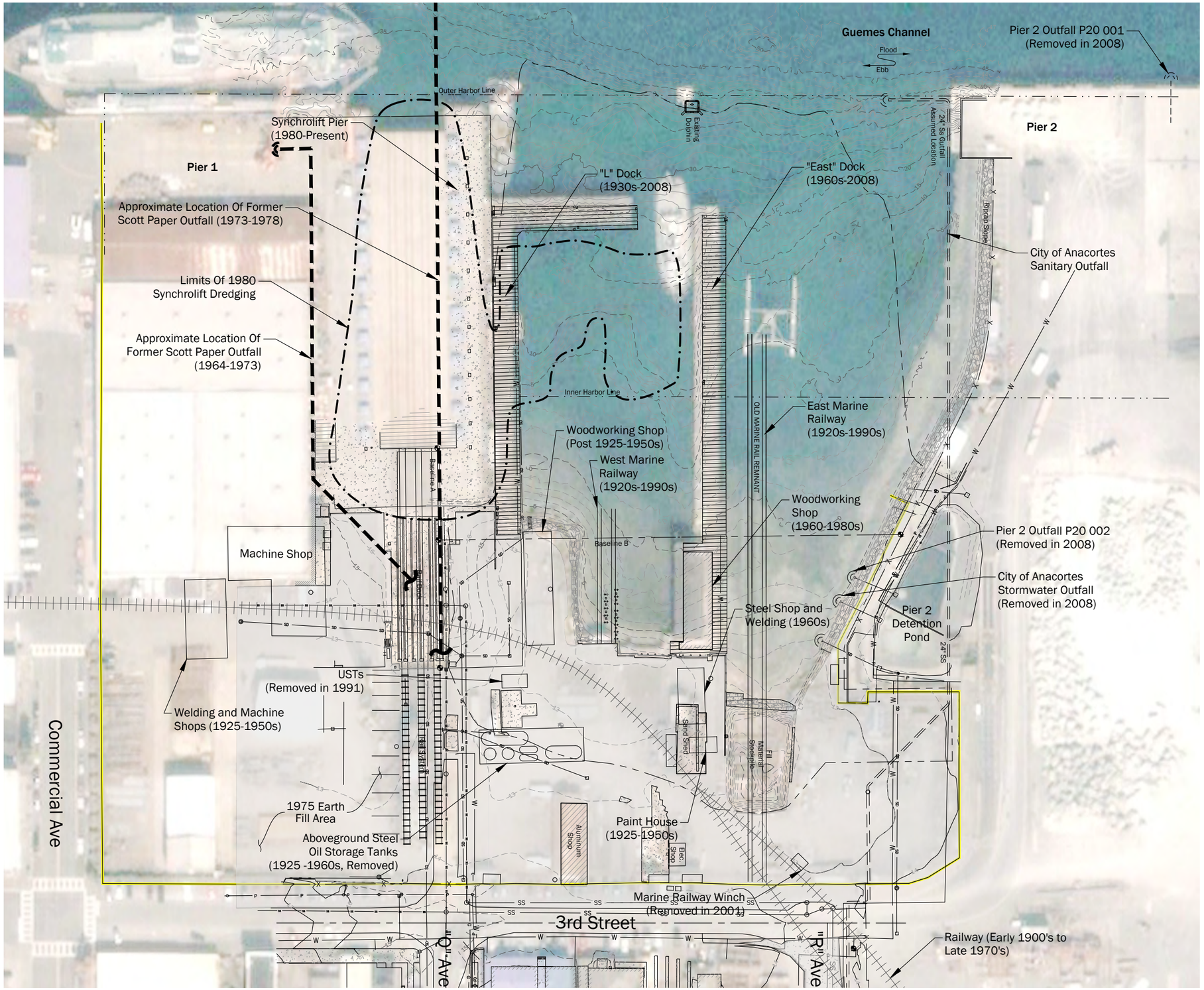
100 0 100
Feet

Parcel Map

Dakota Creek Industries
Anacortes, Washington

GeoEngineers

Figure 2



Legend

- Dakota Creek Industries (DCI) Lease Area
- Existing Fence
- Catch Basin
- Sewer Manhole
- Storm Manhole
- Gravel
- Concrete
- Rip Rap
- Approximate Synchrolift Dredge Limits
- Elevation Contour
- Approximate Footprint of Historical Structures - Labels Indicate Function and Time Period in Existence.
- Sanitary Sewer

Notes:

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Data Source: AutoCAD drawing entitled "Existing Conditions and Project Control", file name 064065.01-1.14.dwg, by PND Engineers, Inc., dated September 2007.
Aerial from Google Earth Pro dated 9/6/2006.

Projection:
Horizontal Datum: WA State Plane, North Zone, NAD83, US Foot
Vertical Datum: Mean Low Low Water (MLLW)

N
W E
S

100 0 100
Feet

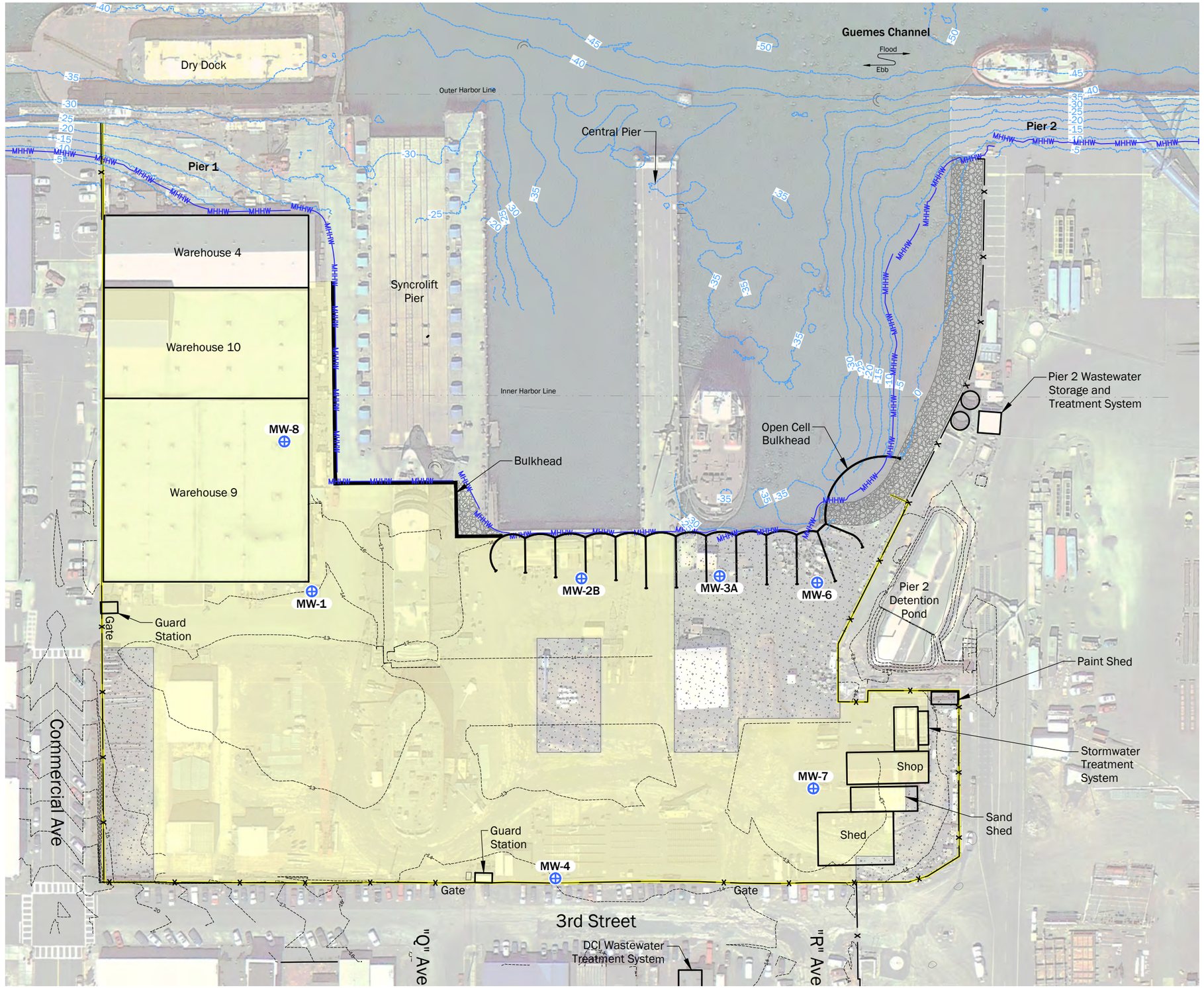
Historical Property Layout and Features

Dakota Creek Industries
Anacortes, Washington

GeoEngineers

Figure 3

P:\5\5147006\CAD\16\Engineering Design Report\5147006I6_F03_Historical Property Layout.dwg TAB:F03 Date Exported: 04/14/22 - 11:21 by hmara



Legend

- Dakota Creek Industries (DCI) Lease Area
- Existing Fence
- Outfall
- Gravel
- Concrete/Asphalt Pavement or Asphalt for Building
- Rip Rap
- Topographic Contour
- Bathymetric Contour
- Mean Higher High Water (MHHW)
- MW-1 Existing Monitoring Well Location

Notes:

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Data Source: Aerial from Google Earth Pro dated 8/2011.
Projection:
Horizontal Datum: WA State Plane, North Zone, NAD83, US Foot
Vertical Datum: Mean Low Low Water (MLLW)

N W E S

100 0 100
Feet

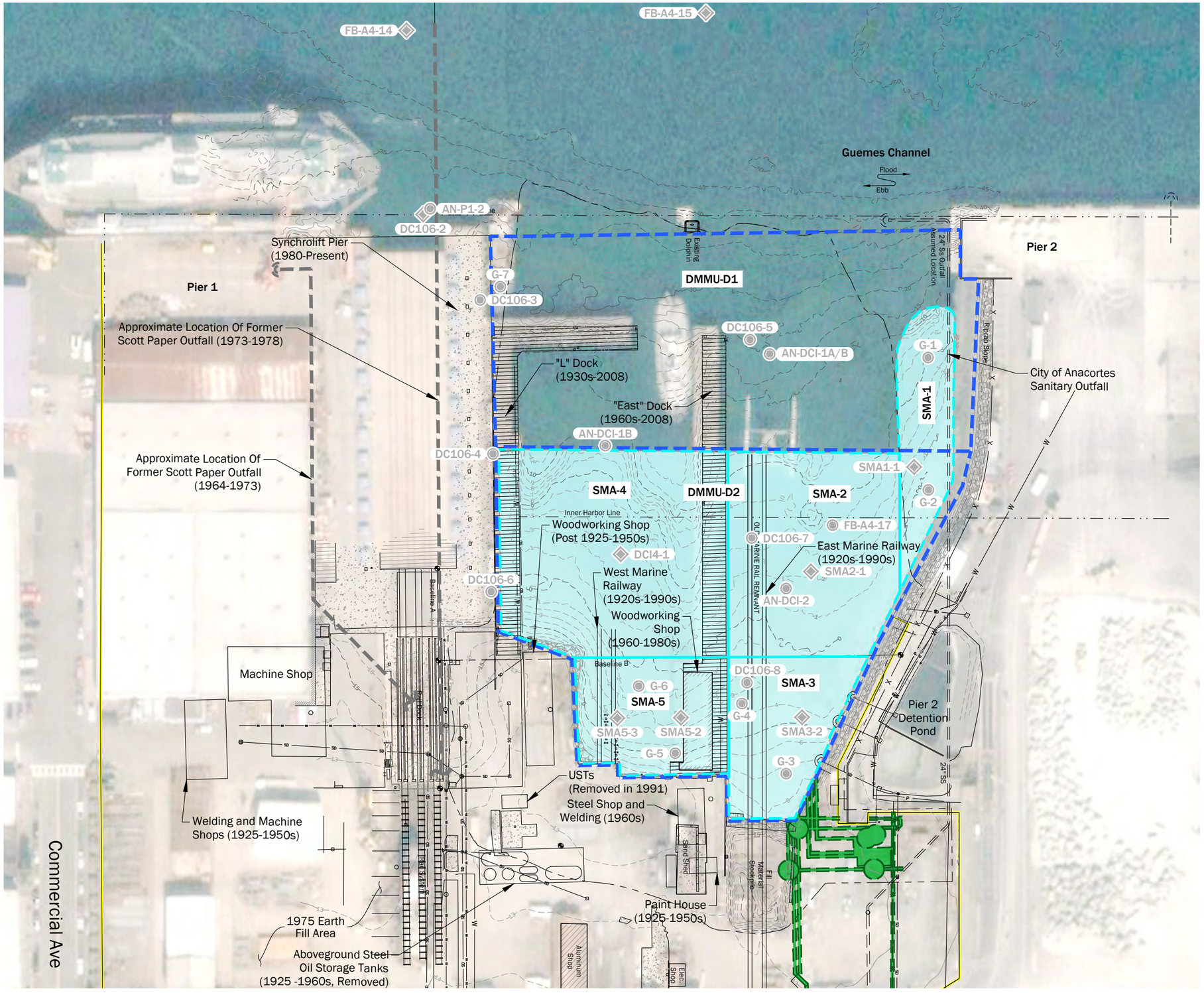
Current Property Layout and Features

Dakota Creek Industries
Anacortes, Washington

GeoEngineers

Figure 4

P:\5\5147006\CAD\16\Engineering Design Report\5147006616_F04_Current Property Layout.dwg TAB:F04 Date Exported: 04/12/22 - 22:10 by hmara



Legend

- Dakota Creek Industries (DCI) Lease Area
- Marine Area Dredge Boundary (GeoEngineers 2008)
- Marine Area Interim Action Boundary
- Upland Area Interim Action Boundary
- Sediment Sample Location Representing Sediment Conditions Prior To Interim Action
- Sediment Sample Location Representing Sediment Conditions Post Interim Action

Notes:

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

Data Source: AutoCAD drawing entitled "Existing Conditions and Project Control", file name 064065.01-1.14.dwg, by PND Engineers, Inc., dated September 2007.
Aerial from Google Earth Pro dated 9/6/2006.

Projection: WA State Plane, North Zone, NAD83, US Foot

N
W
E
S

100 0 100
Feet

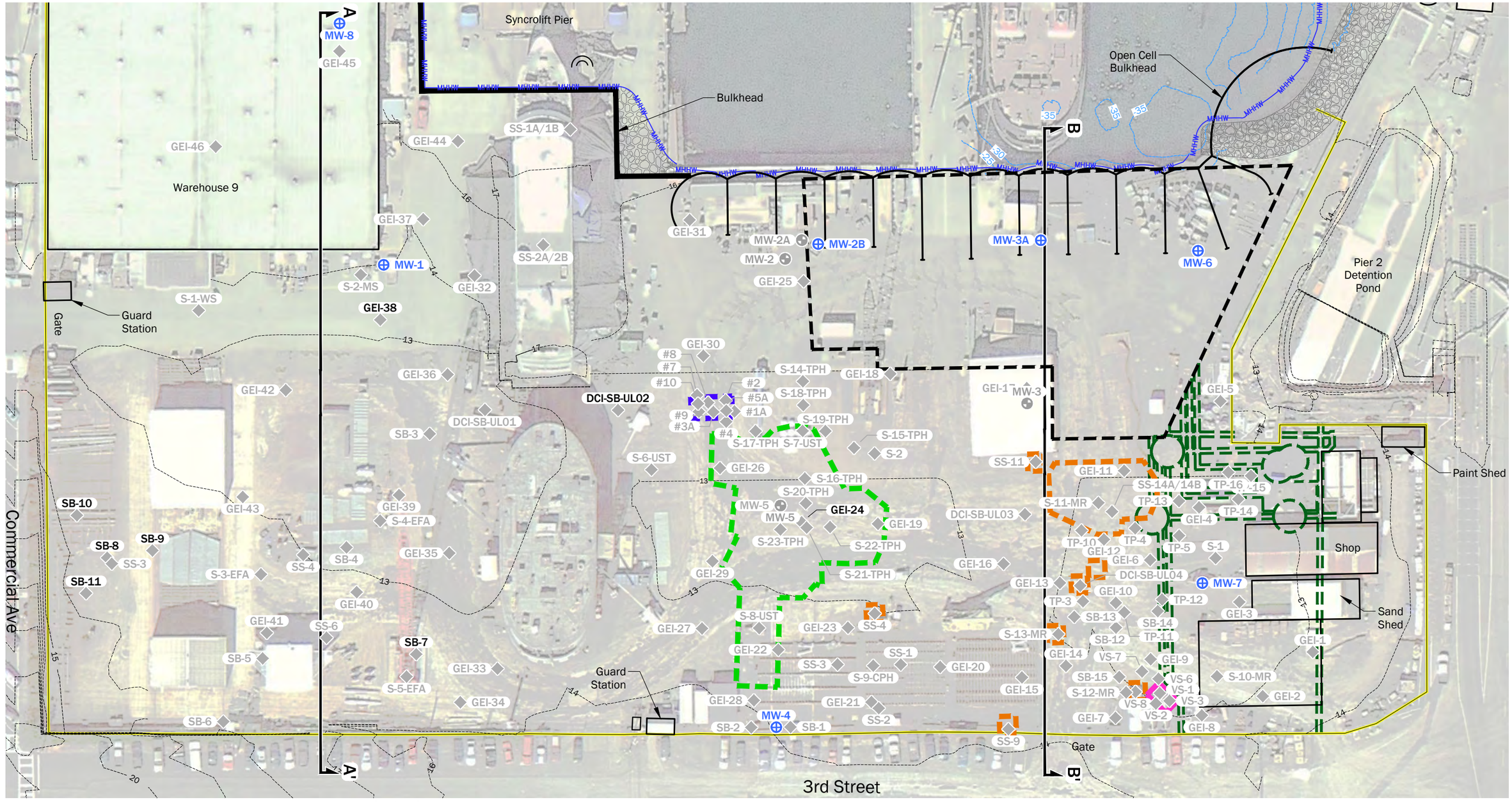
Marine Area Sediment Sampling Locations and Interim Action Area

Dakota Creek Industries
Anacortes, Washington

GeoEngineers

Figure 5

P:\5\5147006\CAD\16\Engineering Design Report\5147006616_F05_GEI Sediment Locations and Interim Action Area.dwg TAB:F05 Date Exported: 04/14/22 - 11:21 by hmara



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Data Source: Aerial from Google Earth Pro dated 8/2011.

Projection: WA State Plane, North Zone, NAD83, US Foot

Legend

- Dakota Creek Industries (DCI) Lease Area
- 1991 Cleanup Action Area
- 2001 Marine Railway Winch Cleanup Action Area
- 2002 Petroleum Cleanup Action Area
- 2002 Marine Railway Cleanup Action Area
- 2008 Upland Area Interim Action Area
- 2008 Marine Area Interim Action Area

- Soil Sampling Location
- MW-1 Monitoring Well Location (Active)
- MW-2A Monitoring Well Location (Abandoned)
- A A' Cross Section Location (See Figure 7)

N W E S

60 0 60
Feet

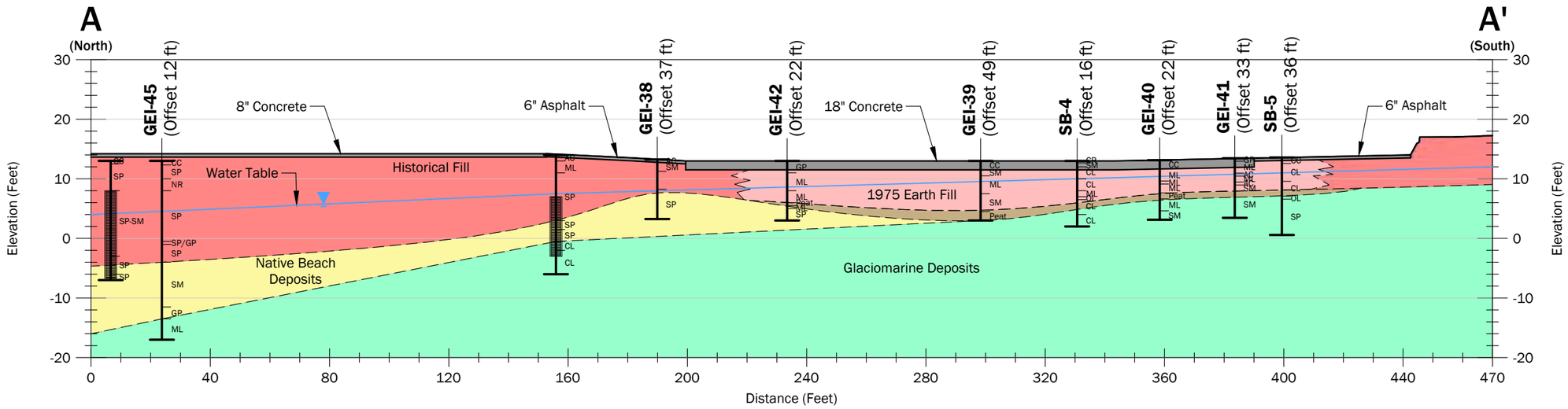
Upland Area Soil and Groundwater Sampling Locations and Cleanup Action Areas

Dakota Creek Industries
Anacortes, Washington

GeoEngineers

Figure 6

P:\5\5147006\CAD\16\Engineering Design Report\5147006I6_F06-F07_Soil and GW Locations and Upland Sections.dwg TAB:F06 Date Exported: 04/14/22 - 11:20 by hmara



Notes:

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2. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

Datum: NAVD 88, unless otherwise noted.

GEI-45 (Offset 12 ft)

SM

Legend

- Boring
- Inferred Soil Contact
- Soil Classification
- Well Screen

- Recent Fill (Imported Sand and Gravel)
- Historical Fill (Layered Sand and Silt/Clay with Occasional Wood, Brick and Concrete Debris)
- 1975 Earth Fill (Layered silt and clay with Variable Sand and Gravel Content)
- Native Saltmarsh Deposits (Organic Silt)
- Native Beach Deposits (Poorly Sorted Sand with Occasional Gravel)
- Glaciomarine Deposits (Glacially Consolidated Very Dense Sand and Hard Silt)

40 0 40
Horizontal Scale in Feet

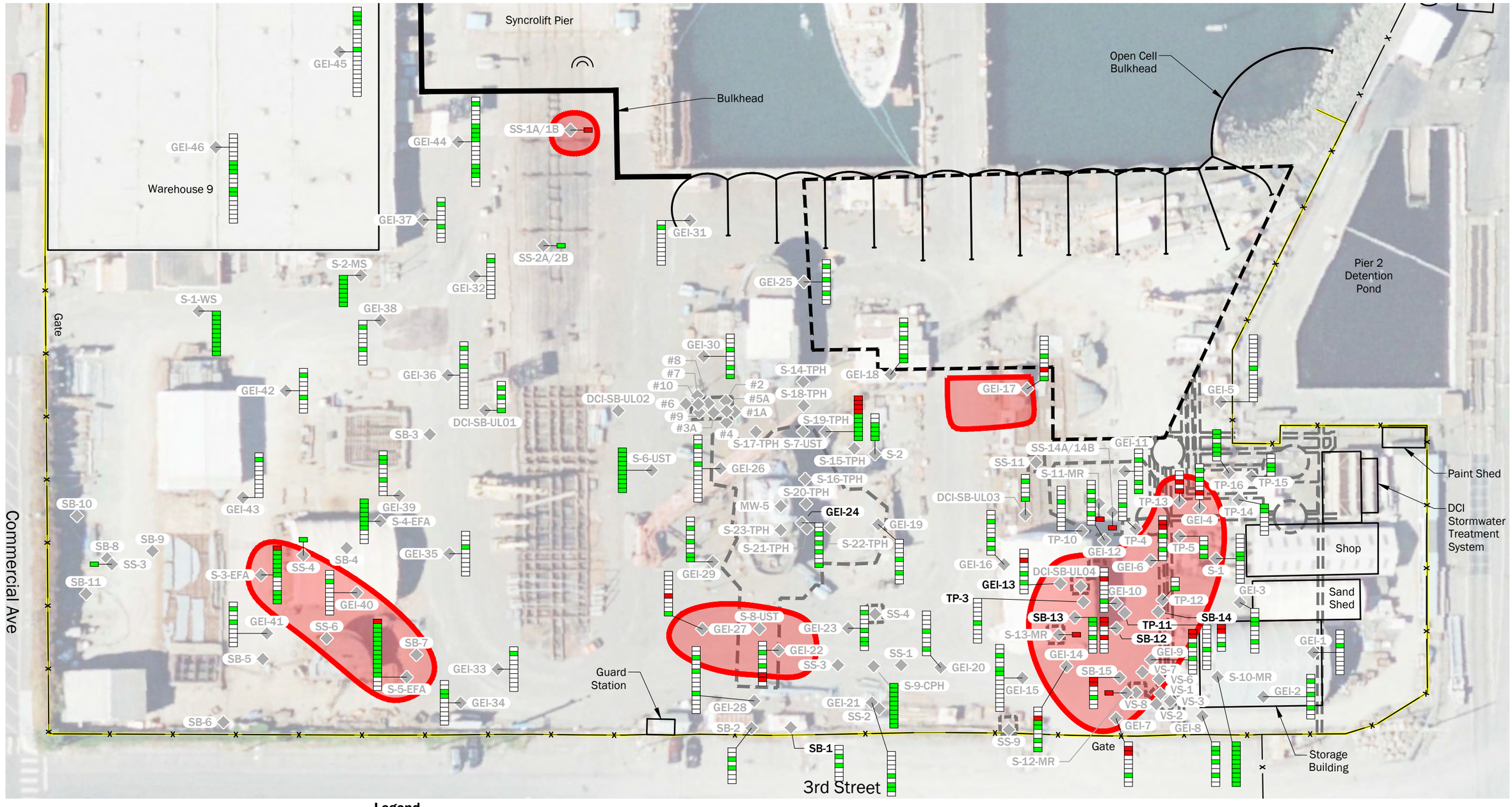
20 0 20
Vertical Scale in Feet
Vertical Exaggeration: 2X

Upland Area Cross Sections

Dakota Creek Industries
Anacortes, Washington

GeoEngineers

Figure 7



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Data Source: Aerial from Microsoft Bing Images.

Projection: WA State Plane, North Zone, NAD83, US Foot

Legend

- Dakota Creek Industries (DCI) Lease Area
- Previous Marine Area Dredge and Backfill Area (See Figure 5)
- Previous Upland Soil Excavation and Backfill Area (See Figure 6)
- Soil Sampling Location
- Soil Boring - Each Box Represents a 1-Foot Sample Interval
- No Soil Data
- Result Less Than Cleanup Level
- Result Exceeds Cleanup Level
- Approximate Extent of Soil Cleanup Level Exceedance

bgs = below ground surface

N W E S

60 0 60
Feet

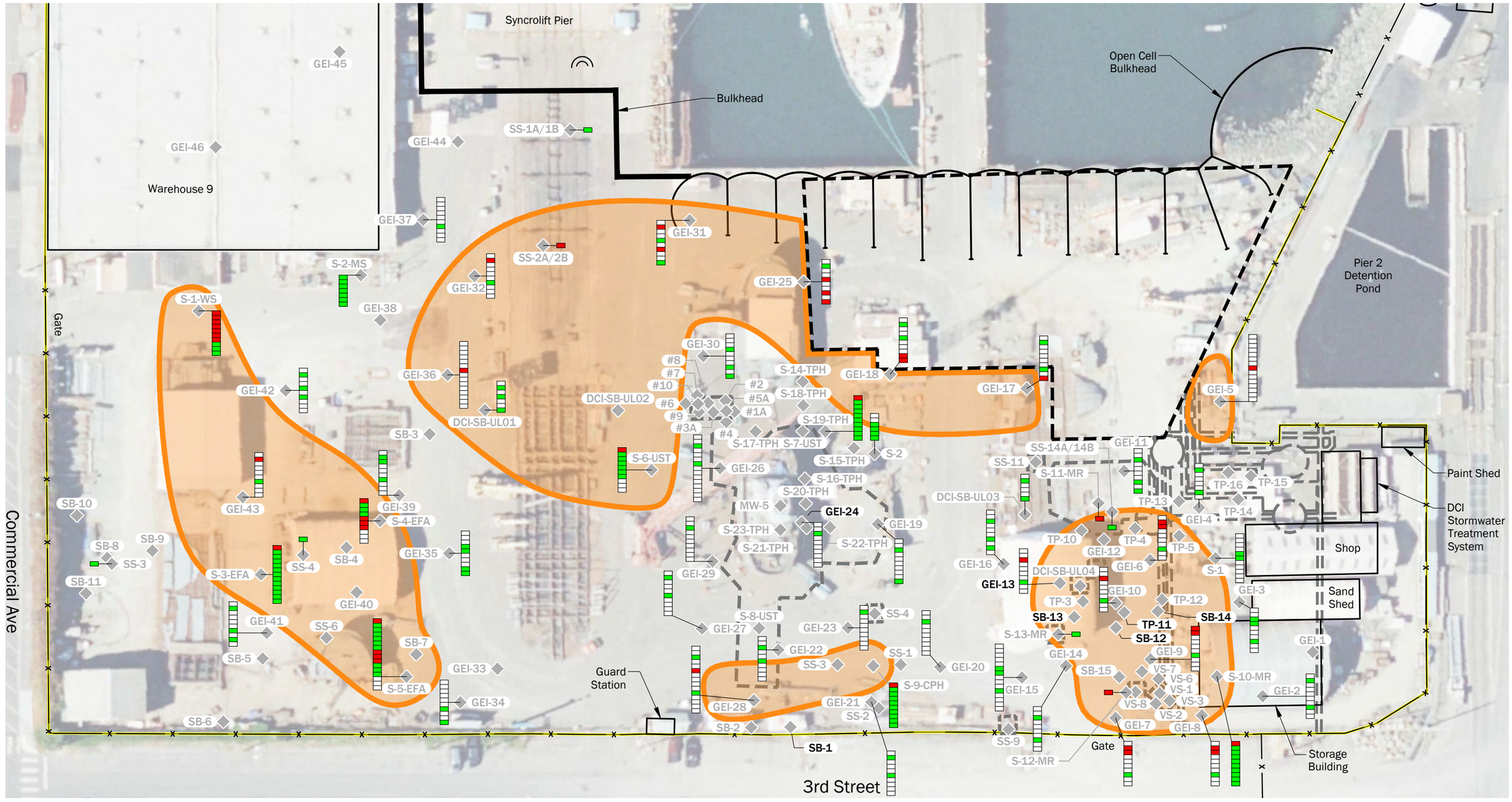
Extent of Arsenic Contamination in Soil

Dakota Creek Industries
Anacortes, Washington

GeoEngineers

Figure 8

P:\5\5147006\CAD\16\Engineering Design Report\5147006616_F08_Extent of Arsenic Contamination.dwg TAB:F23 Date Exported: 04/14/22 - 11:20 by hmara



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Data Source: Aerial from Microsoft Bing Images.

Projection: WA State Plane, North Zone, NAD83, US Foot

Legend

- Dakota Creek Industries (DCI) Lease Area
- Previous Marine Area Dredge and Backfill Area (See Figure 5)
- Previous Upland Soil Excavation and Backfill Area (See Figure 6)
- Soil Sampling Location
- Soil Boring - Each Box Represents a 1-Foot Sample Interval
- No Soil Data
- Result Less Than Cleanup Level
- Result Exceeds Cleanup Level
- Approximate Extent of Soil Cleanup Level Exceedance

bgs = below ground surface

N W E S

60 0 60
Feet

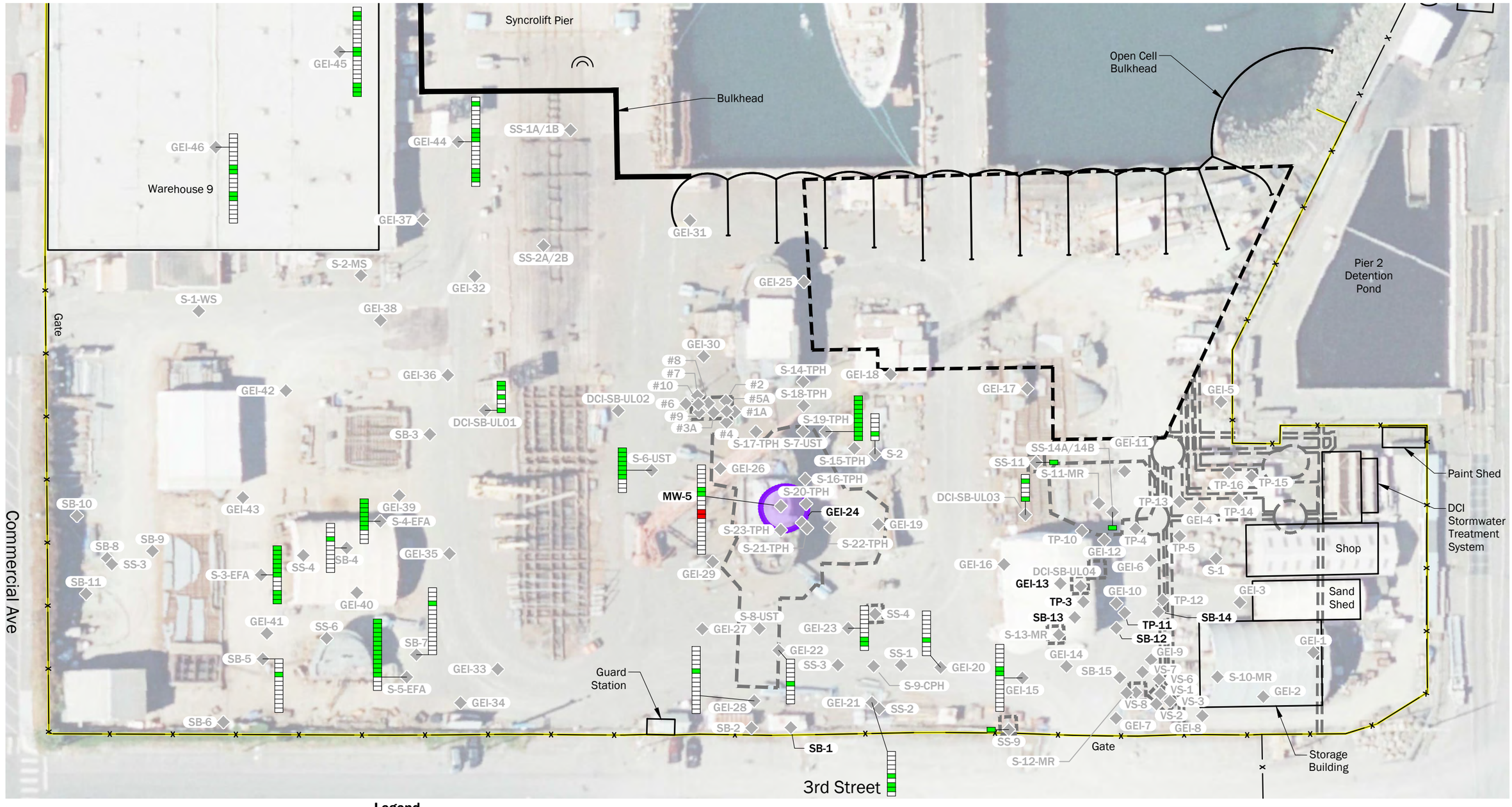
Extent of Nickel Contamination in Soil

Dakota Creek Industries
Anacortes, Washington

GeoEngineers

Figure 9

P:\5\5147006\CAD\16\Engineering Design Report\5147006616_F09_Extent of Nickel Contamination.dwg TAB:F09 Date Exported: 04/14/22 - 11:22 by hmara



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Data Source: Aerial from Microsoft Bing Images.

Projection: WA State Plane, North Zone, NAD83, US Foot

Legend

- Dakota Creek Industries (DCI) Lease Area
- Previous Marine Area Dredge and Backfill Area (See Figure 5)
- Previous Upland Soil Excavation and Backfill Area (See Figure 6)
- Soil Sampling Location
- Soil Boring - Each Box Represents a 1-Foot Sample Interval
- No Soil Data
- Result Less Than Cleanup Level
- Result Exceeds Cleanup Level
- Approximate Extent of Soil Cleanup Level Exceedance

bgs = below ground surface

N W E S

60 0 60
Feet

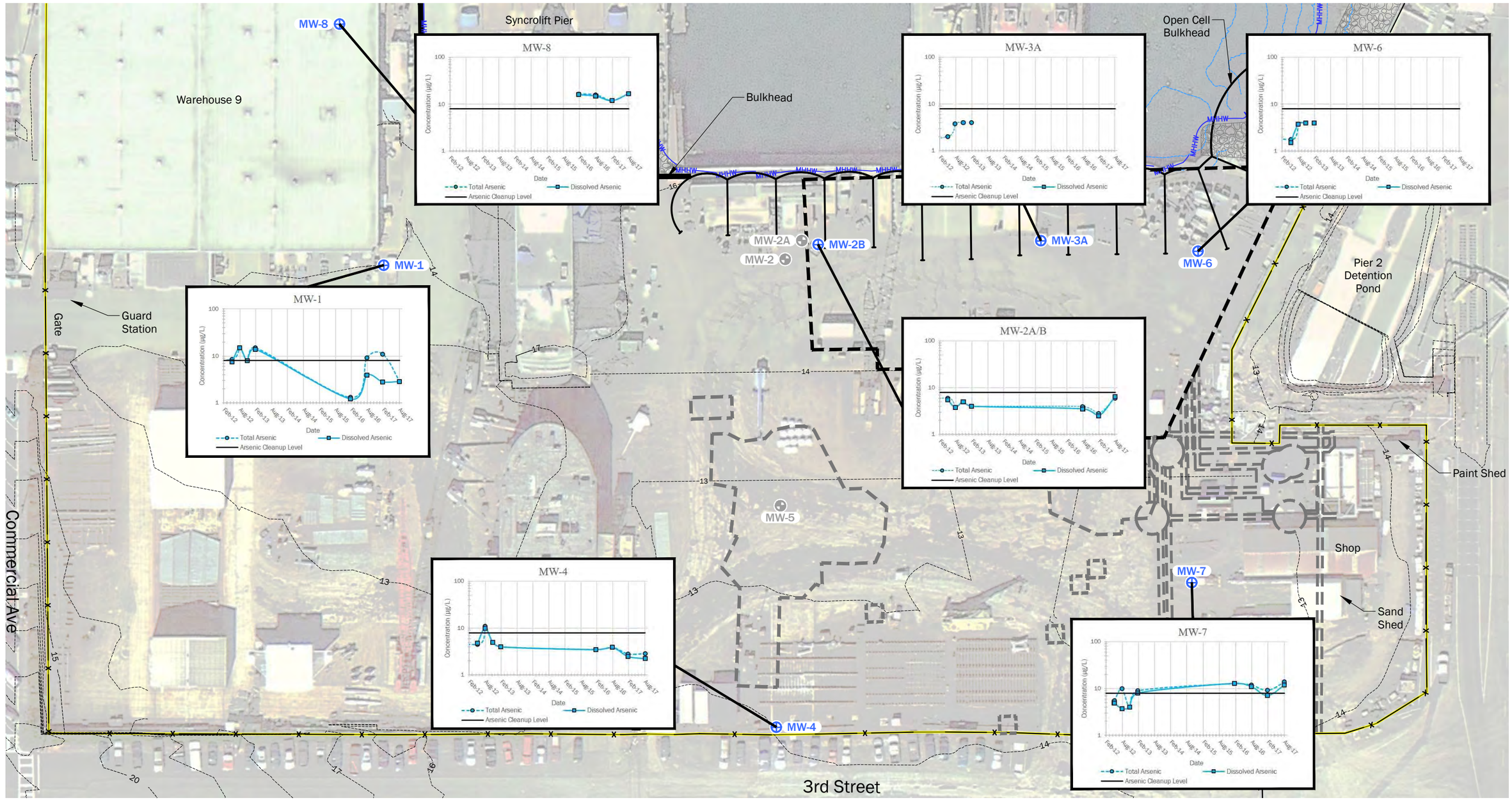
Extent of PAHs Contamination in Soil

Dakota Creek Industries
Anacortes, Washington

GeoEngineers

Figure 10

P:\5\5147006\CAD\16\Engineering Design Report\5147006l6_F10_Extent of PAHs Contamination.dwg TAB:F10 Date Exported: 04/14/22 - 11:26 by hmara



Notes:

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

Data Source: Aerial from Google Earth Pro dated 8/2011.

Projection:
Horizontal Datum: WA State Plane, North Zone, NAD83, US Foot
Vertical Datum: Mean Low Low Water (MLLW)

Legend

- Dakota Creek Industries (DCI) Lease Area
- Previous Marine Area Dredge and Backfill Area (See Figure 5)
- Previous Upland Soil Excavation and Backfill Area (See Figure 6)
- MW-1 — Monitoring Well Location (Active)
- MW-2A — Monitoring Well Location (Abandoned)

N W E S

60 0 60
Feet

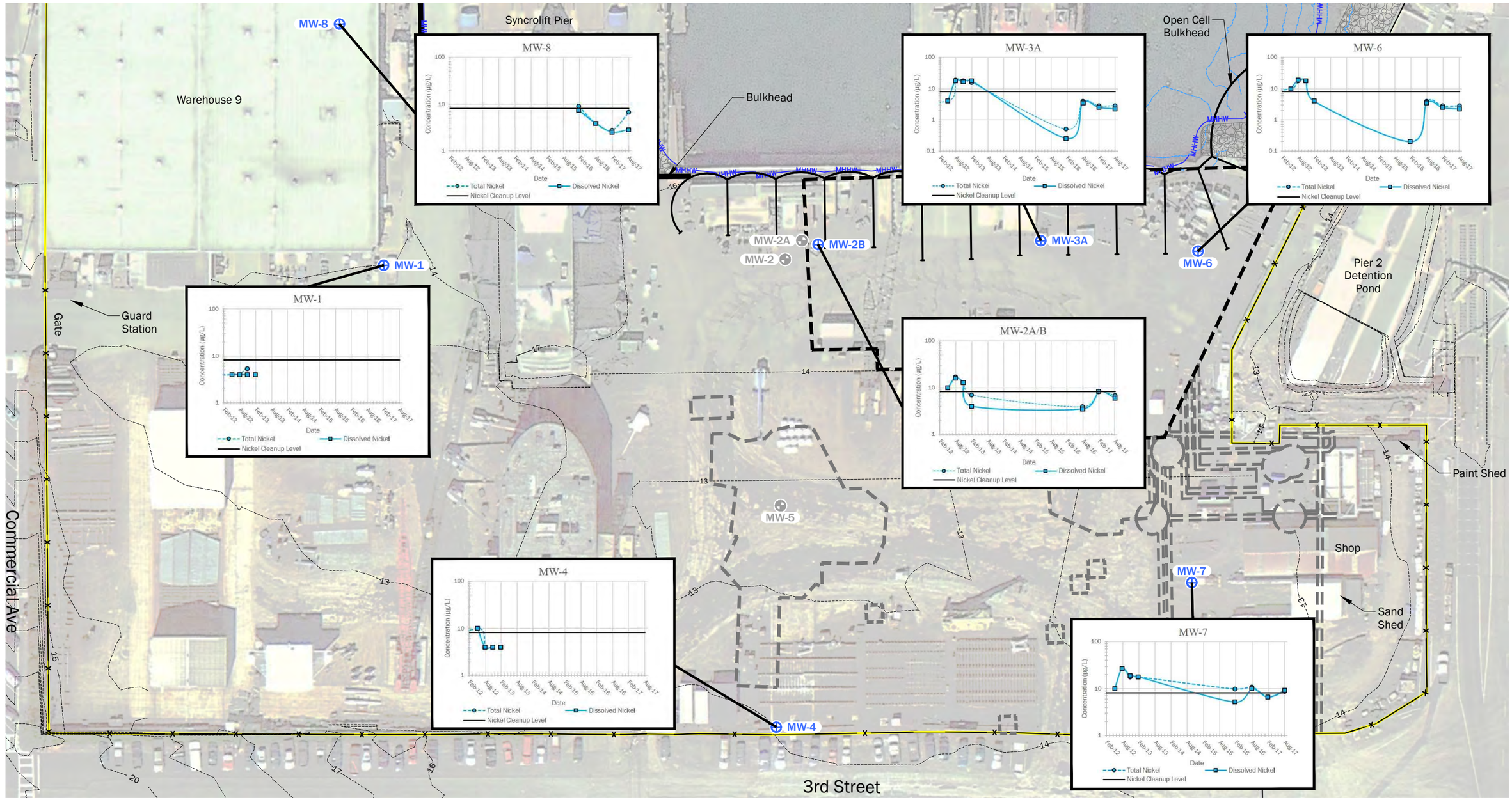
Summary of Groundwater Arsenic Results

Dakota Creek Industries
Anacortes, Washington

GeoEngineers

Figure 11

P:\5\5147006\CAD\16\Engineering Design Report\5147006616_F11_Summary of Arsenic in GW.dwg TAB:F11 Date Exported: 04/14/22 - 11:26 by hmara



Notes:

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Data Source: Aerial from Google Earth Pro dated 8/2011.

Projection:
Horizontal Datum: WA State Plane, North Zone, NAD83, US Foot
Vertical Datum: Mean Low Low Water (MLLW)

Legend

- Dakota Creek Industries (DCI) Lease Area
- Previous Marine Area Dredge and Backfill Area (See Figure 5)
- Previous Upland Soil Excavation and Backfill Area (See Figure 6)
- MW-1 Monitoring Well Location (Active)
- MW-2A Monitoring Well Location (Abandoned)

N W E S

60 0 60
Feet

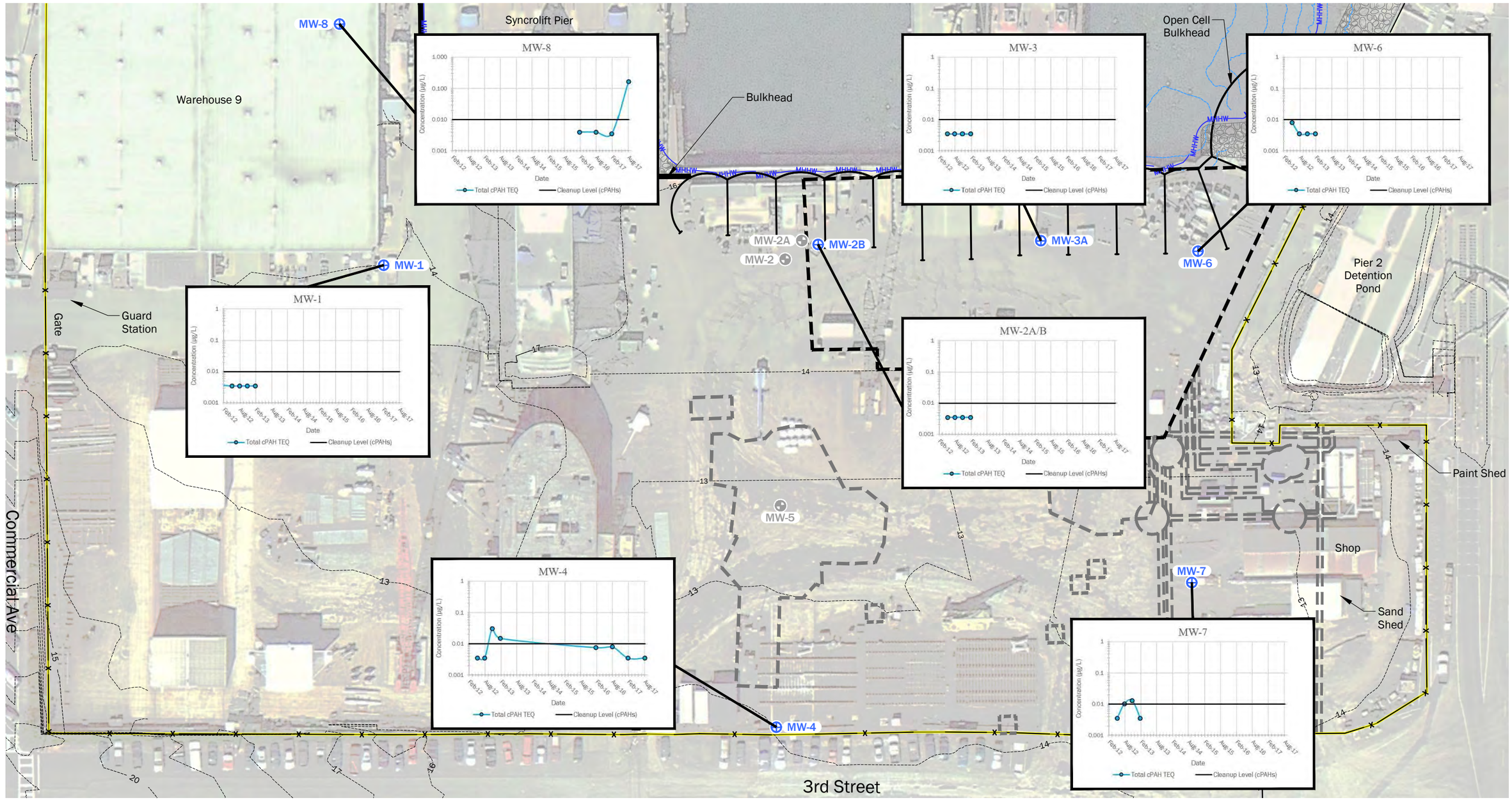
Summary of Groundwater Nickel Results

Dakota Creek Industries
Anacortes, Washington

GeoEngineers

Figure 12

P:\514706\CAD\16\Engineering Design Report\514706616_F12_Summary of Nickel in GW.dwg TAB:F12 Date Exported: 04/14/22 - 11:25 by hmara



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Data Source: Aerial from Google Earth Pro dated 8/2011.

Projection:
Horizontal Datum: WA State Plane, North Zone, NAD83, US Foot
Vertical Datum: Mean Low Low Water (MLLW)

Legend

- Dakota Creek Industries (DCI) Lease Area
- Previous Marine Area Dredge and Backfill Area (See Figure 5)
- Previous Upland Soil Excavation and Backfill Area (See Figure 6)
- MW-1 — Monitoring Well Location (Active)
- MW-2A — Monitoring Well Location (Abandoned)

N W E S

60 0 60
Feet

Summary of Groundwater Total cPAH TEQ Results

Dakota Creek Industries
Anacortes, Washington

GeoEngineers

Figure 13

P:\5\5147006\CAD\16\Engineering Design Report\5147006616_F13_Summary of CPAHs in GW.dwg TAB:F13 Date Exported: 04/14/22 - 11:26 by hmara

Notes:

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

Data Source: Aerial from Google Earth Pro dated 8/2011.

Projection: WA State Plane, North Zone, NAD83, US Foot

MW-8

Syncrolift Pier

Containment: Maintain Existing Sheet Pile Wall to Restrict Flow and Discharge of Groundwater to Surface Water

Open Cell Bulkhead

Groundwater Monitoring: Monitor Groundwater Conditions at Each Well Location Over Time to Evaluate Compliance with Cleanup Standards and Natural Attenuation

MW-1

MW-2B

MW-3A

MW-6

Pier 2 Detention Pond

Gate

Guard Station

Containment: Maintain Existing Pavement Cover to Prevent Direct Exposure, Stormwater Infiltration and Contaminant Leaching/Migration

Removal: Perform Remedial Excavation to Remove Contaminants Using Standard Earthwork Equipment Followed by Site Restoration

Paint Shed

Shop

MW-7

Sand Shed

Commercial Ave

Guard Station

MW-4

Institutional Control: Maintain Existing Fencing and Security Procedures to Restrict Public Access

Gate

Institutional Control: Install Warning Signs to Notify Workers of Potential Heath Risks of Site Contaminants Remaining In Place

3rd Street

Legend

- Dakota Creek Industries (DCI) Lease Area
- Previous Marine Area Dredge and Backfill Area (See Figure 5)
- Previous Upland Soil Excavation and Backfill Area (See Figure 6)
- Existing Bulkhead
- Existing Fence
- Existing Asphalt/Concrete Pavement
- Area in Which Metals (Arsenic and/or Nickel) in Soil Exceed The Preliminary Cleanup Level
- Area in Which Total cPAH TEQ in Soil Exceed The Preliminary Cleanup Level
- Approximate Soil Removal Area [Area in Which Metals (Arsenic and/or Nickel) Exceed Three Times the Soil Cleanup Level]
- MW-1 Proposed Compliance Groundwater Monitoring Well Location

cPAHs = carcinogenic aromatic hydrocarbons

TEQ = toxic equivalency

N W E S

60 0 60

Feet

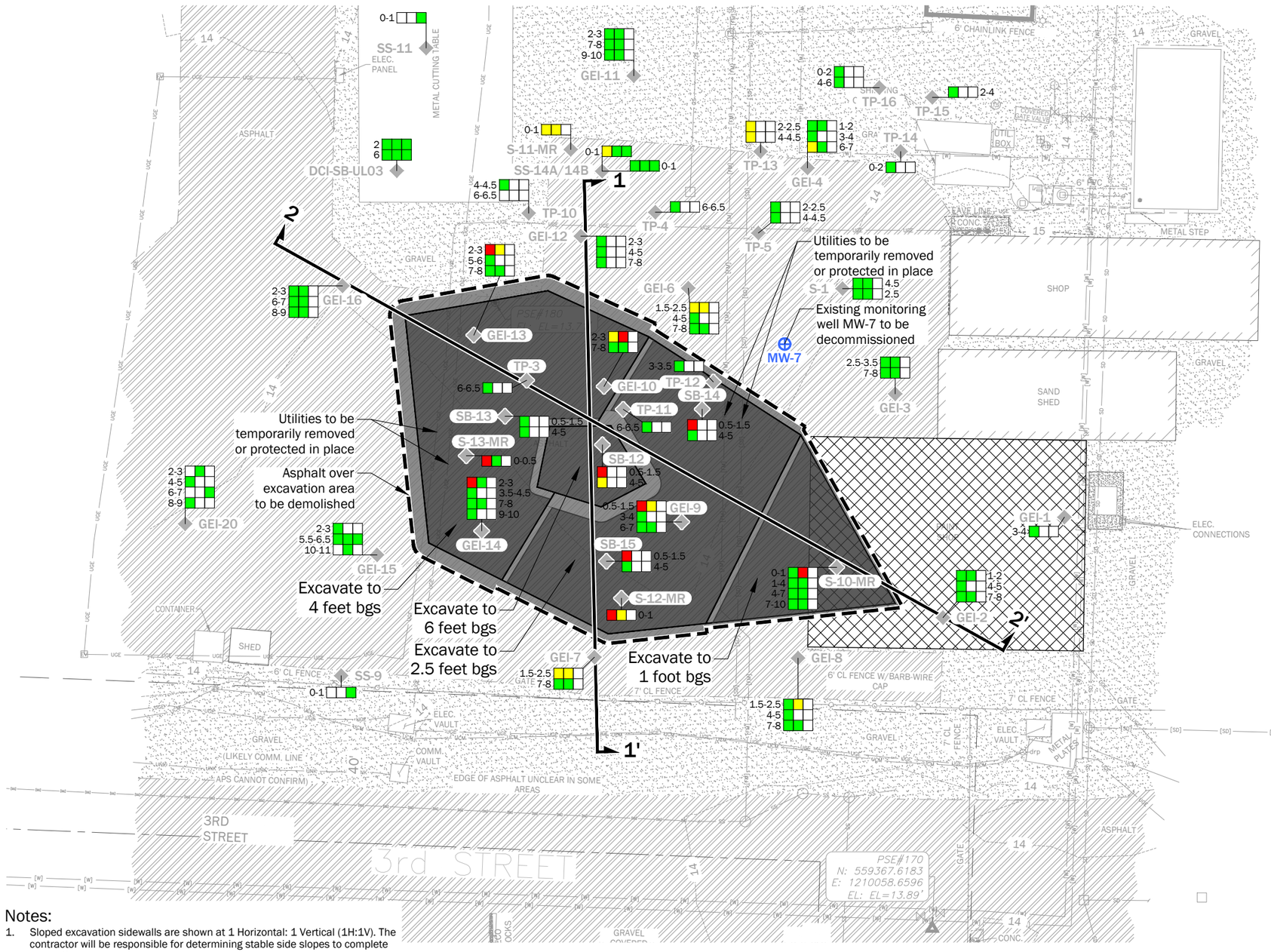
Overview of Cleanup Action

Dakota Creek Industries
Anacortes, Washington

GeoEngineers

Figure 14

P:\51\51470\06\CAD\16\Engineering Design Report\51470616_F14_Overview of Cleanup Action.dwg TAB:F14 Date Exported: 04/14/22 - 11:27 by hmara



Notes:

1. Sloped excavation sidewalls are shown at 1 Horizontal: 1 Vertical (1H:1V). The contractor will be responsible for determining stable side slopes to complete excavation.
2. The locations of all features shown are approximate.
3. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Topographic Survey by Pacific Surveying & Engineering, Inc. of Bellingham, WA dated March 4, 2022 (provided as an appendix to the EDR).

Horizontal Datum: NAD83/91 Washington State Plane North Zone

Vertical Datum: Mean Lower Low Water (MLLW) on NOAA Tidal Datum Epoch 1941-1959. Based on Port of Anacortes Survey Control Monument "Jetty-2".

Legend

- Soil Sampling Location
- MW-7 Monitoring Well Location
- Preliminary Remedial Excavation Area
- Excavation Base
- Excavation Sidewall[1]
- Access to Areas Under Cover to be Coordinated with DCI
- 1 — 1' Cross Section Location
- bgs below ground surface

Survey Map Legend

- 14 Existing Contour (feet MLLW)
- Existing Edge Of Asphalt
- Existing Edge Of Concrete
- SD Existing Storm Drain Line
- [SD] Storm Drain Line Per Records*
- SS Existing Sanitary Sewer Gravity Line
- [SS] San. Sanitary Sewer Gravity Line Per Records*
- [FM] San. Sewer Forcemain Per Records*
- W Existing Water Line
- [W] Water Line Per Records*
- UGE Existing Underground Power
- UCM Existing Underground Communications Line
- Existing Chainlink Fence
- Public Right Of Way Margin
- Set Rebar & Orange Plastic Cap
- Set Mag Nail
- Existing Storm Drain Manhole
- Existing Catch Basin
- Existing Sanitary Sewer Manhole
- Asphalt
- Gravel

Surveyors Note:
*Not all utilities were conductible. Utilities of record are shown per drawings provided by Dakota Creek Industries titled "Dakota Creek Shipyard Yard Utilities Plan" dated 11-2-2009.

Soil Chemical Analytical Results

- Arsenic Results
- Nickel Results
- Carcinogenic Polycyclic Aromatic Hydrocarbon Results

Sample Interval Depth (ft): 2-3 / 6-7 / 8-9

- Greater then Remediation Level (3 times the Cleanup Level)
- Greater than Cleanup Level
- Less than Cleanup Level
- Not Sampled

N W E S

30 0 30
Feet

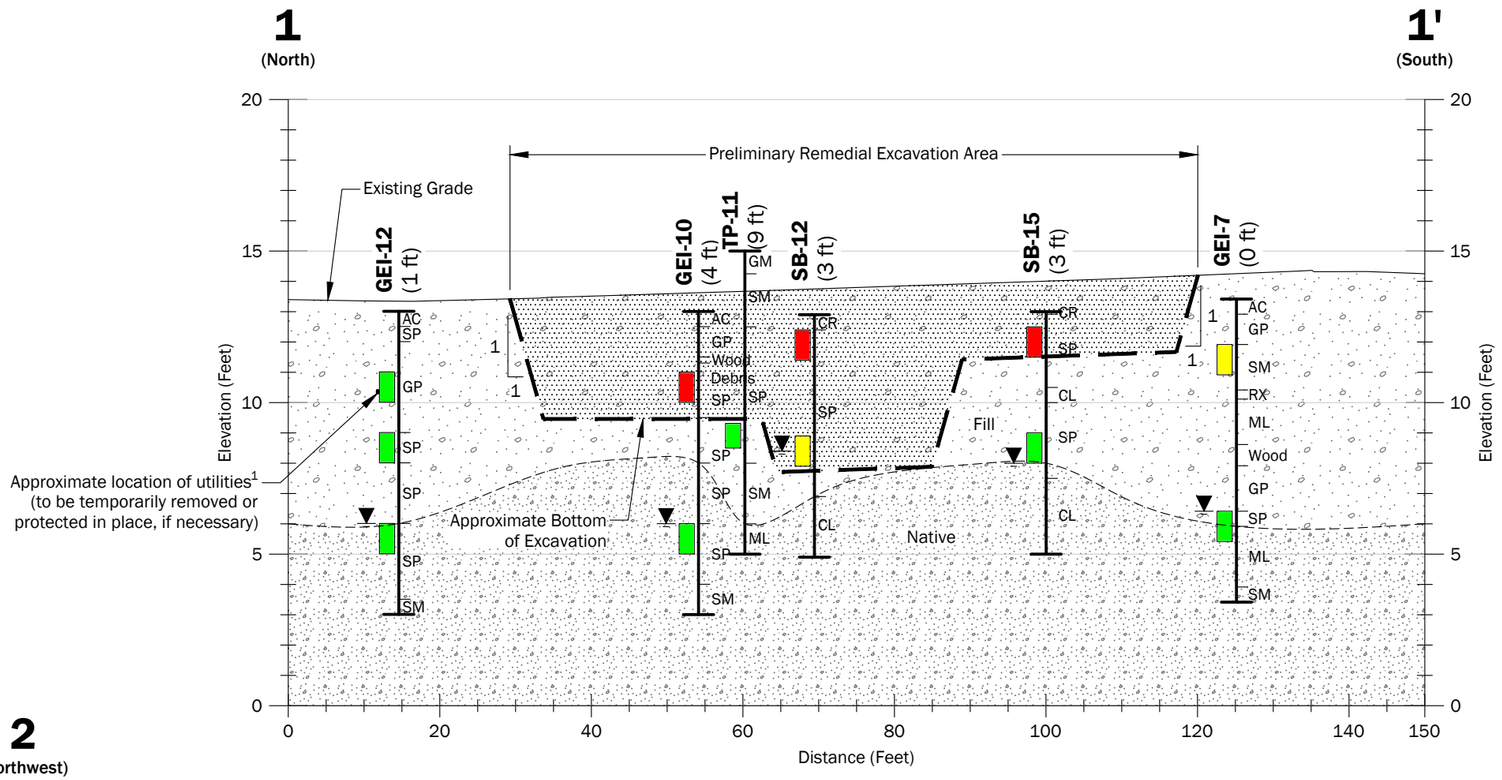
Remedial Excavation Plan

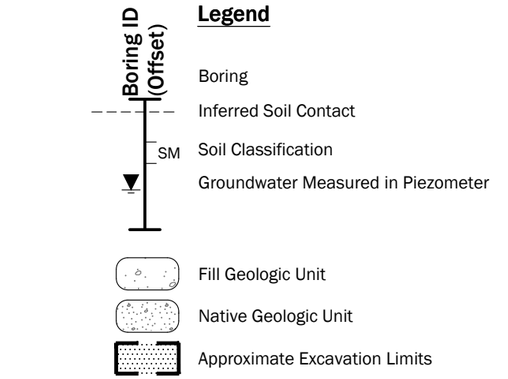
Dakota Creek Industries
Anacortes, Washington

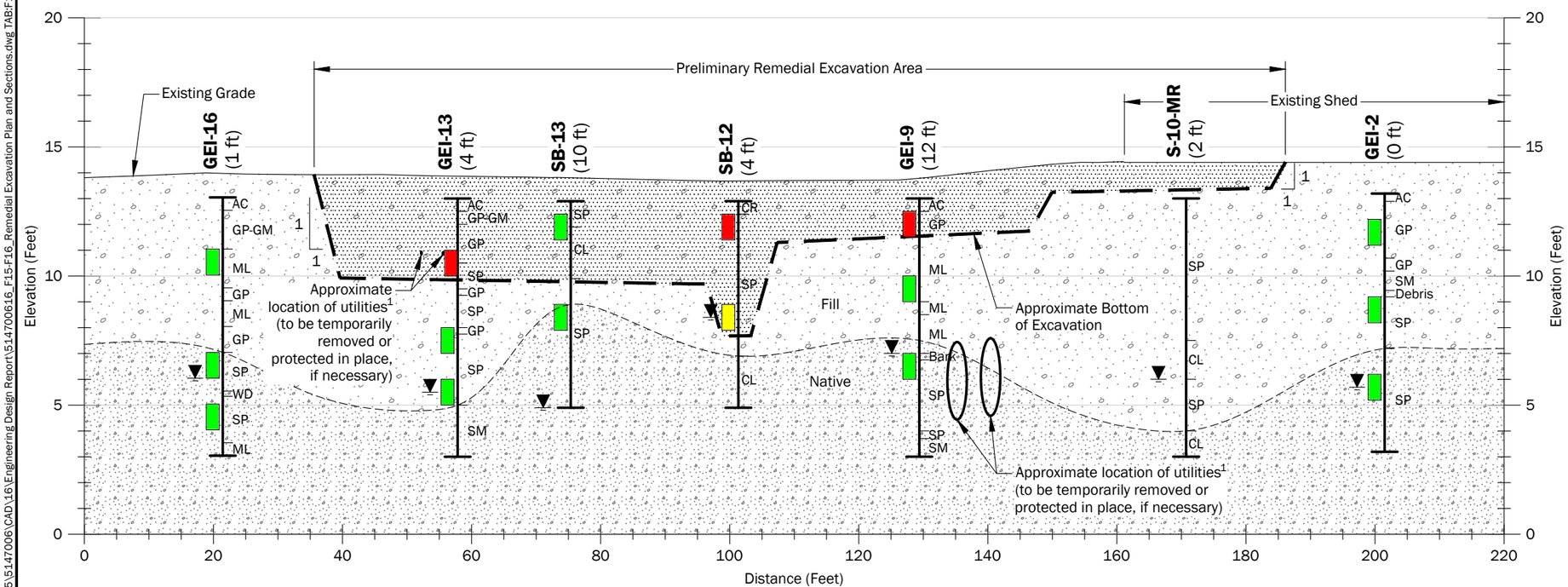
GeoEngineers

Figure 15

P:\5\5147006\CAD\16\Engineering Design Report\5147006I6_F15-F16_Remedial Excavation Plan and Sections.dwg TAB:F15 Date Exported: 06/20/22 - 14:23 by hmara





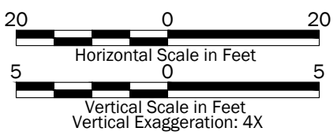


Notes:

1. Location of utilities are for representation purposes, depth unknown.
2. The subsurface conditions shown are based on interpolation between widely spaced explorations and should be considered approximate; actual subsurface conditions may vary from those shown.
3. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

Horizontal Datum: NAD83/91 Washington State Plane North Zone

Vertical Datum: Mean Lower Low Water (MLLW) on NOAA Tidal Datum Epoch 1941-1959. Based on Port of Anacortes Survey Control Monument "Jetty-2".



Remedial Excavation Cross Section 1-1' and 2-2'

Dakota Creek Industries
Anacortes, Washington

GeoEngineers

Figure 16

P:\5\5147006\CAD\16\Engineering Design Report\5147006616_F15-F16_Remedial Excavation Plan and Sections.dwg TAB:F16 Date Exported: 06/20/22 - 14:25 by hmara

APPENDIX A
Inadvertent Discovery Plan

INADVERTENT DISCOVERY PLAN

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

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

Site Name(s): **Dakota Creek Industries**

Location: **115 Q Avenue Anacortes, WA 98211**

Project Lead/Organization: **Port of Anacortes**

County: **Skagit**

1. INTRODUCTION

The IDP outlines procedures to perform in the event of a discovery of archaeological materials or human remains, in accordance with applicable state and federal laws. An IDP is required, as part of Agency Terms and Conditions for all grants and loans, for any project that creates disturbance above or below the ground. An IDP is not a substitute for a formal cultural resource review (Executive 05-05 or Section 106).

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

2. CULTURAL RESOURCE DISCOVERIES

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

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

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

3. ON-SITE RESPONSIBILITIES

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

STEP A: Stop Work.

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

STEP B: Protect the Discovery.

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

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

STEP C: Notify Project Lead and Project Archaeologist contacts.

Archeological monitoring will take place for the Site investigation activities that anticipate penetration of the fill/native contact and for the remedial action construction. The Port has arranged for a professional Archaeologist (Project Archaeologist) who meets the Secretary of Interior's qualifications (36 CFR Part 61) to oversee these activities. In the event of a potential discovery, procedures described in Sections 7 and 11 will be followed. If the discovery is determined to be significant, the field engineer will contact the Primary/Alternate Contact who will contact the Port of Anacortes Project Manager.

Project Lead Contact

Primary Contact	Alternate Contact
Name: John Herzog	Name: Robert Trahan
Phone: (o) 206.728.2674	Phone: (o) 206.239.3253
(c) 206.406.6431	(c) 206.240.2300
Email: jherzog@geoengineers.com	Email: rtrahan@geoengineers.com

Port of Anacortes Project Manager

Name: Brad Tesch
Phone: (o) 360.299.1830
(c) 360.302.0974
Email: brad.tesch@portofanacortes.com

Project Archaeologist Contact

Name: Brett Lenz
Business: Columbia Geotechnical Associates
Phone: 206.855.9020
Email: brettlenz@gmail.com

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

The Project Lead will notify both Ecology Contacts in the event of a discovery as determined by the Project Archeologist overseeing field activities.

Ecology Contacts

Ecology Project Manager

Name: Arianne Fernandez
Program: Toxics Cleanup
Phone: (o) 360.407.7209
(c) 360.704.0173
Email: arianne.fernandez@ecy.wa.gov

Alternate or Cultural Resource Contact

Name: Josh Morman
Program: Toxics Cleanup
Phone: (o) 360.407.6991
(c) 360.480.3289
Email: josh.morman@ecy.wa.gov

STEP E: Ecology will notify DAHP.

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

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

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

DAHP Contact

Name: Rob Whitlam, PhD
Title: State Archaeologist
Phone: (o) 360.586.3065
(c) 360.890.2615
Email: Rob.Whitlam@dahp.wa.gov

Human Remains/Bones Contact

Name: Guy Tasa, PhD
Title: State Anthropologist
Phone: (c) 360.790.1633 (24/7)
Email: Guy.Tasa@dahp.wa.gov

4. TRIBAL CONTACTS

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

Tribe: Samish
Name: Jackie Ferry
Title: Cultural Resources Program Manager
Phone: 360.293.6404
Email: jferry@samishtribe.nsn.us

Tribe: Swinomish
Name: James Harrison
Title: Tribal Archaeologist
Phone: 206.383.7008
Email: jharrison@swinomish.nsn.us

Tribe: Lummi
Name: Lena Tso
Title: Historic Preservation Officer
Phone: 360.384.2259
Email: lenat@lummi-nsn.gov

Tribe: Swinomish
Name: Josephine Peters
Title: Tribal Historic Preservation Officer
Phone: 360.488.3860
Email: jpeters@swinomish.nsn.us

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

5. FURTHER CONTACTS (IF APPLICABLE)

There is no partnering federal or state agency to notify in the event of a discovery.

6. SPECIAL PROCEDURES FOR THE DISCOVERY OF HUMAN SKELETAL REMAINS

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

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

Name: Guy Tasa, PhD
Title: State Anthropologist
Phone: (c) 360.790.1633 (24/7)
Email: Guy.Tasa@dahp.wa.gov

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

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

   Enter contact information below (required):

   - **Skagit County Coroner**
     Hayley Thompson
     360.336.9431

- **City of Anacortes Police Department**
  John Small, Chief of Police
  360.293.4684
- **Emergency phone number**
  Dial 911

2. The Medical Examiner/Coroner (with assistance of law enforcement personnel) will determine if the remains are human or if the discovery site constitutes a crime scene and will notify DAHP.
3. **DO NOT speak with the media, allow photography or disturbance of the remains, or release any information about the discovery on social media.**
4. If the remains are determined to be non-forensic, cover the remains with a tarp or other materials (not soil or rocks) for temporary protection and to shield them from being photographed by others or disturbed.

Further activities:

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

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

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

7. DOCUMENTATION OF ARCHAEOLOGICAL MATERIALS

Archaeological resources discovered during construction are protected by state law RCW 27.56 and assumed eligible for inclusion in the National Register of Historic Places under Criterion D until a formal Determination of Eligibility is made.

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

An archaeologist will record all prehistoric and historic cultural material discovered during project construction on a standard DAHP archaeological site or isolate inventory

form. They will photograph site overviews, features, and artifacts and prepare stratigraphic profiles and soil/sediment descriptions for minimal subsurface exposures. They will document discovery locations on scaled site plans and site location maps.

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

The archaeologist will record spatial information, depth of excavation levels, natural and cultural stratigraphy, presence or absence of cultural material, and depth to sterile soil, regolith, or bedrock for each unit on a standard form. They will complete test excavation unit level forms, which will include plan maps for each excavation level and artifact counts and material types, number, and vertical provenience (depth below surface and stratum association where applicable) for all recovered artifacts. They will draw a stratigraphic profile for at least one wall of each test excavation unit.

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

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

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

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

8. PROCEEDING WITH WORK

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

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

9. ORGANIZATION RESPONSIBILITY

The Project Lead/Organization is responsible for ensuring:

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

10. ADDITIONAL RESOURCES

Informative Video

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

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

Informational Resources

- DAHP (https://dahp.wa.gov)
- Washington State Archeology (DAHP 2003) (https://dahp.wa.gov/sites/default/files/Field%20Guide%20to%20WA%20Arch_0.pdf)
- Association of Washington Archaeologists (https://www.archaeologyinwashington.com)

Potentially Interested Tribes

- Tribal Contacts: Interactive Map of Tribes by Area (https://dahp.wa.gov/archaeology/tribal-consultation-information)
- Tribal Contacts - WSDOT Tribal Contact Website (https://wsdot.wa.gov/tribal/TribalContacts.htm)

11. ADDITIONAL INFORMATION

An archaeological monitor will be on site during the duration of this project due to the high risk of discovery. Procedures outlined in this IDP will be followed in the event of a discovery. If the monitoring of ground-disturbing activities results in the collection of any artifacts or samples, such as an isolated find not associated with a larger archeological site, the Project Archaeologist will be responsible for temporary curation of the artifacts (including appropriate secure storage). Upon discovery, the Project Archaeologist will photograph and record the details of the location (e.g., depth below ground surface,

sedimentary context, etc.) and other pertinent information about the object. Ground-disturbance activities may resume after DAHP has issued an approval for work to proceed in the area of, or near, the discovery. Ground-disturbance activities away from the area of discovery (30 feet or more) may proceed prior to DHAP approval under the supervision of the Project Archaeologist.

Implement the IDP if you see…

Chipped stone artifacts.

Examples are:

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

Stone artifacts from Oregon.

Stone artifacts from Washington.

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

Implement the IDP if you see…

Ground stone artifacts.

Examples are:

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

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

Artifacts from unknown locations (left and right images).

Implement the IDP if you see…

Bone or shell artifacts, tools, or beads.

Examples are:

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

Upper Left:*Bone Awls from Oregon.*

Upper Center: *Bone Wedge from California.*

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

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

Implement the IDP if you see…

Culturally modified trees, fiber, or wood artifacts.

Examples are:

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

Left and Below: *Culturally modified tree and an old carving on an aspen (Courtesy of DAHP). These are examples of above ground cultural resources.*

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

Implement the IDP if you see…

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

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

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

Shell Midden pocket in modern fill discovered in sewer trench.

Underground oven. Courtesy of DAHP.

Shell midden with fire cracked rock.

Hearth excavated near Hamilton, WA.

Implement the IDP if you see…

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

Examples are:

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

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

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

Implement the IDP if you see…

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

Examples are:

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

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

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

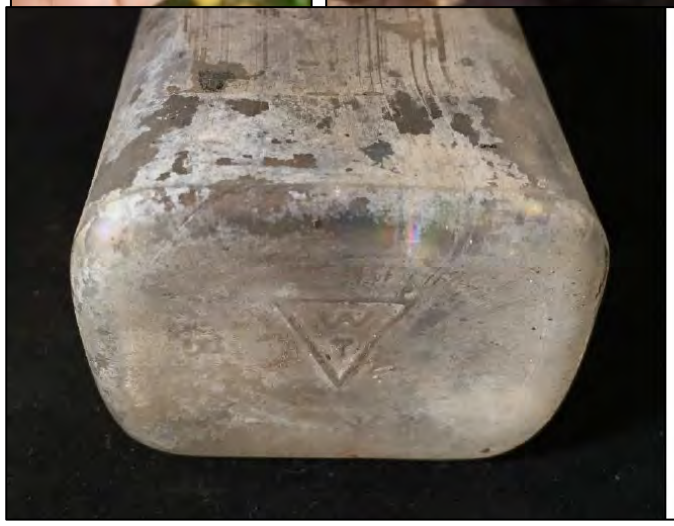
Implement the IDP if you see…

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

Far Left: *.303 British cartridge found by a WCC planting crew on Skagit River.* ***Don't ever touch something like this!***

Left: *Maker's mark on bottom of old bottle.*

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



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

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

Implement the IDP if you see…

Historic foundations or buried structures.

Examples are:

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

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

Implement the IDP if you see…

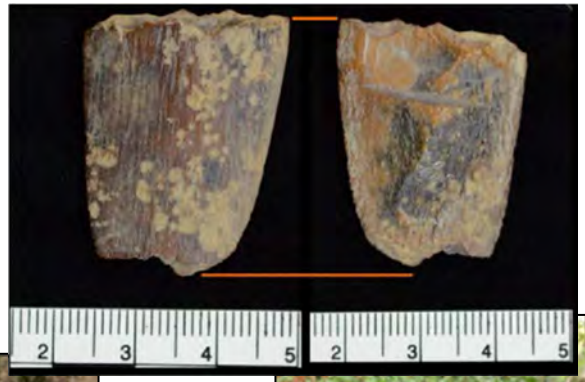
Potential human remains.

Examples are:

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

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

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

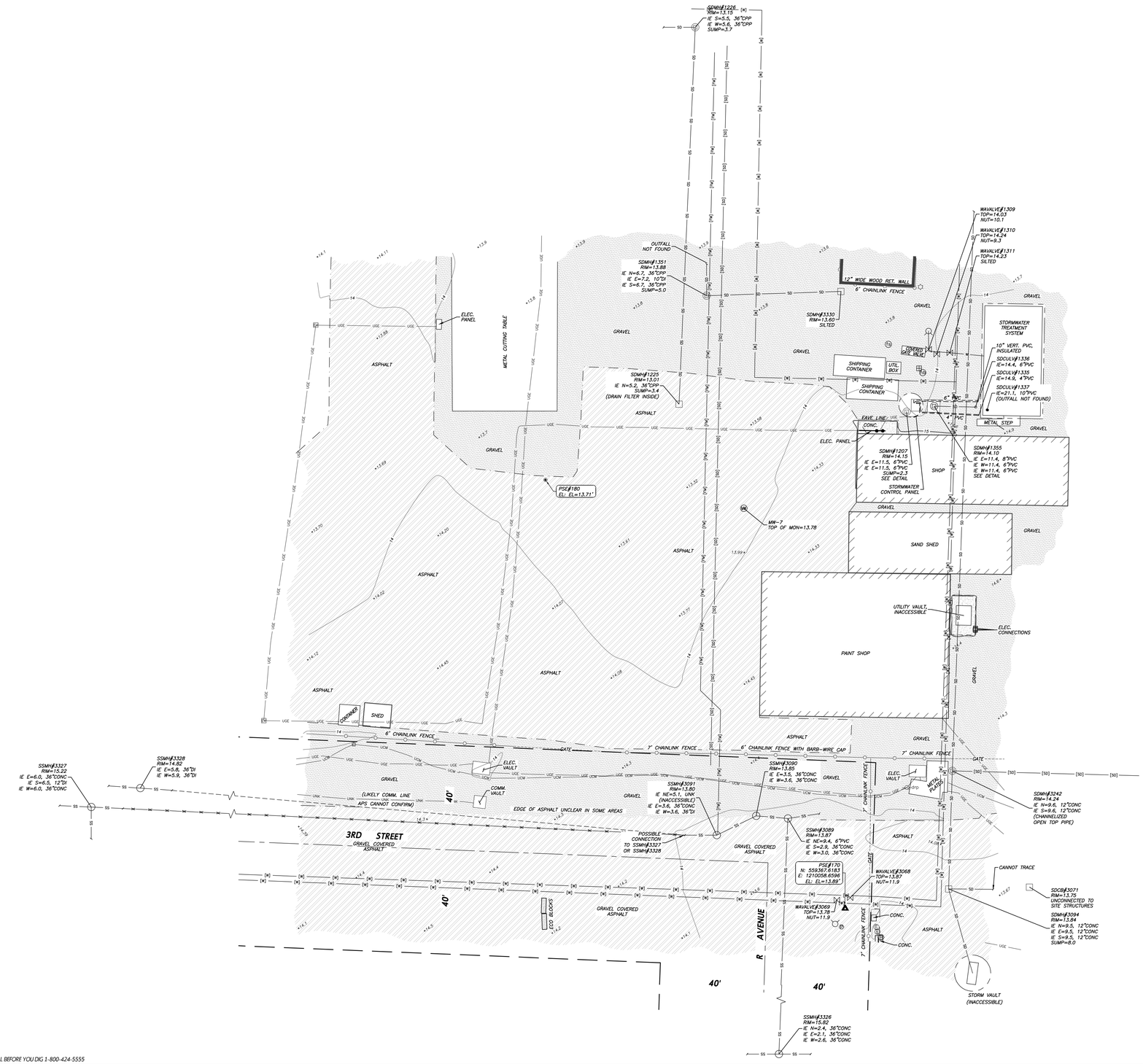


Directly Above: *This is a real discovery at an Ecology sewer project site.*

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

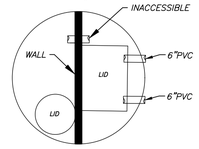
Hint: *Read the plan!*

APPENDIX B
Topographic Survey

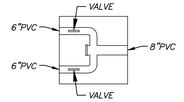


STORM STRUCTURE DETAILS

DETAIL
SDMH#1207



DETAIL
SDMH#1355



EXISTING LINE LEGEND

- = EXISTING EDGE OF ASPHALT
- = EXISTING EDGE OF CONCRETE
- = EXISTING STORM CULVERT
- SD = EXISTING STORM DRAIN LINE
- [SD] = STORM DRAIN LINE PER RECORDS*
- SS = EXISTING SANITARY SEWER GRAVITY LINE
- [SS] = SAN. SANITARY SEWER GRAVITY LINE PER RECORDS*
- [FM] = SAN. SEWER FORCEMAIN PER RECORDS*
- W = EXISTING WATER LINE
- [W] = WATER LINE PER RECORDS*
- UGE = EXISTING UNDERGROUND POWER
- UCM = EXISTING UNDERGROUND COMMUNICATIONS LINE
- 120 = EXISTING GRADE INDEX CONTOUR
- 118 = EXISTING GRADE INTERVAL CONTOUR
- = EXISTING CHAINLINK FENCE
- = PUBLIC RIGHT OF WAY MARGIN

*NOT ALL UTILITIES WERE CONDUCTIBLE. UTILITIES OF RECORD ARE SHOWN PER DRAWINGS PROVIDED BY DAKOTA CREEK INDUSTRIES TITLED "DAKOTA CREEK SHIPYARD YARD UTILITIES PLAN" DATED 11-2-2009. SEE SURVEY NOTE 7.

EXISTING FEATURE SYMBOL LEGEND

- = SET REBAR & ORANGE PLASTIC CAP
- = SET MAG NAIL
- = EXISTING STORM DRAIN MANHOLE
- = EXISTING CATCH BASIN
- = EXISTING SANITARY SEWER MANHOLE
- = EXISTING GATE VALVE
- = EXISTING WATER METER
- = EXISTING FIRE HYDRANT
- HB = EXISTING HOSE BIB
- FS = EXISTING FIRE STANDPIPE
- MW = EXISTING MONITORING WELL
- B = EXISTING BOLLARD
- = EXISTING POST
- drp = EXISTING POWER POLE W/DROP
- = EXISTING STREET LIGHT POLE
- = EXISTING FIBER-OPTIC/COMM. PEDESTAL/RISER
- V = EXISTING ELECTRICAL VAULT
- = EXISTING ELECTRIC HANDHOLD
- = EXISTING ELECTRIC METER/SWITCH
- 122.45 = SPOT ELEVATION ON EXISTING GROUND

PSE

GRAPHIC SCALE
(US SURVEY FEET)
0 20
20 10 40
1 inch = 20 feet

TOPO NOTES:

1) THIS TOPOGRAPHIC SURVEY WAS PERFORMED AND PREPARED IN ACCORDANCE WITH WAC 332-130-145.
2) DATA FOR THIS SURVEY WAS GATHERED BY FIELD TRAVERSE UTILIZING ELECTRONIC DATA COLLECTION IN JANUARY 2022.
3) EQUIPMENT USED: THEOMAT 00'01.5" EDM: ± 2 PPM, ± 3 MM
4) HORIZONTAL DATUM: NAD 83/91 WASHINGTON STATE PLANE NORTH ZONE
5) VERTICAL DATUM: MEAN LOWER LOW WATER (MLLW) ON NOAA TIDAL DATUM, EPOCH 1941-1959, BASED ON PORT OF ANACORTES SURVEY CONTROL MONUMENT "JETTY-2".
   - SITE BENCHMARK: SET REBAR & ORANGE PLASTIC CAP. ELEVATION = 13.89

   TEMPORARY BENCH MARK: PSE CONTROL ON-SITE, AS SHOWN
6) CONTOURS DEPICTED HEREON MEET OR EXCEED NATIONAL MAPPING STANDARDS FOR 1-FOOT ACCURACY TOPOGRAPHIC SURVEYS AND HAVE BEEN COMPUTER GENERATED FROM GROUND FIELD TOPOGRAPHY GATHERED FOR THIS SURVEY UTILIZING ELECTRONIC DATA COLLECTION.
7) CONDUCTIBLE UNDERGROUND UTILITY LOCATES SERVICES WERE PERFORMED AND PAINTED ON-SITE BY APPLIED PROFESSIONAL SERVICES AND SURVEYED BY PSE FIELD CREWS IN JANUARY 2022. UTILITIES ARE KNOWN TO EXIST WITHIN THE LIMITS OF THIS SURVEY THAT WERE UNDETECTABLE. ADDITIONAL UTILITY VERIFICATION MAY BE WARRANTED IN AREAS CONSIDERED FOR CONSTRUCTION.
8) UTILITY LOCATION AREAS AND LEVEL OF LOCATE ACCURACY WERE DETERMINED BY SURVEYOR AND CLIENT PRIOR TO COMMENCEMENT OF FIELD SURVEY WORK.
9) THIS MAP IS NOT INTENDED TO REPRESENT A FORMAL BOUNDARY SURVEY, NOR DOES IT REFLECT ELEMENTS THAT A BOUNDARY SURVEY MAY DISCLOSE. BOUNDARY RELATED ELEMENTS DEPICTED HEREON ARE SHOWN PER AVAILABLE RECORD INFORMATION.
10) A CURRENT TITLE REPORT WAS NOT PROVIDED FOR THIS SURVEY. EASEMENTS AND/OR TITLE ENCUMBRANCES MAY EXIST THAT ARE NOT SHOWN HEREON.

PRIMARY SURVEY CONTROL TABLE

POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
170	559367.6183	1210058.6596	13.89	SET REBAR & ORANGE PLASTIC CAP
180	559531.8866	1209943.9655	13.71	SET MAG NAIL

CALL BEFORE YOU DIG 1-800-424-5555

REVISION	DATE	DESCRIPTION

ISSUE	DATE	DESCRIPTION
1	2/14/2022	EXISTING CONDITIONS
2	3/4/2022	EXISTING CONDITIONS (REVISED PER ENGINEER REVIEW)

GEOENGINEERS
17425 NE UNION HILL ROAD, SUITE 250
REDMOND, WA 98052

TOPOGRAPHIC SURVEY

PIER 2 VICINITY
EXISTING CONDITIONS

SITUATE IN A PORTION OF THE SOUTHWEST 1/4 OF SECTION 18, TOWNSHIP 35 NORTH, RANGE 2 EAST, CITY OF ANACORTES, SKAGIT COUNTY, WASHINGTON

PACIFIC SURVEYING & ENGINEERING, INC.
909 Squalicum Way, Suite 111 | BELLINGHAM, WA 98225
T: 360.671.7387 | F: 360.671.4685
WWW.PSESURVEY.COM | INFO@PSESURVEY.COM

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SHEET 1 OF 1

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22224
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PROFESSIONAL LAND SURVEYOR
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APPENDIX C
Compliance Monitoring and Quality Assurance Project Plan

Compliance Monitoring and Quality Assurance Project Plan (CMP/QAPP)

Dakota Creek Industries
Anacortes, Washington

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

November 1, 2022

GeoEngineers
Earth Science + Technology

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File No. 5147-006-16

November 1, 2022

Prepared for:

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

Attention: Arianne Fernandez

On Behalf of:

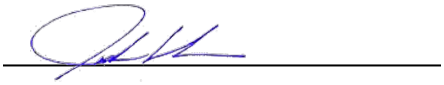
Brad Tesch
Port of Anacortes
100 Commercial Avenue
Anacortes, Washington 98221

Prepared by:

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

Abhijit R. Joshi, PE
Senior Environmental Engineer

Shashi M. Shankar
Senior Environmental Engineer



John M. Herzog, PhD, LG
Senior Principal

SMS:ARJ:JMH:ch

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LIST OF ACRONYMS AND ABBREVIATIONS

Acronym/ Abbreviation	Description
ARI	Analytical Resources, Inc.
ASTM	ASTM International
bgs	below ground surface
BMPs	Best Management Practices
COCs	contaminants of concern
cPAH	carcinogenic polycyclic aromatic hydrocarbons
DO	dissolved oxygen
DQO	data quality objective
EC	electrical conductivity
Ecology	Washington State Department of Ecology
EDD	electronic data deliverable
EICMMP	Engineering and Institutional Controls Monitoring and Maintenance Plan
EIM	Environmental Information Management system
EPA	United States Environmental Protection Agency
FS	feasibility study
GeoEngineers	GeoEngineers, Inc.
GPS	global positioning system
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
IHSs	indicator hazardous substances
KM	Kaplan-Meier
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
MDL	method detection limit
mg/kg	milligrams per kilogram
MLLW	mean lower low water
MRL	method reporting limit
MS	matrix spike
MSD	matrix spike duplicate

MTCA	Model Toxics Control Act
NAD	North American Datum
NOAA	National Oceanic and Atmospheric Administration
NTU	nephelometric turbidity unit
OnSite	OnSite Environmental, Inc.
ORP	oxidation-reduction potential
OSHA	Occupational Safety and Health Administration
PAH	polycyclic aromatic hydrocarbon
PARCC	Precision, Accuracy, Representativeness, Completeness, and Comparability
PID	photoionization detector
Port	Port of Anacortes
PPE	personal protective equipment
ppm	part per million
%D	percent difference
%R	percent recovery
PQL	practical quantitation limit
QA	quality assurance
QC	quality control
RI	remedial investigation
RL	reporting limit
RPD	relative percent difference
Site	Quiet Cove Site
SOP	standard operating procedure
SVOC	semi-volatile organic compound
TDS	total dissolved solids
TEF	toxicity equivalency factor
TEQ	toxicity equivalent (refers to concentration basis)
TRL	target reporting limit
VOC	volatile organic compound
VPC	volatile petroleum compound
WAC	Washington Administrative Code
WISHA	Washington Industrial Safety and Health Act

1.0 INTRODUCTION

This Compliance Monitoring and Quality Assurance Project Plan (CMP/QAPP) is prepared as an appendix to the Engineering Design Report (EDR) for the Dakota Creek Industries Site (Site). The Site is formally referenced in the Washington State Department of Ecology (Ecology) databases as Anacortes Port of Dakota Creek (Ecology Facility Site Identification No. 2670 and Cleanup Site Identification No. 5147) and is located at 115 Q Avenue in Anacortes, Washington. The cleanup action is being implemented by the Port of Anacortes (Port) under the regulatory oversight by Department of Ecology (Ecology) and includes remedial excavation and permitted off-site disposal of the contaminated soils present within the southeast portion of the Site, containment of remaining soil contamination using engineering controls such as concrete and asphalt surfaces, long-term monitoring of groundwater and institutional controls. A summary of Site conditions including background, history and nature/extent of contamination, and detailed description of cleanup actions are presented in the Engineering Design Report (EDR). This plan describes compliance monitoring activities, contingency measures and presents quality assurance (QA) and quality control (QC) requirements applicable to cleanup action activities and is prepared to meet the requirements of the Cleanup Action Plan (CAP; Ecology 2022).

The CMP portions of this document were prepared in accordance with Washington Administrative Code (WAC) 173-340-410 (compliance monitoring requirements of Ecology) to describe the protection, performance and confirmation monitoring that will be completed for the cleanup action. The contingency measures are developed to meet the requirements identified in the CAP.

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

2.0 COMPLIANCE MONITORING

2.1. Protection Monitoring

Protection monitoring will be completed to confirm that human health and the environment are adequately protected during cleanup action construction.

2.1.1. Worker Health and Safety

Cleanup action activities will be performed in accordance with the requirements of the Washington Industrial Safety and Health Act (WISHA; RCW 49.17) and the Federal Occupational Safety and Health Act (OSHA; 29 CFR 1910, 1926). These regulations include requirements that workers be protected from

exposure to contaminants. A site-specific Health and Safety Plan (HASP) is included as an appendix to the EDR and addresses the protection monitoring requirement for GeoEngineers' personnel. The Port's construction contractor (Contractor) will be required to prepare and submit a separate HASP for use by the Contractor's personnel.

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

2.1.2. Environmental Protection

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

2.2. Performance Monitoring

Performance monitoring will be conducted to verify that the cleanup action achieves the soil remediation and cleanup levels identified in the EDR and/or to document the contaminant concentrations that will be left in place. As described in the EDR, the selected cleanup action for the Site includes the removal of contaminant source area where soil contaminants exceed arsenic and nickel remediation and cleanup levels. Outside of the excavation area, the selected cleanup action relies on existing pavement to cap parts of the contaminated upland and provide a protective barrier to prevent direct exposure and leaching of residual contamination through the soil column to groundwater. Institutional controls (Environmental Covenant) will be implemented to maintain the protective barriers, prevent the use of groundwater as drinking water and restrict/manage future ground disturbances. Performance monitoring activities will include verification soil sampling and analysis as described below.

2.2.1. Verification Soil Sampling and Analysis

Soil verification samples will be collected by GeoEngineers field personnel from the base and/or sidewalls of the remedial excavation as described in the EDR. Soil samples from the base of the excavation will be collected at a frequency of one sample per 625 square feet. If the area of the base is less than 625 square feet, a minimum of one base sample will be obtained. At a minimum one base sample will be collected from each excavation bench. Sidewall samples will be collected at a frequency of one sample per 40 linear feet of sidewall along the perimeter of the excavation. Sidewall samples will be collected approximately at the middle of the height of the sidewall. At a minimum, four-sidewall samples will be obtained (i.e., one sample per sidewall assuming a four-sided excavation). One duplicate soil sample will be collected per every 20 parent soil samples collected from excavation limits for QA/QC purposes.

Soil samples will be collected by GeoEngineers' field personnel using a clean pair of nitrile gloves and placed in clean laboratory provided containers for chemical analysis. Reusable sampling equipment (if used) will be decontaminated prior to sample collection at each location. Each sample container will be securely capped, labeled, and placed in a cooler with ice upon collection. The field representative will visually classify the soils in accordance with ASTM International (ASTM) Method D 2488 (Standard Practice for Description and Identification of Soils [Visual Manual Procedure]) and record soil descriptions and other relevant visual and olfactory observations (e.g., staining, debris, odors, etc.) in the field log. Decontamination, sample container, labeling, and handling procedures are described in Section 6.0.

Chemical analysis will be performed at an Ecology accredited laboratory—OnSite Environmental, Inc. (OnSite) of Redmond, Washington. Chain-of-custody forms will be used to document the transfer of samples during transport and submittal of samples to the laboratory. Based on the CAP, arsenic and nickel are identified as the only soil contaminants of concern (COCs) exceeding remediation and cleanup levels within the excavation area and therefore, will serve as the monitoring parameters for verification sampling.

The following analysis will be performed on each verification soil sample:

- Metals including arsenic and nickel by EPA Method 6000/7000 series.

Table 1 summarizes the analytical methods, sample size, containers, preservation and holding times for above mentioned laboratory analysis for soil samples. Sufficient volume will be collected for each sample to perform each of the listed analysis. Verification soil samples collected to document contaminant conditions that will be left in place will be analyzed at a standard (7 to 10 days) turn-around-time (TAT). Verification soil samples collected to verify compliance with cleanup levels will be analyzed at expedited TAT (2 days) to support decision making in the field concerning any additional excavation that may be required to achieve remediation and cleanup levels. The result of verification soil samples will be compared to soil remediation and cleanup levels presented in the EDR. Laboratory practical quantitation limits must be at or below the cleanup levels. If PQL exceeds the cleanup levels for any reason, samples will need to be re-analyzed until this PQL requirements is met. Data validation will be completed as described in Section 7.0. The results will be submitted to Ecology's Environmental Information Management (EIM) database following data validation.

2.3. Confirmational (Post-Construction) Monitoring

Confirmational monitoring will be performed after the remedial excavation and restoration activities are completed to evaluate changes in groundwater conditions as a result of the removal action. Groundwater monitoring will be performed on a quarterly basis at monitoring wells located within and near the excavation area and downgradient at the point of compliance. Confirmational groundwater monitoring will be performed until the cleanup levels are achieved at the point of compliance monitoring wells downgradient of the excavation and then for four quarters after achieving the cleanup level to confirm that the contaminant levels remain in compliance.

On achieving confirmation that contaminant levels related to the removal action have remained in compliance, long-term monitoring of groundwater at those wells and in other portions of the Site will be completed to evaluate contaminant stability and compliance with the cleanup standards. The frequency of the long-term monitoring will be determined by Ecology based review of the groundwater monitoring data.

EDR identifies an existing well (MW-7) that is planned to be decommissioned as part of the cleanup action. New monitoring wells will be installed at the Site based on coordination with Ecology. The exact number and location of the monitoring wells to be used for compliance monitoring will be determined following the completion of remedial actions based on the final dimensions of the excavation area and concurrence by Ecology. Groundwater monitoring will include water level measurements and groundwater sampling and analysis as described below.

2.3.1. Water Level Measurements

Water level measurements will be obtained at each monitoring well prior to purging and sample collection. All water levels will be measured using a decontaminated electronic water level indicator and will be recorded to the nearest 0.01 foot. Measurements will be taken from the top of the well casing.

2.3.2. Groundwater Sampling and Analysis

Groundwater samples will be obtained by GeoEngineers field personnel using low-flow/low-turbidity sampling techniques to minimize the suspension of sediment in the samples. The wells will be purged and then groundwater samples will be obtained from the wells using a peristaltic or submersible pump and disposable polyethylene tubing. Groundwater will be purged from the wells at a rate of approximately 0.5 liters per minute. A water quality measuring system with a flow-through cell will be used to monitor the following water quality parameters during purging. The water quality parameters that will be monitored include:

- Electrical conductivity (EC);
- Dissolved oxygen (DO);
- Acidity (pH);
- Salinity;
- Total dissolved solids (TDS);
- Turbidity;
- Oxidation-reduction potential (ORP); and
- Temperature.

Samples will be collected from the wells after these parameters vary by less than 10 percent on three consecutive measurements. The stabilized field measurements will be documented in the field log. Following well purging, the flow-through cell will be disconnected, and groundwater samples will be collected in laboratory-prepared containers. Both field-filtered and unfiltered samples for metals analysis will be collected. Reusable sampling equipment (if used) will be decontaminated prior to sample collection at each location. One duplicate soil sample will be collected per monitoring event for QA/QC purposes. Each sample container will be securely capped, labeled, and placed in a cooler with ice immediately upon collection. Decontamination, sample container, labeling, and handling procedures are described in Section 6.0.

Chemical analysis will be performed at an Ecology accredited laboratory – OnSite. Chain-of-custody forms will be used to document the transfer of samples during transport and submittal of samples to the laboratory. Based on the CAP, arsenic, nickel and PAHs are identified as the groundwater COCs detected

above cleanup levels and will serve as the monitoring parameters for verification groundwater sampling. The following analysis will be performed on each groundwater sample:

- Total and dissolved arsenic and nickel by EPA Method 200.8; and
- PAHs by EPA Method SW8270/SIM.

Table 2 summarizes the analytical methods, sample size, containers, preservation and holding times for above mentioned laboratory analysis for groundwater samples. Sufficient water will be collected from each well to perform each of the listed analysis. Groundwater samples will be analyzed on a standard (7-10 days) TAT. The result of groundwater analysis will be compared to groundwater screening levels presented in the EDR. Data validation will be completed as described in Section 7.0. The results will be submitted to Ecology's EIM database following data validation. If additional compliance groundwater monitoring is determined to be necessary, then the sampling frequency and list of groundwater analysis for additional round of monitoring will be determined based on discussions between the Port and Ecology.

3.0 CONTINGENCY MEASURES

Because the remedial action includes contained in-place soils, contingency measures are necessary to protect human health and the environment in the event the containment measures fail. The following contingency measures are developed to meet the requirements of the CAP:

3.1.1. Groundwater Confirmation Monitoring Triggers and Contingency Response

If the results of confirmational groundwater monitoring identify exceedance of groundwater cleanup levels for one of more indicator hazardous substances (IHSs) (arsenic, nickel and carcinogenic polycyclic aromatic hydrocarbons [cPAHs]) then Ecology will be notified, and a response action will be developed. The response actions may include completing additional groundwater monitoring events and/or installation of additional monitoring wells to further access the identified exceedance.

3.1.2. Contingency Response for Potential Breach in Containment

As detailed in the CAP and EDR, Engineering and Institutional Controls Monitoring and Maintenance Plan (EICMMP) will be prepared following the implementation of the other components of the cleanup action to provide the following information:

- A description of soil conditions on the Property including identification of specific areas and depths where contamination remains in place and at what concentration(s).
- Specific soil handling and management procedures for future subsurface work in areas where contaminated soils remain in place.
- Procedures for identifying, processing, and disposing of contaminated soils encountered during development activities in areas not expected to be contaminated.
- BMPs to prevent soil erosion to the storm drain system or directly to sediment in the Marine Area.
- Health and safety protocols specific to the soil handling and management procedures.
- Protocols for notifying Ecology of planned (or proposed) ground-disturbing activities as well as any instances in which a site control measure fails resulting in a release or new exposure pathway.

- Protocols for providing necessary data to agencies involved in environmental permitting for future construction activities.
- A description of remedial elements (e.g., pavement, bulkhead and monitoring wells) that will require routine inspection and/or maintenance.

In the event the containment is breached for any reason, Ecology will be consulted and the procedures of EICMMP will be followed. Necessary measures will be taken to immediately stop activities and protect the contained in-place soil from further disturbance.

3.1.3. Contingency Response for Offsite Activities that may Compromise Effectiveness of Engineering Controls

As the remedy relies on limiting infiltration to prevent mobilization of contaminants into groundwater, activities that are adjacent but offsite will also need to be identified and assessed to determine if the activity will alter the groundwater infiltration and flow rate in a way that compromises the effectiveness of the engineering controls. No offsite activities that may compromise effectiveness of engineering controls have been currently identified. If any such activities are identified, Ecology will be notified, and a response action will be developed. The contingency response may include additional monitoring to confirm that engineering controls remain effective.

4.0 PROJECT MANAGEMENT AND ORGANIZATION

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

4.1. Project Organization and Responsibilities

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

Project Role	Name and Organization	Contact Information
Project Coordinator	Brad Tesch Port of Anacortes	360.299.1830 brad.tesch@portofanacortes.com 100 Commercial Ave. Anacortes, WA 98221
Technical Project Manager	John Herzog GeoEngineers	206.406.6431 jherzog@geoengineers.com 2101 4th Avenue, Suite 950 Seattle, Washington 98121
Task Manager	Abhi R. Joshi GeoEngineers	206.239.3256 ajoshi@geoengineers.com 2101 4th Avenue, Suite 950 Seattle, Washington 98121

Project Role	Name and Organization	Contact Information
Field Coordinator/Field Personnel	Nathan Solomon GeoEngineers	206.518.5141 nsolomon@geoengineers.com 2101 4th Avenue, Suite 950 Seattle, Washington 98121
Health and Safety Manger	Mary Lou Sullivan GeoEngineers	253.722.2425 msullivan@geoengineers.com 1101 Fawcett Avenue, Suite 200 Tacoma, Washington 98402
Data Quality Assurance Leader	Christine Ransom EcoChem, Inc.	206.233.9332 cransom@ecochem 500 Union Street, Suite 1010 Seattle, Washington 98101
Laboratory Project Manager	David A. Baumeister OnSite Environmental, Inc.	206.550.2483 dbaumeister@onsite-env.com 14648 NE 95th Street Redmond, Washington 98052

4.1.1. Project Coordinator

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

4.1.2. Technical Project Manager

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

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

4.1.3. Task Manager

The task manager is responsible for the daily management of project tasks including providing technical direction to the field staff, produces task specific documents and supporting documents, develops schedules and allocates resources for field tasks, coordinates data collection activities to be consistent with information requirements, supervises the compilation of field data and laboratory analytical results, assures that data are correctly and completely reported, implements and oversees field sampling in accordance with project plan and supervises field personnel. Additionally, the task manger coordinates work with on-site subcontractors, verifies that appropriate sampling, testing, and measurement procedures are followed, coordinates the transfer of field data, sample tracking forms, and log books to the technical project manager for data reduction and validation, and participates in QA corrective actions as required.

4.1.4. Field Coordinator

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

4.1.5. Field Personnel

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

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

4.1.6. Health and Safety Manager

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

4.1.7. Data Quality Assurance Leader

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

4.1.8. Laboratory Project Manager

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

4.2. Special Training Requirements/Certification

Occupational Safety and Health Administration (OSHA) regulations (29 CFR 1910.120) require training to provide employees with the knowledge and skills necessary to enable them to perform their jobs safely and

with minimum risk to their personal health. All sampling personnel will have completed the 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training course and 8-hour refresher courses, as necessary, to meet OSHA regulations.

5.0 DATA QUALITY OBJECTIVES

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

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

5.1. Chemical Quality Objectives

The sampling design, field procedures, useable laboratory procedures, and QC procedures established for this project were developed to provide defensible data. Specific factors that may affect data usability include quantitative factors (precision, bias, accuracy, completeness, and reporting limits) and qualitative factors such as representativeness and comparability. The specific DQOs associated with these data quality factors are discussed below. Method-specific DQOs for chemical laboratory analyses are presented in Tables 3 and 4 (soil and groundwater respectively).

5.1.1. Analytical Detection Limits

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

The PQLs provided by the Ecology-certified laboratory contract laboratory (ARI) are presented in Tables 5 and 6 (soil and groundwater respectively). The PQLs presented in Tables 5 and 6 are considered target reporting limits (TRLs) because several factors may influence final reporting limits. First, moisture and other physical conditions of samples affect detection limits. Second, analytical procedures may require sample dilutions or other practices to quantify a particular analyte at concentrations above the range of the instrument. The effect is that other analytes could be reported as undetected but at a value higher than a specified TRL. Data users must be aware that high non-detect values, although correctly reported, can bias statistical summaries and careful interpretation is required to correctly characterize subsurface conditions.

5.1.2. Precision

Precision is the measure of mutual agreement among replicate or duplicate measurements of an analyte from the same sample and applies to field duplicates (i.e., split samples), replicate analyses, and duplicate

spiked environmental samples (matrix spike duplicates). The closer the measured values are to each other, the more precise the measurement process. Precision error may affect data usefulness. Good precision is indicative of relative consistency and comparability between different samples. Precision will be expressed as the relative percent difference (RPD) for spike sample and field duplicate comparisons of various matrices. The RPD is calculated as:

Where:

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

D_1 = Concentration of analyte in primary sample.

D_2 = Concentration of analyte in duplicate sample.

The calculation applies to split samples, replicate analyses, duplicate spiked environmental samples (matrix spike duplicates), and laboratory control duplicates. The RPD will be calculated for samples and compared to the applicable criteria. Precision can also be expressed as the percent difference (%D) between replicate analyses. Project RPD goals for all analyses are presented in Tables 3 and 4, unless the primary and duplicate sample results are less than 5 times the method reporting limit (MRL), in which case RPD goals will not apply for data quality assessment purposes.

5.1.3. Accuracy

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

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

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

Accuracy (%R) criteria for surrogate spikes, matrix spikes, and laboratory control samples (blank spikes) are presented in Tables 3 and 4.

5.1.4. Representativeness, Completeness, and Comparability

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

- Comparing actual sampling procedures to those specified in this document.

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

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

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

5.1.5. Holding Times

Holding times are defined as the time between sample collection and extraction, sample collection and analysis, or sample extraction and analysis. Recommended holding times are presented in Tables 1 and 2 for soil and groundwater, respectively. If the analysis of an archived sample is required but the sample exceeds the respective holding time, either discard the sample and collect a new representative sample for analysis and/or consult with Ecology to determine if the sample may still be used.

5.1.6. Quality Control Blank Samples

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

Analytical results for QC blanks will be interpreted in general accordance with EPA's National Functional Guidelines for Inorganic (EPA 2017a) and Organic Data (EPA 2017b) Review and professional judgment. QC blank samples are discussed further in Section 6.0.

6.0 DATA GENERATION AND ACQUISITION

The data generation and acquisition elements for the CMP/QAPP (as detailed below) address aspects of the project design and implementation including the appropriate methods for measurement and analysis, data collection or generation, data handling, and how QC activities are employed and properly documented. Sampling methods including field documentation, sampling, and decontamination procedures are also discussed below.

6.1. Surveying

Surveying at the site will be performed referencing vertical datum – Mean Lower Low Water (MLLW) on National Oceanic and Atmospheric Administration (NOAA) Tidal Datum Epoch 1941-1959, based on Port of

Anacortes Survey Control Monument "Jetty 2" and horizontal datum – North American Datum of 1983 (NAD 83). The contractor will perform excavation and post-construction as-built survey to document excavation limits and post-construction site conditions.

6.2. Decontamination Procedures

Soil samples will be collected using excavation equipment (i.e., backhoe or excavator), hand tools including stainless steel spoons and/or directly from the excavation limits using clean pair of nitrile gloves. Groundwater samples will be collected from monitoring wells using submersible or peristaltic pumps and low-flow sampling procedures.

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

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

6.3. Sample Containers, Labeling, Handling and Custody

6.3.1. Sample Containers and Labeling

The Field Coordinator will establish field protocol to manage field sample collection, handling and documentation. Soil and groundwater samples will be placed in appropriate laboratory-prepared containers. Sample containers and preservatives are listed in Tables 1 and 2 for soil and groundwater, respectively.

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

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

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

6.3.2. Sample Storage

Samples will be placed in a cooler with ice after they are collected. The objective of the cold storage will be to attain a sample temperature of 2 to 6 degrees Celsius. Holding times (Tables 1 and 2 for soil and groundwater, respectively) will be observed during sample storage.

6.3.3. Sample Shipment

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

6.3.4. Chain-of-Custody Records

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

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

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

6.3.5. Laboratory Custody Procedures

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

6.4. Disposal of Investigation-Derived Materials

6.4.1. Water Generated during Well Monitoring

Purge water removed from the post-construction groundwater monitoring events, and decontamination water will be placed in labeled and sealed 55-gallon drums. The drums will be temporarily stored on site at a secure location pending receipt of analytical results and off-site disposal at a permitted facility. Each drum will be labeled with the following information:

- Material/media (i.e., soil, water, etc.) contained in the drum;
- Source of the material in the drum (i.e., investigation locations and depths where appropriate);
- Date material was generated;

- Phrase “Waste Pending Designation”; and
- Name and telephone number of GeoEngineers contact person.

6.4.2. Disposition of Incidental Waste

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

6.5. Field Documentation

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

The following general guidelines should be followed in documenting fieldwork:

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

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

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

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

6.6. Analytical Methods

Samples and QC samples shall be analyzed following the analytical methods listed in Tables 1 and 2 for soil and groundwater, respectively, using laboratory instruments prescribed in the methods. The analytical methods must meet the technical acceptance criteria specified by the method prior to the analysis of environmental samples. Samples that are not analyzed initially (i.e., placed on "hold") will be stored at the laboratory for at least 6 months, and will be disposed of by the laboratory following this period. Samples to be analyzed initially will be analyzed within proper holding times, which are listed in Tables 1 and 2 for soil and groundwater, respectively.

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

6.7. Quality Control

Quality control activities that will be implemented for each sampling, analysis or measurement technique are summarized in Tables 3 and 4 (soil and groundwater respectively). Formulas for calculating QC statistics are provided in Section 5.1.

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

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

6.7.1. Field Quality Control

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

6.7.1.1. Field Duplicates

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

the other as the duplicate sample. The frequency at which field duplicate samples will be collected is identified under Section 2.0.

6.7.2. Laboratory Quality Control

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

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

6.7.2.1. Laboratory Blanks

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

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

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

6.7.2.2. Calibrations

Several types of instrument calibrations are used, depending on the analytical method, to assess the linearity of the calibration curve and assure that the sample results reflect accurate and precise

measurements. The main calibrations used are initial calibrations, daily calibrations, and continuing calibration verification.

6.7.2.3. Matrix Spike/Matrix Spike Duplicates (MS/MSD)

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

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

6.7.2.4. Laboratory Control Sample/Laboratory Control Sample Duplicates (LCS/LCSD)

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

6.7.2.5. Laboratory Replicates/Duplicates

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

6.7.2.6. Surrogate Spikes

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

6.8. Instrument/Equipment Testing, Inspection, and Maintenance

6.8.1. Field Instrumentation

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

6.8.2. Laboratory Instrumentation

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

6.9. Laboratory Data Reporting and Deliverables

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

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

7.0 DATA REDUCTION AND ASSESSMENT PROCEDURES

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

7.1. Data Reduction

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

7.2. Review of Field Documentation and Laboratory Receipt Information

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

- Sample collection information (date, time, location, matrices, etc.);

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

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

7.3. Data Verification/Validation

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

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

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

When sample analytical data are received from the on-site laboratory, they will undergo a QC review by the QA leader. The accuracy and precision achieved will be compared to the laboratory's analytical control limits. Example control limits are presented in Table 3. Calculations of RPDs will follow standard statistical conventions and formulas as presented in in this document. Additional specifications and professional

judgment by the QA leader may be incorporated when appropriate data from specific matrices and field samples are available.

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

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

The data quality assessment will help to achieve an acceptable level of confidence in the decisions that are to be made based upon the project data. The project analytical data will be submitted to Ecology's EIM database within 60 days after the data quality assessment is completed.

7.4. Calculating Chemical Sums

The following guidelines will be used to calculate chemical sums:

- Total benzofluoranthenes represents the sum of detected concentrations of the b, j, and k isomers of benzofluoranthenes (WAC 173-204-562(2)(k)). In some cases, the testing laboratory may report the total benzofluoranthenes concentration rather than concentrations of individual compounds since they may not be able to resolve all three isomers.
- Total cPAHs will be calculated using the toxicity equivalent (TEQ) approach in accordance with WAC 173-340-708(8)(e). Total cPAH TEQs will be calculated using toxicity equivalency factor (TEF) values referenced from Model Toxics Control Act (MTCA) Table 708.2 (WAC 173-340-900). For non-detect results, one-half the PQL will be used in the TEQ calculations.

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

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

Estimated values between the method detection limit and the laboratory reporting limit (i.e., "J" qualified results) will be included in the summation at face value and the sum will also be qualified as estimated

with a "J" qualifier. Results that are qualified as estimates with "J" qualifiers through data validation, will also be handled in the same manner.

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

8.0 LIMITATIONS

We have prepared this Compliance Monitoring and Quality Assurance Project Plan (CMP/QAPP) for use by the Port of Anacortes during the Cleanup Action at the Dakota Creek Industries Site located at 115 Q Avenue in Anacortes, Washington. Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

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

9.0 REFERENCES

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

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

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

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

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

Ecology 2022. Cleanup Action Plan, Dakota Creek Industries, Anacortes, Washington, Facility Site ID: 2670, Cleanup Site ID: 5147, dated February 2022.

Table 1

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

Quality Assurance Project Plan (QAPP)

Dakota Creek Industries (DCI)

Anacortes, Washington

Analyte	Method	Internal Minimum Sample Size (dry weight)	Container Size and Type	Sample Preservation Technique	Holding Time for Indicated Preservation Technique[1]
Metals (Arsenic and Nickel)	6010/6020	100 g	4 oz. CWM jar	≤ 6°C	6 months to analysis (Typically digestion/analysis occur on the same day)

Notes:

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

CWM = clear wide-mouth

g = gram

oz =ounce

°C = degrees centigrade

Table 2

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

Quality Assurance Project Plan (QAPP)

Dakota Creek Industries (DCI)

Anacortes, Washington

Analyte	Method Code	Internal Minimum Sample Size (Volume in ml)	Container Size and Type	Sample Preservation Technique	Holding Time for Indicated Preservation Technique[1]
Total Metals (Arsenic and Nickel)	EPA 200.7/200.8 6010/6020	100 ml	500 ml HDPE	≤ 6°C Preserved with HNO_3 pH<2	6 months to analysis
Dissolved Metals (Arsenic and Nickel)	EPA 200.7/200.8 6010/6020	100 ml	500 ml HDPE	≤ 6°C Preserved with HNO_3 pH<2 if field filtered No preservative if lab filtered	6 months to analysis
Polycyclic Aromatic Hydrocarbons (PAHs)	SW8270-SIM	1000 ml	1 L Amber	≤ 6°C (HCL pH<2)	7 days to extraction

Notes:

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

EPA = United States Environmental Protection Agency

HDPE = high-density polyethylene

HNO_3 = nitric acid

HCL = hydrochloric acid

SIM = selective ion monitoring

ml = milliliters

L = liter

°C = degrees centigrade

Table 3

Soil Laboratory Quality Assurance/Quality Control Requirements

Quality Assurance Project Plan (QAPP)

Dakota Creek Industries (DCI)

Anacortes, Washington

Analyte	Laboratory Control Sample (LCS) %R Limits (%)	Matrix Spike (MS) %R Limits (%)	MS Duplicate Samples or Lab Duplicate RPD Limits[1] (%)	Surrogate Standard (SS) or Labeled Compounds %R Limits (%)
Metals	80 - 120	75 - 125	≤20	NA

Notes:

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

RPD = relative percent difference

%R = percent recovery

NA = not applicable

Table 4

Groundwater Laboratory Quality Assurance/Quality Control Requirements

Quality Assurance Project Plan (QAPP)
Dakota Creek Industries (DCI)
Anacortes, Washington

Analyte Group		Laboratory Control Sample (LCS) %R Limits (%)	Matrix Spike (MS) %R Limits (%)	MS Duplicate Samples or Lab Duplicate RPD Limits[1] (%)	Surrogate Standard (SS) or Labeled Compounds %R Limits (%)
Metals		80 - 120	75 - 125	≤20	2-Methylnaphthalene-d10 (31-120) Fluoranthene-d10 (46-121)
Carcinogenic PAHs (cPAHs)	Benzo(a)anthracene	37-120	same as LCS	≤30	Dibenzo[a,h]anthracene-d14 (10-125)
	Benzo(a)pyrene	25-120	same as LCS	≤30	
	Total Benzofluoranthenes	46-120	same as LCS	≤30	
	Chrysene	48-120	same as LCS	≤30	
	Dibenzo(a,h)anthracene	21-120	same as LCS	≤30	
	Indeno(1,2,3-c,d)pyrene	32-120	same as LCS	≤30	

Notes:

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

RPD = relative percent difference

%R = percent recovery

NA = aot applicable

PAHs = polycyclic aromatic hydrocarbons

Table 5

Soil Practical Quantitation Limits (PQLs)

Quality Assurance Project Plan (QAPP)

Dakota Creek Industries (DCI)

Anacortes, Washington

Analyte	CAS Number	PQL	Units	Analytic Method
Arsenic	7440-38-2	2.5	mg/kg	6010/6020
Nickel	7440-02-0	1.0	mg/kg	6010/6020

Notes:

CAS = chemical abstract services

PQL = practical quantitation limit

mg/kg = milligrams per kilogram

"--" = not available

Table 6

Groundwater Practical Quantitation Limits (PQLs)

Quality Assurance Project Plan (QAPP)

Dakota Creek Industries (DCI)

Anacortes, Washington

Analyte	CAS Number	PQL	Units	Analytic Method
Metals				
Arsenic	7440-38-2	3.3/3 (Total/Dissolved)	µg/L	EPA 200.8
Nickel	7440-02-0	22/20 (Total/Dissolved)	µg/L	EPA 200.8
Carcinogenic PAHs (cPAHs)				
Benzo(a)anthracene	56-55-3	0.1 or 0.01	µg/L	8270D-SIM
Benzo(a)pyrene	50-32-8	0.1 or 0.01	µg/L	8270D-SIM
Benzo(b)fluoranthene	205-99-2	0.1 or 0.01	µg/L	8270D-SIM
Benzo(k)fluoranthene	207-08-9	0.1 or 0.01	µg/L	8270D-SIM
Total Benzofluoranthenes	--	0.2 or 0.02	µg/L	8270D-SIM
Chrysene	218-01-9	0.1 or 0.01	µg/L	8270D-SIM
Dibenzo(a,h)anthracene	53-70-3	0.1 or 0.01	µg/L	8270D-SIM
Indeno(1,2,3-cd)pyrene	193-39-5	0.1 or 0.01	µg/L	8270D-SIM
Total cPAHs TEQ[1]	--	--	µg/L	8270D-SIM

Notes:

[1]Toxic equivalency quotients (TEQs) will be calculated using Environmental Protection Agency's (EPA's) toxic equivalency factors (TEF) methodology. For non-detect results, one-half the practical quantitation limit (PQL) result will be used in the TEQ calculations.

CAS = chemical abstract services

PQL = practical quantitation limit

EPA = United States Environmental Protection Agency

SIM = selective ion monitoring

TEQ = toxic equivalency quotient

mg/L = milligrams per liter

µg/L = micrograms per liter

"--" = not available

APPENDIX D
Health and Safety Plan

Site Health & Safety Plan

Dakota Creek Industries Site
Anacortes, Washington

for
Washington State Department of Ecology
On Behalf of Port of Anacortes

November 1, 2022

GeoEngineers
Earth Science + Technology

Site Health & Safety Plan

Dakota Creek Industries Site
Anacortes, Washington

for
Washington State Department of Ecology
On Behalf of Port of Anacortes

November 1, 2022

GeoEngineers

2101 4th Ave Suite 950
Seattle Washington 98121
206 728 2674

Table of Contents

ATTACHMENTS

GEOENGINEERS, INC.
SITE-SPECIFIC HEALTH AND SAFETY PLAN
Cleanup Action Work at the Dakota Creek Industries Site
File No. 5147-006-16

This Health and Safety Plan (HASP) is to be used in conjunction with the GeoEngineers, Inc. (GeoEngineers) Safety Programs. Together, the written safety programs and this HASP constitutes the safety plan for this cleanup action at the Dakota Creek Industries site (Site). This plan is to be used by GeoEngineers personnel on the Site and must be made readily available for staff. If the work entails potential exposures to other substances or unusual situations that are not included in this plan, additional safety and health information will be included, and the plan will need to be reapproved by the GeoEngineers Health and Safety Manager. All plans are to be used in conjunction with current standards and policies outlined in the GeoEngineers Health and Safety Programs.

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

1.0 GENERAL PROJECT INFORMATION

Project Name:	Cleanup Action Work at the Dakota Creek Industries Site
Project Number:	5147-006-16
Type of Project:	Remedial Excavation
Start/Completion:	Summer/Fall 2022
Subcontractors:	To be determined

Chain of Command	Title	Name	Telephone Numbers
1	**Current Owner**	Port of Anacortes	(360) 299-1830
2	**Client Assigned Site Supervisor**	Brad Tesch	(360) 302-0974
3	**Technical Project Manager**	John Herzog	(206) 406-6431
4	**Health and Safety Program Manager**	Mary Lou Sullivan	(253) 722-2425
5	**Task Manager**	Abhi Joshi	(206) 239-3256
6	**Site Safety Officer (SSO)**	Nathan Solomon	(206) 437-6819
7	**Field Personnel**	Nathan Solomon	(206) 437-6819

1.1. Functional Responsibility

1.1.1. Health and Safety Manager (HSM)

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

1.1.2. Project Manager (PM)

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

1.1.3. Site Safety Officer/HAZWOPER (SSO)

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

Duties of the SSO include the following:

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

- Communicating health and safety requirements and Site hazards to field personnel, subcontractors and contractor employees, and Site visitors.
- Directing personnel to wear PPE and guiding compliance with all health and safety practices in the field.
- Consulting with the PM regarding new or unanticipated Site conditions, including emergency response activities. If monitoring detects concentrations of potentially hazardous substances at or above the established exposure limits, notify/consult with the PM. Consult with the PM and the HSM regarding new or unanticipated Site conditions, including emergency response activities. If field monitoring indicates concentrations of potentially hazardous substances at or above the established exposure limits, the HSM must be notified and corrective action taken.
- Documenting all Site accidents, illnesses and unsafe activities or conditions, and reporting them to the PM and the HSM.
- Directing decontamination operations of equipment and personnel.

1.1.4. Field Personnel

The GeoEngineers field personnel working on Site that have the potential of coming in contact with hazardous substances or physical hazards are responsible for participating in the health and safety program and complying with the Site-specific health and safety plans. These employees are required to:

- Participate and be familiar with the health and safety program.
- Notify the SSO that when there is need to stop work to address an unsafe situation.
- Comply with the HASP and acknowledge understanding of the plan.
- Report to the SSO, PM or HSM any unsafe conditions and all facts pertaining to incidents or accidents that could result in physical injury or exposure to hazardous materials.
- Participate in health and safety training, including initial 40-hour Occupational Safety and Health Administration (OSHA) course, annual 8-hour HAZWOPER refresher, and first aid/cardiopulmonary resuscitation (CPR) training.
- Participate in the medical surveillance program if applicable.
- Schedule and take a respirator fit test annually.
- Any field employee working on Site may stop work if the employee believes the work is unsafe.

1.1.5. Contractors Under GeoEngineers Supervision

Contractors working on the Site under GeoEngineers supervision or direct control that have the potential of coming in contact with hazardous substances or physical hazards shall have their own health and safety program that is in line with the Site-specific health and safety plan.

1.2. List of Field Personnel and Training

Name of Employee on Site	Level of HAZWOPER Training (24-/40-hr)	Date of 8-Hr Refresher Training	First Aid/ CPR	Date of Respirator Fit Test
Nathan Solomon	40-hr	September 2021	December 2021	November 2020
Akanksha Garg	40-hr	November 2021	October 2021	NA

1.3. Site Description

The Site is owned by the Port and leased to DCI who uses the Site for shipyard operations including vessel construction and maintenance activities. The lease area includes a portion of the Port's Pier 1 Marine Terminal, a centrally located outfitting dock (Central Pier), a syncrolift, upland fabrication areas, shops, a sandblast grit storage shed, stormwater treatment facility, warehouses and storage areas.

The Site is comprised of Marine and Upland Areas. Marine Area consists of parts offshore of Ordinary High Water (OHW) and the Upland Area consists of parts landward of OHW. In general, Marine Area is maintained with a navigation depth of approximately -35 feet Mean Lower Low Water (MLLW) to support shipyard operations. The Upland Area is relatively flat with a ground surface elevation of approximately 15 feet MLLW. The Marine and Upland Areas are separated by vertical sheet pile bulkheads, pile supported wharf structures and riprap.

1.4. Site Map

A Site map is provided at the end of this HASP.

1.5. Site History

The Site has been used for shipping, shipbuilding, ship repairs and other maritime-related industrial purposes since approximately 1879. Historically, various above ground storage tanks (ASTs), a rail spur, and associated buildings including machine shops, welding shops and equipment sheds were located at the Site to support industrial operations. Historical records indicate that a bulk oil storage and distribution facility with at least six ASTs was in operation in the central upland portion of the Site and that Pacific Tow Boat leased this portion of the Site to Standard Oil in between 1946 and 1969 who operated the bulk oil storage and distribution facility after which it was sold to the Dillingham Corporation. By the time that the Site was purchased by the Port in 1975, the structures associated with the bulk oil storage and distribution facility had been removed.

The southwest portion of the Site was historically used for residential purposes from the early 1900s until the late 1960s. In this area, the ground surface in this area was lower that the surrounding areas by several feet. Following the purchase of this area by the Port in 1975, the grade was raised to match the surrounding area using dredged sediments from the Guemes Channel. In about 1976, DCI began to lease the Site from the Port and has continued to operate the shipyard facility since that time.

Prior to 2008, multiple piers and docks and two marine railways used to lift vessels out of the water were located in the Marine Area. The west marine railway, located between the East Pier and Pier 1, was removed in the early 1990s. The east marine railway located between the East Pier and Pier 2 was removed in 2008 as part of the Project Pier 1 redevelopment activities. The Project Pier 1 redevelopment activities included

the removal of L and East Docks, the east marine railway and associated marine structures, dredging of approximately 170,000 cubic yards of sediment to achieve removal of contaminated sediments and the current navigational depth of the Marine Area, installation of 670 linear feet of sheet pile bulkhead (open cell bulkhead) to reconfigure the southern shoreline, placement of 250 linear feet of riprap along the Marine Area's east boundary and construction of the Central Pier.

The cleanup actions are being completed by the Port of Anacortes under a Consent Decree.

2.0 WORK PLAN

Cleanup action details are provided in the Engineering Design Report (EDR). Construction activities are currently anticipated to be completed in the summer/fall of 2022. The following cleanup action construction components are based on Ecology approved Cleanup Action Plan (CAP) for the Site.

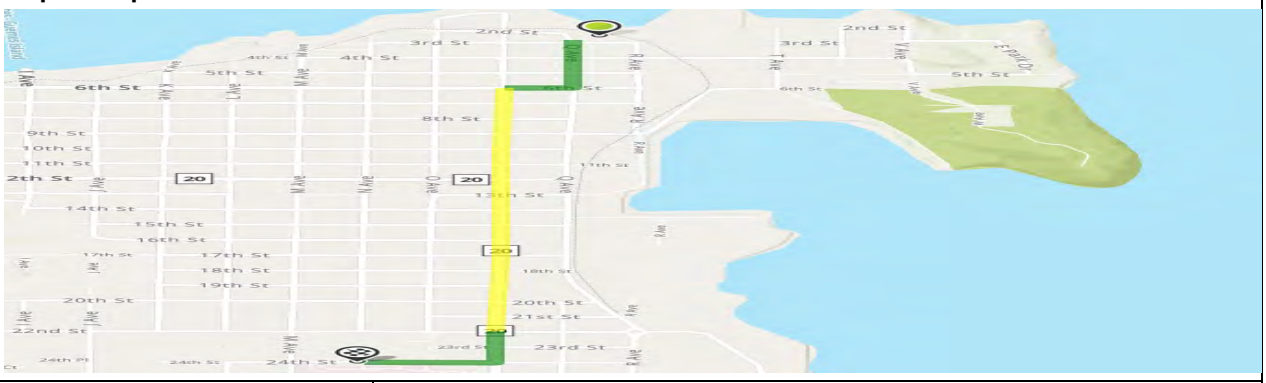
- Locating utilities prior to any earth disturbing activities.
- Implementing temporary controls including Site security, traffic, erosion and sediment, and dust and noise necessary to support remedial construction activities.
- Protecting in-place or demolishing and/or temporarily rerouting utilities (underground) to facilitate remedial excavation activities.
- Decommissioning existing monitoring well that is located within the footprint of remedial excavation.
- Demolishing existing asphalt/concrete surfaces to provide access to contaminated media that is to be removed.
- Excavating contaminated soil and debris within the area of interest.
- Performing surveys to document the limits of excavation.
- Stockpiling excavated material on Site or direct loading prior to off-Site transport and disposal.
- Dewatering, temporary storing, sampling, treating (if necessary) and appropriately disposing construction water (e.g. storm water and/or groundwater) that comes in contact with contaminated material.
- Collecting soil samples from the limits of the remedial excavation for chemical analysis of soil IHSs – arsenic, and nickel, to document contaminant concentrations that will be left in-place.
- Restoring utilities (underground) that were demolished and temporarily rerouted to facilitate remedial excavation.
- Backfilling the excavation with clean imported fill material and performing compaction.
- Restoring paved (asphalt/concrete) surfaces that were disturbed due to construction activities.
- Performing post-construction surveys to document as-built conditions.

2.1. List of Field Activities

Check the activities to be completed during the project:

- ☒ Job Hazard analyses (JHA) Form 3
- ☒ Site Reconnaissance
- ☐ Exploratory Borings
- ☒ Construction Monitoring
- ☒ Surveying
- ☐ Test Pit Exploration
- ☒ Soil Sample Collection
- ☐ Groundwater Sampling
- ☐ Groundwater Depth and Free Product Measurement
- ☐ Vapor Measurements
- ☐ Product Sample collection
- ☒ Soil Stockpile Testing
- ☒ Remedial Excavation
- ☐ Recovery of Free Product
- ☐ Monitoring Well Installation
- ☐ Monitoring Well Development
- ☐ Underground Storage Tank (UST) Removal Monitoring
- ☒ Other: Utility Protection/Management and decommissioning of monitoring well.

3.0 EMERGENCY INFORMATION

Hospital Name and Address:	Island Hospital 1211 24th Street Anacortes, Washington
Phone Numbers (Hospital ER):	**Phone**: (360) 299-1300
Distance:	4.75 Miles
Map to Hospital: 	
Route to Hospital:	1. **Start out going south on Q Ave towards 3rd Street** 2. Turn right onto 6th Street 2. Take the 1st left onto Commercial Ave. 3. Turn Right onto 24th Street 4. **End at Island Hospital**
Ambulance:	9-1-1
Poison Control:	Seattle (206) 253-2121; Other (800) 732-6985
Police:	9-1-1
Fire:	9-1-1

Location of Nearest Telephone:	Cell phones are carried by field personnel.
Nearest Fire Extinguisher:	Located in the GeoEngineers vehicle on Site.
Nearest First-Aid Kit:	Located in the GeoEngineers vehicle on Site.

3.1. Standard Emergency Procedures

Get help	■ Send another worker to phone 9-1-1 (if necessary) ■ As soon as feasible, notify GeoEngineers' Project Manager
Reduce Risk to Injured Person	■ Turn off equipment ■ Move person from injury location (if in life-threatening situation only) ■ Keep person warm ■ Perform CPR (if necessary)
Transport Injured Person to Medical Treatment Facility (If Necessary)	■ By ambulance (if necessary) or GeoEngineers vehicle ■ Stay with person at medical facility ■ Keep GeoEngineers Project Manager apprised of situation and notify Human Resources Manager of situation

4.0 HAZARD ANALYSIS

A hazard analysis has been completed as part of preparation of this HASP. The hazard analysis was performed taking into account the known and potential hazards at the Site and surrounding areas, as wells as the planned work activities. The results of the hazard analysis are presented in this section. The hazard assessment will be evaluated each day before beginning work. Updates will be made as necessary and documented in the Job Hazard Analyses (JHA) Form 3 or daily field log.

The following are known applicable hazards.

4.1. Physical Hazards

☐ Drill rigs and concrete coring, including working inside a warehouse
☒ Backhoe
☒ Trackhoe
☐ Crane
☒ Front end loader
☒ Excavations/trenching (1:1 slopes for Type B soil)
☒ Shored/braced excavation if greater than 4 feet of depth
☐ Overhead hazards/power lines
☒ Tripping/puncture hazards (debris on Site, steep slopes or pits)
☒ Unusual traffic hazard – Street traffic
☒ Heat/Cold, humidity
☒ Utilities/ utility locate
☒ Noise
☒ Other: Active ship building operations such as overhead hazards and large equipment associated with operations

- Utility location will be completed by the construction contractor as required for the location to prevent digging into utilities.
- Work areas will be marked with reflective cones, fences, barricades and/or caution tape. High-visibility vests will be worn by on-Site personnel to ensure they can be seen by vehicle and equipment operators.
- Field personnel will be aware at all times of the location and motion of heavy equipment in the area of work to ensure a safe distance between personnel and the equipment. Personnel will be visible to the operator at all times and will remain out of the swing and/or direction of the equipment apparatus. Personnel will approach operating heavy equipment only when they are certain the operator has indicated that it is safe to do so through hand signal or other acceptable means.
- Heavy equipment and/or vehicles used on this Site will not work within 20 feet of overhead utility lines without first ensuring that the lines are not energized. This distance may be reduced to 10 feet, depending on the client and the use of a safety watch.
- Personnel entry into unshored or unsloped excavations deeper than 4 feet is not allowed. Any trenching and shoring requirements will follow guidelines established in Washington Administrative Code (WAC) 296-155, the Washington State Construction Standards or OSHA 1926.651 Excavation Requirements. In the event that a worker is required to enter an excavation deeper than 4 feet, a trench box or other acceptable shoring will be employed or the side walls of the excavation will be sloped according to the soil type and guidelines as outlined in Department of Occupational Safety and Health (DOSH) and OSHA regulations.
- Cold stress control measures will be implemented according to the GeoEngineers Health and Safety Program to prevent frost nip (superficial freezing of the skin), frost bite (deep tissue freezing), or hypothermia (lowering of the core body temperature). Heated break areas and warm beverages shall be available during periods of cold weather.
- Heat stress control measures required for this Site will be implemented according to GeoEngineers Health and Safety Program with water provided on Site.

4.2. Biological Hazards and Procedures

☐ Poison Ivy or other vegetation	Click here to enter text.
☐ Insects or snakes	Click here to enter text.
☐ Hypodermic needles or other infectious hazards	Click here to enter text.
☐ Wildlife	Click here to enter text.
☒ Other: COVID-19	See Supplementary COVID-19 JHA

4.3. Ergonomic Hazard Mitigation Measures and Procedures

4.3.1. Avoiding Lifting Injuries

Back injuries often result from lifting objects that are too heavy or from using the wrong lifting technique. Keep your back healthy and pain-free by following common sense safety precautions.

- Minimize reaching by keeping frequently used items within arm's reach, moving your whole body as close as possible to the object.

- Avoid overextending by standing up when retrieving objects on shelves.
- Keep your back in shape with regular stretching exercises.
- Get help from a coworker or use a hand truck if the load is too heavy or bulky to lift alone.

4.3.2. Proper Lifting Techniques

- Face the load; don't twist your body. Stand in a wide stance with your feet close to the object.
- Bend at the knees, keeping your back straight. Wrap your arms around the object.
- Let your legs do the lifting.
- Hold the object close to your body as you stand up straight. To set the load down, bend at the knees, not from the waist.

4.4. Engineering Controls

☒ Trench shoring (1:1 slope for Type B Soils)

☒ Locate work spaces upwind of potential hazards whenever possible

☒ Other soil covers (as needed)

☒ Other (specify): Contractor will use water spray/mist as a dust control measure to suppress visible dust

4.5. Chemical Hazards

CHEMICAL HAZARDS (POTENTIALLY PRESENT AT SITE)

Compound/ Description	WA L&I PEL Exposure Limit	Exposure Route	Toxic Characteristics
Arsenic (inorganic metal, as As) Metal: Silver-gray or tin-white, brittle, odorless solid.	WA L&I: PEL 0.01 mg/m^3 ACGIH: TLV 0.01 mg/m^3 OSHA: PEL 0.5 mg/m^3 NIOSH: ND	Inhalation, ingestion, skin and/or eye contact	Organic Arsenic: Irritation skin, possible dermatitis; resp distress; diarrhea; kidney damage; muscle tremor, convulsions; possible gastrointestinal tract, reproductive effects; possible liver damage Inorganic Arsenic: Ulceration of nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, resp irritation, hyperpigmentation of skin, [potential occupational carcinogen]
Nickel (inorganic metal as Ni) Metal: Lustrous, silvery, odorless solid.	WA L&I: PEL 1.0 mg/m^3 STEL 3.0 mg/m^3 ACGIH: TLV 0.1 mg/m^3 OSHA: PEL 1.0 mg/m^3 NIOSH: REL 0.015 mg/mg^3 IDLH: 10 mg/m^3	Inhalation, ingestion, skin and/or eye contact (note that soluble/insoluble inorganic compounds can cause lung cancer over time at levels exceeding PELs)	Sensitization dermatitis, allergic asthma, pneumonitis, [potential occupational carcinogen] ACGIH A5 (Ni elemental) not suspected as human carcinogen (other nickel types, including Ni subsulfide, are known carcinogens) NIOSH considers Ni as a potential occupational carcinogen

Compound/ Description	WA L&I PEL Exposure Limit	Exposure Route	Toxic Characteristics
Polycyclic aromatic hydrocarbons (PAH) as coal tar pitch volatiles	WA L&I/ACGIH: PEL 0.2 mg/m^3 STEL 0.6 mg/m^3 TLV 0.2 mg/m^3 NIOSH: REL 0.1 mg/m^3 IDLH 80 mg/m^3	Inhalation, ingestion, skin and/or eye contact	Dermatitis, bronchitis, potential carcinogen

Notes:

If a State has established a PEL more restrictive than the OSHA limits, then the applicable State limit becomes the legal limit.
IDLH = immediately dangerous to life or health
OSHA = Occupational Safety and Health Administration
ACGIH = American Conference of Governmental Industrial Hygienists
mg/m3 = milligrams per cubic meter
PEL = permissible exposure limit
TLV = threshold limit value (over 10 hrs)
STEL = short-term exposure limit (15 min)
ppm = parts per million

CHEMICAL CONCENTRATIONS BASED ON EXISTING SOIL DATA AT THE LOCATION OF EXCAVATION

Contaminant	Range of Detected Concentrations	Units
Arsenic	<270	mg/kg
Nickel	<173	mg/kg
cPAH TEQ	ND	mg/kg

Note:

TEQ = Toxic equivalent quotient

4.6. Summary of Selected Chemical Hazards

4.6.1. Arsenic (Inorganic)

Carcinogenicity: Arsenic is classified as a human carcinogen.

Toxicity: Exposure routes include inhalation, skin absorption, ingestion and skin and/or eye contact. Ingesting a large amount of arsenic may cause death. Exposure to lower levels can cause nausea, vomiting, decreased production of red and white blood cells, abnormal heart rhythm, damage to blood vessels and a sensation of 'pins and needles' in hands and feet. Skin contact with inorganic arsenic may cause redness and swelling.

Environmental Fate and Transport: If released to air, arsenic may get into water from runoff and leaching, ultimately ending up in soil or sediment. Rain and snow will remove arsenic dust particles from the air. Arsenic cannot be destroyed in the environment; it can only change in form.

Odor Threshold: N/A

Arsenic is a naturally occurring element. It is released into the air by volcanoes, the weathering of arsenic-containing minerals and ores, and by commercial or industrial processes. For most people, diet is the largest source of arsenic exposure, with usually smaller intakes from drinking water and air. Among foods,

some of the highest levels are found in fish and shellfish; however, this arsenic exists primarily as organic compounds, which are essentially nontoxic. Inorganic arsenic compounds are the predominant forms in drinking water. Elevated levels of inorganic arsenic may be present in soil, either from natural mineral deposits or contamination from human activities, which may lead to dermal or ingestion exposure. Workers in metal smelters and nearby residents may be exposed to above-average inorganic arsenic levels from arsenic released into the air. Other sources of inorganic arsenic exposure include burning plywood treated with an arsenical wood preservative or dermal contact with wood treated with arsenic.

4.6.2. Nickel (Inorganic)

Nickel occurs naturally in the environment at low levels. Nickel is a silvery-white metal that is found in nature as a component of silicate, sulfide, or arsenide ores. Nickel is an essential element in some animal species, and it has been suggested it may be essential for human nutrition. Nickel is used for nickel alloys, electroplating, batteries, coins, industrial plumbing, spark plugs, machinery parts, stainless-steel, nickel-chrome resistance wires, and catalysts.

Nickel dermatitis, consisting of itching of the fingers, hands, and forearms, is the most common effect in humans from chronic (long-term) skin contact with nickel. Respiratory effects have also been reported in humans from inhalation exposure to nickel. Human and animal studies have reported an increased risk of lung and nasal cancers from exposure to nickel refinery dusts and nickel subsulfide. The primary routes for nickel exposure are dietary ingestion, dermal absorption, and inhalation. Inhalation is the most serious toxicological exposure concern in the workplace, followed by dermal exposure (NTP RoC for Nickel, 1998).

4.6.3. Polycyclic Aromatic Hydrocarbons (PAHs)

Carcinogenicity: PAHs are classifiable as human carcinogens.

Toxicity: Exposure routes include inhalation and skin and/or eye contact. Symptoms may include dermatitis and bronchitis. Short-term exposure to large amounts of naphthalene and other PAHs can cause mild symptoms, or serious illness. Mild symptoms may include skin or eye irritation, headache, confusion, and blurry vision. Serious effects may include degenerative changes in the kidneys, liver, thymus, or spleen, dermatitis, or conjunctivitis.

Environmental Fate and Transport: If released to air, PAHs can attach to dust particles. PAHs can be broken down by sunlight and other chemicals in the air over a period of days to weeks. PAHs do not dissolve easily in water and tend to stick to solid particles and settle to the bottoms of lakes and rivers where microorganisms can break them down over a period of weeks to months.

Odor Threshold: N/A

4.7. Additional Hazards

Daily field logs should include evaluation of:

- *Physical Hazards* (excavations and shoring, equipment, traffic, tripping, heat stress, cold stress and others)
- *Biological Hazards* (snakes, spiders, bees/wasps, animals, discarded needles, poison ivy, pollen, and others present)

- *Ergonomic Hazards* (lifting heavy loads, tight work spaces, etc.)
- *Chemical Hazards* (odors, spills, free product, airborne particulates and others present)

5.0 AIR MONITORING PLAN

An air monitoring plan has been prepared as part of development of this HASP. The air monitoring plan is based on the results of the chemical exposure assessment and the known and potential inhalation hazards on Site. The air monitoring plan addresses steps necessary to limit worker exposure. Non-occupational exposures are not addressed in this plan. Based on existing Site data for the proposed remedial excavation footprint (see existing soil data table), the use of respirators are not anticipated unless conditions change. Notify the PM if conditions change.

Check Instrumentation to be Used

☐ Multi-Gas Detector (may include oxygen, carbon monoxide, hydrogen sulfide, lower explosive limit)

☐ Dust Monitor

☒ Photoionization detector ([PID] MiniRAE 3000 with 10.6 eV lamp or equivalent).

☐ Other (i.e., detector tubes or badges) Please specify: Click here to enter text.

Check Monitoring Frequency/Locations And Type (Specify: Work Space, Borehole, Breathing Zone):

☐ Continuous during soil disturbance activities or handling samples

☐ 15 minutes

☐ 30 minutes

☐ Hourly

☒ Other: As needed in the event of odors

5.1. Additional Personal Air Monitoring for Specific Chemical Exposure

Action Levels for Volatile Organic Chemicals

- The workspace will be monitored using a photoionization detector (PID). These instruments must be properly maintained, calibrated and charged (refer to the instrument manuals for details). Zero the PID in the same relative humidity as the area in which it will be used and allow at least a 10-minute warm-up prior to zeroing. Do not zero in a contaminated area.
- If vapor concentrations exceed 1 parts per million (ppm) above background continuously for a 5-minute period as measured in the breathing zone, upgrade to Level C personal protective equipment (PPE) or move to a non-contaminated area.
- Standard industrial hygiene/safety procedure is to require that action be taken to reduce worker exposure to organic vapors when vapor concentrations exceed one-half the threshold limit value (TLV). Because of the variety of chemicals, the PID will not indicate exposure to a specific permissible exposure limit (PEL) and is therefore not a preferred tool for determining worker exposure to chemicals. If odors are detected, then employees shall upgrade to respirators with Organic Vapor cartridges and will contact the Health and Safety Program Manager for other sampling options.

AIR MONITORING ACTION LEVELS

Contaminant	Activity	Monitoring Device	Frequency of Monitoring Breathing Zone	Action Level	Action
Organic Vapors	Environmental Remedial Actions	PID	Start of shift; prior to excavation entry; as needed if odors are present	Background to 1 ppm in breathing zone	Use Level D or Modified Level D PPE
				Around 1 ppm in breathing zone inconsistently over 5 minutes	Upgrade to Level C PPE
				= or >1 ppm in breathing zone consistently over 5 minutes	Stop work and evacuate the area. Contact Health and Safety Program Manager for guidance
Dust	Environmental Remedial Actions	NA	Continuous visual observation during soil disturbance activities	Visual observation of cloud dust	Implement dust control measures (approved wetting agents) and continue operations

6.0 SITE CONTROL PLAN

Work zones will be considered to be within 10 feet or extent practicable of the backhoe, or other equipment. Employees should work upwind of the machinery if possible. To the extent practicable, use the buddy system. Do not approach heavy equipment unless you are sure the operator sees you and has indicated it is safe to approach. All personnel from GeoEngineers and subcontractor(s) should review the HASP and be made aware of safety features during each morning's safety tailgate meeting (location of fire extinguishers, cell phone numbers, etc.). For medical assistance, see Section 3.0 above.

A contamination reduction zone shall be established by the excavation contractor for personnel before leaving the Site or before breaking for lunches, etc. The zone should consist of garbage bags into which used PPE should be disposed. Personnel should wash hands at the Site before eating or leaving the Site.

6.1. Traffic or Vehicle Access Control Plans

Construction plans will be prepared as part of the contract documents presenting minimum requirements for traffic control, Site access and security. The Site is located within Port of Anacortes (Port) owned/managed properties. Traffic control plans will be prepared in coordination with the City of Anacortes (City) and Port to ensure that the vehicular and pedestrian traffic is managed during construction activities in accordance with the applicable requirements.

In general, traffic controls will include providing necessary signs (e.g. road/sidewalk closure, detour signs, etc.), barricades and flaggers as necessary to facilitate street and sidewalk closures and maintain safe

movement of the traffic. Necessary traffic controls will be implemented in accordance with the requirements of the City for construction trucks transferring excavated material from excavation area to the stockpile. Traffic control will also be coordinated with Dakota Creek Industries to ensure safety with their ongoing shipyard activities. The contractor will also be responsible for providing and installing temporary Site security measures including fencing, barricades, etc. as necessary for cordoning off the work area from public. The Site access, security and traffic control measures will remain in-place for the duration of the project. The construction work area will be secured during non-work hours.

6.2. Site Work Zones

An exclusion zone, contamination reduction zone, and support zone should be established around working areas. Personnel leaving the facility or on break should exit the exclusion zone through the contamination reduction zone. The contamination reduction zone, at a minimum, should consist of garbage bags into which used PPE should be disposed. Personnel should wash hands at the Facility before eating or leaving the facility.

Hot zone/exclusion zone: *Within 10 feet of excavations*

Method of Delineation/Excluding Non-Site Personnel

☒ Fence

☐ Survey Tape

☒ Traffic Cones

☒ Other: Caution Tape

6.3. Buddy System

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

6.4. Site Communication Plan

Positive communications (within sight and hearing distance or via radio) should be maintained between pairs on Site, with the pair remaining in proximity to assist each other in case of emergencies. The team should prearrange hand signals or other emergency signals for communication when voice communication becomes impaired (including cases of lack of radios or radio breakdown) and an agreed upon location for an emergency assembly area.

In instances where communication cannot be maintained, you should consider suspending work until it can be restored. If this is not an option, the following are some examples for communication:

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

6.5. Emergency Action

In the event of an emergency, employees with convene in a designated area Identified on the Job Hazard Analyses Form (JHA) Form 3. Employees should communicate with others working on Site and the PM to determine the Emergency Action Plan for each site. All personnel from GeoEngineers and subcontractor(s) should be made aware of the Emergency Action for the Site at each morning's safety tailgate meeting (drill rig shutoff switch, location of fire extinguishers, cell phone numbers, etc.). For medical assistance, see Section 3.0 above.

6.6. Decontamination Procedures

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

Equipment that come in contact with contaminated material will be decontaminated prior to leaving the Site. The contractor will be required to develop decontamination procedures for equipment according to the contract documents for the Site.

6.7. Waste Disposal or Storage

Used PPE is to be placed in a plastic bag for disposal. The EDR describes the best management practices (BMPs) that will be used for temporary storage/stockpiling of excavated material prior to off-site transport and disposal. Disposal of excavated material will be completed at an off-site permitted disposal facility.

Drill Cutting/Excavated Soil Disposal or Storage:

☒ On Site, pending analysis and further action

☐ Secured: Click here to enter text.

7.0 PERSONAL PROTECTIVE EQUIPMENT

Minimum level of personal protective equipment (PPE) for this Site is Level D. After the initial and/or daily hazard assessment has been completed the appropriate personal protective equipment (PPE) will be selected to ensure worker safety. Task-specific levels of PPE shall be reviewed with field personnel during the pre-work briefing conducted before the start of Site operations.

Site activities include remedial excavation, handling and sampling solid subsurface material (material may potentially be saturated with contaminated materials and groundwater). Site hazards include potential exposure to hazardous materials, and physical hazards such as trips/falls, heavy equipment, and contaminant exposure.

Air monitoring will be conducted to determine the level of respiratory protection.

- Level D PPE, unless a higher level of protection is required, will be worn at all times on the Site. Level D PPE includes steel-toed boots, outdoor work clothing, hard hat, safety glasses, safety vest, gloves,

and hearing protection as needed. Potentially exposed personnel will wash gloves, hands, face and other pertinent items to prevent hand-to-mouth contact. This will be done prior to hand-to-mouth activities including eating, smoking, etc.

- Adequate personnel and equipment decontamination will be used to decrease potential ingestion and inhalation.
- Half-face combination organic vapor/high efficiency particulate air (HEPA) or P100 cartridge respirators will be available on Site to be used as necessary. P100 cartridges are to be used only if PID measurements are below the Site action limit. P100 cartridges are used for protection against dust, metals and asbestos, while the combination organic vapor/HEPA cartridges are protective against both dust and vapor. Ensure that the PID or TLV will detect the chemicals of concern on Site.

Check Applicable Personal Protection Gear to be Used:

☒ Hardhat (if overhead hazards, or client requests)

☒ Steel-toed boots (if crushing hazards are a potential or if client requests)

☒ Safety glasses (if dust, particles, or other hazards are present or client requests)

☒ Reflective vest (if working near traffic or equipment)

☒ Hearing protection (if it is difficult to carry on a conversation 3 feet away)

☒ Rubber boots (if wet conditions)

Gloves (Specify):

☒ Nitrile

☐ Latex

☐ Liners

☐ Leather

☐ Other (specify) Click here to enter text.

Protective Clothing:

☐ Tyvek (if dry conditions are encountered, Tyvek is sufficient) (modified Level D or Level C)

☐ Saranex (personnel shall use Saranex if liquids are handled or splash may be an issue) (modified Level D or Level C)

☒ Cotton (Level D)

☒ Rain gear (as needed) (Level D)

☒ Layered warm clothing (as needed) (Level D)

Inhalation Hazard Protection:

☒ Level D (no respirator)

☐ Level C (respirators with organic vapor/HEPA P100 filters)

☐ Level B (Self Contained Breathing Apparatus— STOP, Consult the HSM)

7.1. Personal Protective Clothing Inspections

PPE clothing ensembles designated for use during Site activities shall be selected to provide protection against known or anticipated hazards. However, no protective garment, glove or boot is entirely chemical-resistant, nor does any PPE provide protection against all types of hazards. To obtain optimum performance

from PPE, Site personnel shall be trained in the proper use and inspection of PPE. This training shall include the following:

- Inspect PPE before and during use for imperfect seams, non-uniform coatings, tears, poorly functioning closures or other defects. If the integrity of the PPE is compromised in any manner, proceed to the contamination reduction zone and replace the PPE.
- Inspect PPE during use for visible signs of chemical permeation such as swelling, discoloration, stiffness, brittleness, cracks, tears or other signs of punctures. If the integrity of the PPE is compromised in any manner, proceed to the contamination reduction zone and replace the PPE.
- Disposable PPE should not be reused after breaks unless it has been properly decontaminated.

7.2. Respirator Selection, Use and Maintenance

If respirators become required due to changing Site conditions based on air monitoring, Site personnel shall be trained before use on the proper use, maintenance and limitations of respirators. Additionally, they must be medically qualified to wear respiratory protection in accordance with 29 CFR 1910.134. Site personnel who will use a tight-fitting respirator must have passed a qualitative or quantitative fit test conducted in accordance with an OSHA-accepted fit test protocol. Fit testing must be repeated annually or whenever a new type of respirator is used. Respirators will be stored in a protective container.

7.3. Respirator Cartridges

If the action levels identified in the Air Monitoring Action Levels Table in Section 5.0, are exceeded, Site personnel should don respiratory protection appropriate for the known or suspected chemical of concern. For most sites, a half-face or full-face air purifying respirator with a National Institute for Occupational Safety and Health (NIOSH)-approved organic vapor/HEPA P100 combination cartridge (Level C), will be appropriate for the known or suspected chemicals of concern. Monitoring frequency should be continuous while using Level C respiratory protection. The SSO closely monitor personnel using respiratory protection, including observing for signs of fatigue or respiratory distress, the potential for cartridge breakthrough or increased resistance to inhalation, and the need for changes in the level of respiratory protection based on air monitoring. The frequency and duration of breaks should be increased for personnel working in respiratory protection. If at any time on-Site air monitoring indicates Level B respiratory protection is warranted, personnel should leave the exclusion zone and consult with the HSM.

If Site personnel are required to wear air-purifying respirators, the appropriate cartridges shall be selected to protect personnel from known or anticipated Site contaminants. The respirator/cartridge combination shall be approved and NIOSH-certified. A cartridge change-out schedule shall be developed based on known Site contaminants, anticipated contaminant concentrations and data supplied by the cartridge manufacturer related to the absorption capacity of the cartridge for specific contaminants. Site personnel shall be made aware of the cartridge change-out schedule prior to the initiation of Site activities. Site personnel shall also be instructed to change respirator cartridges if they detect increased resistance during inhalation or detect vapor breakthrough by smell, taste or feel, although breakthrough is not an acceptable method of determining the change-out schedule.

7.4. Respirator Inspection and Cleaning

The Site Safety Officer shall periodically (weekly) inspect respirators at the project Site. Site personnel shall inspect respirators prior to each use in accordance with the manufacturer's instructions. In addition, Site personnel wearing a tight-fitting respirator shall perform a positive and negative pressure user seal check each time the respirator is donned, to ensure proper fit and function. User seal checks shall be performed in accordance with the GeoEngineers respiratory protection program or the respirator manufacturer's instructions.

8.0 ADDITIONAL HEALTH AND SAFETY ELEMENTS

8.1. Cold Stress Prevention

Working in cold environments presents many hazards to Site personnel and can result in frost nip (superficial freezing of the skin), frost bite (deep tissue freezing), or hypothermia (lowering of the core body temperature).

The combination of wind and cold temperatures increases the degree of cold stress experienced by Site personnel. Site personnel shall be trained on the signs and symptoms of cold-related illnesses, how the human body adapts to cold environments, and how to prevent the onset of cold-related illnesses. Heated break areas and warm beverages shall be provided during periods of cold weather.

8.2. Heat Stress Prevention

Keep workers hydrated in a hot outdoor environment requires more water be provided than at other times of the year. When employee exposure is at or above an applicable temperature listed in the Heat Stress table below, Project Managers will ensure that:

- A sufficient quantity of drinking water is readily accessible to employees at all times
- All employees have the opportunity to drink at least one quart of drinking water per hour
- A shaded/cooled rest area will be provided for workers to take breaks during intense heat

HEAT STRESS

Type of Clothing	Outdoor Temperature Action Levels
Nonbreathing clothes including vapor barrier clothing or PPE such as chemical resistant suits	52°
Double-layer woven clothes including coveralls, jackets and sweatshirts	77°
All other clothing	89°

8.3. Emergency Response

- Personnel on Site should use the "buddy system" (pairs), when sufficient staff are at the Site.
- Visual contact should be maintained between "pairs" on Site, with the team remaining in proximity to assist each other in case of emergencies.

- If any member of the field crew experiences any adverse exposure symptoms while on Site, the entire field crew should immediately halt work and act according to the instructions provided by the SSO.
- The discovery of any condition that would suggest the existence of a situation more hazardous than anticipated should result in the evacuation of the field team, contact of the PM, and reevaluation of the hazard and the level of protection required.
- If an accident occurs, the Site Safety Officer and the injured person are to complete, within 24 hours, an Accident Report (Form 4) or online at https://safety.geoengineers.com/#NewIncident for submittal to the PM, the HSPM, and HR. The PM should ensure that follow-up action is taken to correct the situation that caused the accident or exposure.

9.0 MISCELLANEOUS

9.1. Personnel Medical Surveillance

GeoEngineers employees are not in a medical surveillance program because they do not fall into the category of "Employees Covered" in OSHA 1910.120(f)(2), which states that a medical surveillance program is required for the following employees:

1. Employees who are or may be exposed to hazardous substances or health hazards at or above the permissible exposure limits or, if there is no permissible exposure limit, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more a year.
2. Employees who wear a respirator for 30 days or more a year or as required by state and federal regulations.
3. Employees who are injured, become ill or develop signs or symptoms due to possible overexposure involving hazardous substances or health hazards from an emergency response or hazardous waste operation.
4. Members of HAZMAT teams.

9.2. Spill Containment Plans (Drum and Container Handling)

- Site topography is generally flat, gently sloping to the north
- Site drainage – Property specific stormwater treatment and management system.

9.3. Sampling, Managing and Handling Drums and Containers

Drums and containers used during the cleanup shall meet the appropriate Department of Transportation (DOT), OSHA and U.S. Environmental Protection Agency (EPA) regulations for the waste that they contain. Site operations shall be organized to minimize the amount of drum or container movement. When practicable, drums and containers shall be inspected and their integrity shall be ensured before they are moved. Unlabeled drums and containers shall be considered to contain hazardous substances and handled accordingly until the contents are positively identified and labeled. Before drums or containers are moved, all employees involved in the transfer operation shall be warned of the potential hazards associated with the contents.

Drums or containers and suitable quantities of proper absorbent shall be kept available and used where spills, leaks or rupturing may occur. Where major spills may occur, a spill containment program shall be implemented to contain and isolate the entire volume of the hazardous substance being transferred. Fire extinguishing equipment shall be on hand and ready for use to control incipient fires.

9.4. Entry Procedures for Confined Spaces - NA

GeoEngineers employees shall not enter confined spaces to perform work unless they have been properly trained and with hands-on experience in the use of retrieval equipment. If a project requires confined space entry, please include a copy of the confined space permit and include the training documentation in this HASP.

Trenches greater than 4 feet in depth with the potential for buildup of a hazardous atmosphere are considered confined spaces.

9.5. Sanitation

Sanitary facilities are not available on Site. The nearest restrooms are available at business locations near the Site. In addition, contractor may choose to provide temporary sanitary facilities at the Site for the duration of the project.

9.6. Lighting

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

10.0 DOCUMENTATION TO BE COMPLETED FOR HAZWOPER PROJECTS

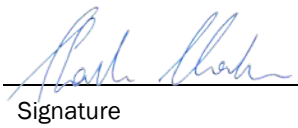
- Daily Field Log
- FORM 1—Health and Safety Pre-Entry Briefing and Acknowledgment of Site Health and Safety Plan for use by employees, subcontractors and visitors
- FORM 2—Safety Meeting Record
- FORM 3—Job Hazard Analyses (JHA) Form
- FORM 4—Accident/Exposure Report Form

NOTE: The Field Log is to contain the following information:

- Updates on hazard assessments, field decisions, conversations with subcontractors, client or other parties, etc.;
- If applicable, air monitoring/calibration results, including: personnel, locations monitored, activity at the time of monitoring, etc.;
- Actions taken;
- Action level for upgrading PPE and rationale; and
- Meteorological conditions (temperature, wind direction, wind speed, humidity, rain, snow, etc.).

11.0 APPROVALS

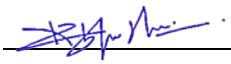
1. Plan Prepared



November 1, 2022

Signature Date

2. Plan Approval



November 1, 2022

PM Signature Date

FORM 1
HEALTH AND SAFET PRE-ENTRY BRIEFING AND ACKNOWLEDGEMENT OF THE SITE HEALTH AND SAFETY PLAN FOR GEOENGINEERS' EMPLOYEES, SUBCONTRACTORS AND VISITORS

Cleanup Action Plan, Dakota Creek Industries Site
File No. 5147-006-16

Inform employees, contractors and subcontractors or their representatives about:

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

Conduct briefings for employees, contractors and subcontractors, or their representatives as follows:

- A pre-entry briefing before any Site activity is started.
- Additional briefings, as needed, to make sure that the Site-specific HASP is followed.
- Make sure that employees working on the Site are informed of any risks identified and trained on how to protect themselves and other workers against the Site hazards and risks.
- Update information to reflect current sight activities and hazards.
- Personnel participating in this project must receive initial health and safety orientation. Thereafter, brief tailgate safety meetings will be held as deemed necessary by the Site Safety Officer.
- The orientation and the tailgate safety meetings shall include a discussion of emergency response, Site communications and Site hazards.

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

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

Print Name	Signature	Date
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

FORM 2
SAFETY MEETING RECORD
Cleanup Action Plan, Dakota Creek Industries Site
File No. 5147-006-16

Safety meetings should include a discussion of emergency response, communications and Site hazards.

- Use in conjunction with the HASP and Job Hazard Analyses (JHA) Form 3 to help identify hazards.

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

Topics: _____

Attendees:

Print Name	**Signature:**

FORM 3
JOB HAZARD ANALYSES (JHA) FORM
Cleanup Action Plan, Dakota Creek Industries Site
File No. 5147-006-16

This form can be used for analyses of daily hazards where there are multiple tasks and ongoing projects and for record keeping purposes. Make copies as needed.

Project: Cleanup Action Plan, Dakota Creek Industries Site **File No:** 5147-006-16	**Date:** date	**Site Location:** 115 Q Avenue, Anacortes, Wa

Development Team:	**Position/Title:**	**Reviewed by:**	**Position/Title:**
Name	Field Representative	Name	Project Manager

Minimum Required Protective Equipment: (see critical actions for task-specific requirements)

PPE	**Equipment**	**Tools**	**Actions**
☒ Hard Hat	☐ Safety Beacons	☒ Cell/Satellite Phone	☒ Stay Visible
☒ High Visibility Vest	☒ Safety Cones	☒ Digital Camera	☒ Equipment Inspection
☒ Safety Shoes/Waders	☒ First Aid Kit	☐ iPad	☐ Work in Pairs
☒ Gloves	☒ Fire Extinguisher	☐	☒ Safety Control/Traffic Plan
☒ Safety Glasses	☐ Eye Wash/ Drinking Water	☐	☐

Job Steps	**Potential Hazards**	**Critical Actions to Mitigate Hazards**
Pre-Job Activities	Example: Unfamiliar locations, congestion, unpaved roads, Mechanical Failure, Flat Tires Vehicle Fire, Exhaust Leaks, Vehicle Collision, Internal Projectiles	■ Inspect the vehicle before departure: ▪ Check for tire cuts, fluid leaks, flat tires, body damage, windshield cracks, and other damage. ▪ Check lights, wipers, fluid levels, and seat belts. ■ Study the area maps, photos and use GPS. ■ Identify the safest spot to park field vehicles.
Mobilization to worksite	Transmission of COVID-19 Virus	■ Pack hand sanitizer and wipes for use during all modes of business travel. ■ Assign hand sanitizer to vehicle when able. ■ Sanitize “high touch” areas: keys, steering wheels, dash controls, door handles, mirror adjustments, shifter, blinkers, head rests, etc. ■ Re-Fueling: Use sampling gloves or wash hands after using the pump at a gas station. When possible, do this before you get back into the vehicle. ■ Intra-Site Transportation: Maintain social distancing on transport skiffs or multi-passenger ATVs. Request multiple trips if overcrowded. Keep your field PPE on during travel.

Job Steps	Potential Hazards	Critical Actions to Mitigate Hazards
Driving to Site location (Highway Driving)	Unfamiliar road, Mechanical Failure, Flat Tires, Vehicle Fire, Vehicle Collision.	■ Use only vehicles appropriate for the work needs and the driving conditions expected. ■ Ensure the vehicle has a complete and current first aid kit and fire extinguisher. ■ Place heavy objects behind a secure safety cage if they must be carried in a passenger compartment. ■ Use parking brake, and don't leave vehicle unattended while it is running. ■ Ensure vehicle has fuel to get to and from your destinations. ■ Inform your Project Manager of your destination and estimated time of return. ■ Carry extra food, water, and clothing. ■ Drive defensively.
Familiarize crew with the task and location of Site	Crew does not notify site owner / manager. Unaware of the job site hazards and steps to prevent injury. Appropriate personnel protective equipment not worn.	■ Conduct a tailgate safety meeting discussing the jobs, the hazards and actions that will be taken to prevent injury. ■ Discuss "Stop Work Authority" as it applies to each Site member. ■ Discuss appropriate PPE including high visibility clothing such as reflective vest. ■ Notify attendant and/or Site owner/manager of work activities and location. ■ Set up exclusion zone surrounding work area.
Pre-Work Safety Meetings	Transmission of COVID-19 Virus	■ Review Site maps, photos and routes prior to Site arrival to anticipate present staffing or public density areas. ■ Conduct a tailgate safety meeting in location that can accommodate ≥6' social distancing. ■ Keep group sizes as small as possible (< 10 people or smaller depending on individual state guidance). ■ Meeting attendance should be verbally announced and recorded by a single representative to avoid contact with shared supplies/equipment/computers/work surfaces. ■ Use verbal greetings. Do not shake hands, hug, fist bump, or high five. ■ Wear face coverings if social distances cannot be maintained. ■ Use own supply of pens, notebooks and similar field supplies.

Job Steps	Potential Hazards	Critical Actions to Mitigate Hazards
Heavy Equipment Movement	Pre-Job Activities	■ Conduct a tailgate safety meeting discussing the jobs, the hazards and actions that will be taken to prevent injury. ■ Discuss "Stop Work Authority" as it applies to each Site member. ■ Discuss appropriate PPE including high visibility clothing such as reflective vest. ■ Notify attendant and/or Site owner/manager of work activities and location. ■ Set up exclusion zone surrounding work area.
Site Operations	Transmission of COVID-19 Virus	■ Maximize social distances to the greatest extent feasible. ■ If tasks or locations require sharing workspaces in proximity to others with <6' separation, wear a face covering. ■ Sanitize shared tools or equipment ■ Use own vehicle as Site office rather than shared spaces. ■ Wash ungloved hands after contacting shared surfaces. ■ Sanitize personal items regularly (cell phone, water bottle, clipboards, notebooks). ■ Set up exclusion zones surrounding public interface areas if < 6' separation. ■ Wear face covering if traveling off Site for lunch/coffee/supplies and recommended social distances cannot be maintained. ■ Leave job Site if experiencing onset of COVID-19 symptoms.
Remedial Observation	Hit by equipment Slip, trips or falls	■ Be aware of the location and motion of heavy equipment in the area of work to ensure a safe distance between personnel and the equipment. ■ Stay visible to the operator and remain out of the swing and/or direction of the equipment apparatus. ■ Approach operating heavy equipment only when they are certain the operator has indicated that it is safe to do so through hand signal or other acceptable means. ■ Avoid tripping hazards, steep slopes, pits and other hazardous encumbrances. ■ If it becomes necessary to work within 6 feet of the edge of a pit, slope or other potentially hazardous area, appropriate fall protection measures will be implemented.

Job Steps	Potential Hazards	Critical Actions to Mitigate Hazards
Traveling on Foot	Falls, Foot Injuries, and Stress and Impact Injuries, Personal Safety	■ Identify and use safe travel routes. Do not exceed physical abilities or equipment design. ■ Use pack equipment properly. Carry weight on hips, not back. ■ Warm up and stretch the appropriate muscle groups before and after hitting the trail. ■ Test and use secure footing. Move cautiously and deliberately. Never run. ■ Wear safety-toed boots with good, non-skid soles that are tall enough to support ankles. ■ Know basic first aid. Completion of a basic first aid course is required. ■ Use footwear appropriate to the terrain and load being carried. ■ Know how to fall. Roll, protect the head and neck, and do not extend arms to break the fall.
Communication	Additional Hazards, i.e., No communication in case of emergency	■ Verify cell phone is working. ■ Maintain communication with Project Manager throughout job task. ■ Verify location and contact numbers for emergency medical assistance or 911.
	Additional Hazards, i.e., Emergency	■ **Dial 911.** ■ Hospital Route.
Positive or Assumed Positive COVID-19 Result at Site	Transmission of COVID-19 Virus	■ Contact your manager as soon as information is received of a positive or assumed positive result on the jobsite. ■ Determine if you have had close and prolonged personal proximity to the individual. ■ Based on proximity, you may be asked to remove yourself from the worksite. ■ Your manager will provide guidance for how to proceed safely following worksite withdrawal.
Required Control Measures: (check the box when complete)		
☐ Perform a pre-work vehicle inspection (First Aid kit, fire extinguisher).		
☐ Drive defensively looking out for the other guy.		
☐ Conduct a pre-work safety meeting.		
☐ Use a Safety Watch to monitor equipment Minimum Approach Distance (MAD) and to keep personnel clear if needed.		
☐ Wear Personal Protective Equipment (PPE).		
☐ Ensure training is current (First Aid, defensive driving, etc.).		
☐ Conduct Task Safety Assessments throughout the job.		
Additional Comments:		

DAILY HAZARD ASSESSMENT RECORD OF SAFETY MEETINGS

Signature	Date	Signature	Date

FORM 4
ACCIDENT/EXPOSURE REPORT FORM
Cleanup Action Plan, Dakota Creek Industries Site
File No. 5147-006-16

To (Supervisor): _____ From (Employee): _____

Telephone (with area code): _____

Name of injured or ill employee: _____

Date of accident: Time of accident: Exact location of accident:

Narrative description of: **accident**/**exposure** (circle one):

Medical attention given on site:

Nature of illness or injury and part of body involved: Lost Time? Yes ☐ No ☐

Probably Disability (check one):

Fatal	Lost work day with days away from work	Lost work day with days of restricted activity	No lost work day	First Aid only
☐	☐	☐	☐	☐

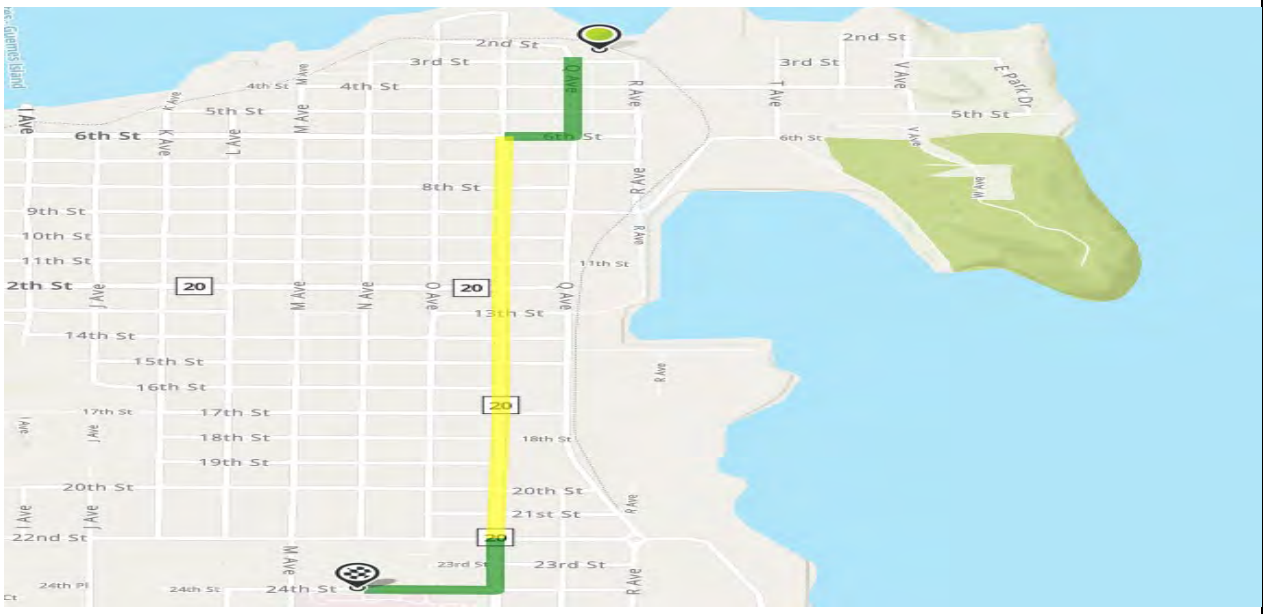
Corrective action taken by reporting unit and corrective action that remains to be taken (by whom and when):

Employee Signature: Date:

Name of Supervisor:

ATTACHMENT
SITE MAP
Cleanup Action Plan, Dakota Creek Industries Site

ATTACHMENT
HOSPITAL ROUTE
Cleanup Action Plan, Dakota Creek Industries Site

Hospital Name and Address:	Island Hospital 1211 24th Street Anacortes, Washington
Phone Numbers (Hospital ER):	**Phone**: (360) 299-1300
Distance:	4.75 Miles
Map to Hospital: 	
Route to Hospital:	1. **Start out going south on Q Avenue towards 3rd St** 2. Turn right onto 6th Street 2. Turn 1st left on Commercial Avenue. 3. Turn Right onto 24th Street 4. **End at Island Hospital**
Ambulance:	9-1-1
Poison Control:	Seattle (206) 253-2121; Other (800) 732-6985
Police:	9-1-1
Fire:	9-1-1
Location of Nearest Telephone:	Cell phones are carried by field personnel.
Nearest Fire Extinguisher:	Located in the GeoEngineers vehicle on Site.
Nearest First-Aid Kit:	Located in the GeoEngineers vehicle on Site.