Draft Interim Action Work Plan

Quiet Cove Site
Anacortes, Washington
Ecology Agreed Order No. DE 11346

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

August 19, 2019

GeoEngineers
Earth Science + Technology

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File No. 5147-024-07

August 19, 2019

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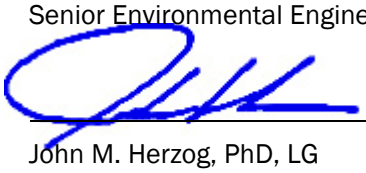

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LIST OF TABLES

LIST OF FIGURES

APPENDICES

ACRONYMS AND ABBREVIATIONS

ADA	Americans with Disabilities Act
ARI	Analytical Resources, Inc.
bgs	below ground surface
BMPs	best management practices
CAP	Cleanup Action Plan
CFR	Code of Federal Regulations
City	City of Anacortes
CMP/QAPP	Compliance Monitoring and Quality Assurance Project Plan
CSWGP	Construction Stormwater General Permit
CY	cubic yards
DAHP	Department of Archaeology and Historic Preservation
DIP	ductile iron pipe
DNS	Determination of Non-Significance
DOT	Department of Transportation
Ecology	Washington State Department of Ecology
EIM	Ecology's Environmental Information Management
FS	Feasibility Study
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
H:V	horizontal to vertical
IAWP	Interim Action Work Plan
ID	identification
IHSs	indicator hazardous substances
ISIS	Washington State Department of Ecology Integrated Site Information System
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MTCA	Model Toxic Control Act
NAVD88	North American Vertical Datum of 1988
NPDES	National Pollutant Discharge Elimination System
PUD	Public Utility Department
PVC	polyvinyl chloride

QAPP	Quality Assurance Project Plan
QA/QC	quality assurance/quality control
OSHA	Occupational Safety and Health Administration
RCRA	Resource Conservation and Recovery Act
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
TCLP	toxicity leaching characteristic procedure
WAC	Washington Administrative Code
WISHA	Washington Industrial Safety and Health Act
WSDOT	Washington State Department of Transportation

1.0 INTRODUCTION

This Interim Action Work Plan has been prepared for the Quiet Cove Cleanup Site (Site) on behalf of the Port of Anacortes (Port). The Site is situated along the southeast shoreline of Guemes Channel at 202 O Avenue (at the intersection of 2nd Street and O Avenue) in Anacortes, Washington (Figure 1) and is part of the Washington State Department of Ecology's (Ecology's) Puget Sound Initiative and regional cleanup efforts on Fidalgo Island. The Site is listed in Ecology's Integrated Site Information System (ISIS) under Facility Site Identification No. 20859 and Cleanup Site Identification No. 12482.

Ecology issued Agreed Order No. DE 11346 (Order) pursuant to the authority of the Model Toxics Control Act (MTCA), Revised Code of Washington (RCW) 70.105D.050(1). Under the Order, the Port is required to complete a remedial investigation, per Washington Administrative Code (WAC) 173-340-350 and WAC 173-204-560 to define the nature and extent of previously identified contamination in media of concern at the Site. The Port completed a Remedial Investigation/Feasibility Study Work Plan (RI/FS Work Plan; GeoEngineers 2017) approved by Ecology and collected information for the RI in 2017 through 2018.

The Order allows for an interim action to be completed pursuant to WAC 173-340-430 and in coordination with Ecology. The Port is planning to complete an interim action to remediate a portion of the Site to facilitate development of the property for commercial purposes. Addressing the environmental issues in the area to be developed in advance of construction of new facilities will avoid adding cost and complexity to the cleanup. Additionally, early cleanup in part of the Site will reduce overall impacts of the known contamination to the environment. The current property layout is presented on Figure 2.

The Interim Action Work Plan is a requirement under the Order for implementing an interim action at the Quiet Cove Site (Interim Action) and describes details of the scope of work and schedule for the proposed cleanup action. The Interim Action Work Plan will fulfill the requirements of the Order and WAC 173-340-430 by providing the following:

- Background information describing the historical property use, environmental and ecological setting, and current conditions;
- Summary of existing environmental data with respect to screening levels to complete a preliminary delineation of the nature and extent of contamination;
- Summary of the interim action objective, cleanup requirements, remedial alternatives considered for this interim remedial action and how it will coordinate with the final cleanup action;
- Identification of the components of the Interim Action;
- Identification of permitting and substantive requirements for the Interim Action;
- Schedule for the Interim Action to be implemented; and
- Identification of reporting requirements after the Interim Action is completed.

2.0 BACKGROUND INFORMATION

2.1. Site Location and Description

The 0.8-acre Quiet Cove property lays between 2nd and 3rd Streets on O Avenue and according to Skagit County records is composed of the three tax parcels. The tax parcel numbers and legal descriptions are summarized in the following table. Tax parcels for the Quiet Cove property and surrounding areas are shown on Figure 2.

Tax Parcel Number	Legal Description
P55354	Lots 1 to 6 of Block 66, Anacortes, Together with the North ½ of Vacated Alley adjacent thereto, ORD#1760, Survey AF#201501210019 (0.4500 acre)
P55358	Lots 16 to 18 of Block 66, Anacortes, Together with the South ½ of Vacated Alley Adjacent thereto, ORD#1760, Survey AF#201501210019 (0.2200 acre)
P55359	Lots 19 to 20 of Block 66, Anacortes, Together with the South ½ of Vacated Alley Adjacent thereto, ORD#1760, Survey AF#201501210019 (0.1500 acre)

Adjacent properties include a Port-owned storage yard (Parcel No. P55355) and a bulk fuel distribution facility operated by Texaco/Reisner (Parcel No. P55357) to the west, Guemes Channel to the northwest and City ROW and streets including 2nd Street, O Avenue and 3rd Street to the north, east and south, respectively.

2.2. Site History

The property was historically used for bulk fuel storage and distribution from approximately 1909 to at least 1977. The final date when fuel operations ceased is unknown. As reported in the February 17, 1910 Anacortes American, Standard Oil erected a dock (in the general vicinity of what is now Curtis Wharf) and bulk fuel plant on the Anacortes waterfront at 2nd Street and O Avenue in November 1909 selling 40,000 gallons of oil a month. Standard Oil operated the bulk fuel facility until the late 1970s at which time the facility was decommissioned, and the aboveground tanks were removed. Skagit County Assessor records indicate that the property was sold to Thomas and Patricia Stowe in 1977. Following the purchase of the property, the Stowes began to operate a storage yard for marine vessels and recreational vehicles, and leased office and warehouse space to various tenants for commercial purposes. In 2013, the property was purchased by the Port.

The approximate location of the historical features at the Site are shown on Figure 3. A copy of the Standard Oil facility drawing dated May 31, 1921 shows the property layout while operating as a bulk fuel storage and distribution facility (Appendix A). Historical aerial and other photographs of the property and surrounding area are presented in Appendix B.

According to the Standard Oil engineering drawing, the facility layout included a 280,000 gallon above ground storage tank (AST), a 158,000 gallon AST, a 56,000 gallon AST, a 43,000 gallon AST, four 20,000 gallon ASTs, a pump house, three stall garage with attached boiler room, warehouse with covered area for barrel storage and an office. Product supply lines within the property connected each of the ASTs to the central pump house. During operation, the facility received fuel delivered from vessels moored to a historical wooden pier through a series of product supply lines which were located underground south of

the bulkhead (Figure 3). North of the bulkhead (Figure 3), product supply lines were hung beneath the historical wooden pier which was later demolished during the late 1990s according to historical aerial photographs (Appendix B). The historical aerial photographs (Appendix B) show that the facility remained largely unchanged throughout its operational history. The facility layout is visible in circa 1920s, 1971 and 1977 aerial photographs (Appendix B). As noted on the engineering drawing (Appendix A), Lots 16 through 20 located south of the main facility (Parcel No. P55358 and P55359) were acquired during the 1960s.

The property west of the Site (P55355) is currently owned by the Port and was the location of a former coal storage shed presumably used to support railroad operations in Anacortes due to its proximity to the historical rail line (Figure 3). The property located to the southwest of the Site is currently used by Texaco/Reisner as a bulk fuel facility. Bulk fuel operations at this location began as early as 1925. Historically, the Texaco/Reisner facility also operated a fuel terminal (referred to as the Reisner Petroleum Terminal) located at the northern end of N Avenue. Based on historical aerial photographs (Appendix B), the Reisner Petroleum Terminal was removed between 1971 and 1977. Currently, fuel to the Texaco/Reisner facility is supplied by truck.

The development and operational history for the Quiet Cove property is presented in the following table.

Timeline	Operational History
1910 to late-1970s	Standard Oil operated a bulk fuel storage and distribution facility at the Quiet Cove property. During the 1960s, Standard Oil acquired Parcel No. P55358 and P55359 according to the historical Engineer's Drawings.
Late-1970s	Bulk fuel storage and distribution operations ceased, and the above ground storage tanks were removed.
Late-1970s to 2013	Thomas and Patricia Stowe operated a storage yard for marine vessels and recreational vehicles, and leased office and warehouse space to various tenants for marine-related sales and services. Parcels P55358 and P55359 were redeveloped between 1977 and 1994 as shown on historical aerial photographs (Appendix B). During this time, northern and southern portions of the property were paved.
2013 to Present	Port of Anacortes has been leasing various portions of the property to the following companies: American Gold Seafoods, Ballast Contracting, LLC, Fisherman's Finest, North Columbia Ironworks, and NW Clean Air Agency. From April – September 2016 the Port of Anacortes temporarily leased a portion of the Quiet Cove property to Kiewit Infrastructure West Co. for storage and loading of armor rock via Curtis Wharf.

2.3. Current and Future Site Use

Since the late 1970s until it was acquired by the Port, the Quiet Cove property had been used for the storage of marine vessels and recreational vehicles. The Port purchased the property in 2013 and existing tenants

have continued to use the property. The existing office/warehouse buildings at the property are occupied by American Gold Seafoods and Ballast Contracting, LLC and North Columbia Ironworks. American Gold Seafoods also uses the building in the central area of the Site for storage of equipment. Northwest Clean Air Agency has a mobile office trailer setup in the northeast corner of the Site. From April through September 2016 a majority of the open space of the property was used for storage of armor rock for loading onto barges at Curtis Wharf.

The property adjacent to the west of the Quiet Cove property (also owned by the Port) is currently leased to Fishermen's Finest for equipment storage. The southwestern adjacent property (owned by Guemes Channel Corporation) continues to operate as a Texaco/Reisner bulk fuel storage and distribution facility generally consistent with the past operations. A beach with public access extends along the shoreline in the vicinity of these properties.

Currently, the Port plans to redevelop the Site. Currently the proposed redevelopment is in the concept planning phase and will be adapted to the specific future tenant or lessee needs. The anticipated future use of the property is expected to be commercial or industrial as evaluated in the Ecology funded Integrated Planning Grant study report (Maul Foster, et al. 2015).

3.0 ENVIRONMENTAL CONDITIONS

This section includes a summary of existing environmental conditions at the Site including previous environmental investigations. Detailed summary of the previous environmental investigation activities and analytical results are presented in the Quiet Cove Data Report (Data Report; GeoEngineers 2019) included in this Interim Action Work Plan as Appendix C.

3.1. Site Description

The Site is relatively flat and gently slopes to the northwest towards the Guemes Channel. The Mean Higher High Water (MHHW) line of the Guemes Channel (shown on Figure 2) generally delineates the marine and upland areas of the Site. The surfaces of the northern portions of the Quiet Cove property and adjacent street are approximately at the same level. The street level gradually climbs up to the south and as a result the southern portion of the property is approximately 5 to 6 feet below the adjacent sidewalk and street level. A retaining wall exists along the southern, eastern and western perimeters of the property to support the elevation transition. Site topography based on a recent survey completed by Sound Development Group (SDG) is shown on Figure 2. The Site and surrounding areas are generally covered with buildings, concrete, gravel or asphalt surfaces. Planting strips are located on 2nd and 3rd Street, and in the O Avenue Rights-of-Way (ROWs). Currently, a combined office/warehouse building measuring approximately 100 feet long by 45 feet wide and a second warehouse building measuring approximately 50 feet long by 35 feet wide are present in the northwest portion of the property. A chain link fence surrounds the property limiting general public access. Vehicle and pedestrian access to the property is through a gated entrance south of 2nd Street. The utilities known to be present within or adjacent to the Site include power, water, sewer, storm drains, telephone and gas based on SDG's survey.

3.2. Previous Environmental Investigations

Previous environmental investigations at the Site for the purposes of MTCA cleanup under the Order include the 2014 Focused Environmental Investigation, 2017 and 2018 Remedial Investigation and 2018

Supplemental Remedial Investigation. Details on field procedures, sampling locations, and results of these investigations are presented in the Data Report attached as Appendix C. The following section give a summary of each of the previous environmental investigation.

3.2.1. Focused Environmental Investigation

The Port performed a Focused Site Investigation in 2014 as part of an Ecology's Integrated Planning Grant (IPG) to evaluate the presence of contamination in soil and groundwater at the Site. The Focused Site Investigation was completed under an Ecology-approved Work Plan. No other environmental studies are known to have been completed at the Site prior to this investigation. The results of investigation completed in 2014 are presented in the Ecology-approved Focused Environmental Site Investigation Data Report (GeoEngineers, 2014) and summarized in Ecology-approved RI/FS Work Plan (GeoEngineers 2017). Soil and groundwater sample locations completed in 2014 as part of this investigation are shown on Figure 4. Exploration logs describing materials encountered, field screening results and sample intervals for the Focused Site Investigation are provided in the Quiet Cove Data Report (Appendix C). The findings from this investigation were reviewed for technical quality relative to the quality assurance (QA) and quality control (QC) objectives presented in the Ecology-approved RI/FS Work Plan and are considered acceptable for use in the future RI Report. Ecology provided approval of the project Work Plan and Focused Environmental Investigation data results.

3.2.2. Remedial Investigation

Following the 2014 Focused Environmental Investigation, the Port entered into an Agreed Order with Ecology for cleanup of the Site. As a requirement of the Agreed Order an RI/FS Work Plan was prepared and approved by Ecology (GeoEngineers, 2017) that describes the plans for investigation of the Site for the purpose of the RI.

The RI activities were completed in 2017 and 2018 and primarily included the following:

- Topographic survey to document existing surface conditions and utilities at the Site.
- Sampling and analysis of soil to evaluate the stratigraphy and nature and extent of contamination.
- Sampling and analysis of groundwater to evaluate water quality parameters and nature and extent of contamination.
- Sampling and analysis of surface and subsurface sediment to evaluate the stratigraphy and nature and extent of contamination.
- Tidal study and hydraulic conductivity testing to evaluate aquifer characteristics including groundwater gradient and flow direction, hydraulic connection between groundwater and adjacent marine surface water and groundwater flow velocities.

A detailed summary of the field activities and analytical results of the RI are presented in the Data Report (Appendix C).

3.2.3. Supplemental Remedial Investigation

Upon completion of the RI field activities the Port requested to complete a Supplemental Remedial Investigation (Supplemental Investigation) in the upland portion of the Site to fill identified data gaps in the Site soil and groundwater characterization. The RI primarily focused on defining the extent and limits of

contamination, but additional information was needed for defining the nature of contaminated soil and groundwater in the most contaminated source area of the Site. The Port and GeoEngineers developed a Work Plan Addendum (Work Plan Addendum; GeoEngineers, 2018), which presented a detailed plan for the Supplemental Investigation. The Work Plan Addendum was developed in coordination with Ecology and was approved by Ecology on October 4, 2018.

The Supplemental Investigation activities included:

- Completion of soil borings for sampling and analysis of selected contaminants.
- Construction of a new monitoring well.
- Installation of pre-pack well points.
- Groundwater measurement of water and/or product levels.
- Groundwater sampling and analysis at the existing and new wells.

A detailed summary of the field activities and analytical results of the Supplemental Investigation are presented in the Data Report (Appendix C).

3.3. Nature and Extent of Contamination

The Quiet Cove Data Report, attached as Appendix C, includes detailed documentation of the investigation completed at the Site.

3.3.1. Geology and Hydrology

This section provides information on the geology and hydrology at the Site based on the previous environmental investigations including the hydrogeology study completed as part of the RI in 2017.

3.3.1.1. Geologic Conditions

The general stratigraphy at the Site is based on observations of material encountered in soil exploration completed as part of the previous investigation of the Site. The stratigraphy at the Site generally consists of fill soil deposits overlying native as described below:

- **Historical Fill Deposits**: Historical fill material at the Site is generally comprised of layers of sand, silty sand and silt with variable gravel content at the depths ranging from about 4 to 17 feet bgs. In the southern part of the Site the fill material is shallow relative to the ground surface (approximately 4 to 6 feet bgs) because the Site is cut into the slope and the south and east property boundaries have retaining walls. Contained in the historical fill deposits are occasional debris including concrete asphalt, brick and wood fragments. Along the shoreline and on the beach, debris was encountered at shallower depths potentially related to the construction of historical dock(s) and the adjacent Curtis Wharf. A layer of dark brown organic soil (peat) is present below the fill layer in north and northern portion of the Site. The organic layer varies in thickness from several inches to 2 feet.
- **Native Deposits**: Native material underlying the fill deposits at the Site include sands overlying glacial deposits. The sand deposits are typically poorly sorted and loose in nature and vary in thickness from 2 to 6 feet. Glacial deposits consist of a medium dense glaciomarine drift with varying amounts of silt, sand, and gravel.

3.3.1.2. Hydrogeologic Conditions

As part of the RI a hydrogeologic study was completed to assess tidal influence on groundwater flow direction and gradient, hydraulic conductivity and groundwater velocity. The study included a 72-hour tidal study and slug testing at six monitoring wells. Details of the procedures and results of the hydrogeologic study are provided in the Quiet Cove Data Report attached as Appendix C. The following provides an overview of the hydrogeologic conditions and results of the hydrogeologic study.

- **Tidal Study**: A tidal study monitored groundwater level fluctuations during a 72-hour period using transducers to evaluate tidal influence on groundwater. The groundwater level data in each monitoring well were evaluated in comparison to measured surface water elevations in Guemes Channel during the tidal study period for comparison of groundwater elevation and tidal trends. The study indicates that in general there is a relatively low degree of tidal influence on Site monitoring wells. Details on the methodology and results of the tidal study are included in the Data Report (Appendix C).
- **Hydraulic Conductivity**: Hydraulic conductivity for the Site aquifer was estimated using results of slug testing at six monitoring wells. Based on the slug test results, hydraulic conductivity of the aquifer ranges between 0.02 and 4.11 feet/day with a mean value of 1.25 feet/day.
- **Groundwater Flow Direction and Gradient**: The mean groundwater flow direction was determined using the mean groundwater elevations found during the tidal study. Based on the results of the tidal study and the mean groundwater elevations, the groundwater flow direction is generally to the north and northwest toward Guemes Channel. Mean hydraulic gradient at the Site was calculated using two monitoring well pairs. In the western portion of the Site, the calculated hydraulic gradient is 0.013 feet per foot (ft/ft). In the eastern portion of the Site, the calculated hydraulic gradient is 0.023 ft/ft.
- **Groundwater Velocity**: Slug test results were also used to calculate groundwater velocity. Through central and western portion of the Site the average linear groundwater velocity is 0.07 feet per day (ft/day) with a flow direction to the northwest. Through the eastern part of the Site the average linear groundwater velocity is 0.09 ft/day with a groundwater flow direction toward the north.

3.3.2. Extent of Chemical Contamination in Site Media

The Quiet Cove Data Report (Appendix C) presents the analytical data results for the previous environmental investigations completed at the Site. Chemical analytical data collected as part of previous investigations were compared to the preliminary screening levels established in the Ecology-approved RI/FS Work Plan. The following sections summarize the extent of contamination in soil, groundwater and sediment at the Site based on analytical data collected. Refer to the Data Report in Appendix C for analytical data tables and figures illustrating the extent of contaminated media at the Site.

3.3.2.1. Soil Conditions

Previous environmental investigations found the following chemicals exceeded preliminary screening levels in soil:

- Total Petroleum Hydrocarbons (TPH) including gasoline-, diesel- and heavy oil-range;
- Volatile Organic Compounds (VOCs) including benzene, ethylbenzene, toluene and xylenes (BETX) and n-Hexane;
- Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) Toxicity Equivalent Quotient (TEQ);
- Various individual PAH analytes; and

- Metals including cadmium, chromium, lead and mercury.

For the purposes of the Interim Action these contaminants are considered as contaminants of concern (COCs) in soil.

The analytical results provide evidence of petroleum related contaminants in soil (TPH and fuel related VOCs) in the northern half of the Site in the vicinity of the former bulk fuel facility operations and north into 2nd Street and west towards the beach area. Elevated concentrations of metals and PAHs were primarily identified within the fill deposits with depths up to approximately 8 to 12 feet bgs.

Fuel-related VOCs are located primarily within the historical fuel operation facility and are comingled with TPH in soil. The depth of petroleum contamination ranges from approximately 4 to 13 feet bgs within the fill formation in both vadose and saturated soil. Petroleum-related contamination is bounded to the east, south and north by sample locations where exceedances were not detected. To the west the data do not provide clear evidence on whether GEI-39 (at the top of the beach slope) is an isolated contamination or contiguous with the upland source area.

Figure 5 presents the approximate lateral extent of TPH contamination in soil at the Site. As previously stated, analytical data indicate VOC contamination is co-mingled with the TPH-contaminated soil. The approximate lateral extent is estimated to be approximately half the distance between contaminated sample locations and the adjacent clean locations. Areas that are not fully bound are shown with a dashed line. Figures 6 through 8 present cross-sectional views and the vertical extent of petroleum contamination along these sections. The extent in Figure 5 generally defines the source area related to the historical bulk fuel terminal operations based on the data available.

Soil analytical results also indicate evidence of isolated areas of PAH and metals contamination in the northern part of the Site. In general metals and PAHs have a higher frequency of exceedance to the west part of the Site, closer to the shoreline area.

3.3.2.2. Groundwater Conditions

Previous environmental investigations found the following chemicals exceeding preliminary screening levels in groundwater:

- Total Petroleum Hydrocarbons (TPH) including gasoline-, diesel- and heavy oil-range;
- Volatile Organic Compounds (VOCs) including benzene and 1,2-dibromoethane (EDB); and
- Metals including arsenic (total and dissolved) and lead (total only).

For the purposes of the Interim Action these contaminants are considered as contaminants of concern (COCs) in groundwater.

Groundwater analytical results generally indicate that petroleum-related contamination in groundwater exists within the northern area of the Site within the former bulk fuel operation footprint and in wells located downgradient to the north and west. The highest concentration of TPH and fuel-related VOCs in groundwater are near the center of the historical fueling operations, in the vicinity of the historical storage tanks where free product has been measured as approximately 1.5 feet thick in monitoring well MW-11. Petroleum-related contamination is bounded to the north, south and east by existing monitoring wells. Wells

along the shoreline, west of the Site, indicate diesel-range TPH exceedances. The existing groundwater data do not bound petroleum contamination in groundwater along the shoreline to the north and south. Based on the groundwater flow direction the extent of petroleum-related contamination is generally within the source area and downgradient of the source. One groundwater monitoring location (MW-8) is cross-gradient relative to the source area for the Site and was found to have diesel-range TPH (during one RI monitoring event) and benzene (all RI monitoring events) in groundwater above preliminary screening levels and uncertainty exists as to the source of TPH and benzene contamination at this location.

Groundwater did not exceed the preliminary screening levels for PAH or cPAH analytes. Isolated, low concentrations of dissolved arsenic above preliminary screening levels (exceedance ratios of approximately 2 or less) in groundwater were detected at three (3) monitoring well locations. Arsenic-contaminated soil was not identified at the Site.

3.3.2.3. Sediment Conditions

The Interim Action addresses contamination in the upland portion of the Site and sediment is not subject to the Interim Action. Appendix C provides detail on the sediment data collected and the analytical results completed as part of the RI. Further evaluation of the sediment data and potential cleanup actions will be completed as part of the RI/FS process in coordination with Ecology.

4.0 OVERVIEW OF THE INTERIM ACTION

This section provides an overview of the Interim Action including the objective, cleanup requirements, remedial actions considered and coordination with the final cleanup.

4.1. Objective of the Interim Action

The Interim Action will focus on implementing a partial cleanup to address the primary source area in the Site uplands. For the purposes of the Interim Action the source area is defined as the petroleum-contaminated soil in the vicinity of the historical tank locations from which contamination has migrated downgradient as described in Section 3.3.2.1 above. The Port plans to redevelop the Port-owned properties at the Site. The Port proposes to complete an Interim Action because cleanup actions to address the petroleum-contaminated soil within the source area will be significantly more complicated and expensive if development occurs prior to cleanup. The objective of the Interim Action is to remove petroleum hydrocarbon-related contamination from within the Port-owned properties (Quiet Cove property and the adjacent property to the west) that is the source of contamination at the Site to clear environmental encumbrances prior to development.

4.2. Cleanup Requirements

The MTCA cleanup regulations provide that an interim action comply with cleanup standards for a portion of the Site (WAC 173-340-430) for identified COCs, points of compliance, and applicable or relevant and appropriate requirements (ARARs) based on federal and state laws (WAC 173-340-710). This section identifies cleanup standards for the Interim Action including remediation levels, points of compliance and applicable regulatory requirements.

As further detailed in Section 5.0, the Interim Action will achieve cleanup objectives for portions of the Site, while other areas will be addressed by Ecology's decisions in the future RI/FS and Cleanup Action Plan. For

the purposes of the Interim Action cleanup requirements including soil remediation levels, soil points of compliance and ARARs are described in the following sections.

4.2.1. Soil Cleanup Requirements

The following sections provide soil remediation levels and points of compliance for the purposes of the Interim Action.

4.2.1.1. Soil Remediation Levels

For the purposes of the Interim Action soil remediation levels will be used to confirm completion of the Interim Action in portions of the Site. Final soil cleanup levels will be developed in the future as part of the RI/FS Report. As indicated in the objective for the Interim Action, soil will be removed to achieve the remediation levels within the Port-owned property of the Site. Soil remediation levels will be used to confirm the objective of the Interim Action has been met.

For the purposes of this Interim Action, the preliminary screening levels from the Ecology-approved RI/FS Work Plan will be used as remediation levels. These remediation levels are presented in Table 1 for the COCs identified in Section 3.3.2.1. Interim Action activities will be completed to achieve the remediation levels presented in Table 1 within Port-owned property as further detailed in Section 5.0.

4.2.1.2. Soil Points of Compliance

For the Interim Action the standard point of compliance for the soil remediation levels will be throughout the soil column from the surface to 15 feet bgs, in accordance with WAC 173-340-740(6)(d) and WAC 173-340-7490(4)(b). As previously noted, the Interim Action will achieve cleanup of contaminated soil to the point of compliance within the Port-owned properties at the Site.

4.2.2. Groundwater Cleanup Standards

Groundwater cleanup is not the focus of the Interim Action, but improvement in groundwater quality is expected to occur as a result of the source material removal of the Interim Action. Post-construction monitoring will evaluate groundwater quality following the Interim Action cleanup. This section provides guidelines to evaluate the post-construction groundwater monitoring results.

4.2.2.1. Groundwater Screening Levels

The objective of the Interim Action is to remediate the soil on Port-owned property within the Site. Some amount of contaminated soil outside of the Port-owned properties is expected to be left in place following the Interim Action and may be a continuing source to groundwater contamination. However, the removal of source material may decrease groundwater contamination levels. Following the Interim Action, groundwater will be monitored to evaluate the effects of the Interim Action on groundwater quality at the Site.

For the purposes of the Interim Action the post-construction groundwater monitoring results will be compared to groundwater screening levels included in the Ecology-approved-RI/FS Work Plan. Table 2 summarizes these screening levels for the groundwater COCs identified in Section 3.3.2.2. The post-construction groundwater monitoring data will be used for completion of the RI/FS Report where groundwater cleanup levels and a final remedy for groundwater contamination will be developed.

4.2.2.2. Groundwater Points of Compliance

Because groundwater screening levels are based on protection of marine surface water and not protection of groundwater as drinking water, the conditional point of compliance for groundwater is at the

groundwater/surface water interface along the western shoreline adjacent to Guemes Channel. Post-construction monitoring will evaluate the groundwater analytical data in relation to the established point of compliance.

4.2.3. Applicable Regulatory Requirements

In addition to the cleanup standards described in the preceding section, other regulatory requirements must be considered during implementation of the Interim Action (WAC 173-340-710). Because the cleanup action is required by Ecology under the AO, 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. The applicable regulatory requirements for the Interim Action include the following:

4.2.3.1. Washington State Environmental Policy Act (SEPA)

The Washington State Environmental Policy Act (SEPA) provides a way to identify possible environmental impacts that may result from governmental decisions. Information provided during the SEPA review process helps agency decision-makers, applicants, and the public understand how a project will affect the environment. SEPA is intended to ensure that state and local government officials consider environmental values when making decisions or taking an official action. To meet this requirement, the Port (SEPA lead agency for the project) has completed the SEPA checklist in Appendix D and will complete a SEPA determination prior to implementation of the project.

4.2.3.2. Historic and Cultural Resources

The National Historic Preservation Act (Section 106) and the Federal Archaeological and Historical Preservation Act (16 USCA 496a-1) will be applicable if any materials of archaeological interest are discovered during excavation activities. For compliance with the Archaeological Resources Protection Act, 43 CFR Part 7.

The project historical and cultural resources review concluded that unknown potentially significant archaeological materials may be present in the soil where native beach deposits underly recent fill soil. During development of the Site for commercial and industrial use infilling of the shoreline would likely have destroyed or disturbed cultural deposits in the vicinity of the Site. In the unlikely event of the discovery of archeological materials or human remains, work will be immediately stopped in the area and appropriate personnel will be notified as detailed in Section 5.2.

4.2.3.3. Hazardous Building Material Abatement and Disposal

The Resource Conservation and Recovery Act (RCRA) and the National Emissions Standard for Hazardous Air Pollutants (NESHAP) regulate the abatement and disposal of asbestos-containing materials (ACM). Federal NESHAP 40 CFR Part 61 and the Northwest Clean Air Agency (Section 570 – Asbestos Control Standards) regulate ACM and work will be completed in accordance with these regulations. Removal, handling and disposal of Universal Waste are regulated by Ecology in accordance with WAC 173-303. Universal wastes expected to be encountered during building demolition include fluorescent tubes and ballasts that will be handled and disposed in accordance with WAC 173-303-573 and chlorofluorocarbon (CFC) or hydrochlorofluorocarbon (HCFC) refrigerants that will be handled and disposed in accordance with WAC 173-303-506. Additional hazardous building materials including lead and polychlorinated biphenyls (PCBs) will also be removed, handled and disposed of in accordance with WAC 173-303.

4.2.3.4. Washington State Construction Stormwater General Permit (CSWGP)

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. 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 anticipated to be applicable for the Interim Action because the area of disturbance from the Interim Action is less than one acre. Prior to construction the Port will consult with the Northwest Regional Office Water Quality Program as necessary to confirm that a CSWGP in not required.

4.2.3.5. City of Anacortes Permit(s)

The Interim Action construction work is within 200 feet from the shoreline and the work will be required to comply with City of Anacortes Shoreline Master Program substantive requirements. The City will provide a Shoreline Permit Exemption Letter, but the Port will coordinate with the City to comply with the substantive requirements of the shoreline permit.

The Interim Action at Quiet Cove involves excavation, filling and grading work within City streets (O Avenue and N Street) and ROW and therefore, the work falls within the City's permit jurisdiction. The City will require permits as part of their standard procedure to confirm that substantive requirements are met. Applicable documentation (e.g. permit application forms) and plans prepared for Interim Action construction will be submitted to the City for review and coordination will be completed with the City to ensure compliance with the substantive requirements of the appropriate permit(s).

4.3. Remedial Actions Considered

Remedial actions considered to address contaminated soil within the source area of the Site generally include the following:

- In situ treatment such as soil vapor extraction, in situ stabilization, chemical oxidation, etc.
- Capping and containment of contaminated soil; and
- Excavation to remove contaminated soil and off-site disposal.

The contaminated soil identified to be addressed by the Interim Action is located within Port-owned properties on the Site that are planned to be redeveloped. The remedial action selected for the Interim Action needs to address contamination, provide a certainty in the cleanup timeframe while reducing potential for future additional costs and complexities for the final cleanup action and be compatible with future use of the Site.

In situ treatment and capping/containment are potentially effective remedial actions for the Site but the duration for remediation may limit the ability of the Port to use the Site for beneficial uses in the near future. Additionally, the effectiveness of these remedial options is less certain than removal and offsite disposal. Excavation and offsite disposal allow for certainty in the timeframe that is required by the Port to pursue redevelopment plans. Development of the site could prevent contingency actions for in situ treatment or capping/containment. For these reasons removal and offsite disposal was selected as the preferred remedial approach for the Interim Action due to its compatibility with future site use.

4.4. Coordination with Final Cleanup

The Port has completed the RI field activities as documented in the Data Report (Appendix C) and at this time has not completed the RI/FS Report required by the AO.

The AO for the Site allows for an interim remedial action to be completed in coordination with Ecology. The Port is planning to complete the Interim Action to remediate a portion of Site to avoid adding complexity and costs to the final cleanup due to development at the Site. The Interim Action will reduce the potential threat of Site contaminants to human health and the environment and will not preclude reasonable alternatives for the final cleanup action (WAC 173-340-430(3)(b)). The Interim Action is expected to be a permanent solution for a portion of the Site and a final remedial alternative can be selected to supplement the Interim Action and achieve a final remedy for the Site.

The RI/FS for the Site will identify the completion of the Interim Action as part of the Site conditions. The RI/FS will identify appropriate alternatives for the final cleanup of the Site. The final cleanup action will include integration of the Interim Action cleanup area and the resulting reduction of source material.

5.0 INTERIM ACTION COMPONENTS

The Interim Action will remove and dispose of petroleum-contaminated soil within the Port-owned properties in the upland portion of the Site as described in Section 4.1. The components of the Interim Action include:

- Site Preparation;
- Procedures for Inadvertent Discovery of Cultural Resources;
- Utility Management;
- Excavation Shoring (if required);
- Remedial Excavation Limits and Verification Soil Sampling;
- Soil Segregation, Stockpiling and Reuse/Disposal Characterization;
- Management of Contaminated Water;
- Backfill and Compaction;
- Placement of Oxygen-Releasing Material;
- Site Restoration; and
- Institutional Controls.

The following sections provide detail on how these components will be implemented to complete the Interim Action.

5.1. Site Preparation

5.1.1. Utility Locate

As part of the Interim Action mobilization, the contractor will be responsible for contacting Washington State Utilities Underground Location Center (UULC) at 811 (or 1-800-424-5555) as well as private utility locating services in order to locate utilities at/near the Site. A recent (November 2018) pre-construction survey,

completed by Sound Development Group on behalf of the Port, identified existing utilities at/near the Site as shown on Figure 9. Currently known utilities in the vicinity of the Interim Action include overhead power and telephone and underground power, telephone, stormwater, water and gas. 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 may exist at/near the Property but are not identified in the survey. Assumptions for managing utilities during remedial activities are presented in Section 5.3.

5.1.2. Contractor Staging Areas

The southern portion of the Site, where contamination is not present will be available to the contractor for staging as shown on Figure 10. The contractor may propose a different location for staging for Port's approval. The contractor will be responsible for protecting existing surfaces, including existing monitoring wells, used for the staging areas.

5.1.3. Site Security and Traffic Control

The contractor will be responsible for providing and installing temporary site security measures including fencing, barricades, etc., as necessary for cordoning off the construction work and contractor staging areas from the public 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. Site security measures such as fencing will also be used along the western portion of the Interim Action construction area to restrict public access from the beach.

The limits of excavation are predominantly located within Port-owned properties; however, the northern and potentially the eastern sidewall of the excavation will extend into the City's ROW where existing sidewalk and streets are located. A portion of 2nd Street southern lane and sidewalk is expected to be excavated. The southern sidewalk of 2nd Street will be closed during construction and pedestrian traffic will be rerouted. Second street is primarily used for vehicles and pedestrians accessing Curtis Wharf and City's N Avenue Park. It is assumed that the vehicular traffic movement (in both directions) on 2nd Street can be kept open during the majority of construction activities with the use of appropriate traffic controls (e.g. signs, barricades, etc.). If vehicular traffic movement must be limited to one direction at a time on 2nd Street, the contractor will be required to implement additional traffic controls to ensure public safety.

Depending on contractor's means and method, the eastern sidewall of the excavation along O Avenue may be built utilizing temporary shoring or at a stable side slope. In this scenario, a portion of the western sidewalk, parking lane and bike lane of O Avenue is expected to be removed and/or damaged as part of the excavation. The western sidewalk and bike lane of O Avenue will be temporarily closed for pedestrian and bike traffic, respectively, for the duration of the construction and traffic will be rerouted. The parking lane will be closed for the duration of the construction. The vehicle traffic lanes of O Avenue will not be impacted due to construction and the vehicular traffic movement (in both directions) on O Avenue will be kept open.

A pedestrian path associated with City's N Avenue Park is located on Port's property and adjacent to the northwestern portions of excavation. This pedestrian path consists of gravel surface and will be removed to facilitate excavation, as necessary. Pedestrian traffic will be temporarily rerouted for the duration of construction in coordination with the City's requirements. The pedestrian path will be restored following

construction. The southern portion of the excavation is located within Port property and specific traffic control measures are not expected to be required to complete excavation work in this portion.

City coordination will be completed as part of the design and permitting process to ensure City requirements are met. 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. sidewalk closure, rerouting signs, etc.), barricades and flaggers (if necessary) to maintain safe movement of pedestrian, bike and vehicular traffic.

The contractor will be required to prepare a temporary site security and traffic control plan for City's review and approval. The contractor's plan will identify the truck haul route within the City limits that the contractor proposes to use for transport of contaminated material.

5.1.4. Temporary Erosion and Sediment Control (TESC)

Best management practices (BMPs) consistent with Ecology's current Stormwater Management Manual for Western Washington (SWMMWW) and the project permit 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 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 Puget Sound using silt/filter fabric fences, straw bales, straw wattles, storm drain inlet protection, catch basin silt barriers and/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 5.1.5).
- Street sweeping and/or street cleaning, as necessary, to remove soil tracked onto the adjacent surface streets.
- Implementation of stockpile BMPs (described in Section 5.1.6).

5.1.5. 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 construction entrance/exit is expected to be located adjacent to 2nd 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 of existing gravel or paved surfaces at the Site provided that the existing surface is not known to be contaminated or does not exhibit field screening evidence of contamination, and trucks are not causing soil to be cross-tracked. Wheel wash or tire baths may be required if other BMP's installed

for construction entrance/exit and internal haul routes are not effective in preventing tracking soil onto roads.

5.1.6. Stockpiling BMPs

The southern portion of the Property will be available for temporary stockpiling as shown on Figure 10. The contractor may use this area or propose a different area for temporarily stockpiling excavated material for Port's approval.

Overburden and contaminated material will be generated as a result of remedial excavation activities. Stockpiling of overburden is required for reuse characterization. The contractor will be allowed to stockpile excavated overburden material on existing surfaces (paved or unpaved) at the Property provided that the existing surface is not known to be contaminated or does not exhibit field screening evidence of contamination. Stockpiling of overburden soil will not be allowed on a surface that is contaminated or suspected to be contaminated to prevent cross contamination. The minimum best management practices (BMPs) applicable to overburden material stockpile include perimeter berm and impermeable liner and cover as described below.

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. In the latter case, it is assumed that the temporary stockpiling of material may be required within the limits of excavation area. Such stockpiling of excavated contaminated material may occur on top of existing contaminated material and the contractor will be required to ensure that the water draining out of stockpiled material is not causing cross-contamination of adjacent clean or potentially clean material (e.g. overburden). 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:** This BMP is applicable to both overburden material stockpile and contaminated material stockpile located outside the limits of excavation area. The intent of 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 berm barrier will be constructed of clean imported soil, asphalt, concrete ecology blocks or similar and will be capable of performing its function. Existing site features such as retaining wall can also be used as a barrier.
- **Impermeable Liner:** This BMP is applicable to both overburden material stockpile and contaminated material stockpile located outside the limits of excavation area. 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 an liner is to minimize or eliminate (to the extent practicable) direct contact and cross-contamination of underlying existing surface from stockpiled material. Overburden material may be deemed contaminated based on chemical analytical testing as described in Section 5.6 and therefore, this BMP is considered applicable. 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-millimeter or greater) or similar and will be capable of performing its function. A torn liner will be repaired or replaced upon identification of the breach.

- **Stabilized Impermeable Base:** This BMP is applicable to both overburden material stockpile and contaminated material stockpile located outside the limits of excavation area on unpaved surfaces. 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.
- **Impermeable Cover:** This BMP is applicable to both overburden material stockpile and contaminated material stockpile located outside the limits of excavation area. This BMP is also applicable to contaminated material stockpile located within the limits of excavation area when the stockpile must remain in place for extended periods of time. 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 liner. The cover will be constructed of impermeable high-density polyethylene (HDPE) sheeting (thickness of 6-millimeter or greater) or similar. Any torn covers will be repaired or replaced upon identification of the breach.

5.1.7. Demolition and Management of Demolition Debris

Demolition activities primarily involve removal of two existing building structures, retaining wall and paved surfaces to facilitate removal of contaminated material within the planned excavation footprint.

5.1.7.1. Building Demolition

Two warehouse-type buildings located within the Site will be demolished to the extent needed to access the underlying contaminated soil. One of the buildings is approximately 100 feet long by 40 feet wide and the other is approximately 45 feet long by 30 feet wide. The buildings are identified on Figure 9. Prior to demolition the Port will consult with Department of Archaeology and Historic Preservation (DAHP) as part of the City demolition permitting process to determine any cultural significance of the buildings to be demolished.

A hazardous building material survey has been completed to characterize building material prior to construction as presented in Appendix E. Building materials characterized as hazardous will be demolished, managed separately from the rest of the materials and transported offsite to a Resource Conservation and Recovery Act (RCRA) Subtitle C landfill for disposal. Non-hazardous building material will be demolished and transported offsite to a recycling facility or a permitted disposal facility if recycling is not feasible. The underground foundation of the building will be removed as necessary to complete the excavation. Foundation material and paved surfaces of the building will be managed in accordance with the procedures mentioned below in Section 5.1.7.3.

5.1.7.2. Retaining Wall and Paved Surface Demolition

As shown on Figure 9 and 10, eastern, southern and western perimeters of the Quiet Cove property contain a retaining wall. The type of retaining wall is not known but it appears to be of reinforced concrete. The portion of the retaining wall within excavation limits will be demolished to facilitate removal of contaminated material and/or installation of temporary excavation shoring. The demolition debris from the retaining wall will be managed in accordance with the procedures mentioned below in Section 5.1.7.3.

As previously discussed, the southern sidewalk and lane of 2nd Street and potentially western sidewalk, parking and bike lane of O Avenue will be impacted due to construction. Concrete and/or asphalt paved surfaces of these sidewalks and street will be demolished as necessary to facilitate excavation of underlying contaminated material. The existing surface of 2nd Street (north of the Property) is unpaved and consists of gravel/dirt and therefore, demolition activities are not expected to be necessary to access underlying contaminated material under this street. The existing surfaces within the Interim Action footprint are predominantly paved with concrete and/or asphalt. The paved surfaces located within the excavation limit will be demolished to access underlying contaminated material. The demolition debris of paved surfaces will be managed in accordance with the procedures mentioned below in Section 5.1.7.3.

5.1.7.3. Management Procedures for Demolition Debris in Contact with Contaminated Soil

Demolition debris from building foundations, retaining wall and paved surfaces will be segregated from adjacent/underlying soil to the extent practicable, scraped clean using excavator bucket or hand tools (e.g. shovel) and subsequently field screened for signs of contamination (staining and petroleum hydrocarbon sheen or odor). Demolition debris exhibiting signs of contamination will be managed similar to contaminated soil and will be transported and disposed at an offsite permitted disposal facility. Demolition debris with no field screening evidence of contamination will be transported offsite to a recycling facility or a permitted disposal facility if recycling is not feasible.

5.1.8. Monitoring Well Protection/Decommissioning

Eleven groundwater monitoring wells including MW-1 through MW-8 and MW-10 through MW-12 are currently located at/near the Site as shown on Figure 10. Monitoring wells located within the excavation limits and equipment operation area will be decommissioned prior to performing excavation activities. Five monitoring wells including MW-2, MW-11, MW-12, SD-02 and SD-08 are located within or immediately adjacent to the limits of excavation and therefore are planned to be decommissioned. The other existing monitoring wells will be protected in place to the extent possible.

Excavation activities are not planned to disturb the other monitoring wells at the Site including MW-3, MW-4, and MW-6 through MW-8, and these five wells will be protected in place during construction activities. Decommissioning activities will be completed by a Washington State licensed driller in accordance with Ecology requirements (WAC 173-160-460).

5.1.9. Dust and Noise Control

Site grading and excavation work has the potential to generate airborne dust. Engineering controls will be used during construction (e.g., wetting or covering exposed soil), as necessary, to meet Northwest Clean Air Agency substantive restrictions on the off-site transport of airborne particulates. If wetting is employed, care will be taken to apply the appropriate amount of water to prevent dust only. Visual monitoring will take place and water application will cease if over-saturation is noted (i.e. puddling, surface runoff). In addition, street sweeping will be performed, as necessary to comply with City street use permit requirements.

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 Interim 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.

5.2. Procedures for the Inadvertent Discovery of Cultural Resources

As discussed in Section 4.2, there is potential for encountering archaeological materials during excavation where native beach deposits are encountered. The Interim Action primarily addressed contaminated fill material, but portions of the excavation may encounter the fill-native interface. During construction, field inspectors that are generally aware of the potential types of cultural artifacts that could be encountered will be utilized to oversee the excavation activities. Where the excavation reaches the fill-native interface layer an archeological monitor will be onsite to observe excavation activities as required. If potential archaeological resources are identified by the field inspector during construction, work will be stopped immediately, and the Port notified. In the event of a suspected discovery, the Port will retain a professional archeologist to evaluate the potential discovery and determine its cultural significance. If it is determined that the discovery is not culturally significant, work activities will resume. In the unanticipated event of a potential archeological discovery, the following steps shall be taken:

1. **Stop Work and Protect the Discovery Site.** If any agency employee, contractor, or subcontractor believes that he or she has uncovered any cultural resources, all work within a minimum of 50 feet of the discovery ("discovery site") will be stopped to provide for its total security, protection and integrity. The discovery site shall be secured, and vehicles, equipment, and unauthorized personnel will not be permitted to traverse the discovery site. Work may continue in other areas of the project.
2. **Notify the Port.** The individual making the discovery will immediately contact GeoEngineers who will then notify the Project Manager for the Port (contact information presented in the table below).
3. **Notify the Project Archaeologist.** Immediately following the work stoppage and notification to the Port, the Project Archaeologist shall be contacted by the Port.
4. **Identify the Find.** The Project Archaeologist, in coordination with the Port is responsible for ensuring that appropriate steps have been taken to protect the discovery site. The Project Archaeologist shall be qualified as a professional archaeologist under the Secretary of Interior's Professional Qualification Standards (as outlined in 36 CFR Part 61). As such, the Project Archaeologist shall be qualified to examine the find to determine if it is of cultural significance. If it is determined not to be of cultural significance, work may proceed at the discovery site with no further delay.
5. **Notify Additional Parties.** If the discovery is determined by the Project Archaeologist to be a cultural resource, the Port or their designee will provide notification to Ecology, DAHP, the Samish Indian Nation, Swinomish Indian Tribal Community and the Lummi Nation. Confidentiality of the find will be maintained by Project leads and their contractors. In the event human remains are identified, law enforcement will be notified.
6. **Obtain Consent to Proceed with Construction.** Construction work will not recommence at the discovery site until treatment has been completed and the Tribes, DAHP, and/or jurisdictional agencies, as appropriate, have provided written or verbal consent to proceed.

Contact information for key personnel for the inadvertent discovery of cultural resources is summarized in the following table.

CONTACT LIST FOR THE INADVERTENT DISCOVERY OF CULTURAL RESOURCES

Contact Name	Organization	Title	Contact Number
John Herzog (Primary Contact)	GeoEngineers, Inc.	Project Manager	(o) 206.728.2674 (c) 206.406.6431
Brian Tracy (Alternate Contact)	GeoEngineers, Inc.	Project Engineer	(o) 206.239.3250 (c) 206.679.1643
Brad Tesch	Port of Anacortes	Project Manager	(o) 360.299.1830
Brett Lenz	Columbia Geotechnical Associates	Project Archaeologist	(o) 206.855.9020
Arianne Fernandez	Ecology	Site Manager	(o) 360.407.7209
Rob Whitlam	DAHP	State Archaeologist	(o) 360.586.3080 (c) 360.890.2615
Jackie Ferry	Samish Tribe	Cultural Resources	(o) 360.293.6404
Lena Tso	Lummi Tribe	Lummi Tribal Historic Preservation Office	(o) 360.384.2259
Larry Campbell	Swinomish Tribe	Tribal Historical Preservation Officer	(o) 360.466.7352

5.3. Utility Management

Utilities will either be demolished and removed, temporarily rerouted if necessary and restored, or protected in-place to facilitate remedial excavation activities. The contractor will be responsible for coordinating and notifying respective utility providers in advance of demolition and remedial excavation. In addition, the contractor will be responsible for obtaining necessary inspections for the restored utilities. The approximate locations of utilities, currently known to exist within/near the Interim Action construction area based on a survey completed by Sound Development Group dated May 2019, are shown on Figure 9. These utilities include power, water, sewer, storm drains and catch basins, telephone and gas. The utilities will be managed as follows during excavation:

- Unknown buried abandoned pipes (e.g., asbestos wrapped product lines) or other utilities related to the former Standard Oil fueling operations may exist within the excavation area. If encountered these abandoned utilities will be removed and disposed of in accordance with appropriate disposal regulations.
- If the utility is in an abandoned state, then such utility will be permanently removed to facilitate excavation, unless the owner of the utility (e.g. City) requests otherwise.
- Functional utility located within the Port properties will be removed or protected in place (if possible) to facilitate excavation. If removed, such utility will be reinstalled following construction or remain permanently removed depending on future Property use.
- Functional utility located outside the Port properties will be removed or protected in place (if possible) to facilitate excavation. If removed, the functional utility will be restored in kind following construction.

If a utility not identified in the pre-construction survey 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 owner, if necessary, and the utility will be managed as per the procedures mentioned above. Any accidental damage to such utilities will be repaired.

5.4. Excavation Shoring

The contractor may elect to use a shoring system to complete excavation or shoring may be required in certain areas in order to protect adjacent surfaces or structures. The primary area where shoring may be required or provide benefit for overall construction is along the eastern excavation sidewall to protect adjacent sidewalk and minimize construction impacts to O Avenue. If shoring is used on site, the contractor will be responsible for hiring a Washington State professional geotechnical engineer to collect subsurface geotechnical information necessary for design of a shoring system and a Washington State professional structural engineer to design the shoring system. The design of a shoring system may be subject to review and approval – if required by the City.

5.5. Remedial Excavation Limits and Verification Soil Sampling

The objective of remedial excavation is to remove petroleum hydrocarbon contaminated material located within the Port-owned properties in the upland area of the Site to allow for these areas to be redeveloped prior to implementation of a final remedy for the Site. In general, known contamination located outside Port-owned properties and in groundwater on Port-owned properties will be left in place and subject to monitoring and additional remedial actions, as required.

The estimated limits of contamination and remedial excavation are shown in plan view on Figure 11 and cross-sections are presented on Figures 12 and 13. The excavation limits are comprised of the excavation base and five sidewalls - northwestern, northern, eastern, southern and southwestern, as shown on Figure 11. A total of approximately 8,500 cubic yards of material are estimated to be removed from the excavation based on the limits shown in the figures.

5.5.1. Final Excavation Limits

The northwestern, northern and eastern sidewalls are considered to be the final Interim Action limits at the parcel boundary and additional excavation beyond the shown limits will not be completed to remove additional contaminated soil that may exist. At these limits field screening (headspace organic vapor screening, water sheen screening, and visual observation) and verification soil sampling will be completed to document contaminant conditions that will be left in place. Field screening and verification soil sampling procedures are described in the Compliance Monitoring and Quality Assurance Project Plan (CMP/QAPP; Appendix F). The following list describes the process used in developing the final limits for northwestern, northern and eastern sidewalls:

- The northern sidewall of the excavation will be completed at a stable side slope (1 Horizontal: 1 Vertical [1H:1V] or less) with the toe located at the parcel boundary. The northern sidewall is located such that contamination will be removed to the maximum extent practicable within the Port-owned property.
- The eastern sidewall of the excavation is assumed to be completed either at a stable side slope (1H:1V or less) with the toe located at the property boundary or vertical slope using shoring methods depending on contractor's excavation approach. Shoring, if used, will be located at the property boundary. Similar

to the northern sidewall, the eastern sidewall will be located such that contamination can be removed to the maximum extent practicable within the property boundary.

- The northwestern portion of the excavation area contains a portion of City's N Avenue Park and associated pedestrian pathway and shoreline vegetation. It is assumed that the existing fence line in the northwestern portion (Figure 11) marks the boundary for the City's park. The northwestern sidewall of the excavation will be completed at a stable side slope (1H:1V or less) with the toe located at the fence line. The northwestern sidewall is located such that contamination can be removed to the maximum extent practicable within the portion of Port-owned property that is not used as City park and to protect riparian vegetation, shrubs and trees located waterward of the pedestrian pathway and adjacent to the Guemes Channel.

5.5.2. Preliminary Excavation Limits

The excavation base, southern sidewall, southwestern sidewall and northwestern sidewall as shown on Figure 11 are considered preliminary based on existing chemical analytical data (Data Report; Appendix C). Excavation limits for the base and these sidewalls will be modified as necessary to remove contaminated soil on Port-owned properties to achieve remediation levels established for the Interim Action.

The preliminary depths to the excavation base range from 7 to 14 feet below ground surface (bgs) as shown on Figure 11. The final depths to excavation base may vary based on results of field screening (headspace organic vapor screening, water sheen screening, and visual observation) and verification soil sampling.

Similarly, the final excavation limits in the southern and southwestern direction may extend beyond the preliminary limits shown on Figure 11 based on results of field screening and verification soil sampling. Based on existing analytical data (Appendix C) the southern and southwestern limits of the excavation are not anticipated to extend beyond the property boundaries.

The following list describes procedures for field screening and verification soil sampling in determining final excavation limits for the base, southern and southwestern sidewalls. As mentioned above, field screening and verification soil sampling procedures (including frequency at which samples will be collected) are described in the CMP/QAPP (Appendix F).

- Field screening will be performed by GeoEngineers' field personnel at the preliminary excavation limits (shown on figures) to evaluate evidence of contamination and help determine when to collect verification samples. If field screening results indicate evidence of contamination, then additional excavation will be performed until excavation limits are reached where field screening does not yield evidence of contamination. Field screening will continue as additional excavation progresses to minimize removal of non-contaminated material located beyond the limits of contamination.
- Verification soil samples will be collected at the excavation limits where field screening does not yield evidence of contamination and submitted for chemical analysis as detailed in the CMP/QAPP. Remedial excavation activities will be continued until the results of verification soil samples are below Interim Action remediation levels presented on Table 1 and/or the property boundaries (or the northwestern fence line) have been reached. In which case, verification soil samples will be collected and analyzed to document contaminated soil that is left in place at the excavation limit.

5.6. Soil Segregation, Stockpiling and Reuse/Disposal Characterization

Based on existing data, a total of approximately 1,500 and 7,000 cubic yards of overburden and contaminated material, respectively are estimated to be generated from excavation limits. Overburden material is expected to be generated from approximately upper 2 to 4 feet of the excavation. Contaminated material will be generated from the remainder of the excavation. GeoEngineers field personnel will observe the excavation activities and perform field screening to assist the contractor in segregating overburden and contaminated material. Overburden material will be managed separately from contaminated material in a manner that prevents cross-contamination. The contractor and GeoEngineers field personnel will evaluate suitability of overburden material for backfill purposes. If overburden material contains unsuitable backfill material (e.g. organics, peat, soft clay, quicksand, etc.) that would prevent overburden material from achieving backfill compaction requirements (to be developed as part of design), then such overburden material will be managed similar to contaminated material and transported offsite for disposal. If overburden material is deemed suitable for backfilling purposes, then it will be stockpiled on site as per the stockpiling requirements identified in Section 5.1.6 pending reuse characterization. Sampling and analysis to be performed on overburden stockpile and reuse/disposal characterization are summarized below.

Disposal characterization for contaminated material will be completed using existing chemical analytical data (Data Report; Appendix C). The existing chemical analytical data along with the completed disposal-facility waste profile forms will be submitted to permitted solid waste disposal landfills to obtain preliminary authorizations. Based on existing data, it is assumed that the contaminated material will be characterized as non-hazardous/non-dangerous waste and require disposal at solid waste landfills that are permitted to accept such waste. Preliminary disposal authorizations will be obtained from up to two RCRA Subtitle D landfills (i.e. landfills that are permitted to accept non-hazardous/non-dangerous waste) and made available to the contractor to obtain final authorizations. Alternatively, the contractor may propose to use landfills of their choice that are Ecology-approved and permitted to accept contaminated waste generated from the Site. GeoEngineers will coordinate with contractor proposed landfills and/or Ecology's Hazardous Waste and Toxics Reduction Program, as necessary, to assist in obtaining disposal authorization. Since waste profiles for contaminated material will be developed prior to construction stockpiling of contaminated material is not expected to be necessary for disposal characterization purposes.

5.6.1. Overburden Stockpile Sampling and Analysis

Overburden soil will be stockpiled and characterized before being used as backfill at the Site. Soil sampling and analysis will be required to adequately characterize overburden material prior to reuse as backfill material. The quantity of soil samples to be collected for stockpile characterization will be in accordance with Ecology's guidance on the typical number of samples needed to adequately characterize stockpiled soil as summarized in the table below.

Typical Number of Samples Needed to Adequately Characterize Stockpiled Soil[1]	
Cubic Yards of Soil	**Number of Samples for Chemical Analysis**
0-100	3
101-500	5
501-1000	7

1001-2000	10
>2000	10+1 for each additional 500 cubic yards

[1] Source: Ecology's Guidance for Remediation of Petroleum Contaminated Sites (Ecology 2016)

The locations of stockpile samples will be evenly distributed horizontally over the extent of the stockpile such that reasonable representation of the entire stockpile is achieved. For example, if a stockpile is 300 cubic yards where 5 samples are to be collected, stockpile sample locations will be distributed evenly over the footprint of the stockpile such that each sample represents roughly 60 cubic yards. Each stockpile sample collected for analysis will be a three-point composite. These three points will also be evenly distributed horizontally within the portion of the stockpile they represent. The depth at which soil will be sampled from these points will be distributed vertically such that a reasonable representation of the stockpile is obtained. For example, for a 5-foot high stockpile, the depth of sampling at these three points may be distributed at 0.5 feet, 1.5 feet and 3 feet below the surface of the stockpile, if necessary. The depth of sampling will be 0.5 feet below the surface of the stockpile, at a minimum.

Decontaminated hand tools such as hand-auger, shovel or similar will be used for collecting samples at deeper sampling depths, as necessary. Soil compositing procedures for collection of non-volatile analyses will include collecting equal amounts of soil from each of the three sampling points and placing the soil in a fresh (unused) zip-top plastic bag or a decontaminated stainless-steel container. These samples for non-volatile analyses will be thoroughly mixed to a homogeneous consistency prior to placing it into laboratory provided containers. For volatile analyses including gasoline-range total petroleum hydrocarbons (by NWTPH-Gx) and other volatile organic compounds (by EPA 8260) discrete samples will be collected in accordance with EPA 5035A sampling methods. The three sampling points for the composite sample will be field screened (i.e. sheen, headspace vapor, odor) and the location with greatest evidence of contamination will be sampled for volatile analyses. The requirements applicable for sampling and analysis presented in CMP/QAPP will be followed. Duplicate soil samples will not be collected for waste characterization samples (i.e. stockpile samples). As identified in CMP/QAPP, duplicable samples are considered applicable only for samples collected as part of compliance monitoring, which includes verification soil samples and post-construction confirmational groundwater samples but not waste characterization samples. Chemical analysis will be performed at an Ecology accredited laboratory. Chemical analysis will be performed on a 2-day turn-around time to support decision making concerning stockpile material reuse/disposal. Overburden stockpile samples will be analyzed for site contaminants and any other analytes requested by disposal facility, if necessary. As a minimum the following analysis will be performed:

- Gasoline-range petroleum hydrocarbons by Ecology Method NWTPH-G;
- Diesel- and heavy oil-rang petroleum hydrocarbons by Ecology Method NWTPH-Dx;
- PAHs by EPA Method 8270SIM;
- Volatile Organic Compounds (VOCs) including benzene, ethylbenzene, toluene and xylenes (BETX), n-hexane, Methyl tert-butyl ether (MTBE), Ethylene Dibromide (EDB) and Ethylene Dichloride (EDC) by EPA Method 8260; and
- Metals (arsenic, cadmium, chromium, lead and mercury) by EPA Method 6000/7000 series.

If the results are less than the remediation levels presented in Table 1 then overburden material will be used for backfilling. Consistent with Tables 12.1 and 12.2 in Ecology's Guidance for Remediation of

Petroleum Contaminated Sites (Ecology, 2016) overburden will be placed based on stockpile analytical results as follows:

- Soils with no detectable levels will be used to backfill any parts of the excavation.
- Soils with detections below remediation levels will be available for backfill above the water table.
- Soils above remediation levels will be transported and disposed of offsite.

Backfilling activities and requirements are described in Section 5.9. If the results are greater than the remediation levels (Table 1) then overburden material will be managed as contaminated material and require off-site transport and disposal at an Ecology-approved permitted disposal facility. The results of stockpile sampling will be submitted to an Ecology-approved permitted landfill proposed by the contractor, if necessary, along with completed waste profile forms to obtain disposal authorization.

5.7. Management of Groundwater

Groundwater is expected to be encountered during excavation activities (Data Report; Appendix C). Groundwater and any other water (e.g. stormwater, water used for decontamination, 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 5.1.4), 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. If necessary, excavation will be performed during low-tide hours of the day so that tidal influence will be minimized during active excavation work. 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 may be required to dewater portions of the excavation to achieve the objectives of the Interim Action.

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 and field screening does not indicate evidence of contamination) are not contaminated due to contact with free product, sheen or other contamination present in water; and (2) Port's field representative is able to observe, field screen, and collect verification soil samples from excavation limits.

Free product or sheen that does not get removed with contaminated soil and results in accumulating on the surface of standing water within excavation will also be managed properly by the contractor. Containment BMPs such as booms will be used to minimize contact of the floating free product and sheen within excavation limits that are clean or potentially clean. If necessary, the contractor will be required to remove and collect free product that poses a threat of cross-contamination. Collected free product will be stored and managed in accordance with applicable laws and regulation and will be transported off-site for either recycling or disposal at an Ecology-approved facility.

Additionally, the contractor will be required to manage free liquids generated from excavated material such that the material is suitable for transportation and meets the requirements of the disposal facility. If free liquids are drained within excavation limits prior to transport, the contractor will be required to ensure that draining water is flowing back into the excavation and not causing cross-contamination of adjacent areas. If free liquids are drained within stockpiling area, then the contractor will be required to divert draining water towards collection points (e.g. sumps or similar) within stockpile area where the water can be

collected and managed. Trucks used to transfer excavated material between excavation and stockpile areas will be equipped with proper doors and seals such that spillage of free liquid or material does not occur during transfer. Alternatively, the contractor may choose to mix dry contaminated excavated or treat the excavated material with an absorbent (e.g. diatomaceous earth or similar) to address free liquids; however, such additives will require Ecology approval and the contractor may need to compensate the Port for the increase in disposal weight resulting from the addition of an absorbent.

Water collected, stored and/or treated during excavation activities will be disposed of in accordance with applicable laws and regulations. The contractor will be responsible for designing and implementing water collection, storage and treatment system (as necessary) and implementing excavation water management in accordance with general requirements as previously detailed in this section. The contractor may elect to either transport collected/stored water for disposal to an off-site permitted disposal facility or discharge to 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 temporary sewer discharge permit and City approval.

5.8. Transport and Disposal of Excavated Soil

Excavated contaminated soil and overburden soil unsuitable for backfilling will be transported off-site. Contaminated materials will be disposed at an Ecology-approved permitted disposal facility. 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. Material with free liquid will not be allowed for off-site transportation. 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 capable of providing documentation that demonstrates that they are properly licensed and are in compliance with applicable U.S. Department of Transportation regulations, as well as a copy of 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.

5.9. 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 in areas where contamination is left in place.
- 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 to be further detailed in design. Field density testing will be conducted to confirm adequate compaction is achieved.
- Oxygen-releasing material will be placed as part of backfilling activities as discussed in Section 5.10.

5.10. Placement of Oxygen-Releasing Material

Oxygen-releasing material (ORM) will be imported and placed in between backfill lifts adjacent to the areas where petroleum-related contamination will be left in place. The purpose of ORM will be to enhance aerobic biodegradation of the contamination remaining outside the excavation by supplying oxygen and promoting bacterial growth in the subsurface and thereby, enhancing degradation of residual petroleum compounds in soil and/or groundwater. ORM releases oxygen when it comes in contact with groundwater and will be placed within the saturated/smear zone adjacent to contaminated soil that is left in place. Based on analytical data collected contaminated material is expected to be left in place along the eastern, northern and northwestern sidewalls of the excavation. Typically, a single application of ORM can support aerobic biodegradation for up to approximately 12 months. The ORM will be non-toxic and soluble in groundwater that passively releases oxygen to the aquifer over time. As part of the design, further evaluation will be completed for ORM placement interval and dosage rate that will not have long-term negative effects on subsurface conditions. Placement of ORM will be completed in a safe manner in accordance with handling procedures.

5.11. Site Restoration

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

5.11.1. Utilities

Restoration of utilities that will be demolished/removed as described in Section 5.3.

5.11.2. Surface Restoration

Ground surfaces in the excavation area that are within the Port-owned properties will be restored with compacted gravel surfacing. Areas outside of Port-owned property that are disturbed or demolished as a result of the construction activities will be restored in kind. Landscaping and paved surfaces including streets, sidewalks, curbs and curb ramps located on City's ROW including 2nd Street and O Avenue will be restored in accordance with City requirements. The pedestrian pathway and landscaping of City's N Avenue Park will be restored in accordance with City's requirements. The retaining wall located along the eastern, southern and western perimeter of the Quiet Cove property will be replaced by a temporary earthen slope or block/rock wall (e.g. ecology blocks) to allow restoration of the retaining wall to be completed in coordination with redevelopment of the Site. The contractor will be required to perform survey(s) to document the as-built conditions of surface restoration.

5.11.3. Groundwater Monitoring Wells

Groundwater monitoring well MW-2 is planned to be decommissioned prior to excavation and reconstructed as part of restoration activities. Additionally, if wells MW-1, MW-5 and MW-10 are required to be decommissioned due to remedial excavation construction activities, then these wells will also be reconstructed as part of restoration activities. Monitoring wells will be constructed in accordance with the procedures and requirements of the Ecology-approved RI/FS Work Plan (GeoEngineers 2017). These monitoring wells will be reconstructed to facilitate post-construction groundwater monitoring activities detailed in the CMP/QAPP (Appendix F). Four monitoring wells that are planned to be decommissioned prior to excavation including MW-11, MW-12, SD-02 and SD-08 are not planned to be reconstructed as these well locations are not planned to be used for post-construction groundwater monitoring activities.

6.0 COMPLIANCE MONITORING

Compliance monitoring will be implemented in accordance with WAC 173-340-410 that presents compliance monitoring requirements of Ecology. 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 Interim Action.
- Performance monitoring to confirm that the Interim Action has attained remediation levels, where applicable.
- Confirmational monitoring to confirm the long-term effectiveness of the Interim Action.

The protection monitoring plan for the Interim Action will be addressed in a Health and Safety Plan (HASP; Appendix G). 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 are detailed in the CMP/QAPP (Appendix F) and describes the duration and frequency of the compliance monitoring program.

7.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

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

7.1. 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 IAWP and contract requirements (to be developed).

The contractor will maintain QC records for the duration of the construction. These records will include evidence that the required inspections or tests have been performed, including the type and number of

inspections or tests involved; results of inspections or tests; nature of defects, deviations, causes for rejection, proposed corrective action, and corrective actions taken.

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

7.2. 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 F).

7.3. Analytical QA/QC

Analytical QA/QC is described in the CMP/QAPP (Appendix F). 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.

7.4. Health and Safety

Cleanup-related construction activities will be performed in accordance with the requirements of the Washington Industrial Safety and Health Act (RCW 49.17) and the Federal Occupational Safety and Health Act (29 CFR 1910, 1926). These regulations include requirements that workers are to be protected from exposure to contaminants.

A project-specific Health and Safety Plan (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 G. 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.

8.0 SCHEDULE

Pending public review of this Interim Action Work Plan and Ecology approvals, Interim Action-related construction work is scheduled to begin in the summer of 2020. The construction duration is estimated to occur over a period of three to four months. A detailed project schedule will be established at the time of contractor selection.

9.0 REPORTING

Upon completion of Interim Action construction work, an Interim Action Completion Report (IACR) that describes the construction activities will be prepared and submitted to Ecology for review and approval. The IACR will be prepared for Ecology's review. Additionally, the results of the Interim Action, as described

in the final IACR, will be incorporated into the RI/FS Report for the Site. A separate groundwater monitoring report will be prepared to document results of post-construction groundwater monitoring that will be completed after the Interim Action construction as described in the CMP/QAPP. The groundwater monitoring report will be prepared following completion of the groundwater monitoring activities described in the CMP/QAPP.

10.0 REFERENCES

GeoEngineers, 2014. Focused Environmental Site Investigation Data Report, Quiet Cove Property, Anacortes, Washington, GEI No. 5147-024-01, dated October 20, 2014

GeoEngineers, 2017. FINAL Remedial Investigation/Feasibility Study Work Plan (RI/FS Work Plan); Quiet Cove Property; Anacortes, WA; Ecology Agreed Order No. DE 11346. GEI No. 5147-024-03, dated January 25, 2017.

GeoEngineers, 2018. Work Plan Addendum for Supplemental Upland Area Soil and Groundwater Investigation at the Quiet Cove Site, Anacortes, Washington (Work Plan Addendum). GEI No. 5147-024-06, dated October 1, 2018.

GeoEngineers, 2019. Data Report; Quiet Cove Site; Anacortes, Washington; Ecology Agreed Order No. DE 11346 for Washington State Department of Ecology on Behalf of Port of Anacortes. Dated May 31, 2019.

Maul Foster & Alongi, Inc.; GeoEngineers; and BST Associates (Maul Foster, et al), 2015. Quiet Cove and Curtis Wharf Cleanup and Redevelopment Strategy. Prepared for: Port of Anacortes. Prepared by: Maul Foster & Alongi, Inc.; GeoEngineers, Inc.; and BST Associates. March 9, 2015.

Washington State Department of Ecology (Ecology). 2016. Guidance for Remediation of Petroleum Contaminated Sites; Toxics Cleanup Program; Publication No. 10-09-057. Revised June 2016.

11.0 LIMITATIONS

We have prepared this report for the Quiet Cove Site located at 202 O 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.

TABLES

GeoEngineers

Table 1

Interim Action Soil Remediation Levels

Quiet Cove Property

Anacortes, Washington

Analyte	Criteria for Protection of Human Health[1]			Criteria for Protection of Groundwater					Modifying Factor		Soil Remediation Level (Adjusted for Natural Background and PQL)	
	MTCA Method A Cleanup Level for Unrestricted Land Use	MTCA Method B Cleanup Level for Direct Contact (Standard Formula Value)		Equilibrium Partition Coefficients[2]			Soil Concentration Protective of Preliminary Groundwater Cleanup Level[3]		Natural Background[4]	Practical Quantitation Limit (PQL)[5]		
		Carc.	Non-Carc.	K_{oc} (org.)	K_d (metals)	H	Vadose Zone	Saturated Zone			Vadose Zone	Saturated Zone
Metals (mg/kg)												
Arsenic	–	0.67	24	–	29	–	2.92	0.15	20	5	20	20
Cadmium	–	–	80	–	6.7	–	1.21	0.061	1	0.20	1.2	1
Chromium (total)	–	–	120,000	–	1,000	–	1000	50.01	48	0.50	1,000	50
Lead	250	–	–	–	10,000	–	420	21	24	2	250	24
Mercury	2	–	–	–	52	4.70E-01	0.026	0.0013	0.07	0.05	0.07	0.07
Petroleum Hydrocarbons (mg/kg)												
Gasoline-Range	30/100[6]	–	–	–	–	–	–	–	–	5	30/100[6]	30/100[6]
Diesel-Range	2,000	–	–	–	–	–	–	–	–	5	2,000	2,000
Heavy Oil-Range	2,000	–	–	–	–	–	–	–	–	10	2,000	2,000
BETX Compounds (mg/kg)												
Benzene	–	18.18	320	62	–	2.28E-01	0.0135	0.00084	–	0.05	0.05	0.05
Ethylbenzene	–	–	8,000	204	–	3.23E-01	1.12	0.064	–	0.05	1.12	0.06
Toluene	–	–	6,400	140	–	2.72E-01	3.78	0.22	–	0.05	3.78	0.22
Xylenes	–	–	16,000	233	–	2.79E-01	2.83	0.16	–	0.05	2.83	0.16
Petroleum-Related Volatile Organic Compounds (VOCs; mg/kg)												
1,2-Dichloroethane (EDC)	–	10.99	480	38	–	4.01E-02	0.0203	0.00136	–	0.001	0.02	0.001
1,2-Dibromoethane (EDB)	–	0.5	720	66	–	2.66E-02	0.0015	0.000099	–	0.001	0.002	0.001
Methyl t-Butyl Ether (MTBE)	–	555.6	–	11	–	1.80E-02	2.592	0.182	–	0.001	2.59	0.18
n-Hexane	–	–	4800	1,482	–	6.50E-01	0.27	0.014	–	0.001	0.27	0.01
Non-carcinogenic Polycyclic Aromatic Hydrocarbons (PAHs; mg/kg)												
1-Methylnaphthalene	–	34.48	5600	2,528	–	2.10E-02	–	–	–	0.0067	34.48	34.48
2-Methylnaphthalene	–	–	320	2,478	–	2.12E-02	0.77	0.040	–	0.0067	0.77	0.04
Acenaphthene	–	–	4,800	4,898	–	7.52E-03	0.32	0.02	–	0.0067	0.32	0.02
Acenaphthylene	–	–	–	5,027	–	–	–	0.068	–	0.0067	–	0.068
Anthracene	–	–	24,000	23,493	–	2.67E-03	4	0.2	–	0.0067	4.41	0.2
Benzo[g,h,i]perylene	–	–	–	1,951,000	–	–	–	1.95	–	0.0067	–	1.95
Fluoranthene	–	–	3,200	49,096	–	6.60E-04	3.20	0.16	–	0.0067	3.2	0.16
Fluorene	–	–	3,200	7,707	–	2.61E-03	0.46	0.02		0.0067	0.5	0.02
Naphthalene	–	–	1,600	1,191	–	1.98E-02	0.25	0.013	–	0.0067	0.25	0.01
Phenanthrene	–	–	–	16,690	–	–	–	0.10	–	0.0067	–	0.101
Pyrene	–	–	2,400	67,992	–	4.51E-04	20.01	1.00	–	0.0067	20	1

Analyte	Criteria for Protection of Human Health[1]			Criteria for Protection of Groundwater					Modifying Factor		Soil Remediation Level (Adjusted for Natural Background and PQL)	
	MTCA Method A Cleanup Level for Unrestricted Land Use	MTCA Method B Cleanup Level for Direct Contact (Standard Formula Value)		Equilibrium Partition Coefficients[2]			Soil Concentration Protective of Preliminary Groundwater Cleanup Level[3]		Natural Background[4]	Practical Quantitation Limit (PQL)[5]		
		Carc.	Non-Carc.	K_{oc} (org.)	K_d (metals)	H	Vadose Zone	Saturated Zone			Vadose Zone	Saturated Zone
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs; mg/kg)												
Benzo[a]anthracene	–	1.37	–	357,537	–	1.37E-04	0.07	0.0036	–	0.0067	0.07	0.007
Benzo[a]pyrene	–	0.14	–	968,774	–	4.63E-05	0.19	0.010	–	0.0067	0.14	0.010
Benzo[b]fluoranthene	–	1.37	–	1,230,000	–	4.55E-03	0.25	0.012	–	0.0067	0.25	0.012
Benzo[k]fluoranthene	–	13.7	–	1,230,000	–	3.40E-05	0.32	0.016	–	0.0067	0.32	0.016
Chrysene	–	137	–	398,000	–	3.88E-03	0.25	0.0124	–	0.0067	0.25	0.0124
Dibenz[a,h]anthracene	–	0.14	–	1,789,101	–	6.03E-07	0.36	0.018	–	0.0067	0.14	0.018
Indeno[1,2,3-c,d]pyrene	–	1.37	–	3,470,000	–	6.56E-05	0.69	0.035	–	0.0067	0.69	0.035
cPAHs TEQ	–	–	–	968,774	–	4.63E-05	0.22	0.011	–	0.0067	0.22	0.011

Notes:

[1] MTCA Method A soil cleanup levels are shown for those chemicals for which Method B values are not available (e.g., petroleum hydrocarbons and lead). MTCA Method A value for total PCBs is also included to show chemical-specific cleanup level mandated in the Federal Toxic Substance Control Act (TSCA).

[2] Values for Kd and/or Koc and/or Henry's Law Constant not available from Cleanup Levels and Risk Calculation (CLARC) database were referenced from Estimation Program Interface (EPI) EPI Suite v4.11 (http://www.epa.gov/oppt/exposure/pubs/episuitedl.htm) or Oak Ridge National Laboratory (ORNL) Risk Assessment Information System (RAIS).

[3] Soil concentrations protective of groundwater calculated per WAC 173-340-740(3)(b)(iii)(A) using Equations 747-1 and 747-2 referencing groundwater screening levels presented in Table 2. Method A Cleanup Values are used for petroleum hydrocarbon soil concentrations protective of groundwater.

[4] Metals background values (Puget Sound Region 90th percentile values) are from *Natural Background Soil Metals Concentrations in Washington State* (Ecology Publication #94-115, 1994), with the exception of arsenic which is referenced from MTCA Table 745-1 (WAC 173-340-900).

[5] Lowest available PQL value from Analytical Resources Inc. (ARI) of Tukwila, Washington.

[6] Screening level for gasoline-range petroleum hydrocarbons is 30 mg/kg if benzene is present and 100 mg/kg if not present.

EPA = Environmental Protection Agency

k_d = Distribution coefficient

k_{oc} = Soil organic carbon-water partitioning coefficient (L/kg)

L/kg = Liter per kilogram

mg/kg = Milligrams per kilogram

MTCA = Washington State Model Toxics Control Act

PQL = Practical quantitation limit

– = No screening criteria available.

TEQ = Toxic equivalent concentration (toxicity equivalency factor (TEF) values are presented in Table 5).

Calculated concentrations protective of groundwater as marine surface water assume unsaturated soil, and are calculated based on groundwater screening levels before adjustment for background and PQLs.

Table 2

Interim Action Groundwater Screening Levels

Quiet Cove Property

Anacortes, Washington

Analyte	Criteria for Protection of Aquatic Organisms and Human Health									Groundwater Screening Level Protective of Sediment[5]	MTCA Method B Groundwater Screening Level for Protection of Vapor Intrusion		Modifying Factor		Groundwater Screening Level (Adjusted for Natural Background and PQL)
	Marine Surface Water Quality Criteria[1]		National Toxics Rule[2]			Clean Water Act[3]			MTCA Method B Surface Water Cleanup Level[4]		Carc.	Non-Carc.	Natural Background[6]	Practical Quantitation Limit (PQL)[7]	
	Acute	Chronic	Protection of Marine Aquatic Life: Acute	Protection of Marine Aquatic Life: Chronic	AWQC for Protection of Human Health	Protection of Marine Aquatic Life: Acute	Protection of Marine Aquatic Life: Chronic	AWQC for Protection of Human Health							
Metals (µg/L)															
Arsenic	69	36	69	36	0.14	69	36	0.14	0.098	43.1	--	--	5	0.5	5
Cadmium	42	9.3	42	9.3	--	40	8.8	--	40.5	114.5	--	--	--	0.1	8.8
Chromium[8] (total)	1,100	50	1,100	50	--	1,100	50	--	243,056	389.9	--	--	--	1	50
Lead	210	8.1	210	8.1	--	210	8.1	--	--	2.1	--	--	--	0.1	2.1
Mercury	1.8	0.025	2.1	0.025	0.15	1.8	0.94	0.3	--	3.8	--	0.89	--	0.02	0.025
Petroleum Hydrocarbons (µg/L)															
Gasoline-Range	--	--	--	--	--	--	--	--	800/1000[9,10]	--	--	--	--	100	800/1000[9]
Diesel-Range	--	--	--	--	--	--	--	--	500[9]	--	--	--	--	100	500
Heavy Oil-Range	--	--	--	--	--	--	--	--	500[9]	--	--	--	--	200	500
BETX Compounds (µg/L)															
Benzene	--	--	--	--	71	71	71	58	22.66	--	2.4	102.7	--	0.2	2.4
Ethylbenzene	--	--	--	--	29,000	29000	29000	130	6,823	--	--	2,783	--	0.2	130
Toluene	--	--	--	--	200,000	200000	200000	520	18,855	--	--	15,584	--	0.2	520
Xylenes	--	--	--	--	--	--	--	--	--	--	--	310	--	0.2	310
Fuel-Related Volatile Organic Compounds (VOCs; µg/L)															
1,2-Dichloroethane (EDC)	--	--	--	99	99	99	99	650	59.35	--	4.20	139.8	--	0.2	4.20
1,2-Dibromoethane (EDB)	--	--	--	--	--	--	--	--	--	--	0.28	276.8	--	0.2	0.3
Methyl t-Butyl Ether (MTBE)	--	--	--	--	--	--	--	--	--	--	610.0	87,003	--	0.5	610
n-Hexane	--	--	--	--	--	--	--	--	--	--	--	7.8000	--	0.2	7.8

Notes:

[1] Water quality criteria for protection of aquatic life from WAC 173-201A-240 (Water Quality Standards for Surface Waters of the State of Washington).

[2] Ambient water quality criteria (AWQC) for protection of human health from 40 CFR Part 131d (National Toxics Rule).

[3] National Recommended Water Quality Criteria (http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm; accessed March 2016).

[4] The values presented are the lowest of the MTCA Method B carcinogenic and non-carcinogenic criteria for surface water. The carcinogenic and non-carcinogenic criteria for surface water are adjusted for cases when a state or federal surface water standard is available, but is not considered to be "sufficiently protective" under MTCA (that is, the standard is based on a hazard quotient greater than 1 or a cancer risk greater than 1 x 10-5). For these cases, WAC 173-340-720(7)(b) and -730(5)(b) allows the standard to be adjusted downward to a hazard quotient of 1 or a cancer risk of 1 x 10-5.

[5] For ionizing organics, Cw (µg/L) = (C_{sed} (mg/kg OC) / K_{oc} (L/kg OC)) x 1000 µg/mg; for non-ionizing organics, C_w (mg/L) = (C_{sed} (mg/kg) / $K_{d\ }$(L/kg)*foc) x 1000 µg/kg (assumes foc of 2%) and for metals, C_w (mg/L) = (C_{sed} (mg/kg) / K_d (L/kg)) x 1000 µg/kg.

[6] Metals background values (Puget Sound Region 90th percentile values) are from *Natural Background Soil Metals Concentrations in Washington State* (Ecology Publication #94-115, 1994), with the exception of arsenic which is referenced from MTCA Table 745-1 (WAC 173-340-900).

[7] Lowest available PQL value from Analytical Resources Inc. (ARI) of Tukwila, Washington.

[8] Trivalent chromium (chromium III) is assumed where no value is available for total chromium.

[9] MTCA Method A groundwater cleanup level; MTCA Method B surface water cleanup level is not available for total petroleum hydrocarbons.

[10] The screening level for gasoline-range petroleum hydrocarbons is 800 µg/L if benzene is present and 1,000 µg/L if not present.

MTCA = Washington State Model Toxics Control Act

ng/L = Nanogram per liter

µg/L = Microgram per liter

PQL = Practical quantitation limit

Analyte	Criteria for Protection of Aquatic Organisms and Human Health								MTCA Method B Surface Water Cleanup Level[4]	Groundwater Screening Level Protective of Sediment[5]	MTCA Method B Groundwater Screening Level for Protection of Vapor Intrusion		Modifying Factor		Groundwater Screening Level (Adjusted for Natural Background and PQL)
	Marine Surface Water Quality Criteria[1]		National Toxics Rule[2]			Clean Water Act[3]									
			Protection of Marine Aquatic Life		AWQC for Protection of Human Health	Protection of Marine Aquatic Life		AWQC for Protection of Human Health					Natural Background[6]	Practical Quantitation Limit (PQL)[7]	
	Acute	Chronic	Acute	Chronic		Acute	Chronic				Carc.	Non-Carc.			

-- = No screening criteria available.

TEQ = Toxic equivalent concentration (toxicity equivalency factor (TEF) values are presented in Table 5).

FIGURES

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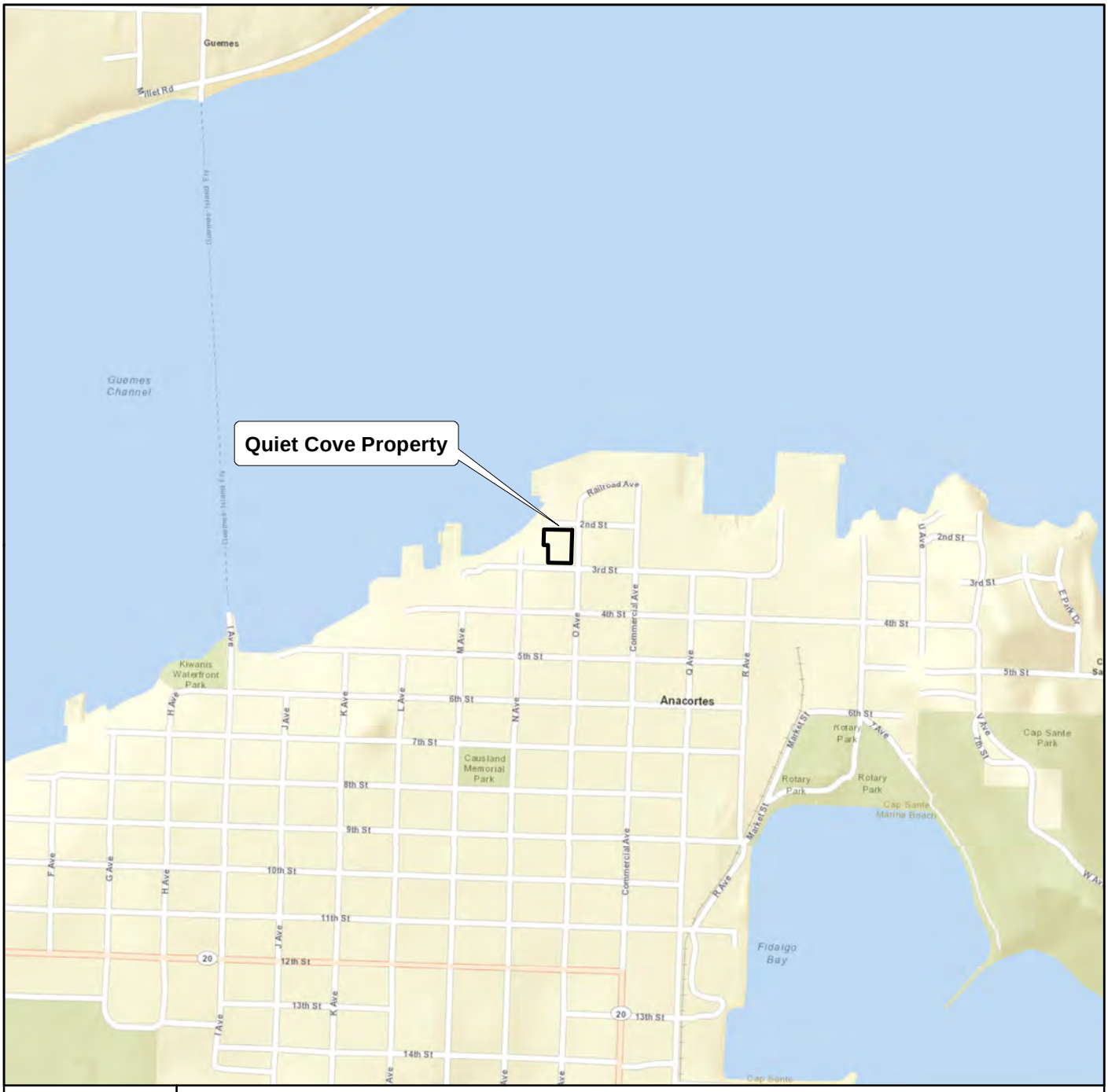

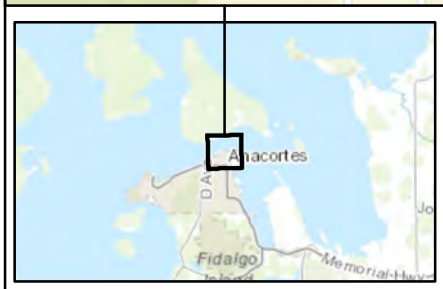

N
W E
S

1,000 0 1,000

Feet

Notes:
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Data Sources: ESRI Data & Maps, Street Data 2013.

Transverse Mercator, Zone 10 N North, North American Datum 1983
North arrow oriented to grid north

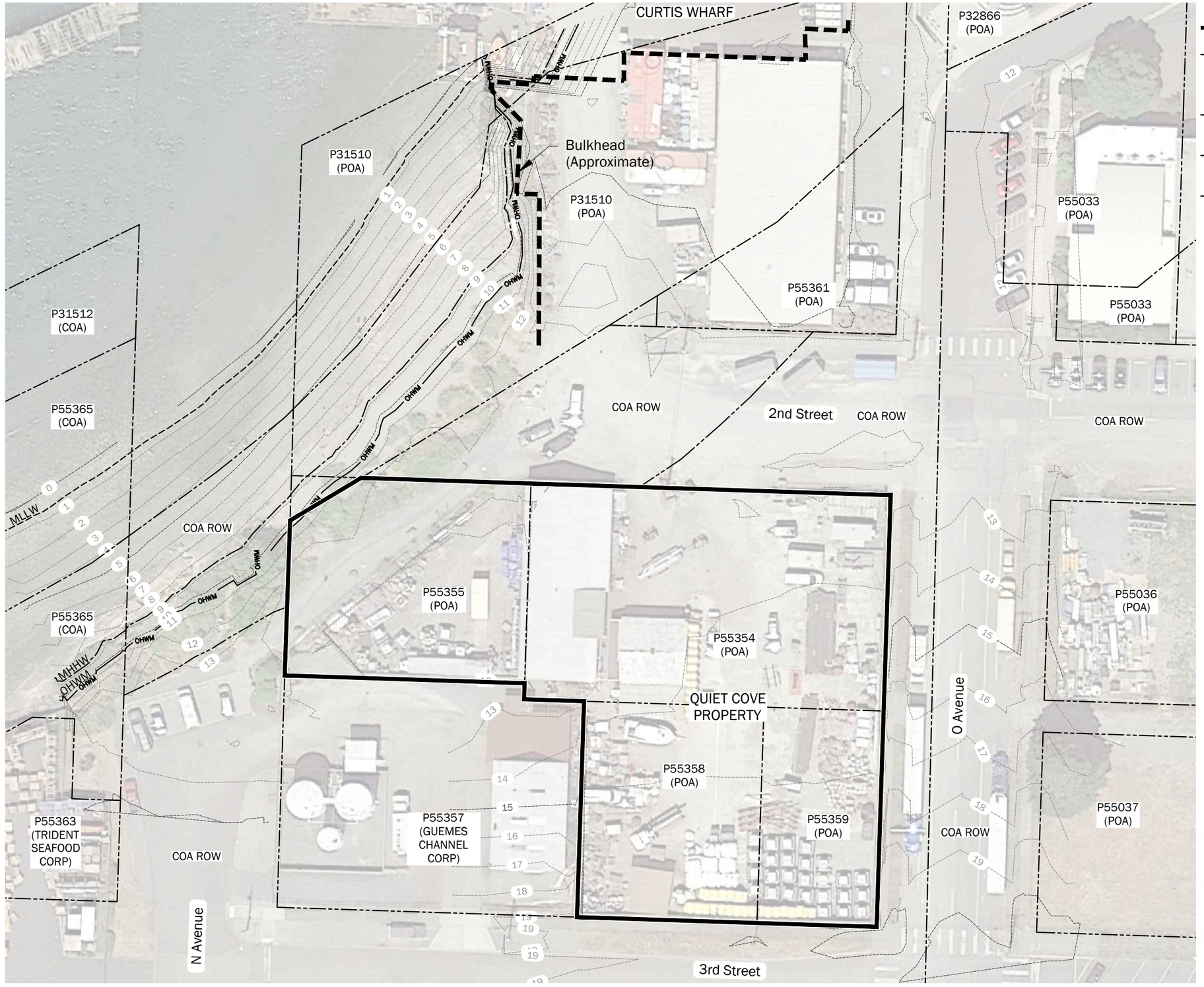
Vicinity Map

Quiet Cove Property
Anacortes, Washington

GeoEngineers

Figure 1

Office: Redmond Path:C:\Users\maugust\Desktop\xxxxxxxx_F1_VicinityMap.mxd Map Revised: 1/28/2014 MSA



Legend

- Port of Anacortes Properties at Quiet Cove Site
- Parcel Boundary from Skagit County Records
- 10 — Contour (Feet, NAVD 88)
- Mean Lower Low Water (MLLW) Line (0.66 Feet NAVD 88)
- Mean Higher High Water (MHHW) Line (8.86 Feet NAVD 88)
- OHWM — Approximate Ordinary High Water Mark (OHWM) Line (10.36 Feet NAVD 88)
- P55365 (COA) — Parcel Number (Owner)

POA = Port of Anacortes
COA = City of Anacortes
ROW = Right-of-Way

Data Source: Base survey by Sound Development Group on 10/11/2017. Imagery from Google Earth Pro dated 7/15/2018

Horizontal Datum: NAD83 Washington State Planes, North Zone, US Foot

Vertical Datim: North American Vertical Datum, 1988, US Foot

N
W E
S

50 0 50
Feet

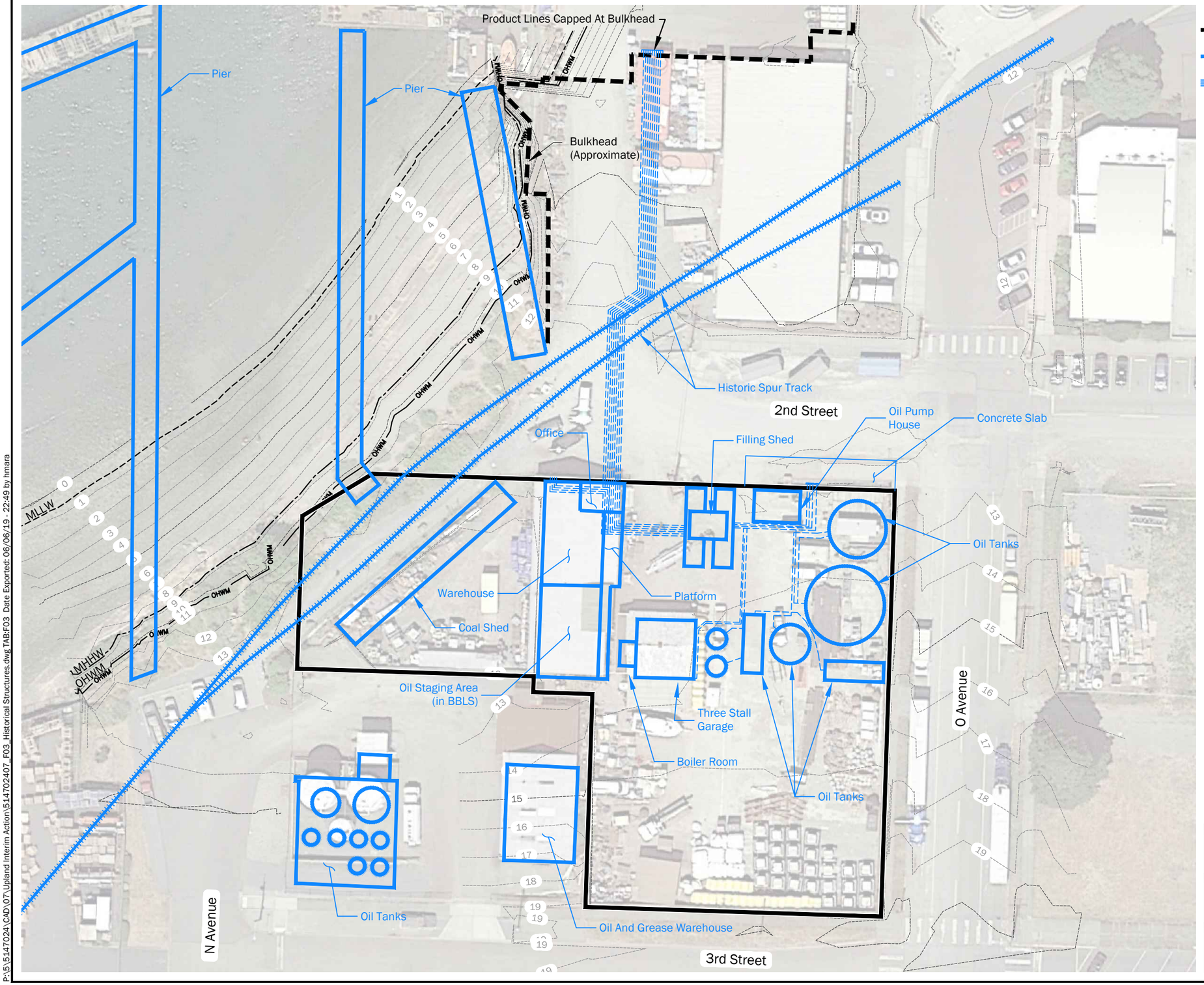
Current Property Layout

Quiet Cove Site
Anacortes, Washington

GeoEngineers

Figure 2

P:\5\5147024\CAD\07\Upland Interim Action\5147024O7_F02_Site Plan.dwg TAB:F02 Date Exported: 06/06/19 - 22:37 by hmara



Legend

- Port of Anacortes Properties at Quiet Cove Site
- Historical Features
- Product Supply Line
- 10 Contour (Feet, NAVD 88)

Data Source: Base Aerial taken by David C. Smith & Associates, Inc. on 6/17/2009. Utility and topography provided by Port of Anacortes on 4/8/2016. Historical features are based on Sanborn Maps dated October 1925. Imagery from Google Earth Pro dated 7/15/2018

Horizontal Datum: NAD83 Washington State Planes, North Zone, US Foot

Vertical Datim: North American Vertical Datum, 1988, US Foot

N W E S

50 0 50
Feet

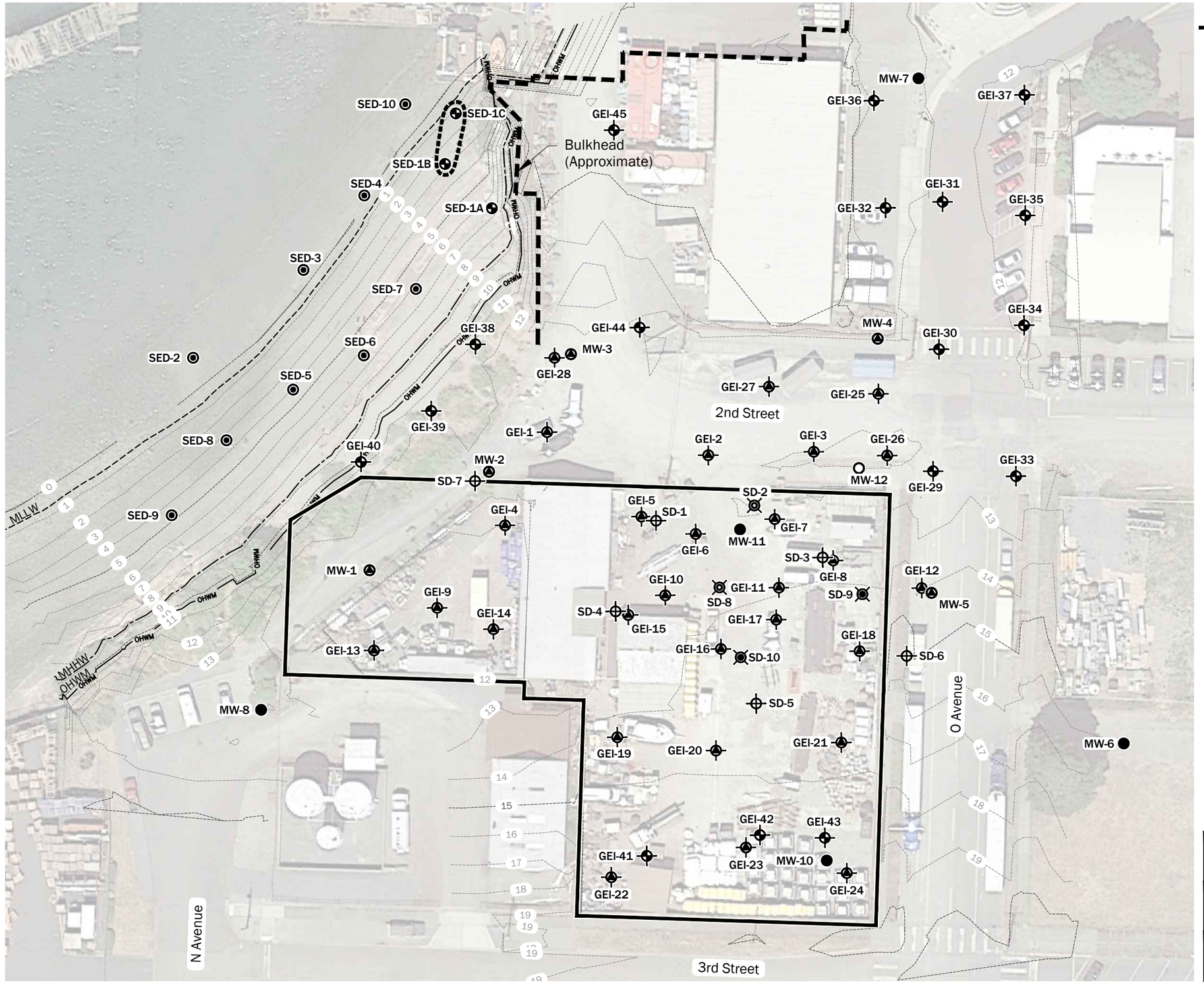
Historical Site Features and Structures

Quiet Cove Site
Anacortes, Washington

GeoEngineers

Figure 3

P:\5\5147024\CAD\07\Upland Interim Action\5147024_F03_Historical Structures.dwg TAB:F03 Date Exported: 06/06/19 - 22:49 by hmara



Legend

Port of Anacortes Properties at Quiet Cove Site

10 — Contour (Feet, NAVD 88)

Supplemental RI Sample Locations

SD-1 — Supplemental RI Soil Boring Location, 2018

SD-2 — Supplemental RI Soil Boring Location and Temporary Well Screen, 2018

SD-9 — Supplemental RI Shallow Soil Boring Location, 2018

MW-12 — Supplemental RI Monitoring Well, 2018

RI Sample Locations

GEI-31 — RI Soil Boring Location, 2017

SED-1A — RI Tier 1 Sediment Sample, September 2017

SED-2 — RI Tier 2 Sediment Sample, July 2018

MW-6 — RI Monitoring Well, 2017

Composite Sediment Sample Grab Area (SED-1)

Focused Site Investigation

GEI-1 — Focused Site Investigation Soil Boring Location, 2014

MW-1 — Focused Site Investigation Monitoring Well, 2014

Data Source: Base survey by Sound Development Group on 10/11/2017
Imagery from Google Earth Pro dated 7/15/2018.

Horizontal Datum: NAD83 Washington State Planes, North Zone, US Foot

Vertical Datim: North American Vertical Datum, 1988, US Foot

N W E S

50 0 50
Feet

Site Plan and Sampling Locations

Quiet Cove Site
Anacortes, Washington

GeoEngineers

Figure 4

P:\5\5147024\CAD\07\Upland Interim Action\5147024O7_F04_Site Plan and Sampling Locations.dwg TAB:F04 Date Exported: 06/06/19 - 22:37 by hmara

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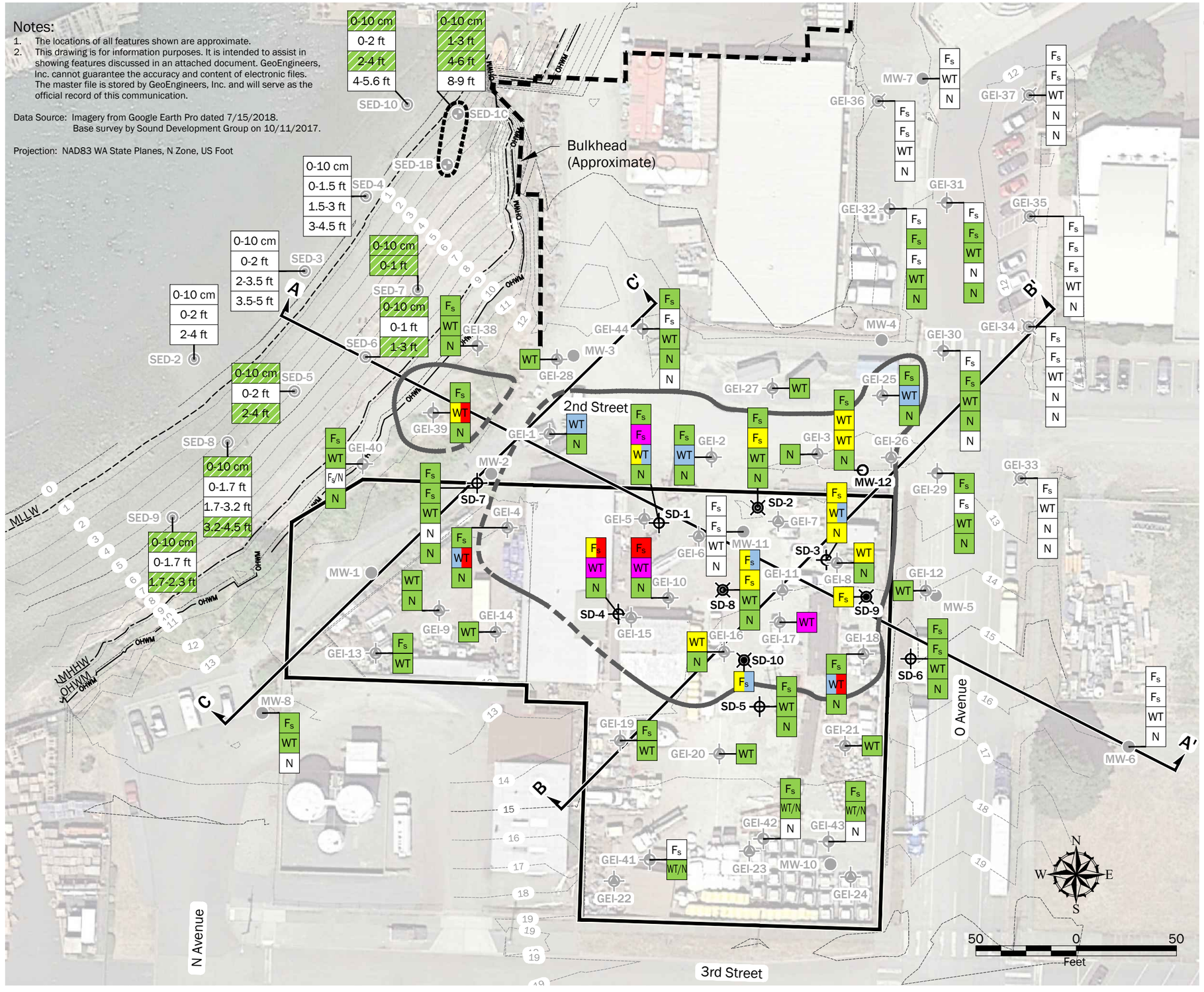
Data Source: Imagery from Google Earth Pro dated 7/15/2018.
Base survey by Sound Development Group on 10/11/2017.

Projection: NAD83 WA State Planes, N Zone, US Foot



Legend

Port of Anacortes Properties at Quiet Cove Site

Supplemental Data Sample Locations

- SD-1 — Supplemental Data Soil Boring Location
- SD-2 — Supplemental Data Soil Boring Location and Temporary Well Screen
- SD-9 — Supplemental Data Shallow Soil Boring Location
- MW-12 — Supplemental Data Monitoring Well

Previous Sample Locations

- GEI-31 — RI Soil Boring Location, 2017
- SED-1A — Tier 1 Sediment Sample, September 2017
- GEI-1 — Integrated Planning Grant Soil Boring Location, 2014
- MW-10 — Monitoring Well
- Composite Sediment Sample Grab Area (SED-1)
- 10 — Contour (Feet, NAVD 88)
- Approximate Extent of Contaminated Soil (Defined by Existing Data)
- Approximate Extent of Contaminated Soil (Inferred from Existing Data)
- A — A' Cross-Section Location

Soil Sample Result
Exceedance of Preliminary Screening Level for:

- Gasoline-Range TPH
- Diesel-Range TPH
- Heavy-Oil-Range TPH
- Gas, Diesel and Heavy-Oil TPH
- Gas+Diesel TPH
- Gas+Heavy-Oil TPH
- Diesel+Heavy Oil TPH
- No Exceedance for TPH
- Sample Not Analyzed, Archived

Soil Site Stratigraphy

Fs Surface Fill — WT Water Table
N Native

Sediment Sample Results

- 0-10 cm / 1-3 ft / 4-6 ft / 8-9 ft — SED-1 Sample Interval Depth (bml)
- No Exceedance
- Human Health Exceedance
- Benthic and Human Health Exceedance
- Sample Not Analyzed, Archived

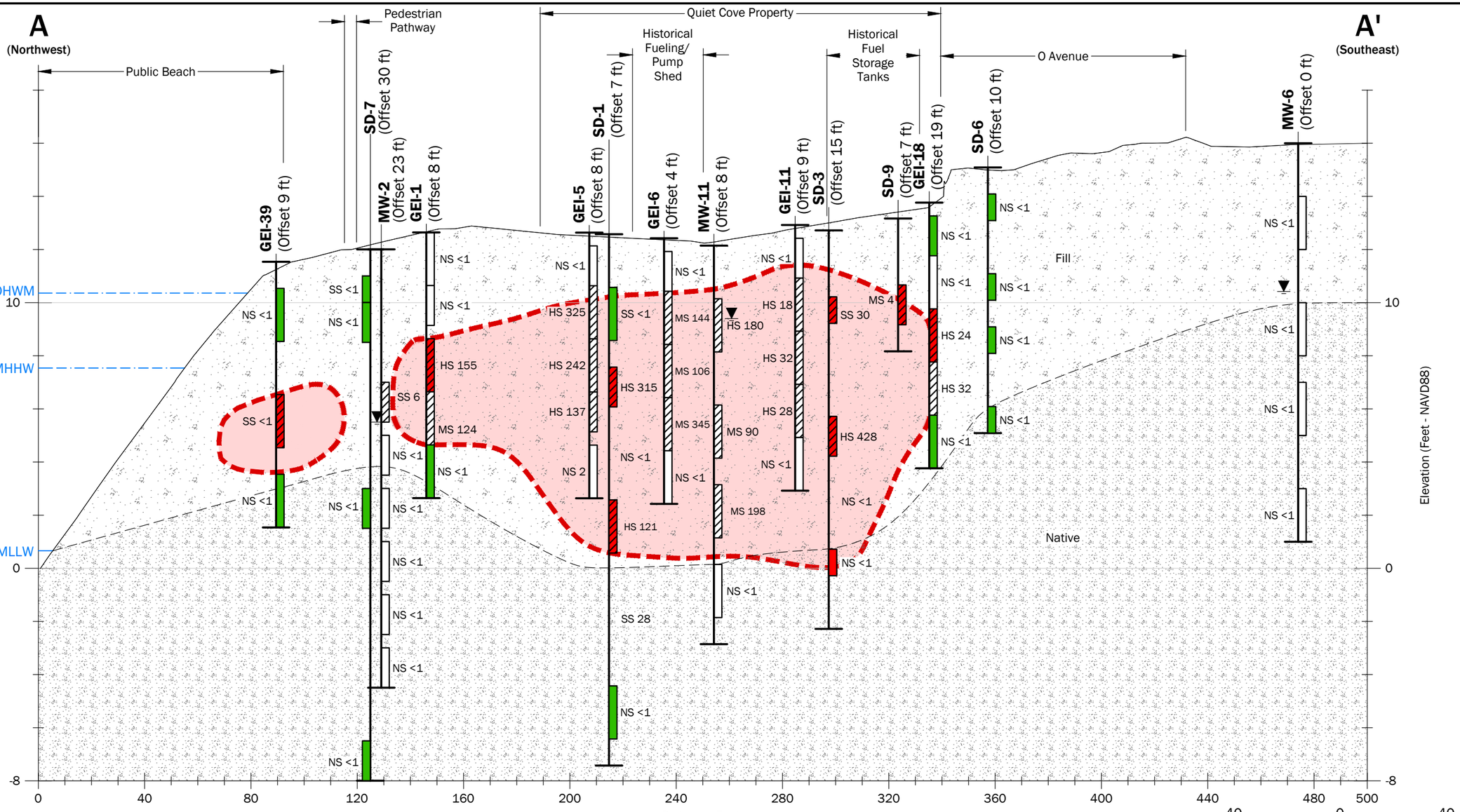
Approximate Extent of Petroleum Contamination in Soil

Quiet Cove Site
Anacortes, Washington

GeoEngineers

Figure 5

P:\5\5147024\CAD\07\Upland Interim Action\5147024O7_F05_Extent of Petroleum in Soil.dwg TAB:F05 Date Exported: 06/06/19 - 22:40 by hmara



Notes:

1. 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.
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.

EXPLORATION ID
(Offset Distance)
NS <1

Legend

- Inferred Soil Contact
- Soil Sample Location and Field Measured Parameter (Sheen, PID in ppm)
- Groundwater Measured in Piezometer
- TPH and/or VOCs Exceedance of Screening Level
- TPH and/or VOCs Exceeds Screening Level
- No Data
- Field Screening Evidence of Petroleum Contamination

NS = No Sheen
SS = Slight Sheen
MS = Moderate Sheen
HS = Heavy Sheen
PID = Photoionization Detector (ppm)
ppm = Parts Per Million
TPH = Total Petroleum Hydrocarbons
VOCs = Volatile Organic Hydrocarbons

- Fill Geologic Unit
- Native Geologic Unit
- Approximate Extent of Contaminated Soil (Inferred from Existing Data)

40 0 40
Horizontal Scale in Feet
4 0 4
Vertical Scale in Feet
Vertical Exaggeration: 10X

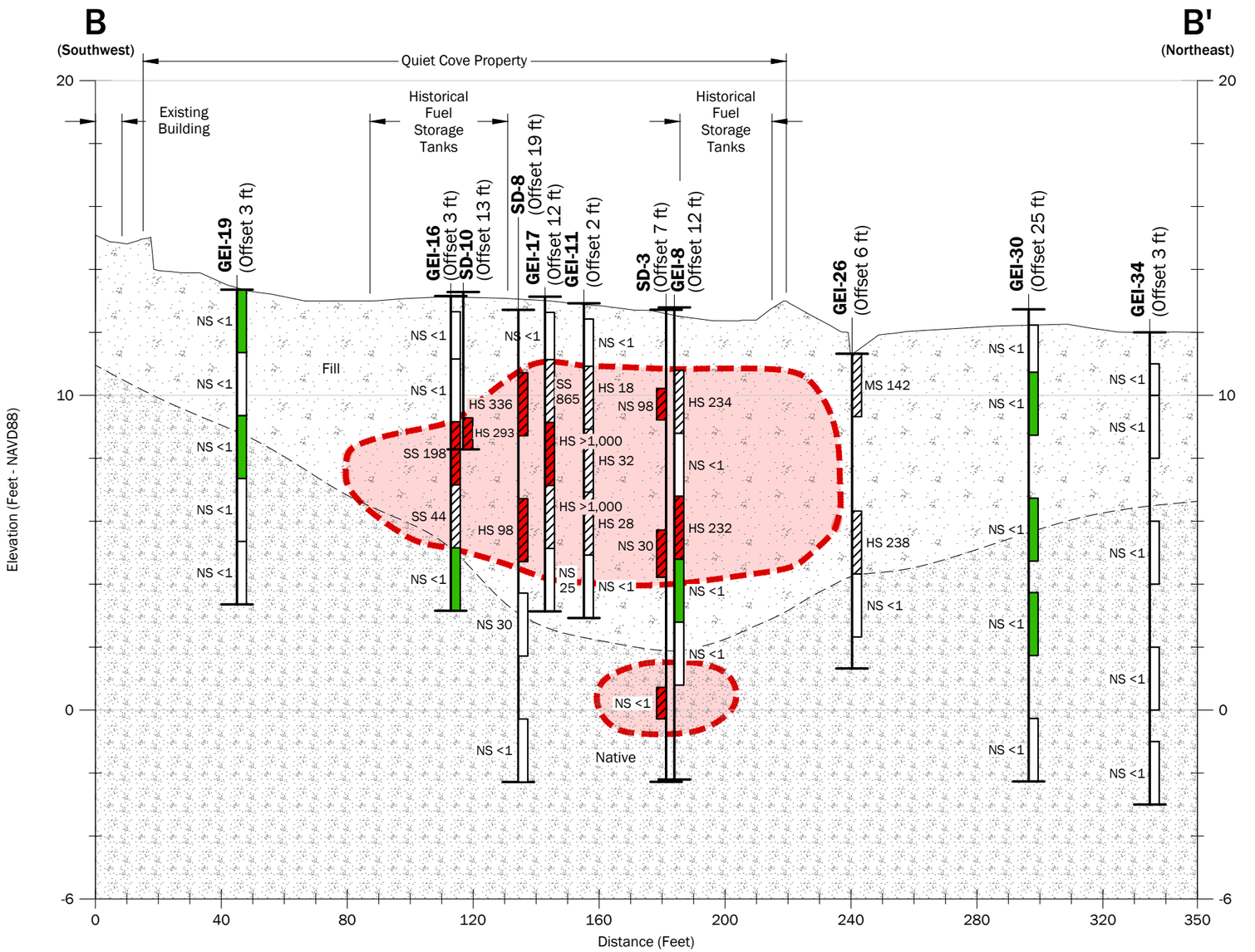
Cross-Section A-A'

Quiet Cove Site
Anacortes, Washington

GeoEngineers

Figure 6

P:\5\5147024\CAD\07\Upland Interim Action\5147024O7_F06-F08_Extent of TPH Contamination_Sections.dwg TAB:AA Date Exported: 07/01/19 - 13:21 by hmara



Notes:

1. 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.
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.

EXPLORATION ID (Offset Distance)

NS <1

Legend

Inferred Soil Contact

Soil Sample Location and Field Measured Parameter (Sheen, PID in ppm)

Groundwater Measured in Piezometer

TPH and/or VOCs Exceedance of Screening Level

TPH and/or VOCs Exceeds Screening Level

No Data

Field Screening Evidence of Petroleum Contamination

NS = No Sheen
SS = Slight Sheen
MS = Moderate Sheen
HS = Heavy Sheen
PID = Photoionization Detector (ppm)
ppm = Parts Per Million
TPH = Total Petroleum Hydrocarbons
VOCs = Volatile Organic Hydrocarbons

Fill Geologic Unit

Native Geologic Unit

Approximate Extent of Contaminated Soil (Inferred from Existing Data)

40 0 40
Horizontal Scale in Feet

4 0 4
Vertical Scale in Feet
Vertical Exaggeration: 10X

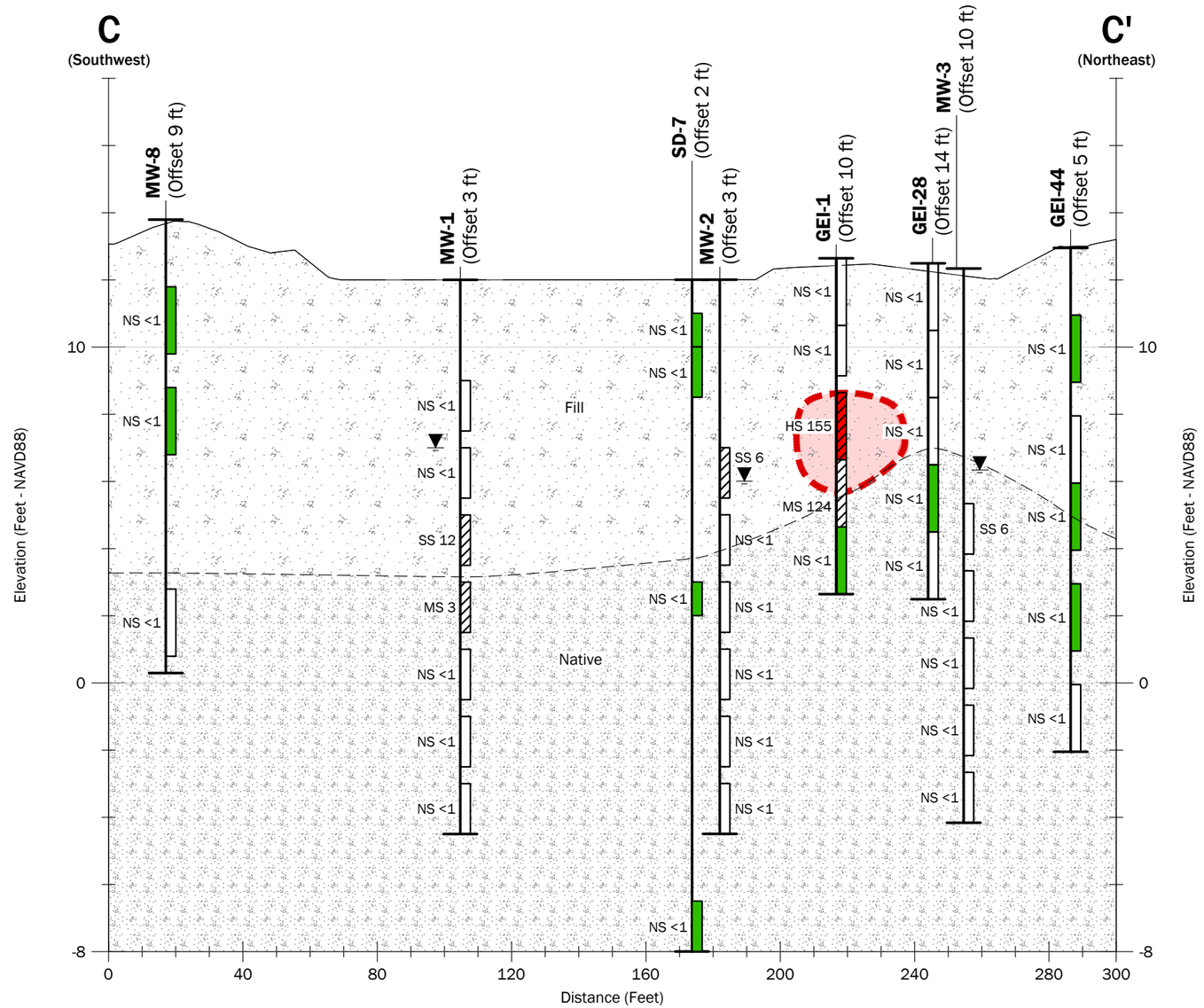
Cross-Section B-B'

Quiet Cove Site
Anacortes, Washington

GeoEngineers

Figure 7

P:\5\5147024\CAD\07\Upland Interim Action\5147024O7_F06-F08_Extent of TPH Contamination_Sections.dwg TAB:BB Date Exported: 07/01/19 13:22 by hmara



Notes:

1. 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.
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.

Legend

EXPLORATION ID (Offset Distance)

NS <1

Inferred Soil Contact

Soil Sample Location and Field Measured Parameter (Sheen, PID in ppm)

Groundwater Measured in Piezometer

TPH and/or VOCs Exceedance of Screening Level

TPH and/or VOCs Exceeds Screening Level

No Data

Field Screening Evidence of Petroleum Contamination

NS = No Sheen
SS = Slight Sheen
MS = Moderate Sheen
HS = Heavy Sheen
PID = Photoionization Detector (ppm)
ppm = Parts Per Million
TPH = Total Petroleum Hydrocarbons
VOCs = Volatile Organic Hydrocarbons

Fill Geologic Unit

Native Geologic Unit

Approximate Extent of Contaminated Soil (Inferred from Existing Data)

40 0 40
Horizontal Scale in Feet

4 0 4
Vertical Scale in Feet
Vertical Exaggeration: 10X

Cross-Section C-C'

Quiet Cove Site
Anacortes, Washington

GeoEngineers

Figure 8

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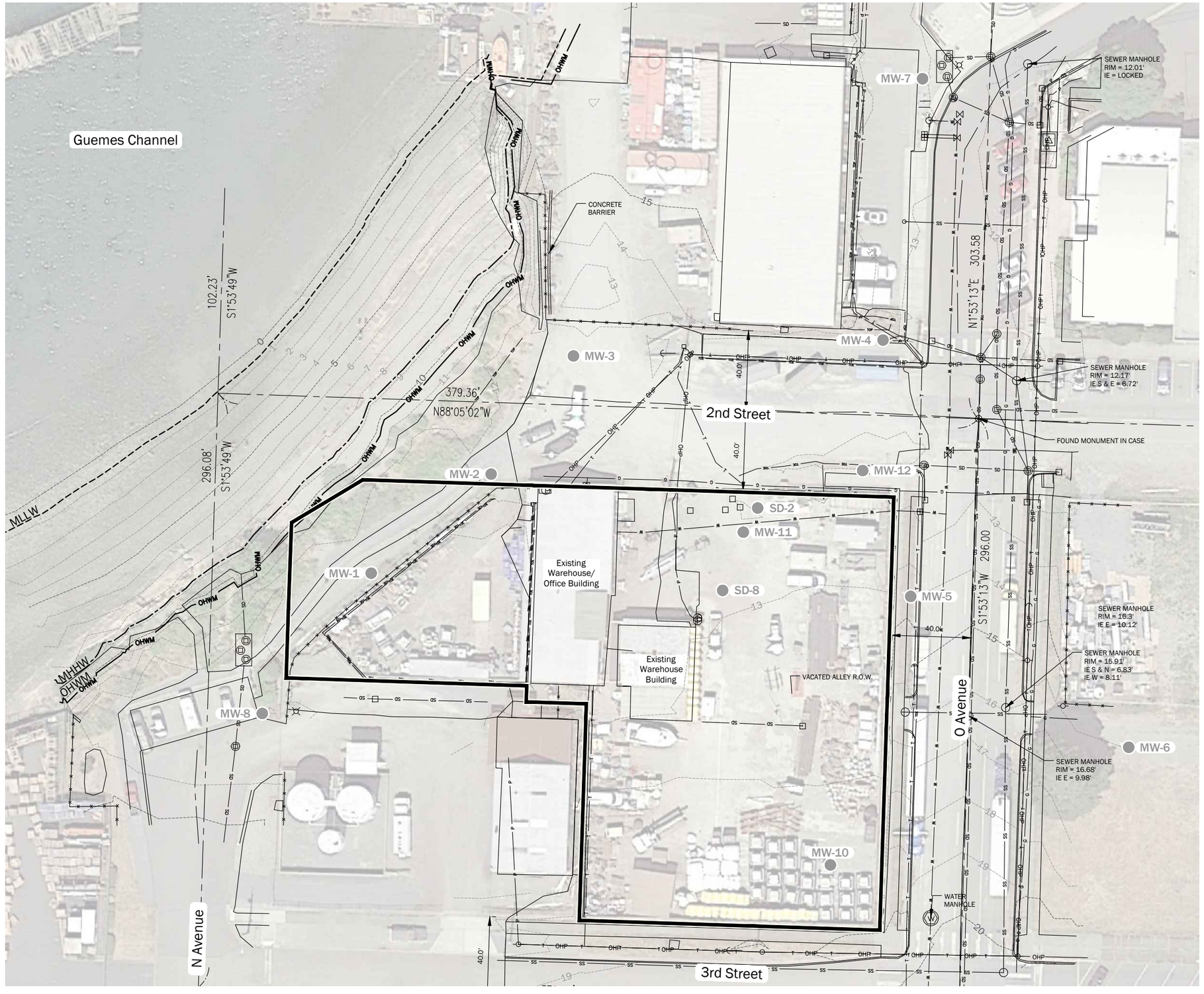


Legend

- Port of Anacortes Properties at Quiet Cove Site
- MW-11 — Existing Monitoring Well
- Existing Right of Way Line
- Asbuilt Road Centerline
- Existing Road Centerline
- Existing Property Line
- Existing Property Corner
- Existing Storm Drain
- Existing Type 2 CB
- Existing Type 1 CB
- Existing Sanitary Sewer
- Existing Sanitary Manhole
- Existing Waterline
- Existing Water Valve
- Existing Fire Hydrant
- Existing Gas Line
- Existing Powerline
- Existing Overhead Power
- Existing Telephone
- Existing Fenceline
- Existing Edge of Asphalt
- Existing Curb & Gutter
- 29 — Existing Contour
- Pile [typ.]

Data Source: Base on survey file by Sound Development Group dated 05/07/2019. Imagery from Google Earth Pro dated 7/15/2018.

Horizontal Datum: NAD83 Washington State Planes, North Zone, US Foot

Vertical Datum: North American Vertical Datum, 1988, US Foot

N W E S

50 0 50
Feet

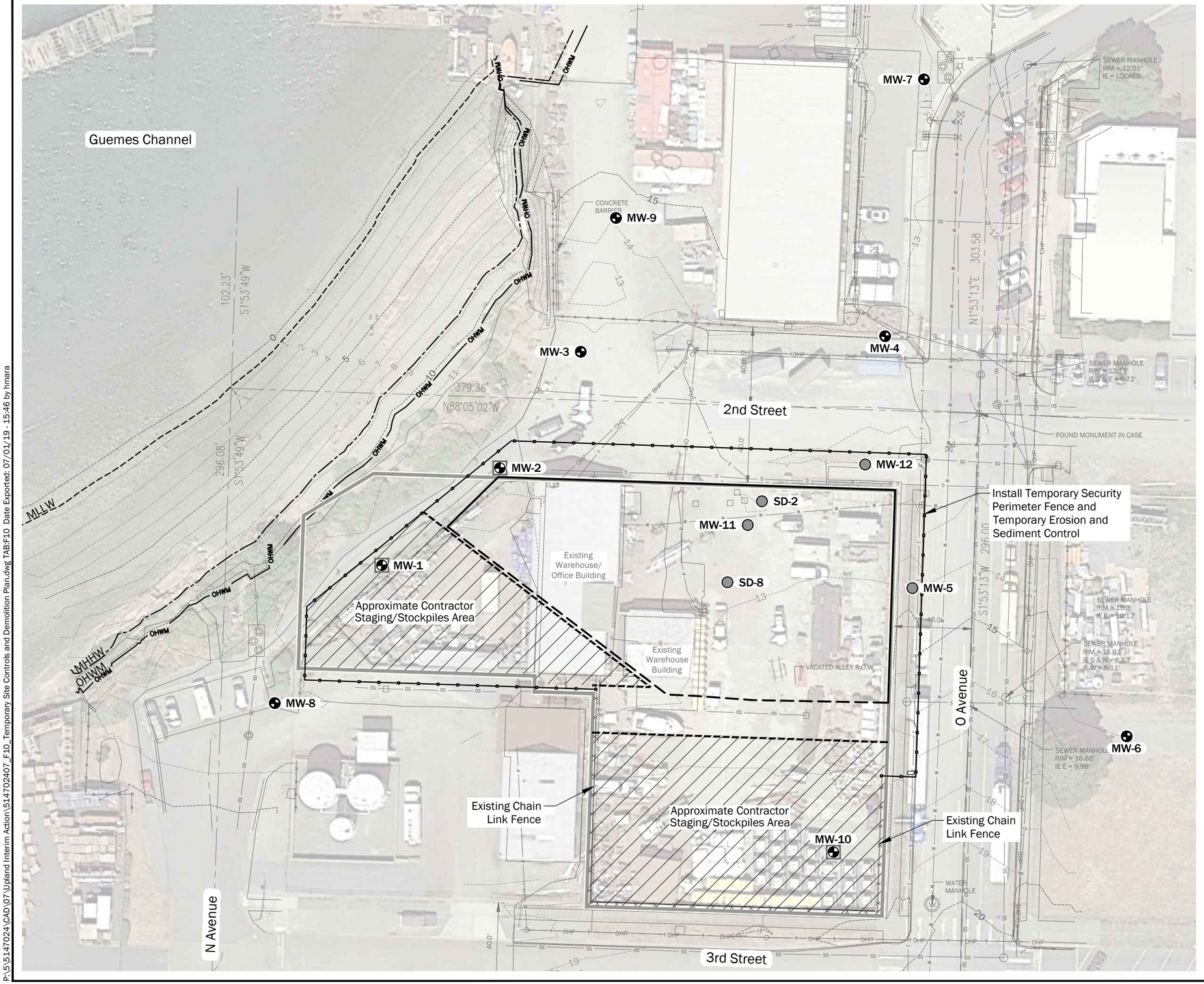
Existing Site Conditions

Quiet Cove Site
Anacortes, Washington

GeoEngineers

Figure 9

P:\5\5147024\CAD\07\Upland Interim Action\5147024O7_F09_Existing Site Conditions.dwg TAB:F09 Date Exported: 06/06/19 - 22:44 by hmara



Legend

- Port of Anacortes Properties at Quiet Cove Site
- MW-1 — Existing Monitoring Well to be Protected
- MW-2 — Existing Monitoring Well to be Protected to the Extent Possible
- MW-12 — Existing Monitoring Well to be Decommissioned if within Excavation Area
- Approximate Contractor Staging/Stockpile Area
- Temporary Security Fence
- Estimated Limits of Excavation Sidewall
- Final Limits of Excavation Sidewall

Data Source: Base on survey file by Sound Development Group dated 05/07/2019. Imagery from Google Earth Pro dated 7/15/2018.

Horizontal Datum: NAD83 Washington State Planes, North Zone, US Foot

Vertical Datum: North American Vertical Datum, 1988, US Foot

N W E S

50 0 50
Feet

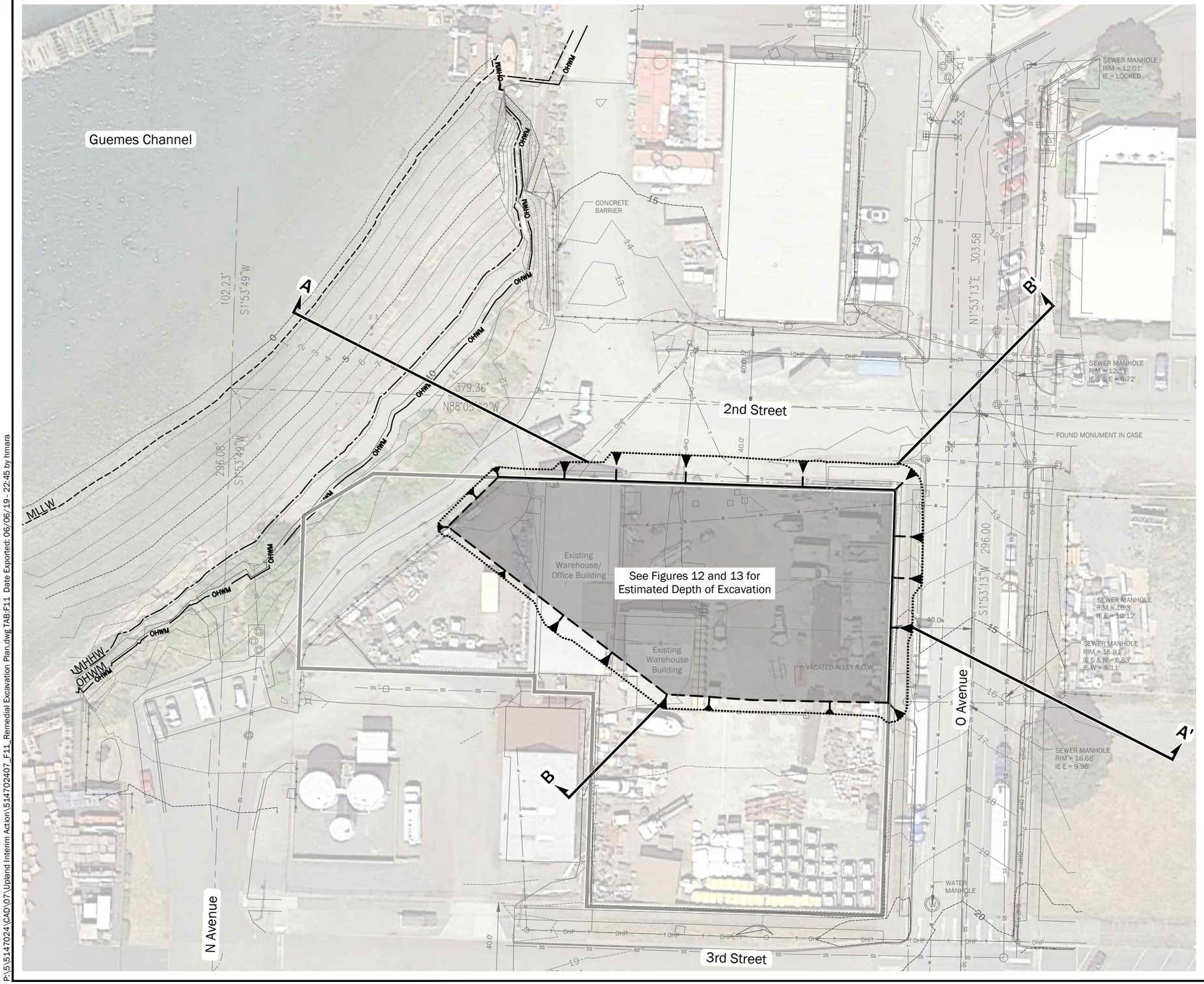
Temporary Site Controls and Contractor Staging Plan

Quiet Cove Property
Anacortes, Washington

GeoEngineers

Figure 10

P:\5\5147024\CAD\07\Upland Interim Action\5147024O7_F10_Temporary Site Controls and Demolition Plan.dwg TAB:F10 Date Exported: 07/01/19 - 15:46 by hmara



Legend

- Port of Anacortes Properties at Quiet Cove Site
- Estimated Excavation Base[1]
- Estimated Limits of Excavation Sidewall[2]
- Final Limits of Excavation Sidewall
- Sloped Excavation Sidewall[3]
- A — A' Cross Section Location

Notes:

1. Preliminary depths to excavation base are shown in figures 12 and 13. Final depths will be determined by verification soil sampling analysis.
2. Final limits of excavation sidewall will be determined by verification soil sampling analysis.
3. Sloped excavation sidewalls are shown at 1H:1V. The contractor will be responsible for determining stable side slopes to complete excavation.

Data Source: Base on survey file by Sound Development Group dated 05/07/2019. Imagery from Google Earth Pro dated 7/15/2018.

Horizontal Datum: NAD83 Washington State Planes, North Zone, US Foot

Vertical Datum: North American Vertical Datum, 1988, US Foot

N W E S

50 0 50
Feet

Remedial Excavation Plan

Quiet Cove Property
Anacortes, Washington

GeoEngineers

Figure 11

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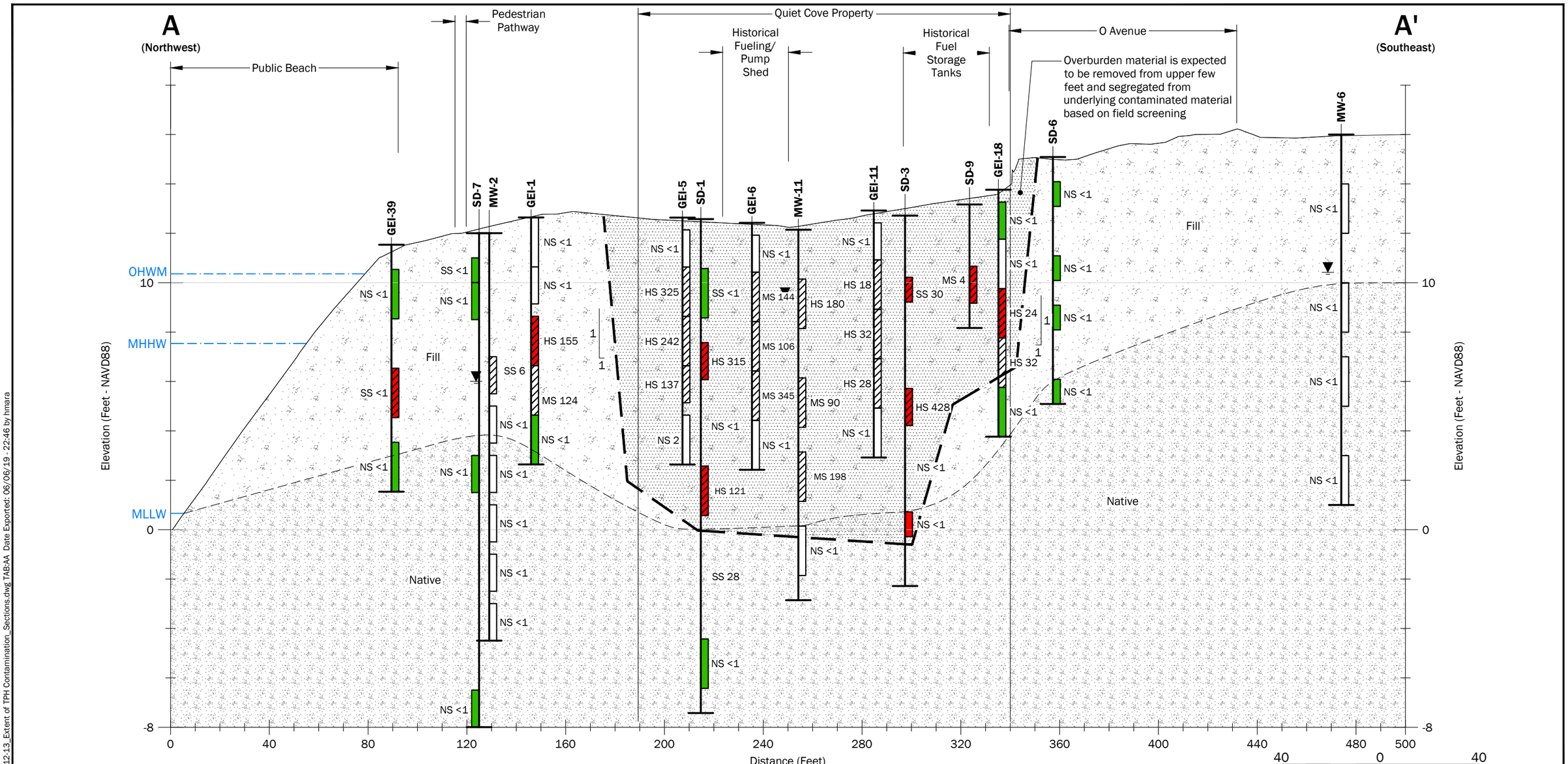


Notes:

1. 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.
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.

EXPLORATION ID
(Offset Distance)
NS <1

Legend

- Inferred Soil Contact
- Soil Sample Location and Field Measured Parameter (Sheen, PID in ppm)
- Groundwater Measured in Piezometer
- TPH and/or VOCs Exceedance of Screening Level
- TPH and/or VOCs Exceeds Screening Level
- No Data
- Field Screening Evidence of Petroleum Contamination

NS = No Sheen
SS = Slight Sheen
MS = Moderate Sheen
HS = Heavy Sheen
PID = Photoionization Detector (ppm)
ppm = Parts Per Million
TPH = Total Petroleum Hydrocarbons
VOCs = Volatile Organic Hydrocarbons

- Fill Geologic Unit
- Native Geologic Unit
- Approximate Excavation Limits' (See Figure 11 [Remedial Excavation Plan] for additional details)

40 0 40
Horizontal Scale in Feet

4 0 4
Vertical Scale in Feet
Vertical Exaggeration: 10X

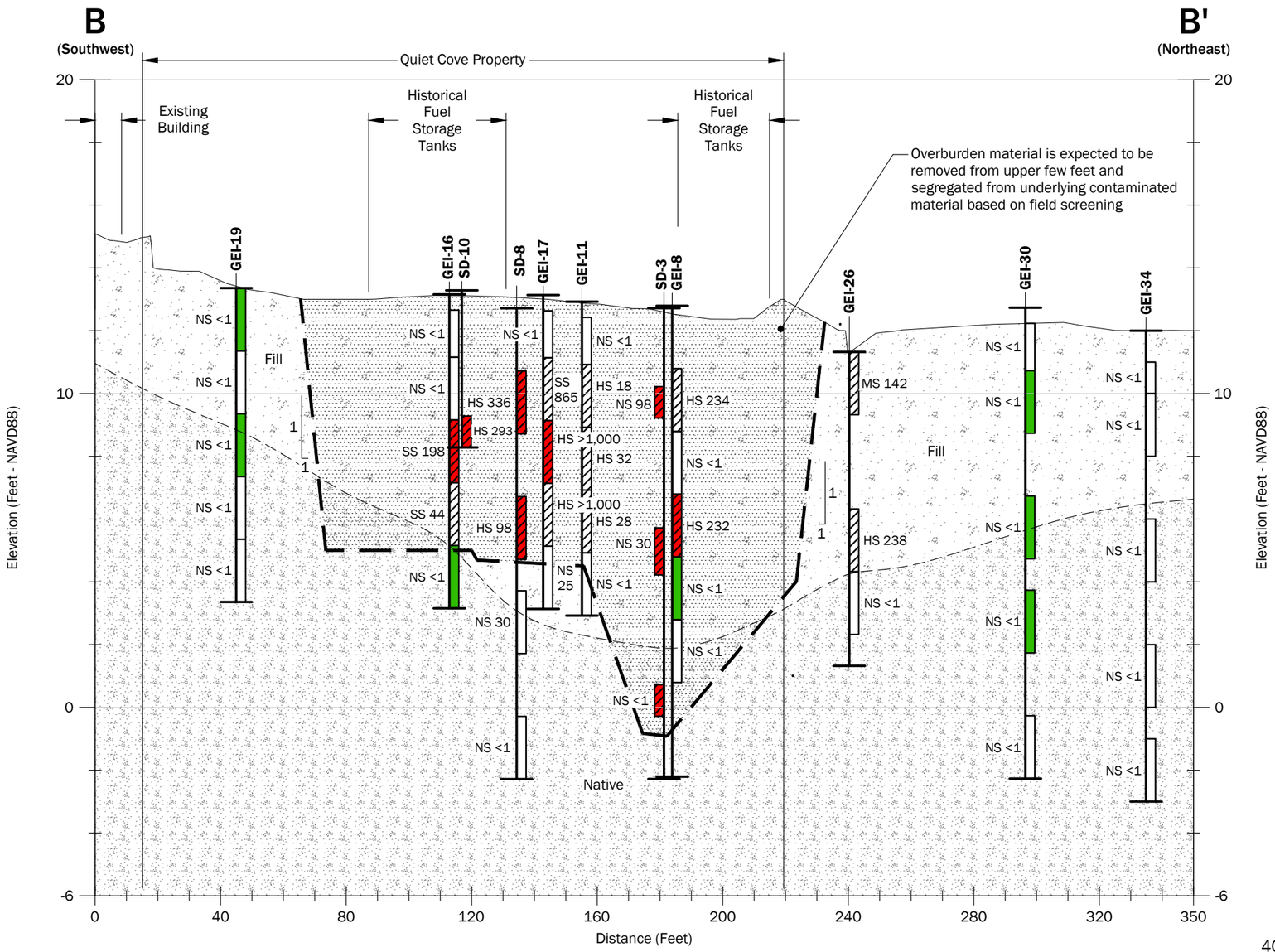
Remedial Excavation
Cross-Section A-A'

Quiet Cove Property
Anacortes, Washington

GeoEngineers

Figure 12

P:\5\5147024\CAD\07\Upland Interim Action\5147024O7_F12-13_Extent of TPH Contamination_Sections.dwg TAB:AA Date Exported: 06/06/19 - 22:46 by hmara



Notes:

1. 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.
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Datum: NAVD 88, unless otherwise noted.

EXPLORATION ID
(Offset Distance)
NS <1

Legend

Inferred Soil Contact

Soil Sample Location and Field Measured Parameter (Sheen, PID in ppm)

Groundwater Measured in Piezometer

TPH and/or VOCs Exceedance of Screening Level

TPH and/or VOCs Exceeds Screening Level

No Data

Field Screening Evidence of Petroleum Contamination

NS = No Sheen
SS = Slight Sheen
MS = Moderate Sheen
HS = Heavy Sheen
PID = Photoionization Detector (ppm)
ppm = Parts Per Million
TPH = Total Petroleum Hydrocarbons
VOCs = Volatile Organic Hydrocarbons

Fill Geologic Unit

Native Geologic Unit

Approximate Excavation Limits' (See Figure 11 [Remedial Excavation Plan] for additional details)

40 0 40
Horizontal Scale in Feet
4 0 4
Vertical Scale in Feet
Vertical Exaggeration: 10X

Remedial Excavation
Cross-Section B-B'

Quiet Cove Property
Anacortes, Washington

GeoEngineers

Figure 13

\\geoengineers.com\WAN\Projects\5\5147024\CAD\07\Upland Interim Action\5147024O7_F12-13_Extent of TPH Contamination_Sections.dwg TAB:BB Date Exported: 05/24/19 - 14:15 by mwoods

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