STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
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March 30, 2017

Mr. Kip Summers
City of Olympia
PO Box 1967
Olympia, WA 98507-1967

Re: Opinion on Proposed Cleanup of the following Site:

- **Site Name:** Olympia City Sewer Pump Station & General Petroleum Corporation
- **Site Address:** 220 Water Street, Olympia
- **Facility/Site No.:** 31651436
- **Cleanup Site ID No.:** 3608
- **VCP Project No.:** SW1134

Dear Mr. Summers:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your proposed independent cleanup of the Olympia City Sewer Pump Station & General Petroleum Corporation facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Issue Presented and Opinion

Upon completion of the proposed cleanup, will further remedial action likely be necessary to clean up contamination at the Site?

YES. Ecology has determined that, upon completion of your proposed cleanup, further remedial action will likely be necessary to clean up contamination at the Site.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70.105D RCW, and it's implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided below.

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following release:

- Petroleum hydrocarbons and related constituents into soil, groundwater and sediment.

Enclosure A includes a detailed description and diagram of the Site, as currently known to Ecology.

Please note a parcel of real property can be affected by multiple sites. At this time, we have no information that the parcel(s) associated with this Site are affected by other sites.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. City of Olympia *Water Street Sewer Lift Station Underground Storage Tank Characterization Report*, April 20, 1998, Associated Environmental Group, Inc.
2. *UST Closure Report*, Water Street Pumping Station, 220 Water Street Northwest, Olympia, Washington, May 14, 1999, Kleinfelder, Inc.
3. Letter to Mr. Chuck Cline (Ecology), Mr. Thomas O. Meade (Olympia Public Works), RE: Water Street Sewer Pump Station and Olympia Maintenance Center Fuel Tank Replacements, November 9, 1999.
4. Letter to Mr. Thomas O. Meade (Olympia Public Works) from Mr. Chuck Cline (Ecology), RE: Opinion on Tank Closure, March 9, 2000.
5. *Summary of Findings from Sediment and Soil Sampling and Chemical Analysis*, Percival Landing Redevelopment Project, Olympia, Washington, November 30, 2009, Anchor QEA LLC.
6. *Draft Upland Investigation Data Report*, Percival Landing, January 2011, Anchor QEA LLC.
7. Letter to Mr. Steve Sperr (City of Olympia), from Mr. Scott Rose (Ecology), Re: Opinion on Proposed Cleanup, Olympia City Sewer Pump Station and General Petroleum Corporation, May 3, 2011.

8. *Remedial Investigation and Feasibility Study Report*, City Sewer Pump Station & General Petroleum Corporation Site, April 2013, Anchor QEA LLC.
9. Letter to Mr. Andy Haub (City of Olympia), from Mr. Scott Rose (Ecology), Re: Opinion on Proposed Cleanup, Olympia City Sewer Pump Station and General Petroleum Corporation, March 11, 2014.
10. *Supplemental Work Plan*, City Sewer Pump Station and General Petroleum Corporation Site, Olympia, WA, April 26, 2016, Integral Consulting, Inc.

Those documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. You can make an appointment by calling the SWRO resource contact at (360) 407-6365.

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis of the Cleanup

Ecology has concluded that, upon completion of your proposed cleanup, **further remedial action** will likely be necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. Characterization of the Site.

Ecology has determined your characterization of the Site is not sufficient to establish cleanup standards and select a cleanup action. Additional characterization is warranted to justify the proposed cleanup action, as detailed below.

Based on data collected to date, the Site comprises two Thurston County Tax Parcels: 78507200100 (former GPC property) and 78507200500 (Pump Station property) (Figures 1, 2). Both parcels are currently owned by the City of Olympia (City) (Figures 1, 2). A portion of the Site along the shoreline to the west of these parcels is contained within state-owned aquatic lands owned by the State of Washington and managed by the Department of Natural Resources (Figure 2). In the northwest of the Site is an over-water pier with a recently developed structure that is part of the City of Olympia's Percival Landing Park.

Ecology understands that the former GPC facility and the Pump Station are separate facilities; however, data collected to date suggests that releases from these facilities have likely commingled. As a result, they are being treated as one Site for the purpose of this investigation and cleanup.

GPC operated a bulk fuel plant on Site beginning in the 1920s. Reportedly, GPC became Mobil Oil Company and City Fuel Oil Service sometime around 1966 and operated until about 1979. Based on historical photos and historical Sanborn fire insurance maps, at least five large (exact volumes unknown) aboveground storage tanks, a pump house, and oil/grease storage area were present on this Property (Figure 2). It is unknown if cleanup was conducted when the facility was dismantled. The Property is currently occupied by a City parking lot and pumping station.

The Pump Station is an approximately 600-square-foot structure located about 75 feet from Budd Inlet (Figures 1, 2). A decommissioned, 1,500-gallon, underground storage tank (UST) is located along the north wall of the Pump Station (Figure 6). Tank closure occurred in 1999 and consisted of removing the contents of the tank and filling it with cement slurry. Soil and groundwater samples collected from three borings around the UST prior to closure in 1998 identified diesel-range petroleum hydrocarbons (TPH-D) up to 3,200 milligrams per kilogram (mg/kg) in soil and up to 80,000 micrograms per liter (µg/L) in groundwater.

In September 2010, during shoreline excavation as part of park redevelopment, petroleum contamination was identified that resulted in a visible sheen on the waterway (Figure 5, *2011 Excavation Area*). This release occurred when the contractor encountered and removed a timber cribwall that was buried in the shoreline embankment. The release was reported to Ecology and was assigned Environmental Report Tracking System (ERTS) #622261. The Ecology Spills Team responded and contained the release to the waterway.

Following the incident, the City initiated an upland investigation to determine the source of the petroleum contamination. Between September and December 2010, soil samples were collected from 30 soil borings and nine test pits in the upland area (Figure 4, m*ainly BH series*). Analytical results identified concentrations of gasoline-range petroleum hydrocarbons (TPH-G), TPH-D, oil-range petroleum hydrocarbons (TPH-O), benzene, and ethylbenzene in soil above MTCA Method A cleanup levels.

One of the areas identified included the former GPC and Pump Station properties. The contamination was primarily located on the properties adjacent to the shoreline.

The City had originally proposed to install sheet piling along a portion of the shoreline following the completion of in-water activities. However, since contamination was identified, the City altered their plans and following contaminated material excavation in 2010, installed sheet piling along the entire shoreline as part of park redevelopment (Figure 9, 10).

In December, 2010, a total of 19 surficial confirmation samples *(CS sample series)* were collected from the in-water excavation area. Analytical results indicated that TPH-D / TPH-O contamination was present in samples obtained from westward of the sheet pile wall adjacent to the GPC/Pump Station properties at up to 16,677 mg/kg at CS-19. Benzene was present in CS-10 at 1.28 mg/kg.

Figures submitted for review indicate that following collection of surficial confirmation samples, the shoreline was backfilled to some extent (Figure 10). Backfilling of material along the shoreline may have covered some confirmation sample locations. The details of the extent of backfilling of sediment in the in-water portion of the Site has not been provided for review. This information will likely be needed to evaluate the extent of surficial sediment contamination at the Site in areas west of the sheet pile wall.

In June 2011, groundwater samples were collected from four soil borings (BH-21, BH-30, BH-31, and BH-32, Figure 4). No permanent wells were installed. Analytical results identified TPH-G in BH-21 (1,190 µg/L) and BH-32 (7,050 µg/L) above the MTCA Method A cleanup level of 800 µg/L (Figure 6); TPH-D/TPH-O in BH-32 (3,201 µg/L) above the MTCA Method A cleanup level of 500 µg/L (Figure 9); and benzene in BH-32 (16.5 µg/L) above the MTCA Method A cleanup level of 5 µg/L, but below the surface water criteria of 23 µg/L (Figure 7). Toluene and ethylbenzene were also detected but below MTCA cleanup levels (Figure 8).

Also in June 2011, one soil vapor sample was collected from boring BH-31 at 4 feet below ground surface (bgs) to evaluate the soil-to-vapor pathway (Figure 4). Analytical results indicated the presence of air-phase petroleum hydrocarbons (APH), benzene, and xylene above MTCA Method B screening levels.

Also, the detection limits for ethylene dibromide (EDB) and 1, 2 -dichloroethane (DCA) were above their respective screening levels, so it is not clear whether these contaminants were also present.

An April 2013 Remedial Investigation (RI) and Feasibility Study (FS) report reviewed and evaluated site data, and recommended a preferred alternative of monitored natural attenuation (MNA) with institutional controls. Ecology provides the following comments on the 2016 Supplemental Work Plan:

1. **REPORTING:** To evaluate the sufficiency of the Supplemental Work Plan to address data gaps at the Site, delineated plan view maps and geologic cross sections of the Site are needed. No delineated contaminant concentration maps have been provided for this Site. Plan view maps and geologic cross sections should clearly delineate known lateral and vertical extents of contamination in subsurface soils, groundwater and sediments for all contaminants of concern at the Site using discrete data results. Please include all data from points of highest concentrations to method detection limits. Include contamination gradients, extents, areas of excavation and fill, sheet pile walls, other surficial and subsurface infrastructure including possible preferential pathways to surface water and sediment, areas of asphalt and concrete overlying contamination, buildings, piers, walkways and piling, dredge prisms, and tidal ranges. Include all sampling results, as relevant, from the following studies from the immediate vicinity of the Site:
    a. Sample results obtained for this investigation.
    b. Sample results obtained for the adjacent North Percival Landing Site.[1]
    c. Dredge Material Management Program sediment and soil samples obtained by Anchor QEA LLC (Anchor QEA) in February 2008 (sediment) and June 2009 (soil)[2] .
    d. Samples obtained by Anchor QEA and others for the Budd Inlet Port of Olympia Sediment Investigation (2016)[3].

[1] VCP Program Site Number SW1146
[2] Technical Memorandum, To: Dredged Material Management Office Date: November 30, 2009, From: Michael Whelan and Ed Berschinski, Anchor QEA, LLC.
[3] Final Investigation Report, Port of Olympia Budd Inlet Sediment Site, Anchor QEA LLC, August 2016.

2. **SEDIMENT:** Based upon the requirements of the Washington State Sediment Management Standards (SMS, WAC 173-204), sediment contamination at this Site (WAC 173-204-505(22)) needs to be evaluated and characterized for the remedial investigation.

   Previous sampling in what appear to be Washington State Department of Natural Resources (DNR) aquatic lease lands at the Site was reported as upland soil results. This area of the Site, to the west of the sheet pile wall, has been excavated and backfilled to some extent, and is currently below mean high water within Budd Inlet, a portion of Puget Sound. This area of the Site includes sampling locations BH-1, 5, 6, 9, TP-1, and CS-1, 6, 9, 10, 16, 17, 18, 19. TPH-D and TPH-O have been detected in 11 of these 13 sampling locations at up to 6,174 mg/kg at location CS-17, and at 16,667 mg/kg at location CS-19. Sample CS-6, the most westerly surficial sample obtained on the Site, contained 539 mg/kg TPH-O, and an estimated 52.5 mg/kg TPH-D[4]. TPH-G was reported in 6 of the 12 sampling locations at up to 261 mg/kg at location BH-9. Some of these locations are reported excavated. Excavated areas are not clearly presented in the materials submitted, nor are the specific confirmation samples used to delineate clean excavation limits to below appropriate sediment screening values.

   Additional information supporting the need for evaluation and characterization of sediment at the Site includes:

   a) Oily sediment reported on and adjacent to both the northern and southern portions of the park during reconstruction of the shoreline walkway in 2010 and 2011[5].

   b) After excavation, petroleum was reported at up to 16,667 mg/kg in sample CS-19, obtained below mean high water.

   c) The reported historic presence of creosote cribbing reported along the shoreline of the Site below mean high water.

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[4] Ecology currently recommends a 100 mg/kg TPH screening level for sediment at this Site, based on remedial investigation at the nearby Solid Wood cleanup site (Ecology Cleanup Site ID 4228),. Depending on the type of product, the screening level may apply to the total TPH (TPH-D + TPH-O) vs. each range separately, per Ecology Implementation Memo #4 (June 17, 2004). Exceedances of the 100 mg/kg screening level may require remediation, unless a higher cleanup level is appropriate, as determined by site-specific marine sediment bioassay evaluation.

[5] Supplemental Work Plan, City Sewer Pump Station and General Petroleum Corporation Site, Olympia, WA, April 26, 2016, Integral Consulting, Inc. Page 2-1.

d) Excavation of petroleum impacted soil is reported from the shoreline, but the extents of excavation, and clean limit sample results obtained from the excavation are not clear from the information submitted for review, nor are the extents where contamination remains above appropriate sediment screening values.

e) Confirmed releases from the Site to the marine environment in 2010 (ERTS #622261).

f) The adjacent Hulco Cleanup Site to the north of this Site (VCP Site SW1146) did not evaluate contaminated sediment for that Site's remedial investigation and cleanup. TPH-D and TPH-O were reported at that Site at up to 1,360 mg/kg in a sample obtained from location BH-13 from 5-10 foot bgs, currently below mean high water. 1,2-Dichloroethane was detected in BH-13 at an estimated 22 mg/kg. TPH-D and TPH-O were also detected at an estimated 255.4 mg/kg in surficial sample CS-11, at an estimated 197.1 mg/kg in surficial sample CS-14, and at an estimated 71.1 mg/kg at CS-15, all below current mean high water. TPH-G was also reported in BH-13 and CS-14.

g) Nearby dredge material testing results carried out by Anchor QEA for the dredge material management program in 2008-2009 at locations C1, C2, C3, AN-SC-03, AN-SC04, and AN-SC-05, include a report that a "*chemical-like odor was detected at depth in the sand near the bottom of cores*"[6].

h) From the 1920s to 1979, the history of Site use as a bulk fuel storage facility with over-water loading dock in Budd Inlet.

Appropriate analytes for site evaluation and characterization using discrete samples currently include the required testing for petroleum releases for unknown oils (WAC 173-340-900, Table 830-1), including:

i) TPH-G, TPH-D, TPH-O and BTEX compounds.

j) Appropriate fuel additives and blending compounds

k) Polycyclic aromatic hydrocarbons (PAHs).

l) Polychlorinated biphenyls (PCBs).

m) Halogenated VOCs.

[6] Technical Memorandum, To: Dredged Material Management Office Date: November 30, 2009, From: Michael Whelan and Ed Berschinski, Anchor QEA, LLC. Page 8.

For the sediment evaluation, please use analytes and detection limits sufficient to evaluate human health and the environment in sediment based on a tribal consumption of seafood pathway. Please use a toxic equivalency quotient (TEQ) approach for evaluation and reporting of PAHs and PCB congeners, using detection limits sufficient to delineate to natural background concentrations. Please assume a biologically active zone to include burrowing depths of horse clams (Tresus nuttallii and Tresus capax) known to occur in Budd Inlet. Evaluation of the biological effects criteria of the toxicity of contaminated sediments on aquatic organisms may also be needed[7].

3. **SOIL:** To complete evaluation of the extent of soil contamination in the upland portion at the Site, two additional soil samples are proposed in the work plan. The purpose of these samples is described as to obtain site-specific data to calculate direct contact criteria for TPH.

    a) Proposed samples for calculation of Method B cleanup levels should be obtained using discrete samples from the areas of highest petroleum contamination at the Site, as directed by delineated plan view maps and geologic cross sections illustrating contamination extents.

    b) Appropriate protocols for the number of samples needed, and analysis methods, are based on the volume of contamination and provided in Ecology guidance[8].

    c) To determine MTCA Method B cleanup levels, discrete samples should be obtained from soil cores obtained in source areas at the Site, from throughout each core at regular intervals sufficient to resolve the area of highest contamination in each core, at lithologic contacts and as determined using a calibrated photoionization detector. Samples from the highest contamination areas measured should be bracketed by areas of lower concentrations, and correlate to delineated concentration gradient plan view maps and geologic cross sections.

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[7] WAC 173-204-320

[8] Guidance for Remediation of Petroleum Contaminated Sites, Washington State Department of Ecology, Publication 10-09-057, Guidance for Remediation of Petroleum Contaminated Sites, revised June 2016, Section 8.5.

d) Sufficient discrete samples should be obtained based on the estimated soil volumes provided in Table 8.5 of the guidance. Because multiple source areas are present at this Site, Ecology guidance provides that a minimum of two samples be obtained from each source area. The final number of samples should reflect the recommended number of soil samples provided in guidance Table 8.5.

e) At least two additional samples should be extracted and preserved from each source area in case the analytical results from the first two samples are significantly different from each other and further testing is needed to refine source area composition[9]. The additional procedures provided in the guidance need to be used to determine Method B cleanup levels.

f) To verify the sufficiency of additional proposed sampling to address remaining data gaps, Ecology needs to review the locations of proposed sampling on delineated plan view maps and geologic cross sections detailing the lateral and vertical extents of contamination in Site soils and sediments, obtained from discrete samples for all contaminants of concern.

g) Based on data currently available in the Washington State Department of Ecology Electronic Information Management (EIM) database for the Site[10], remaining TPH-G contamination in soil has been reported in 9 upland locations at the Site at up to 2,750 mg/kg from between 4.5 – 10 feet bgs from samples that were homogenized over 4-5 feet. Combined TPH-D and TPH-O contamination in soil have been reported in 9 locations at the Site at up to 10,935 mg/kg from 0 – 10 feet bgs in similarly homogenized samples[11]. Some of these locations are reported excavated. Areas of excavation are not clear from the materials submitted, nor are the specific confirmation samples used to delineate clean excavation limits. Delineated plan view maps and geologic cross sections may provide additional information to evaluate remaining soil contamination in the upland area of the Site.

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[9]Guidance for Remediation of Petroleum Contaminated Sites, Washington State Department of Ecology, Publication 10-09-057, revised June 2016, Section 8.5., Page 117.

[10]http://ecyeim/search/Eim/EIMSearchResults.aspx?ResultType=EIMTabs&StudyUserId=SW1134&StudyUserIdSearchType=Contains , accessed January 5, 2017.

[11] Washington State Department of Ecology, Ecology Implementation Memorandum #4, June 17, 2004.

Sufficient investigation must be conducted for the remedial investigation to delineate, using discrete samples, the lateral and vertical extents of contamination in affected media and provide those data as delineated plan view maps and geologic cross sections with contamination gradients and extents. Additional soil sampling is likely necessary to meet this requirement.

h) It is not clear from the materials submitted for this review where the required testing for unknown oil petroleum releases (WAC 173-340-900, Table 830-1) has been conducted for soils at the Site. The results of required testing for unknown oils needs to be included in the remedial investigation sufficient to evaluate their occurrence and distribution throughout the Site.

4. **GROUNDWATER:** The extent of contamination in groundwater has not been delineated at the Site. The work plan proposes three monitoring wells for evaluating groundwater contamination extents and gradients.

   a) Groundwater data in EIM includes sample results from BH-21, 30, 31 and 32, temporary well points that were advanced in 2011. No groundwater information has been reported for the Site since 2011.

   b) Data currently available in EIM indicate that previous site investigation at location BH-32 detected TPH-D at up to 7,000 µg/L in groundwater, and 2,800 µg/L TPH-G, and up to 1,200 µg/L TPH-D at BH-21. These locations of the Site need permanent groundwater monitoring wells and ongoing groundwater monitoring.

   c) The groundwater monitoring network must be sufficient to delineate the lateral and vertical extents of groundwater contamination at the Site. Other locations of the Site where soil contamination has been reported, such as location BH-19, will likely need ongoing groundwater monitoring data. Sufficient groundwater monitoring wells will be needed to delineate the groundwater plume throughout the Site.

   d) A sufficient number of permanent wells need to be installed and monitored at the Site at locations of concern based on delineated concentration gradients for the collection of representative groundwater data to adequately characterize the extent of groundwater impacts, and to adequately evaluate whether natural attenuation is occurring. At least four quarters of data need to be collected to adequately evaluate the Site hydrogeology and how it may be affected by the sheet piling, tides, and contaminant concentration trends.

e) Significant time has passed since the release, and residual contamination remains above cleanup levels in the subsurface. If monitored natural attenuation is proposed, parameters supporting determining the rate of monitored natural attenuation at the Site need to be reported to support that proposal. The quantification of ongoing natural attenuation and needed estimation of the restoration time frame in the subsurface may be difficult, and may not support cleanup in a reasonable restoration time frame.

f) It is not clear from the materials submitted for this review where the required testing for unknown oil petroleum releases (WAC 173-340-900, Table 830-1) has been conducted for groundwater at the Site. The results of required testing for unknown oils needs to be included in the remedial investigation sufficient to evaluate their occurrence and distribution throughout the Site.

g) The potability determination requirements of WAC 173-340-720(2) have not been documented at this Site. When sufficient groundwater monitoring information is available from groundwater monitoring wells at the Site, please submit sufficient information for Ecology to determine if groundwater is potable.

5. **SOIL VAPOR:** Preliminary Tier I soil gas sampling for this Site showed that soil gas concentrations at the single soil vapor sampling location tested, BH-31, exceeded appropriate Ecology-provided sub-slab screening criteria for samples obtained shallower than 15 feet bgs[12,13].

   a) Because contaminant vapor concentrations are reported exceeding appropriate screening criteria, there is a potential air quality threat to current or future buildings at the Site. Additional Tier I vapor assessment is appropriate to assess if air quality at the Site is impacted for current buildings at the Site, or for possible future construction[14].

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[12] Re: Opinion on Proposed Cleanup of the following Site: Olympia City Sewer Pump Station & General Petroleum Corporation, SW1134, March 11, 2014, Page 5.
[13] Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, Washington State Department of Ecology, Review Draft Revised February 2016, Page 3-11.
[14] Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, Washington State Department of Ecology, Review Draft Revised February 2016, Page 3-2.

b) If additional Tier I vapor assessment shows possible impacts to current nearby buildings indoor air, Ecology guidance provides that a Tier 2 assessment will be appropriate[15]. For Tier 2, vapor samples are collected simultaneously from soil and indoor air.

c) Additional vapor sampling is currently proposed in the work plan from four locations at the perimeter of the Site *"at 5 foot depth or above the water table, whichever is shallower"* [16]. Ecology guidance applicable at this Site provides that for contaminant locations not immediately below a building foundation, soil gas samples for assessment of the vapor pathway should be collected just above the contaminant source, and not less than 5 feet bgs[17]. Recent EPA petroleum vapor intrusion guidance does provide that collection of accurate shallow-soil gas samples is possible at depths as shallow as 2 feet below ground surface using appropriate field methods (e.g., leak testing), as documented in the EPA guidance[18]. Methods based on the EPA guidance have not been proposed at this Site. At this Site, for contaminant locations not immediately below a building foundation, soil vapor samples should be collected at the locations and depths where the highest concentrations of soil contamination have been obtained or immediately above groundwater levels, if the highest levels of contamination are submerged, to assess if there is adequate vertical separation between contaminant concentrations and the surface.

   Proposed soil vapor sampling locations need to be verified by comparison to delineated plan view contamination maps and delineated geologic cross sections that include preferential pathways for vapor transport. These have not yet been provided to Ecology for review. Lacking soil vapor data from the locations of highest contamination in impacted media, Ecology may assume that soil vapor quality is impacted at those locations of the Site.

d) Vapor sampling in the subsurface should not be conducted during or after a heavy rainfall event.

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[15] Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, Washington State Department of Ecology, Review Draft Revised February 2016, Appendix C.2 .

[16] Supplemental Work Plan, City Sewer Pump Station and General Petroleum Corporation Site, Olympia, WA, April 26, 2016, Integral Consulting, Inc., Table 1, Sampling Design.

[17] Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action, Washington State Department of Ecology, Review Draft Revised February 2016. 3-11, Appendix C.2, Appendix-16 (a).

[18] U.S. Environmental Protection Agency Office of Underground Storage Tanks Washington, D.C., Technical Guide For Addressing Petroleum Vapor Intrusion At Leaking Underground Storage Tank Sites, June 2015, page 69/123.

e) The point of compliance for vapor is ambient and indoor air throughout the Site. The selected remedial alternative must include the potential for future building construction at the Site.

6. **POREWATER:** At this contaminated Site abutting surface water, porewater samples will not be used for regulatory compliance purposes. Proposed porewater analyses in sediment are acceptable for gaining better understanding of processes affecting diffuse attenuation and loading in the transition zone between groundwater and surface water, and as a complement to other monitoring approaches. For this remedial investigation, please obtain sufficient soil, groundwater and sediment samples to delineate the lateral and vertical extents of contamination throughout the Site in affected media.

   a) Compliance with ground water cleanup levels shall be determined by analysis of groundwater samples representative of the groundwater (WAC 173-340-720(9)(a)). For this property abutting surface water, for groundwater cleanup levels based on the protection of surface water, where it is demonstrated to not be practicable to meet the cleanup level within a reasonable length of time throughout the Site, Ecology may approve a conditional point of compliance within the surface water as close as technically possible to the point or points where groundwater flows into the surface water (WAC 173-340-720 (8)(c)). Where a conditional point of compliance is proposed, the person responsible for undertaking the cleanup action shall demonstrate that all practicable methods of treatment are to be used in the site cleanup ((WAC) 173-340-720(8)(c)). Additional requirements for conditional points of compliance for properties abutting surface water are provided in WAC 173-340-720(8)(d)(i).

   b) Based on the reported approximate elevation of groundwater landward of the sheet pile wall at the Site, a seep study may be appropriate to evaluate preferential pathway contaminant point loading in sediment along the western edge of the known Site. A seep study would help determine if preferential pathways are present for upland contamination in soil and groundwater to enter sediments and surface water, and the maximum contamination loading in near preferential pathways. However, at this time it appears appropriate to wait for groundwater monitoring wells to be installed and regular groundwater monitoring conducted before determining if a seep study is necessary at this Site, and the scope of that study.

c) No numeric standards exist for petroleum products appropriate for marine surface water. 40 C.F.R Part 110 prohibits discharges of oil that are harmful to the public health, welfare or the environment[19]. Ecology is currently undertaking development of numeric standards for petroleum releases to surface water which will likely be applicable at this Site, and can provide technical assistance on implementing appropriate interim numeric screening criteria for petroleum releases in a marine environment. Ecology currently estimates that a 720 µg/L (Total TPH) is considered protective of marine aquatic life (WAC 173-340-730(3)(b)(ii)) using the required No Observable Effects criteria[20]. Whole Effluent Toxicity (WET) Testing may also be performed to also meet these requirements.

7. **ELECTRONIC DATA:** Additional review of this Site will require all required EIM data uploaded. As a reminder, in accordance with WAC 173-340-840(5) and Ecology Toxics Cleanup Program Policy 840 (Data Submittal Requirements), data generated for Independent Remedial Actions shall be submitted simultaneously in both a written and electronic format. For additional information regarding electronic format requirements, see the website http://www.ecy.wa.gov/eim. According to the policy, any reports containing sampling data that are submitted for Ecology review are considered incomplete until the electronic data has been entered. Please ensure that data generated during on-site activities is submitted pursuant to this policy. **Data must be submitted to Ecology in this format for Ecology to issue a No Further Action determination.** Please be sure to submit all soil and groundwater data collected to date, as well as any future data, in this format. Data collected prior to August 2005 (effective date of this policy) is not required to be submitted; however, you are encouraged to do so if it is available.

2. Establishment of cleanup standards.

Ecology has determined the cleanup levels and points of compliance you established for the Site do not meet the substantive requirements of MTCA. The Site has yet to be fully defined. Cleanup standards cannot yet be fully established.

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[19] Guidance for Remediation of Petroleum Contaminated Sites, Washington State Department of Ecology Publication No. 10-09-057, Revised June 2016, Table 8.13.
[20] Email from Arthur Buchan to Joyce Mercuri, Subject: TPH Aquatic Life. March 5, 2015.

3. Selection of cleanup action.

Ecology has determined the cleanup action you selected for the Site (interim actions) do not meet the substantive requirements of MTCA because the cleanup did not address the entire Site and it has not been demonstrated that the nature and extent of contamination at the Site has been fully defined.

Interim actions conducted to date have included closure in place of the pump station UST, excavation of petroleum-contaminated soil along the shoreline, and installation of sheet piling.

Limitations of the Opinion

1. Opinion does not settle liability with the state.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not:**

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

2. Opinion does not constitute a determination of substantial equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you proposed will be substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

3. Opinion is limited to proposed cleanup.

This letter does not provide an opinion on whether further remedial action will actually be necessary at the Site upon completion of your proposed cleanup. To obtain such an opinion, you must submit a report to Ecology upon completion of your cleanup and request an opinion under the VCP.

4. State is immune from liability.

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70.105D.030(1)(i).

Contact Information

Thank you for choosing to clean up your Property under the Voluntary Cleanup Program (VCP). After you have addressed our concerns, you may resubmit your proposal for our review. Please do not hesitate to request additional services as your cleanup progresses. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm. If you have any questions about this opinion, please contact me by phone at (360) 407-6528 or by e-mail at adam.harris@ecy.wa.gov.

Sincerely,

Adam Harris, LHG
SWRO Toxics Cleanup Program

AH: kb

Enclosures: A – Description and Diagrams of the Site

By Certified Mail: [91 7199 9991 7037 0221 7828]

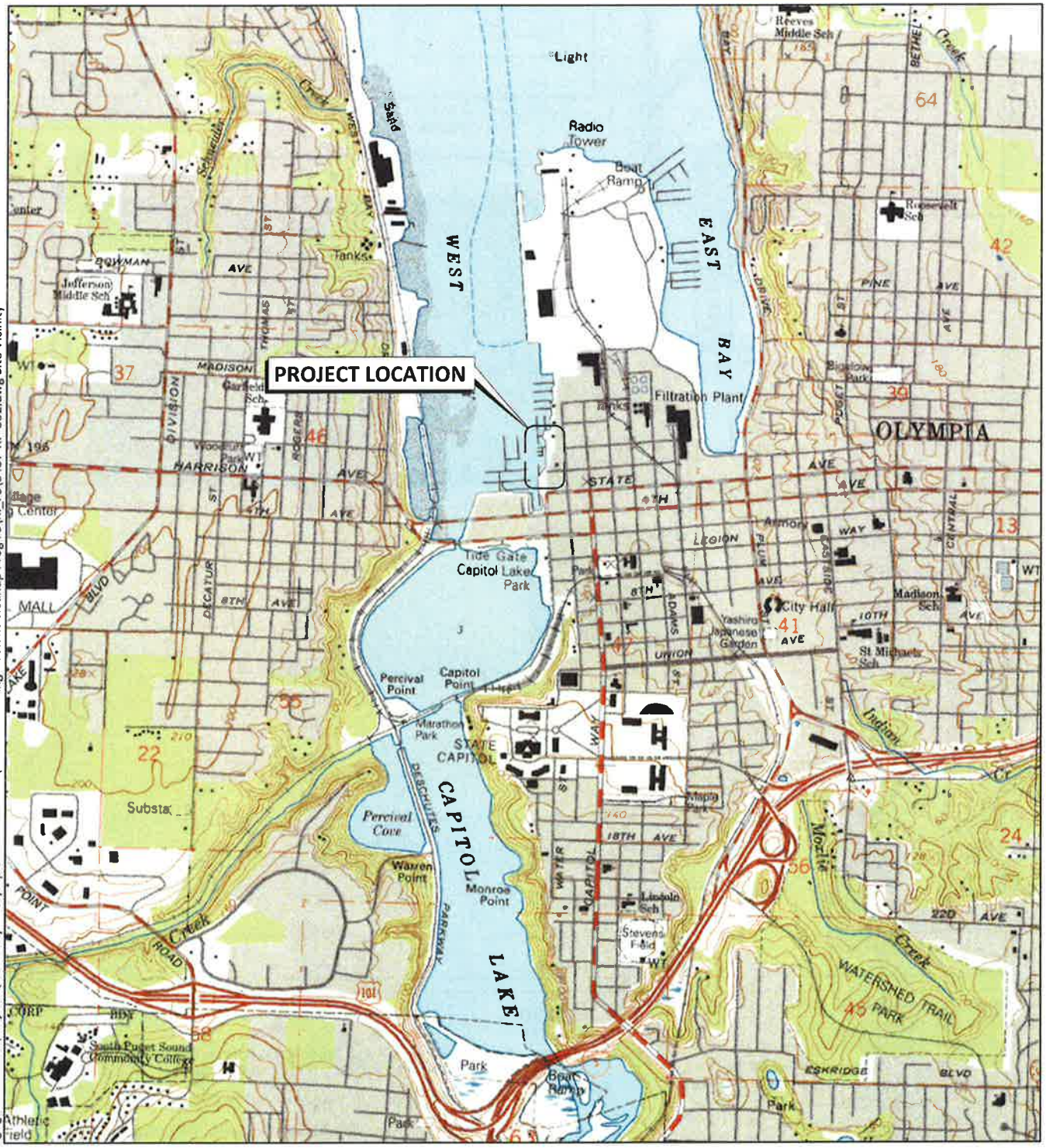
cc: Ms. Nicole Ott, Integral Consulting, Inc.
Mr. Andy Haub, City of Olympia
Gerald Tousley, Thurston County Health Department
Nicholas Acklam, Ecology
Mathew Alexander, Ecolgoy

Enclosure A

Description and Diagrams of the Site

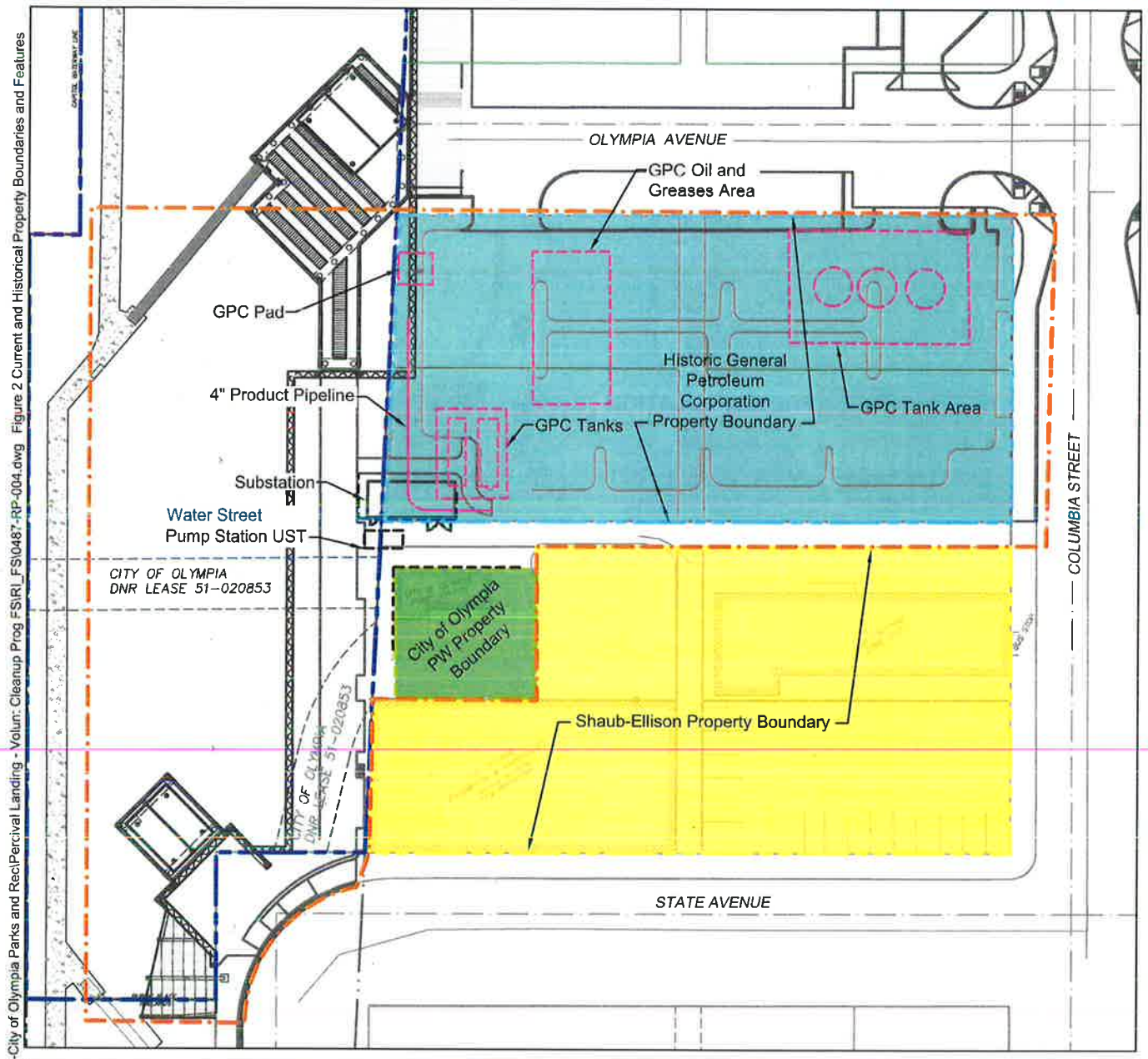
Site Description

The Olympia City Sewer Pump Station & former General Petroleum Corporation Site is located at 220 Water Street NW in Olympia, Washington. The Site is bounded to the west by Budd Inlet, to the north by Olympia Avenue NW, to the east by N Columbia Street, and to the south by a Les Schwab automotive service center. Based on data collected to date, the Site comprises two Thurston County Tax Parcels: 78507200100 (former GPC property) and 78507200500 (Pump Station property). Both parcels are currently owned by the City of Olympia (City). In addition, a portion of the Site along the shoreline to the west of these parcels is owned by the State of Washington and managed by the Department of Natural Resources. The Site is currently occupied by a City parking lot, the pump station building, landscaped areas, and a portion of the newly redeveloped Percival Landing Park.



K:\Projects\0487-City of Olympia Parks and Rec\Percival Landing - Volunt Cleanup Prog FS\RI_FS\0487-RP-002.dwg Site Vicinity
Dec 04, 2012 11:33am tgriga

Figure 1
Site Vicinity
Remedial Investigation / Feasibility Study
City Sewer Pump Station and General Petroleum Corporation Site



NOTE: General Petroleum Company location data from 1947 historical map.
SOURCE: Percival Landing Major Rehabilitation QA25, Section A, Phase 1, Construction Drawings, dated 8/02/10.
HORIZONTAL DATUM: Washington State Plane, South, NAD 83/96 CORS.
VERTICAL DATUM: Mean Lower Low Water (MLLW), 1983-2001 Epoch.

LEGEND:

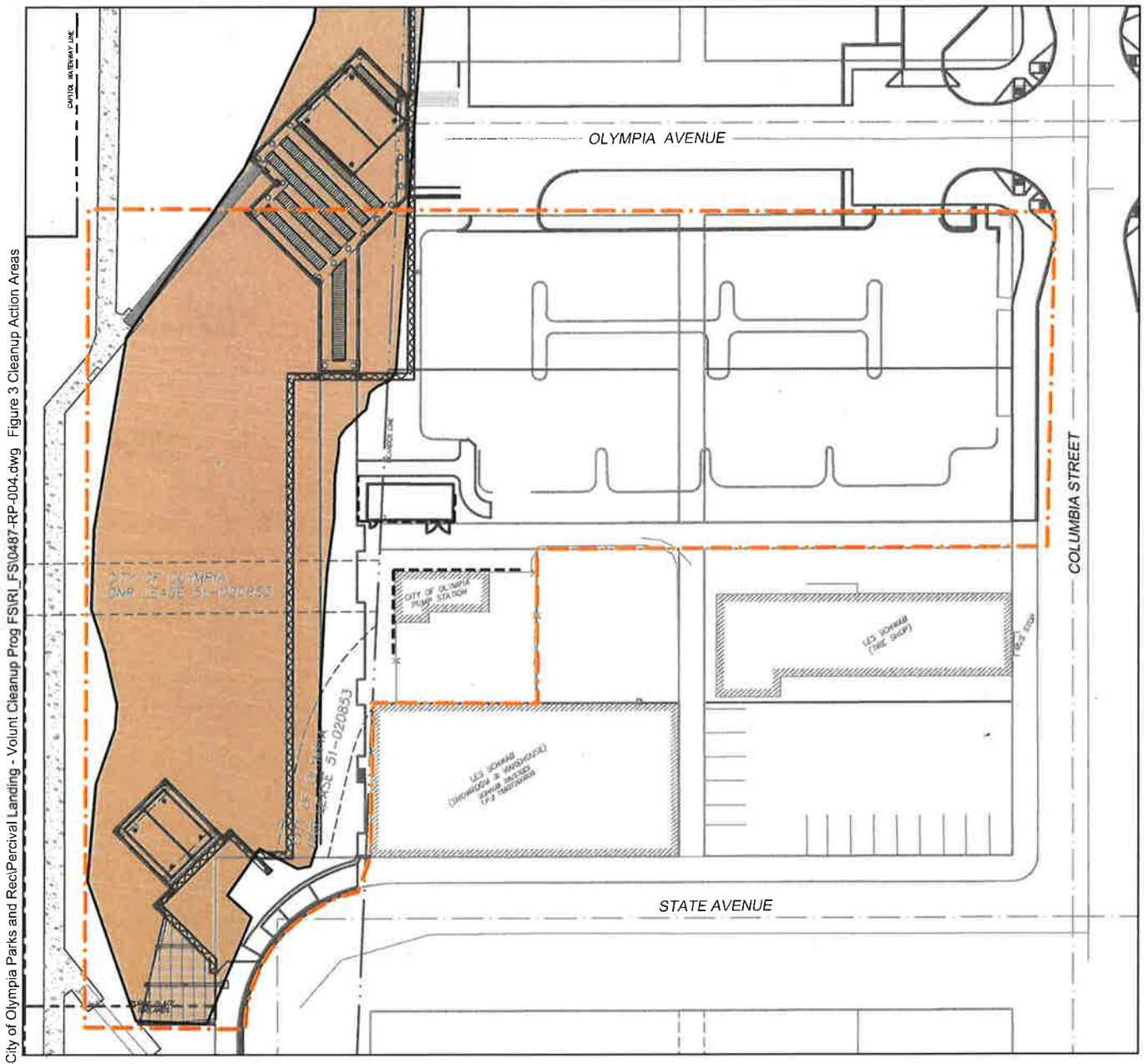
- City Sewer Pump Station and Former General Petroleum Corporation Property RI-FS Study Area
- Approximate Location of Historical Features
- Historic General Petroluem Corporation Property Boundary
- City of Olympia Power Works Property Boundary
- Shaub-Ellison Property Boundary
- DNR Lease Boundary

0 60
Scale in Feet

K:\Projects\0487-City of Olympia Parks and Rec\Percival Landing - Volun: Cleanup Prog FS\RI_FS\0487-RP-004.dwg Figure 2 Current and Historical Property Boundaries and Features
Apr 25, 2013 4:10pm tgriga

ANCHOR QEA

Figure 2
Current and Historical Property Boundaries and Features
Remedial Investigation / Feasibility Study
City Sewer Pump Station and General Petroleum Corporation Site



NOTE: General Petroleum Company location data from 1947 historical map.
SOURCE: Percival Landing Major Rehabilitation QA25, Section A, Phase 1, Construction Drawings, dated 8/02/10.
HORIZONTAL DATUM: Washington State Plane, South, NAD 83/96 CORS.
VERTICAL DATUM: Mean Lower Low Water (MLLW), 1983-2001 Epoch.

LEGEND:

City Sewer Pump Station and Former General Petroleum Corporation Property RI-FS Study Area

2011 Excavation Area

0 60
Scale in Feet

K:\Projects\0487-City of Olympia Parks and Rec\Percival Landing - Volunt Cleanup Prog FS\RI_FS\0487-RP-004.dwg Figure 3 Cleanup Action Areas
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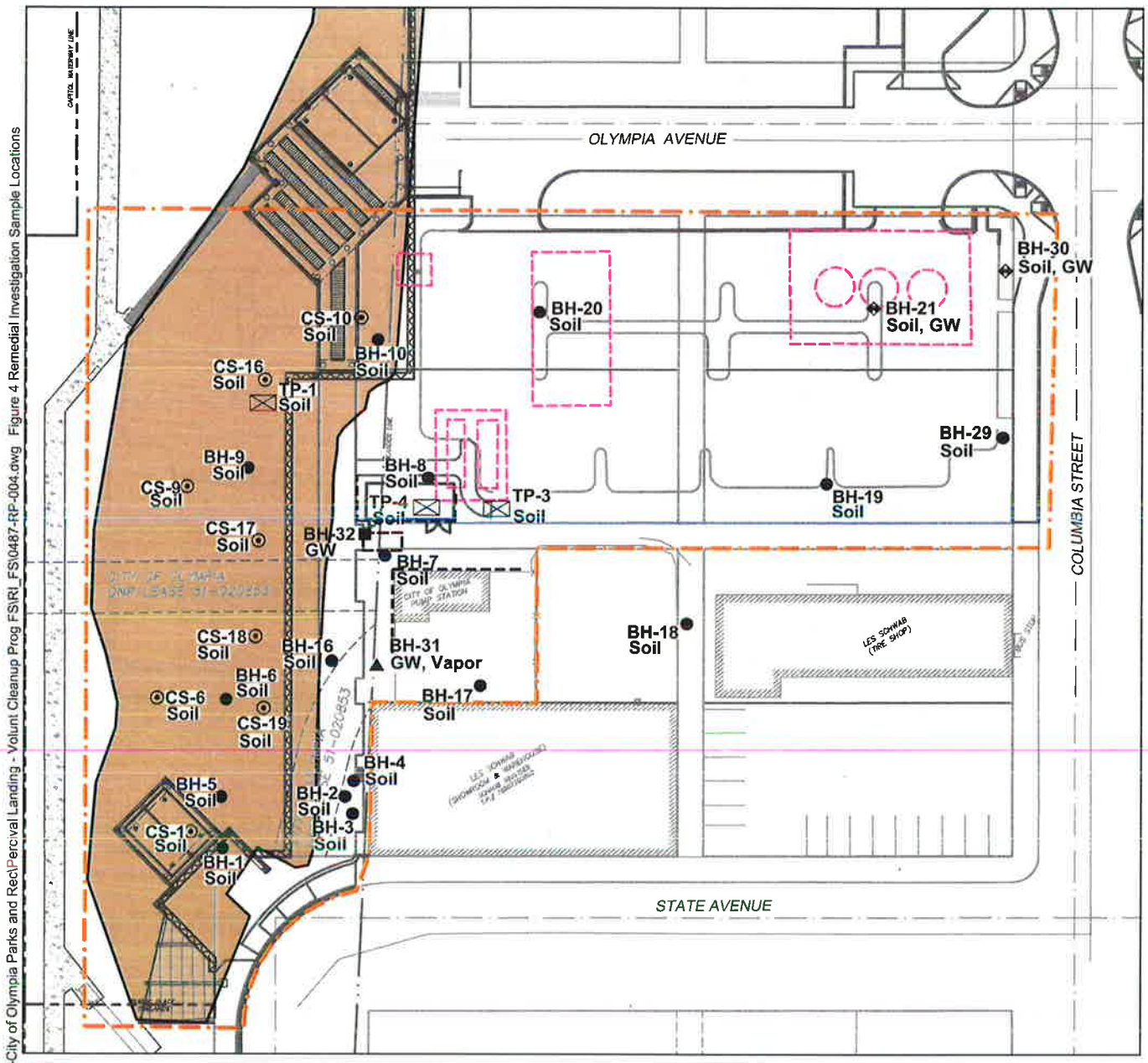
ANCHOR QEA

Figure 3
Cleanup Action Areas
Remedial Investigation / Feasibility Study
City Sewer Pump Station and General Petroleum Corporation Site



NOTE: General Petroleum Company location data from 1947 historical map.
SOURCE: Percival Landing Major Rehabilitation QA25, Section A, Phase 1, Construction Drawings, dated 8/02/10.
HORIZONTAL DATUM: Washington State Plane, South, NAD 83/96 CORS.
VERTICAL DATUM: Mean Lower Low Water (MLLW), 1983-2001 Epoch.

LEGEND:

- **BH-1** ● Geoprobe (Soil)
- **BH-30** ◆ Geoprobe (Soil and Groundwater)
- **BH-31** ▲ Geoprobe (Groundwater and Soil Vapor)
- **BH-32** ■ Geoprobe (Groundwater)
- **TP-3** ⊠ Test Pit
- **CS-10** ⊙ Confirmation Sample Location

City Sewer Pump Station and Former General Petroleum Corporation Property RI-FS Study Area

Approximate Location of Historical Features

2011 Excavation Area

0 60
Scale in Feet

K:\Projects\0487-City of Olympia Parks and Rec\Percival Landing - Volunt Cleanup Prog FS\RI_FS\0487-RP-004.dwg Figure 4 Remedial Investigation Sample Locations
Apr 25, 2013 4:10pm tgriga

ANCHOR QEA

Figure 4
Remedial Investigation Sample Locations
Remedial Investigation / Feasibility Study
City Sewer Pump Station and General Petroleum Corporation Site

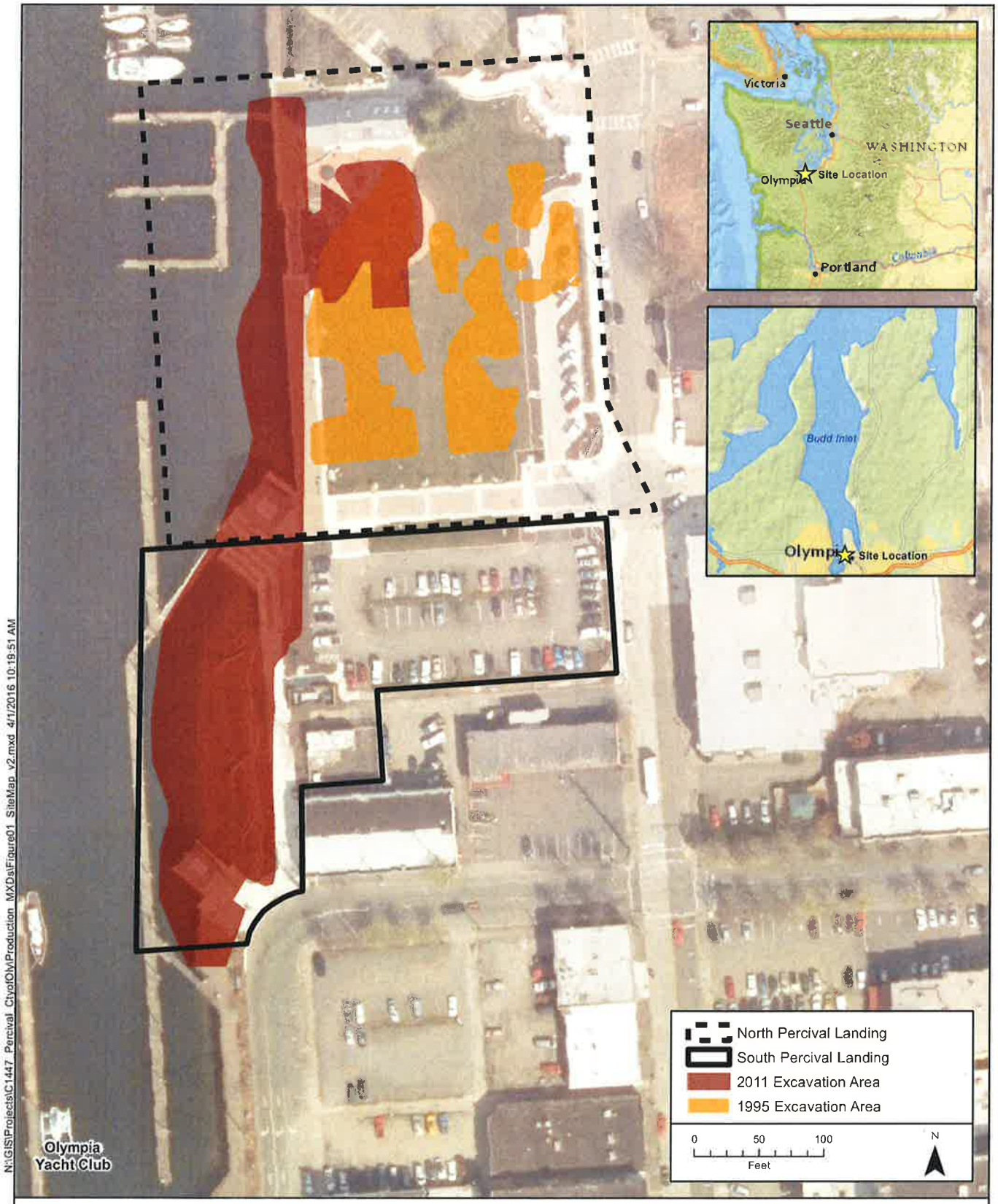


Figure 5.
Site Map
Olympia, WA

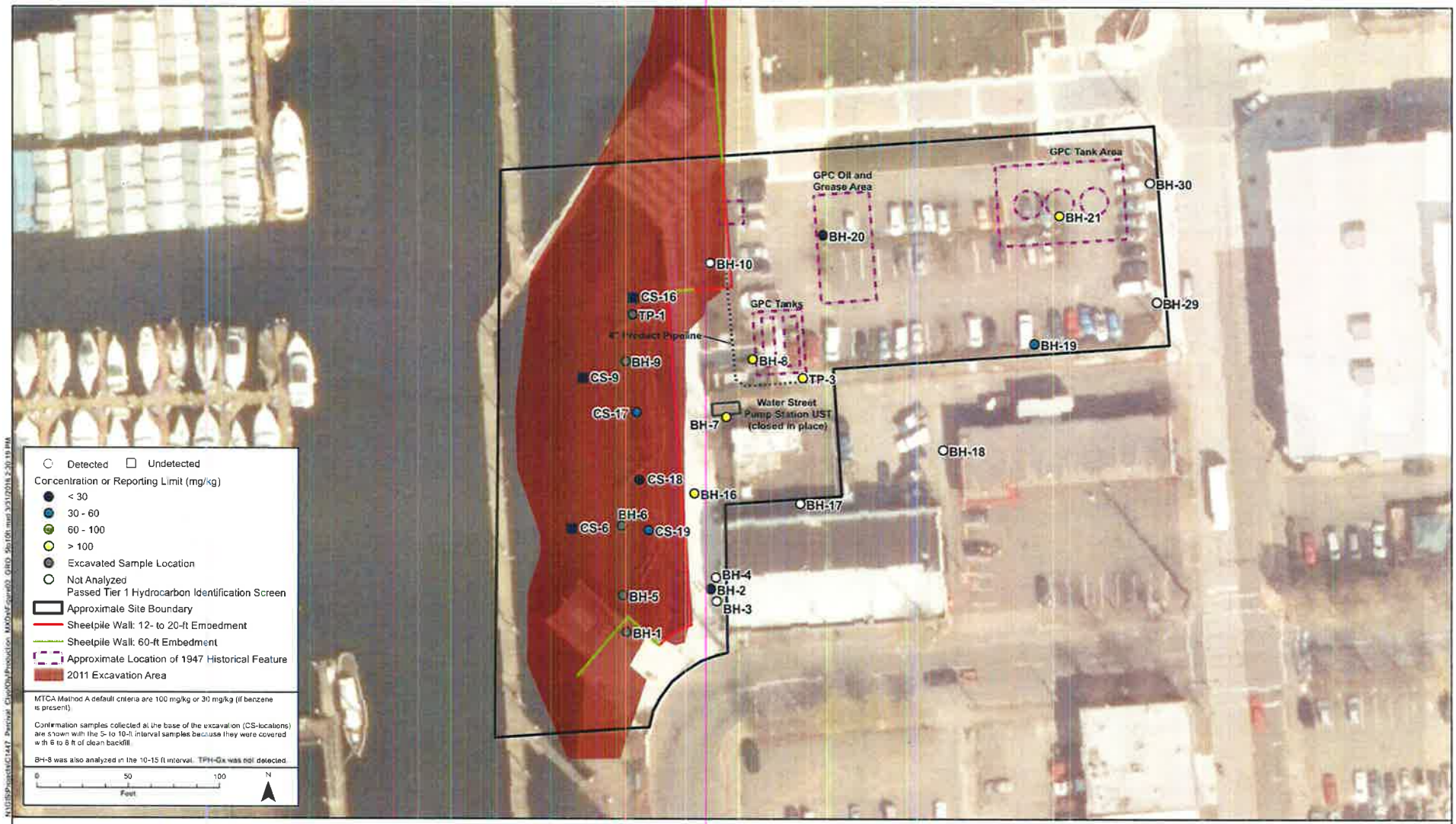


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Figure 6.
South Percival Landing Soil Data
Gasoline Range Organics (5 to 10 feet below ground surface)
Olympia, WA

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Figure 7.
South Percival Landing Soil Data
Benzene (5 to 10 feet below ground surface)
Olympia, WA

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Figure 8.
South Percival Landing Soil Data
Ethylbenzene (5 to 10 feet below ground surface)
Olympia, WA

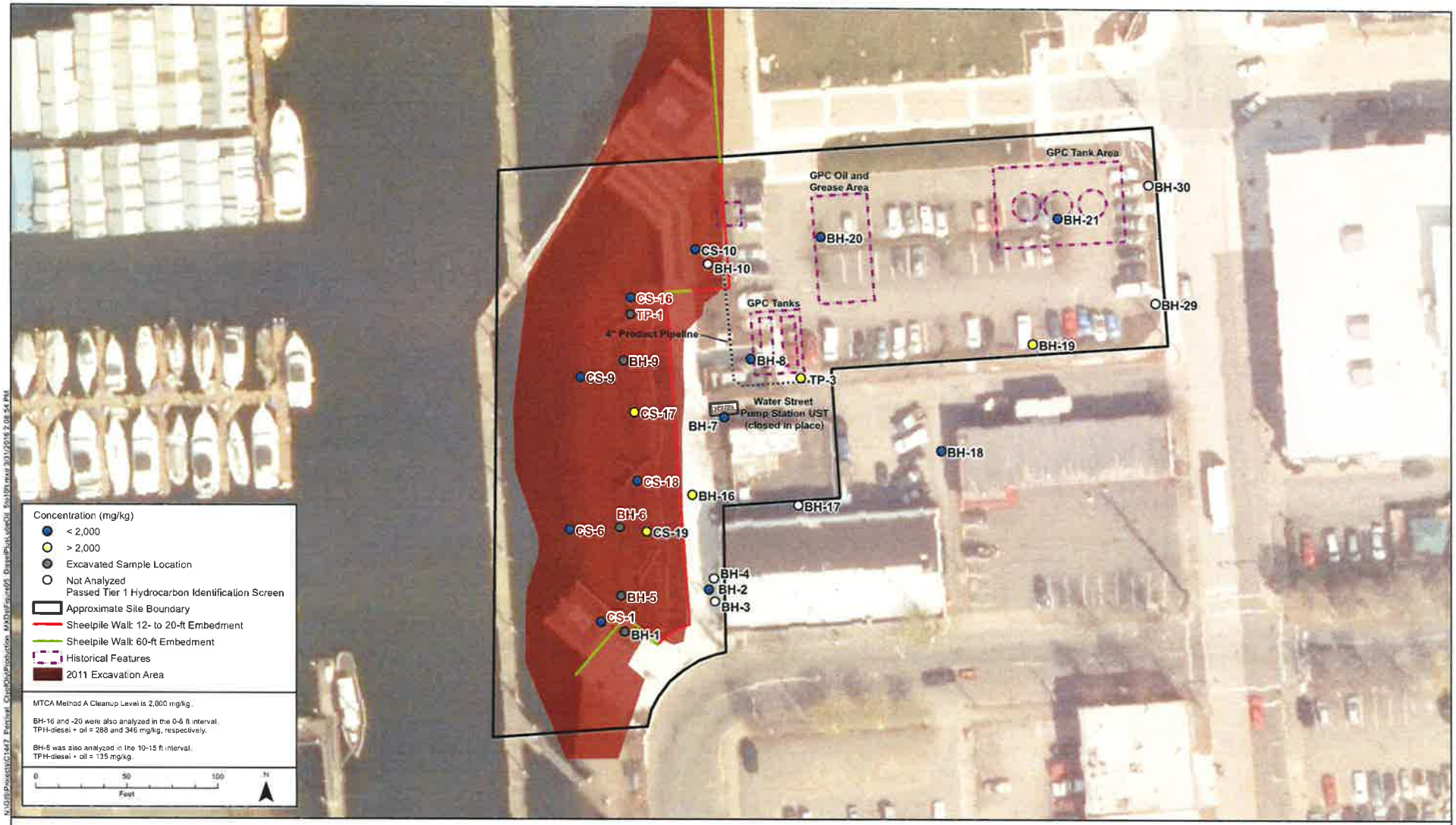

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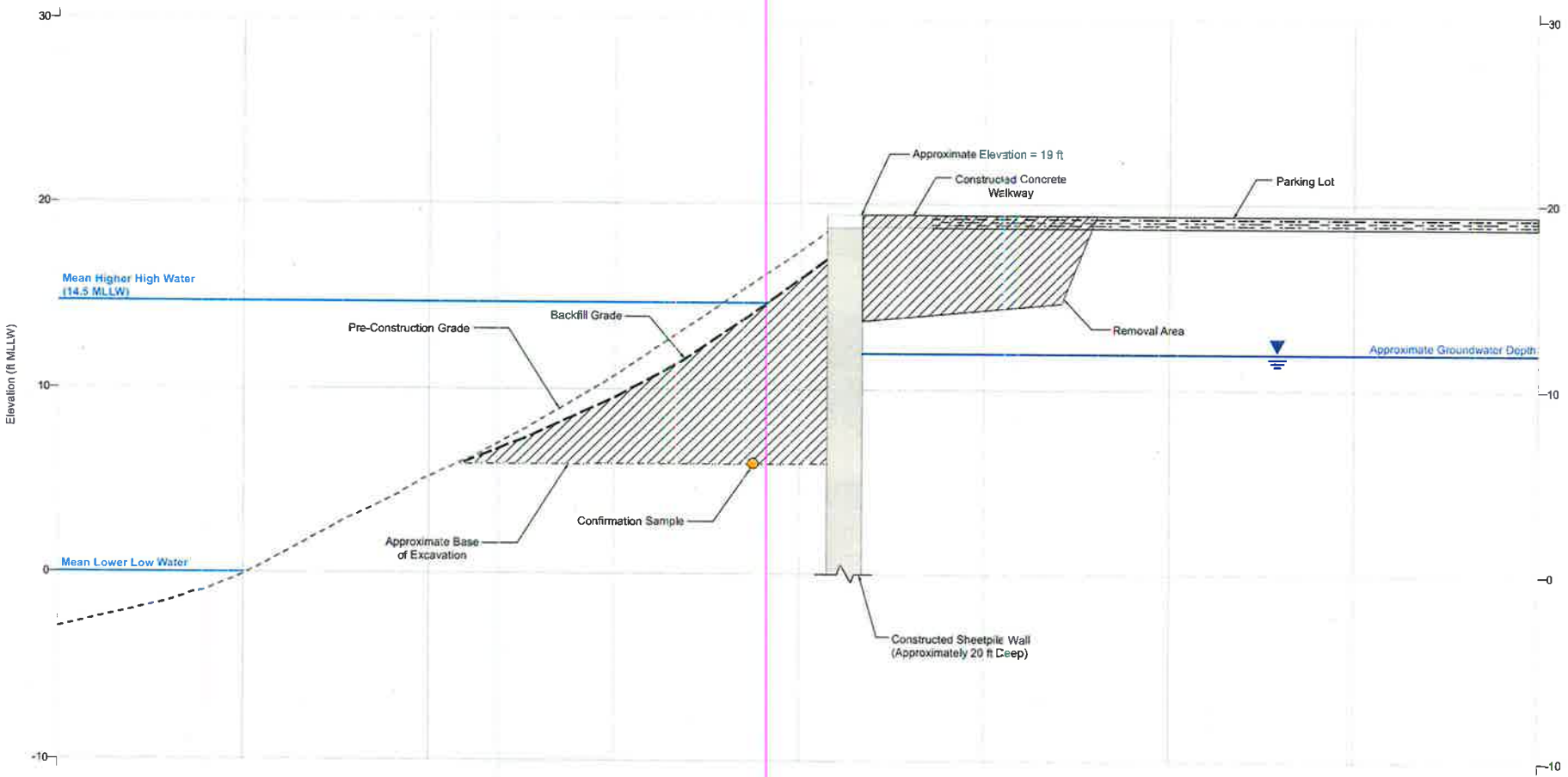
Figure 9.
South Percival Landing Soil Data
TPH-Diesel Range Organics + Lube Oil
(5 to 10 feet below ground surface)
Olympia, WA



integral consulting

Figure 10.
Conceptual Site Cross Section
Olympia, WA

integral

Figure 11.
Proposed Sampling Locations
Percival Landing, Olympia, WA