

2024 Upland PCB Screening Additional Action Work Plan, Revision 1

Seaport Midstream Partners, LLC
Portland Terminal 9930 NW St. Helens Road Portland, Oregon ECSI #1528

Project number: 60733311

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Appendix

Appendix A Data Quality Control Report

Acronyms

BP	BP Products of North America, Inc. and its affiliates
BW	barrier well
CPD	City of Portland Datum
DQCR	Data Quality Control Report
DEQ	Oregon Department of Environmental Quality
HASP	Health and Safety Plan
JSA	Job Safety Analysis
LLC	limited liability company
MW	monitor well
NAPL	non-aqueous phase liquids
PART	particulate matter
PCBs	polychlorinated biphenyls
PPE	personal protective equipment
PVC	polyvinyl chloride
SGZ	shallow groundwater zone
SMP	Seaport Midstream Partners, LLC
µg/L	micrograms per liter
µg/kg	micrograms per kilogram
µg/wipe	micrograms per wipe
WP	wipe sample

1. Introduction

AECOM has prepared this *2024 Upland PCB Screening Work Plan* to screen for polychlorinated biphenyls (PCBs) at the Seaport Midstream Partners, LLC (SMP) Bulk Fueling Terminal (Terminal), located in Portland, Oregon.

1.1 Project Background

The Terminal is a bulk petroleum product storage and transfer facility located at 9930 NW Saint Helens Road (Oregon Highway 30) in Portland, Oregon (**Figure 1**). The Portland Terminal is bordered to the east by the Willamette River, to the west by NW Saint Helens Road, to the north by the former Linton Plywood Association property (now Linnton Water Credits), and to the south by the NuStar Energy LP Bulk Terminal (**Figure 2**). The Portland Terminal is located at River Mile 4.9 of the lower Willamette River and is adjacent to the Portland Harbor Superfund Site.

The Portland Terminal consists of a 14-acre facility with 27 above-ground storage tanks, a truck loading rack, several buildings, a remanufacturing warehouse, a dock structure, a boat house, a groundwater extraction and treatment system, and a sheet pile wall (seawall) along the riverfront. The facility operation includes bulk petroleum storage, additive storage, fuel blending, and the transfer of bulk petroleum via pipeline, barge, and rail throughout the region (AECOM, 2021a).

The seawall was constructed in 2007. The seawall consists of a 40-foot AZ-18 sheet pile with two levels of tieback anchors at 20 and 10 feet above the City of Portland Datum (23.2 and 13.2 feet above Columbia River Datum). Tieback anchors on the bottom row are spaced at about 12.4 feet on center. A foam was used to seal perforations in the sheet pile where the tiebacks were installed. A sealant (Roxan™ or equivalent) was placed within the sheet pile interlocks.

Suspected petroleum hydrocarbons were observed in the engineered fill material outboard of the seawall, causing a sheen on the water surface on December 13, 2021. In response to the sheen observed, AECOM conducted tieback inspection and maintenance activities on the seawall, in 2022 and 2023, as documented in the *Seawall Maintenance Construction Completion Report* (AECOM, 2022), and the *Seawall Maintenance Tieback Inspection Summary Report* (AECOM, 2024). Four tiebacks in 2022 and twelve tiebacks in 2023 were exposed and inspected for signs of seeps, and leaks.

To streamline sampling efforts on the river side of the seawall, SMP voluntarily granted site access to the Portland Harbor Superfund Site B1A group to complete independent sampling at each of the 2023 tieback inspection locations. B1A group members include two previous Terminal owners and operators (Atlantic Richfield Company and BP Products North America Inc.), and three other companies that are current or former owners of facilities located near the Terminal. During the 2023 inspection event, PCBs at a concentration of ~5 parts per million (ppm) were detected in the B1A group sample of fill material collected at a depth of 5.5 feet below surface, beneath Lower Tieback 09 (**Figure 3**), and lower concentrations of PCBs were detected in a 5-foot-deep sample collected 10 feet riverward of Tieback 09. In an email from Jeff Schatz dated May 29, 2024, the Oregon Department of Environmental Quality (DEQ) requested sampling behind the seawall to determine whether there is a potential upland source of PCBs in this area. BP, working in cooperation with SMP, asked AECOM to prepare this work plan as a first step in addressing DEQ's request.

1.2 Potential Upland Sources of PCBs

There are no known sources of PCBs at the Terminal. Atlantic Richfield Company's responses to the USEPA CERCLA Section 104e Information Request in 2011 indicate that "In the 1990s, the Terminal conducted a survey and removed all electrical equipment potentially containing PCBs" and that in "2005 fluorescent lamps from the office building were replaced [...] it was assumed that these lamp fixtures were in an "electrical building" outside the southwest corner of the North Tank Farm. A historical oil-water separator (decommissioned in place during seawall installation in 2007) is located behind the seawall

adjacent to tieback 09. No information is available regarding this oil-water separator except that it was historically used to treat stormwater runoff prior to discharge.

1.3 Project Objectives and Overview

The objective of the screening activities described within this work plan is to use existing wells to evaluate the presence or absence and type (i.e., Arcolor) of PCBs that may exist in the subsurface within the PCB Screening Focus Area shown in Figure 3 upland of Lower Tieback 09 (as described in Section 1.1). Seven existing wells within the PCB Screening focus area shown in Figure 3 will be sampled to determine if measurable amounts of PCBs may be present within non-aqueous phase liquids (NAPL), particulates, and/or other solids that may have accumulated in the wells. Due to the general insolubility of PCBs in water, the focus of the screening sample collection will be on NAPL and particulates, not groundwater. At the request of DEQ, groundwater samples will also be collected from the two monitor wells. Based on the results, a second phase of sampling could be developed, to possibly include the advancement of borings to collect soil samples in the vicinity of detected PCBs, including directly upland of the PCB detection outboard of Lower Tieback 09.

The seven wells to be sampled are grouped into three categories based on their function at the Terminal. Sampling for each group will vary slightly based on well diameter, depth, and function.

- Hydraulic System Control Wells (SC-03, SC-04 and SC-21) are part of the network of 26 hydraulic pumping wells used to generate a reverse groundwater gradient at the Terminal. These six-inch diameter polyvinyl chloride (PVC) wells are screened within the shallow groundwater zone (SGZ) and are equipped with continuous-operation hydraulic well pumps. The hydraulic pumping wells are regularly maintained and developed as part of the standard operations at the Terminal.
- Monitor Wells (MW-17 and P-24) are four-inch PVC groundwater wells screened in the SGZ and are regularly maintained, developed, and sampled for groundwater as part of the Terminal annual monitoring program.
- Barrier Wells (BW-04 and BW-06) were installed as part of the barrier well system designed to satisfy spill prevention measures in the event of a catastrophic release. The design for the facility's barrier well system was based on dual-phase extraction principles, with individual wells connected to a collection header pipe that would allow connection to high-vacuum trucks. When operated, the high-vacuum trucks would induce vacuum and extract an entrained liquid/vapor stream from PVC stinger pipes near the bottom of the barrier wells. These structures were not designed, installed, developed, or maintained to function as ongoing, routine extraction wells for NAPL or groundwater. Additionally, the barrier well network is not associated with the Hydraulic System Control wells.

1.4 Work Plan Organization

This Work Plan is organized as follows:

- Section 1. Introduction
- Section 2. Sampling Design and Approach
- Section 3. Laboratory Analysis and Methodology
- Section 4. Reporting and Work Schedule

2. Sampling Design and Approach

This section describes the various elements of the overall sampling strategy and implementation. Appendix A contains relevant forms for the proposed sampling activities.

2.1 Sampling Design

The large number of subsurface obstructions (including the groundwater source control system and the tiebacks anchoring the seawall, Figure 3) make it difficult to advance new soil borings near the seawall at the Terminal. Therefore, prior to invasive sampling, this Phase 1 work will take advantage of existing well locations to collect information to be used in designing potential Phase 2 activities. All seven wells are screened across the elevation of Lower Tieback 09, and sample TP01-TB09 was collected by the B1a group (Table 1a and Table 1b). Existing wells surrounding Lower Tieback 09 will be sampled as follows:

- The three shoreline wells closest to Lower Tieback 09 (P-24, SC-03, and SC-04) will be assessed for evidence of PCBs
- Four wells hydrologically upgradient of Lower Tieback 09 (SC-21, BW04 BW06, and MW-17) will be assessed for evidence of PCBs. Barrier Well BW04 and BW06 were selected because they had the highest percent LEL readings (greater than 100%, and 50%, respectively) when the wells were assessed in July 2022 for evidence of potential NAPL downgradient of the North Tank Farm (AECOM, 2022b).

Since the Phase 1 objective is to collect data to inform a potential second phase of the investigation, the samples will be analyzed using the PCB Aroclor Method 8082 for faster analysis turnaround time and ease of sample interpretation.

2.2 Pre-Sampling Preparation

2.2.1 Health and Safety Activities

A site-specific Health and Safety Plan (HASP) and Job Safety Analyses (JSAs) meeting BP safety criteria will be created through the hazard identification process. The HASP and JSAs will be reviewed and accepted by BP, SMP, and AECOM personnel. Level D personal protective equipment (PPE) will be used while implementing these work plan-specific tasks.

2.2.2 Agency Notification

AECOM will coordinate with and notify DEQ a minimum of five days in advance of sampling to meet the requirements under Voluntary Agreement No. WMCVC-NWR-00-16 dated June 20, 2000

2.2.3 Sampling Equipment and Supplies

Sampling equipment and supplies will include an oil-water interface probe, stainless-steel bailer, peristaltic pump, tubing, a PVC pole, temperature/conductivity/pH meter, 0.45 micron Teflon filters, sample containers, coolers, field forms, PPE (e.g., hard hats, gloves), personal gear, and decontamination supplies. Sample containers and preservatives (Table 2), as well as coolers and packing material, will be supplied by the BP contracted analytical laboratory (Eurofins of Tacoma, Washington).

2.2.4 Well Access

Access for sample collection may require pre-sampling well preparation based on the well group. Sample locations are shown in Figure 3.

- Hydraulic System Control Wells (SC03, SC-04 and SC-21)
 - To allow groundwater to equilibrate and NAPL (if present) to enter and accumulate within the well casing, the hydraulic control pumps will be turned off at least 4 hours before sampling. Hydraulic pumps will be removed and placed on dedicated disposable plastic

sheeting immediately before sampling. Following the conclusion of sampling, the hydraulic control pumps will be replaced down well, and the hydraulic control pumping restarted. Since ongoing operation is required for the hydraulic control system, the pumps will not be left off overnight.

- Monitor Wells (MW-17 and P-24)
 - Pre-sampling activities are not required at these locations.
- Barrier Wells (BW-04 and BW-06)
- The stinger piping present in the barrier wells will be removed and placed on dedicated disposable plastic sheeting immediately before sampling. Following the conclusion of sampling, the stinger piping will be replaced down well.

2.3 Sampling Media and Procedures

PCB screening samples consisting of NAPL and/or particulates or other solids that may have accumulated in the wells may consist of three types of samples. One sample will be collected from each of the seven wells, based on the prioritization order as detailed below.

2.3.1 NAPL Sample Collection

If present, NAPL is the preferred medium for screening for the presence of PCBs. In each well, an oil/water interphase probe will be deployed to determine the absence or presence of NAPL. Depth to water and NAPL thickness, if present, will be recorded for all wells. If present, NAPL will be collected from each well using a stainless-steel bailer and/or a peristaltic pump with dedicated tubing. The field team will determine the sample collection method at the time of sampling based on the depth to groundwater and the quantity of NAPL present.

- A stainless-steel bailer may be lowered to the top of the water column to capture NAPL (if present). The bailer will be filled and pulled up to the surface, and the unfiltered sample will be placed into laboratory-supplied containers.
- Using dedicated tubing inserted into the top of the water column and a peristaltic pump, NAPL may be sampled directly into laboratory-supplied containers. Depending on the depth of NAPL, samples may contain a mix of NAPL and groundwater; the laboratory will be instructed to analyze the NAPL phase only.

2.3.2 Particulate Matter Sample Collection

If NAPL is not present at the time of sampling, particulates will be the primary sample collected at a given well location. If only a trace of NAPL is present in a well, particulates will be collected and analyzed as a secondary sample. Particulate matter that has accumulated at the bottom of the well will be collected from each well using a stainless-steel bailer and/or a peristaltic pump with dedicated tubing.

- A stainless-steel bailer may be lowered to the bottom of the well to resuspend and capture well particulates. The bailer will be filled and pulled to the surface, and the unfiltered sample containing groundwater and particulates will be placed into a laboratory-supplied container.
- Using dedicated tubing inserted into the bottom of the well and a peristaltic pump, a particulate-water slurry may be sampled directly into laboratory-supplied containers.

The field team will strive to maximize the volume of particulate matter in the biphasic groundwater/particulate sample during sampling by pumping or bailing until minimal amounts of particulates are removed from the well. Excess groundwater will be decanted in the field to make space and maximize volume of solids in the container. The laboratory will allow the sample to settle and then decant remaining groundwater and analyze particulate solids only. Limited particulate matter may affect quantitation limits (Section 3).

2.3.3 Wipe Sample Collection

If neither of the above sample collection methods are successful, an attempt will be made to sample any particulates or NAPL residual substances adhered to the well casing and/or well infrastructure using laboratory-provided gauze wipes. The field team will select wipe sample locations based on maximum NAPL residual or staining. The number of wipes used at each well location may vary based on field team observations at the time of sampling. The wipe sample locations will be documented with photo(s) by the field team.

- Hydraulic System Control Wells (SC-03, SC-04 and SC-21)

Wipe samples may be collected from pump and/or hoses and/or tubing based on visual observation at the time of sampling. Wipe samples may alternatively be collected from the inside well casing by attaching a wipe to a PVC pole.

- Monitor Wells (MW-17 and P-24)

Wipe samples may be collected from the inside well casing by attaching a wipe to a pole.

- Barrier Wells (BW-04 and BW-06)

Wipe samples may be collected from stinger piping based on visual observation at time of sampling. Wipe samples may alternatively be collected from the inside well casing by attaching a wipe to a PVC pole.

One or more laboratory wipes will be placed into a laboratory-provided sample container at each well location (wipe results will be reported as µg/wipe).

2.3.4 Groundwater Sample Collection

After collection of NAPL and or particulate samples from monitor wells MW-17 and P-24, groundwater samples will be collected from these two wells. Since the objective is to examine the potential for dissolved-phase PCBs, distinct from any particulate-bound PCBs collected using one of the methods above, the groundwater samples will be field filtered. Groundwater sample collection will be completed at the selected wells in accordance with the practices outlined in the 2021 *Modified Annual Groundwater Monitoring Sampling and Analysis Plan, Revision 1* (AECOM, 2021b).

- A clean length of dedicated tubing (not used for particulate sampling) will be inserted into the screened interval and a peristaltic pump will be used to purge until groundwater parameters stabilize. Field-measured groundwater parameters will be considered stable when all parameters meet the following conditions:
 - Turbidity – Nephelometric Turbidity unit (NTU) values are within 10% for values greater than 5 NTU or three consecutive turbidity values are less than 5 NTU
 - DO – values are within 10% for values greater than 0.5 milligrams per liter (mg/L) or if three consecutive DO values are less than 0.5 mg/L
 - Specific Conductance – fluctuation is equal to or less than 3%
 - Temperature – fluctuation is equal to or less than 3%
 - pH – fluctuation is equal to or less than 0.1 unit
 - ORP – fluctuation is equal to or less than 10 millivolts
- The tubing will then be attached to a 0.45 micron Teflon filter and groundwater will be pumped directly into laboratory-supplies containers.

2.4 Field QA/QC Samples

Two rinsate blanks will be collected. The first will consist of laboratory-provided deionized-water will be collected from the decontaminated stainless bailer (if used during sampling activities). The second will consist of laboratory-provided deionized-water pumped through the groundwater sampling system,

including dedicated tubing, silicone tubing for the peristaltic pump, and Teflon filter. A field duplicate will be analyzed if adequate volume of NAPL or particulates can be obtained from any of the above-listed media at any of the seven well locations.

2.5 Sample Naming Convention

The following sample naming convention below shall be used for NAPL, particulates (well sediments), and wipe samples during this investigation.

- NAPL-MW-XX-yyyymmdd
- PART-MW-XX-yyyymmdd
- WP-MW-XX-yyyymmdd
- GW-MW-XX-yyyymmdd

Where:

- NAPL –NAPL sample
- PART – Well Particulates sample
- WP – Wipe sample
- GW – Groundwater sample
- MW-XX –Well ID (e.g., MW-17, SC-04).
- yyyymmdd – The year, month, and day, the sample is collected (e.g., 20240819 for August 19, 2024).

For example, a NAPL sample collected at monitoring well P-24 on August 19, 2024, will be:

- NAPL-P-24-20240819

2.6 Decontamination Procedures

Potential contamination sources in the field include sampling equipment, vehicles, and dust. Decontamination procedures as described below will be followed during sampling activities. Sample handling will be minimized and potential known contamination sources will be avoided. Reusable sampling equipment, if any, will be decontaminated before first use and after each sample location. Samplers will wear disposable, powder-free gloves during all decontamination and sampling procedures.

Non-dedicated sampling equipment (stainless bailer and oil/water interface probe) will be decontaminated using a four-stage method:

1. Tap water rinse
2. Non-phosphate soap (such as Alconox®) and water solution rinse
3. Distilled water rinse
4. 10% Methanol rinse

Equipment decontamination will be performed over a bucket to prevent decontamination water from flowing onto the ground surface. All decontamination fluids generated will be placed in appropriate containers (i.e., 5-gallon buckets with snap lids) during the workday and disposed of using the on-site treatment system.

2.7 Investigation Derived Waste

All disposable sampling items (gloves, tubing, plastic sheeting, etc.) will be placed in garbage bags for disposal in a municipal landfill using the Terminal's waste disposal containers.

The wastewater from Decontamination Steps 1 through 4 above and any water decanted during sample collection will be discharged to the Terminal Hydraulic SCM system groundwater treatment system and discharged to the Willamette River under the NPDES 1500A wastewater permit.

2.8 Field Documentation

Field personnel will document sampling activities at each well location, including the sample ID, collection time, depth to water, presence/absence of NAPL, visual observations, etc. Example data quality control reports (DQCR) are in Appendix A. Field data collected during sampling will be reported in the final report as within DQCRs. Photo logs showing the information listed above, as well as specific wipe sample locations, will also be reported.

3. Laboratory Analysis and Methodology

3.1 Laboratory Methods

Samples will be submitted to a BP contracted laboratory (Eurofins of Tacoma, Washington) and analyzed for PCBs by EPA Method 8082. If sufficient sample volume is available, particulate samples may also be analyzed for percent moisture. The analytical methods and extraction procedures will be based on the most current analytical protocols per ongoing EPA guidance. Table 2 includes sample media, sample containers, holding times, and targeted sample volume.

3.2 Quantitation Limits

The primary objective of this sampling event is to determine the presence or absence of PCBs (as Aroclors). Table 3 includes reporting and method detection limits for solid and aqueous media as analyzed by Method 8082 as provided by Eurofins-Seattle (at the time of report production). These traditional quantitation limits for PCBs analyzed by Method 8082 may not be achievable for this sampling event, due to the non-traditional nature of the biphasic and/or triphasic samples (as described above in Section 2) and limited sample volume. Analyte concentrations will be reported to the method detection limits. Analytes detected at concentrations between the method detection limit and the reporting limit will be reported with a "J" qualifier to indicate that the value is an estimate (i.e., the analyte concentration is below the calibration range). Non-detects will be reported at the method detection limit. The method detection limit will be adjusted by the laboratory, as necessary, to reflect sample dilution, matrix interference, and/or moisture content.

Results will be reported in units of microgram per kilogram ($\mu\text{g}/\text{kg}$), microgram per liter ($\mu\text{g}/\text{L}$), or microgram per wipe(s) ($\mu\text{g}/\text{wipe}$), depending on the media present at the time of sample collection. Particulate samples may be reported as wet weight if sufficient media volume for percent moisture analysis is not available. Due to these factors and the primary objective of this first phase of the investigation, analytical results for NAPL, particulate, and wipe samples will not be compared against traditional screening criteria for soil or groundwater.

The team recognizes that PCB congener analysis is required to achieve the detection limits needed to meet the Portland Harbor Record of Decision cleanup level for total PCBs of 0.014 $\mu\text{g}/\text{L}$. For reasons previously stated above (i.e., speed of analysis), the PCB Aroclor method was selected, which has sufficiently low detection limits for NAPL and particulates to meet the objectives of this phase of investigation. The team recognizes that the absence of detected PCBs during the first phase of work will not preclude the need for further investigation.

4. Reporting and Work Schedule

Project activities will be documented in a data summary report prepared for DEQ review. The report will include a summary of fieldwork completed, field observations, procedures, laboratory reports, groundwater depths, the occurrence of NAPL, analytical summary tables, and figure(s).

Investigations activities are planned for the third quarter of 2024, pending approval of this Work Plan by DEQ. A data summary report will be submitted to DEQ approximately 60 days following receipt of analytical results.

5. Limitations

This 2024 Upland PCB Screening Work Plan has been prepared for specific application to this project and has been developed in a manner consistent with the level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area and following the terms and conditions outlined in the contracted agreement between AECOM and BP, working in cooperation with SMP. No warranty or other conditions express or implied should be understood.

This report is for the use of BP and its representatives and affiliates, SMP and its representatives and affiliates, and applicable regulatory agencies. No other parties shall have the right to rely on AECOM's opinions rendered in connection with the services or this report without our written consent.

6. References

AECOM, 2021a. *Source Control Evaluation Report, Revision 1*, Prepared for Seaport Midstream Partners, LLC. November 5.

AECOM, 2021b. *Modified Annual Groundwater Monitoring Sampling and Analysis Plan Revision 1*. Prepared for Seaport Midstream Partners, LLC, for the Portland Terminal, Portland, Oregon. October 7.

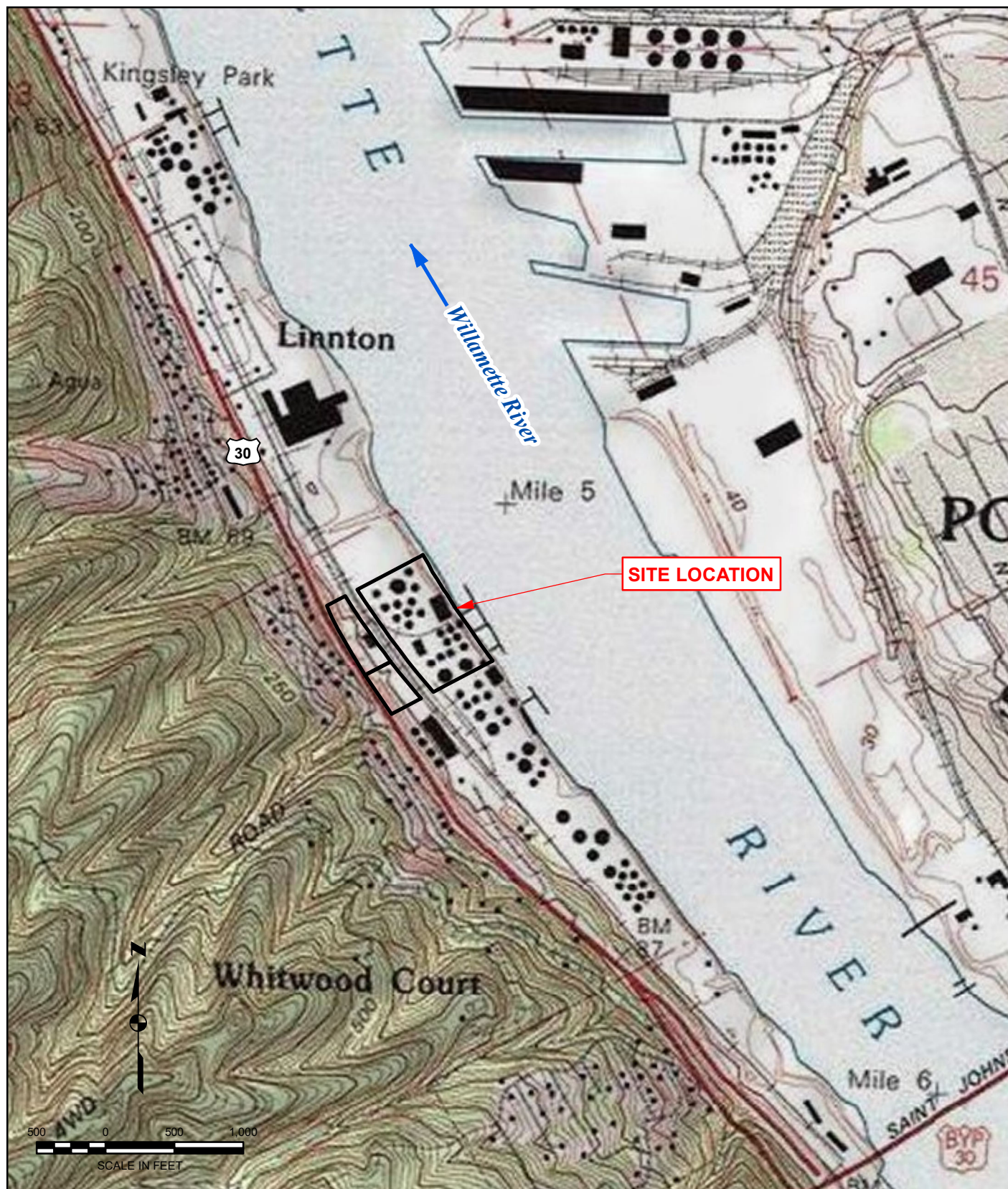
AECOM, 2022a. *Seawall Maintenance Construction Completion Report*, Prepared for Seaport Midstream Partners, LLC for the Portland Terminal, Portland, Oregon. March 8.

AECOM, 2022b. *Revised Additional Action Work Plan*, Prepared for Seaport Midstream Partners, LLC for the Portland Terminal, Portland, Oregon. October 17.

AECOM, 2024. *Seawall Maintenance Tieback Inspection Summary Report*, Prepared for Seaport Midstream Partners, LLC for the Portland Terminal, Portland, Oregon. January 9.

Jacobs, 2024. *B1a Area Predesign Investigation Phase 3 Evaluation Report*. Prepared for the B1a Group. June 5.

Figures



Source: USGS 2020. Copyright: © 2013 National Geographic Society, i-cubed

AECOM

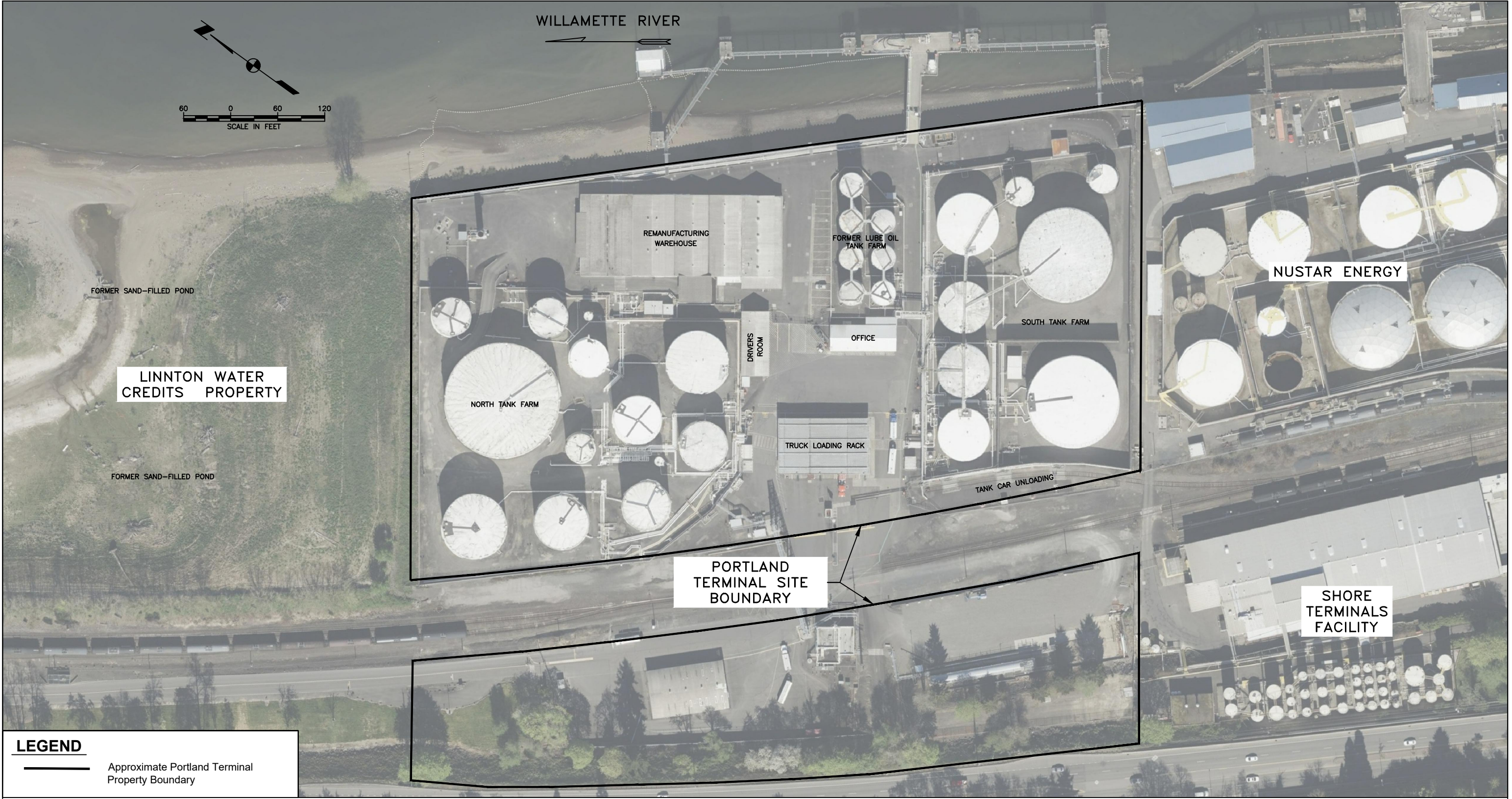
Project Number: 60733311

SITE VICINITY MAP

PORTLAND TERMINAL
9930 NW ST HELENS ROAD
PORTLAND, OREGON

FIGURE 1

K:\BP\GW_Contours\2023\Annual_GW_Report_2023\Fig 2 Site Location Map.dwg Jun 17, 2024 - 1:14pm



LEGEND

— Approximate Portland Terminal Property Boundary

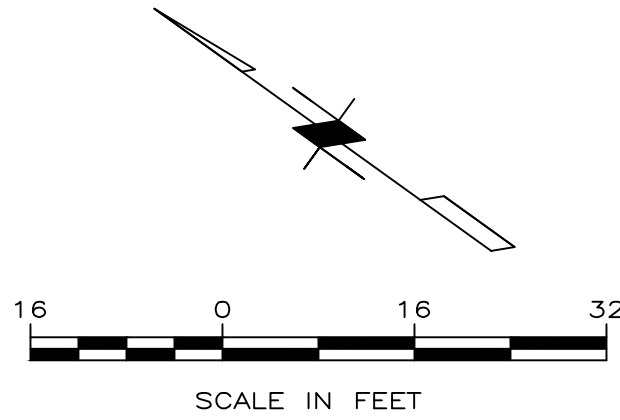


SITE MAP OF TERMINAL AND SURROUNDING PROPERTY

Project Number: 60733311

PORTLAND TERMINAL
9930 NW ST HELENS
PORTLAND, OREGON

FIGURE 2

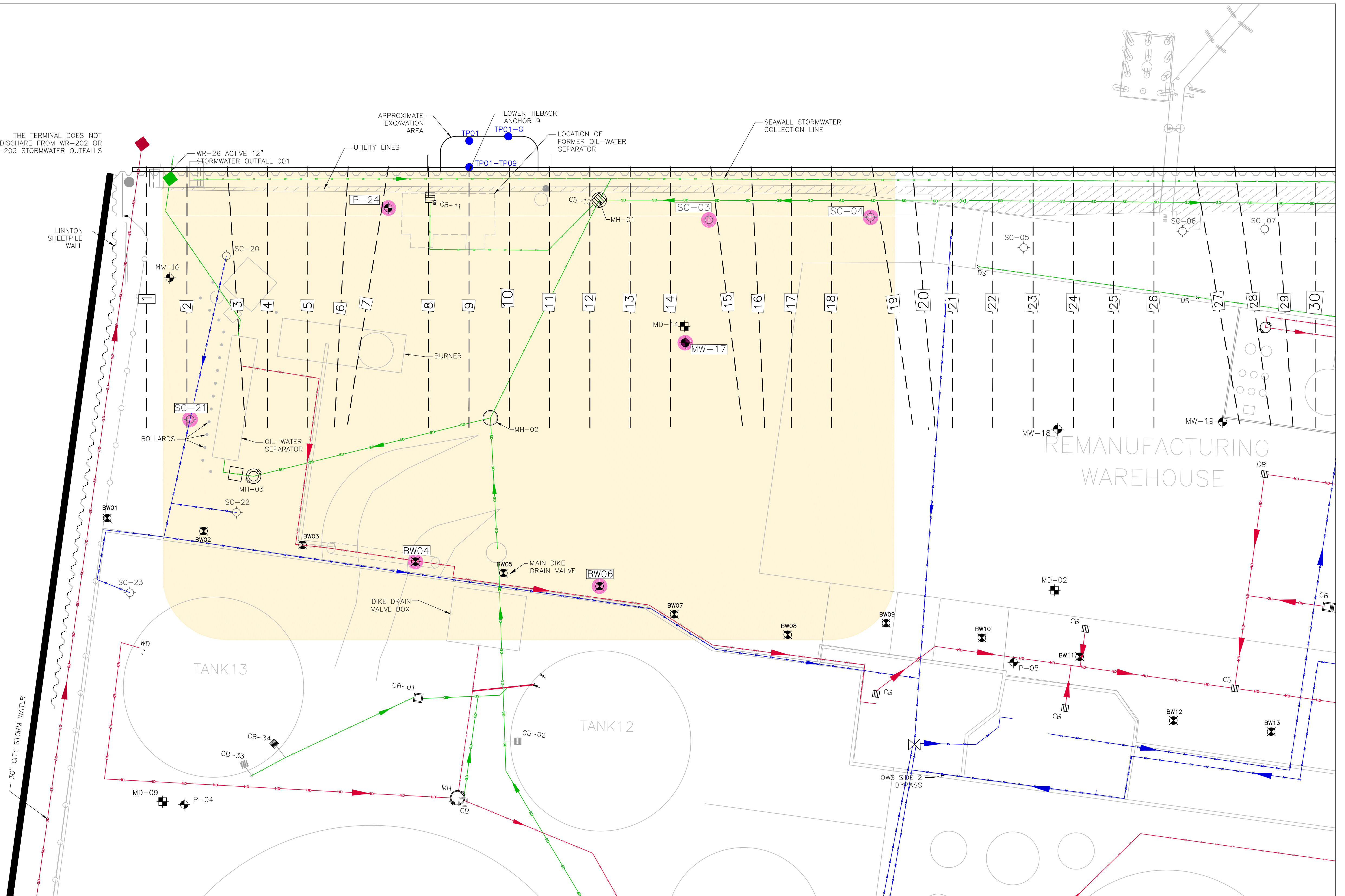


LEGEND

- Approximate Property Line
- Concrete Retaining Wall
- Fence
- Railroad Tracks
- Sheetpile Barrier
- Gate
- Groundwater Line
- Stormwater Line
- Off-Site Stormwater Line
- Sanitary Line
- Process Water Line
- Lower Tieback Anchor Location
- SGZ Monitoring Well
- SGZ Extraction Well
- DGZ Monitoring Well
- Barrier Well
- Sediment Sample Location Digitized from Figure-11G of the B1a Area Predesign Investigation Phase 3 Evaluation Report (Jacobs, 2024)
- Existing Well Locations for PCB Screening
- Approximate PCB Screening Focus Area

Notes:
DGZ = Deep Groundwater Zone
SGZ = Shallow Groundwater Zone

THE TERMINAL DOES NOT DISCHARGE FROM WR-202 OR WR-203 STORMWATER OUTFALLS



PCB SCREENING SAMPLE LOCATIONS

PORTLAND TERMINAL
9930 NW ST HELENS ROAD
PORTLAND, OREGON

FIGURE 3



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Tables

Table 1a
Well Construction Depths and Elevations
2024 SMP PCB Screening Work Plan
SMP Terminal, Portland Oregon

Location	Ground Surface Elevation ¹ (ft CPD)	Depth of Boring (ft bgs)	Bottom of Boring Elevation ¹ (ft CPD)	Well Screen Interval Depths (ft bgs)	Well Screen Interval Elevations ¹ (ft CPD)
SC-03	32.2	41	-8.8	20 - 40	12.2 - -7.8
SC-04	35.0	41.5	-6.5	20 - 40	15.0 - -5.0
SC-21	31.5	31	0.5	12 - 31	19.5 - 0.5
P-24	30.9	30	0.9	15 - 30	15.9 - 0.9
MW-17	33.0	25	8.0	15 - 25	18.0 - 8.0
BW04	32.8	25	7.8	15 - 25	17.8 - 7.8
BW06	33.6	25	8.6	15 - 25	18.6 - 8.6

Table 1b
Tieback Excavation and Sampling Depths and Elevations
2024 SMP PCB Screening Work Plan
SMP Terminal, Portland Oregon

Location	Ground Surface Elevation ¹ (ft CPD)	Depth of Excavation (ft bgs)	Bottom of Excavation Elevation ¹ (ft CPD)	Depth of Sample/Tieback (ft bgs)	Elevation of Sample/Tieback ¹ (ft CPD)
Test Pit 01	15	6 ²	9 ²	5.5-6 ³	9-9.5 ³
Lower Tieback 09	15	-	-	5 ⁴	10 ⁴

Notes:

bgs - below ground surface

CPD - City of Portland Datum

ft - feet

NAVD88 - north american vertical datum 1988

¹ All elevations are provided relative to CPD. Add 2.1 feet to convert to NAVD88.

² Approximate depth and elevation of the bottom of excavation at Lower Tiebacks 9 and 10, completed in August 2023.

³ Depth and elevation of sample TP01-TB09, collected from the excavation at Lower Tiebacks 9 and 10 in August 2023.

⁴ Depth and elevation of Lower Tieback 09.

Table 2
Sample Containers, Preservation and Holding Time
2024 SMP PCB Screening Work Plan
SMP Terminal, Portland Oregon

Parameter	Method	Medium	Target Sample Amount	Minimum Sample Amount	Container Type	Preservation	Extraction Holding Time	Analysis Holding Time
Polychlorinated Biphenyls (PCBs)	EPA 8082A, SW-846	NAPL	10 ml	Trace	16-oz glass jar with teflon-lined lid	Cool 0 to 6°C	1 year ¹	40 days ²
		Well Particulates	50 g (allows for % moisture)	10 g	8-oz glass jar with teflon-lined lid	Cool 0 to 6°C	1 year ¹	40 days ²
		Wipe	1 wipe	1 wipe	8-oz glass jar with teflon-lined lid	Hexane Cool 0 to 6°C	1 year ¹	40 days ²
		Water	500 ml	500 ml	2 x 250 ml glass amber	Cool 0 to 6°C	1 year ¹	40 days ²

EPA - Environmental Protection Agency
g - grams
ml - milliliter
NAPL - non-aqueous phase liquids

¹ EPA has no holding time indicated for PCB analysis for NAPL, solid samples or wipe samples in Chapter 4 of the SW-846 compendium. For this project, 1 year is selected to provide a timeframe to complete analysis, data evaluation, and final reporting before sample disposal by the laboratory.
² Days from extraction date

Table 3
Laboratory Limits for Polychlorinated Biphenyls (PCBs) by Method 8082
2024 SMP PCB Screening Work Plan
SMP Terminal, Portland Oregon

Medium	Analyte	CAS Number	RL ^A	MDL ^A	Units
Solids					
	Aroclor 1016	12674-11-2	20	7.4	ug/kg
	Aroclor 1221	11104-28-2	20	12	ug/kg
	Aroclor 1232	11141-16-5	20	4.9	ug/kg
	Aroclor 1242	53469-21-9	20	8.0	ug/kg
	Aroclor 1248	12672-29-6	20	7.0	ug/kg
	Aroclor 1254	11097-69-1	20	9.0	ug/kg
	Aroclor 1260	11096-82-5	20	7.4	ug/kg
Water					
	Aroclor 1016	12674-11-2	0.45	0.061	ug/L
	Aroclor 1221	11104-28-2	0.45	0.075	ug/L
	Aroclor 1232	11141-16-5	0.45	0.063	ug/L
	Aroclor 1242	53469-21-9	0.45	0.059	ug/L
	Aroclor 1248	12672-29-6	0.45	0.052	ug/L
	Aroclor 1254	11097-69-1	0.45	0.036	ug/L
	Aroclor 1260	11096-82-5	0.45	0.061	ug/L

Notes:

MDL - method detection limit

RL - reporting limit

ug/kg - microgram per kilogram

ug/L - microgram per liter

^A - RLs and MDLs as presented were provided by Eurofins-Seattle at the time of report production. RLs and MDs may change based on updated MDL studies. RLs and MDLs will vary based on sample size, dilutions, matrix interference and/or moisture content. AECOM is estimating NAPL matrixes will have RL/MDL values approximately 100x the listed values.

Appendix A

Data Quality Control Report



PROJECT:

PROJECT NUMBER:

AECOM FIELD PERSONNEL:

DAY

S	M	T	W	TH	F	S
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HUMIDITY

SNOW	RAIN	OVERCAST	CLEAR	BRIGHT SUN
To 32	32-50	50-70	70-85	85 up
Still	Moder	High	Report No.	
Dry	Moder	Humid		

TIME OFF-SITE:

SUBCONTRACTORS/OTHER PERSONNEL ON SITE:

TAILGATE SAFETY CONDUCTED; TOPICS COVERED:

WORK PERFORMED:

SIGNATURE:

NAME:

Daily Quality Control Report

PROJECT:

REPORT NO.

PROJECT NUMBER:

DATE _____

[illegible]

PROBLEMS ENCOUNTERED/CORRECTION ACTION TAKEN:

TOMORROW'S EXPECTATIONS:

SIGNATURE:

NAME: