December 7, 2017

Kathy Bahnick
Environmental Program Supervisor
Port of Seattle
2711 Alaskan Way
Seattle, WA 98121

Re: Terminal 91 Building 136 Navy Hoist Environmental Investigation Work Plan

Dear Kathy,

Per your request, Pacific Groundwater Group (PGG) is pleased to present a work plan for environmental investigation at the Terminal 91 Building 136 area (DU 36) where hydraulic lifts were discovered during routine maintenance paving (Figure 1). This work plan is prepared consistent with the Contamination Contingency Work Plan in Exhibit E of the Terminal 91 Agreed Order (DE 8938).

BACKGROUND

This supplemental scope of work describes contingency investigation services for four hoists discovered in September 2017 at the Port of Seattle (Port) Terminal 91. During paving activities at the materials handling shop in the former transportation building (DU 36), approximately 10 to 15 gallons of hydraulic oil was released during the inadvertent removal of one hoist. Three of the four hoists and two reservoir oil tanks are still in place within concrete troughs.

During PGG's site visit on September 20, 2017 after discovery of hydraulic oil, the base of the trough appeared to intersect groundwater. A vacuum truck had pumped approximately 100 gallons of oily water, however oil was observed on the water surface of the western trough after vacuum truck removal stopped. Water appeared to be entering the trough during pumping. It was unclear if the remaining product was residual from releases in the trough or if product exists outside of the trough. An oily water sample collected from the trough by DH Environmental on September 20, 2017 indicated the following (OSE, 2017):

- Hydrocarbon identification (NWTPH-HCID) analysis indicated the presence of diesel and lube oil range hydrocarbons.
- Polychlorinated biphenyls (PCBs) were not-detected
- VOCs were detected below applicable cleanup levels

Investigations in 2007 at locations to the east (B-19) and south (B-3) were non-detect for petroleum compounds (Pinnacle, 2007).

- Soil sample B-3 was analyzed for NWTPH-Dx, MTCA 5 Metals, EPA Method 8260 chlorinated VOCs, and PCBs. The sample results were below screening levels for analyzed metals; chlorinated VOCs were not detected; and PCBs were not detected.
- Soil sample B-19 was analyzed for NWTPH-G, benzene, toluene, ethylbenzene, xylene (BTEX) and lead. NWTPH-G and BTEX were not detected in the sample and lead was below screening levels.

The hydraulic lift assemblies include two narrow concrete basins/troughs with hoists at each end.

SAMPLING PLAN

The purpose of the investigation is to evaluate if petroleum contamination is present in soil and groundwater surrounding the hoists. This information will be used by the Port to scope subsequent removal of hoist equipment and address impacted soil or groundwater, if needed.

SAMPLING LOCATIONS

Reconnaissance borings will be advanced at the four locations shown on Figure 2. At each boring, soil cores will be collected to a depth of 10 feet and field screened for petroleum impacts based on odor and visual staining. If field observations of soil cores indicate petroleum impacts, a step-out boring will be advanced 5- to 10-feet away from the previous boring. The specific location will depend on site utilities and remaining structures associated with the former Navy facility.

Borings will be named sequentially beginning with B-80 to continue the numbering from prior investigations (Pinnacle 2007; 2011)

SAMPLING PROTOCOLS

Following private utility surveys to clear locations, and approval of locations by the Port, drilling will be conducted with a truck or track-mount direct push drill rig.

Soil samples will be collected near the water table or at shallower intervals where petroleum impacts are indicated by field observations. Soil samples will be collected with clean gloved hands or clean stainless steel spoons into laboratory provided containers and placed into a cooler with ice.

Groundwater samples will be collected from temporary direct push wells set by either placing a temporary PVC screen in the borehole or by driving a telescoping stainless steel screen to approximately 3 to 4 feet below the water table. Disposable polyethylene tubing

will be set to 0.5 feet above the base of the well and connected to a peristaltic pump. Temporary wells will be purged until turbidity decreases and stabilizes. Samples will then be collected directly into laboratory provided containers and placed in coolers with ice.

Chain of custody will be maintained for all soil and groundwater samples. Samples will be delivered to OnSite Environmental in Redmond, Washington for analysis.

SAMPLE ANALYSIS

Soil and groundwater samples will be analyzed for diesel- and oil-range petroleum hydrocarbons by Method NWTPH-Dx. Soil sample analysis will include silica gel cleanup.

INVESTIGATION DERIVED WASTE

Investigation-derived soil and groundwater will be placed in labeled drums and stored at the work location until disposal through the Port on-call contractor.

UTILITY LOCATE

A standard one-call utility locate request will be submitted at least 4 working days prior to beginning field work.

REPORTING

An investigation report will be prepared with the following information:

- Boring logs
- Description of field explorations and observations
- Summary of analytical results
- Laboratory data reports
- Data quality review
- Description of the known extent of contamination

Soil and groundwater results will be compared to Model Toxics Control Act (MTCA) Method A Cleanup Levels. These values are:

Constituent	Soil	Groundwater
	mg/kg	*ug/L*
Diesel	2,000	500
Oil	2,000	500

SCHEDULE

Field work will be performed within 30 days of approval of the work plan, pending site access and weather conditions.

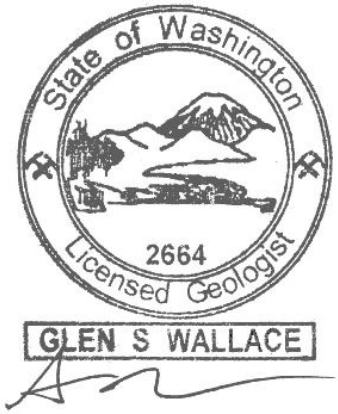
The investigation report will be provided to the Port for review within 30 days of receipt of analytical data.

CLOSING

PGG's work will be performed using generally accepted hydrogeologic practices used at this time and in this vicinity, for exclusive application to Terminal 91, and for the exclusive use by the Port of Seattle. This is in lieu of other warranties, express or implied.

We trust that this work plan provides the information that you need. Please let us know if you have any questions or comments.

Sincerely,
Pacific Groundwater Group



Glen Wallace LG PhD
Associate Geologist

B36WorkPlanv12-7-17.docx

Attachments

Figure 1. Hoist Location

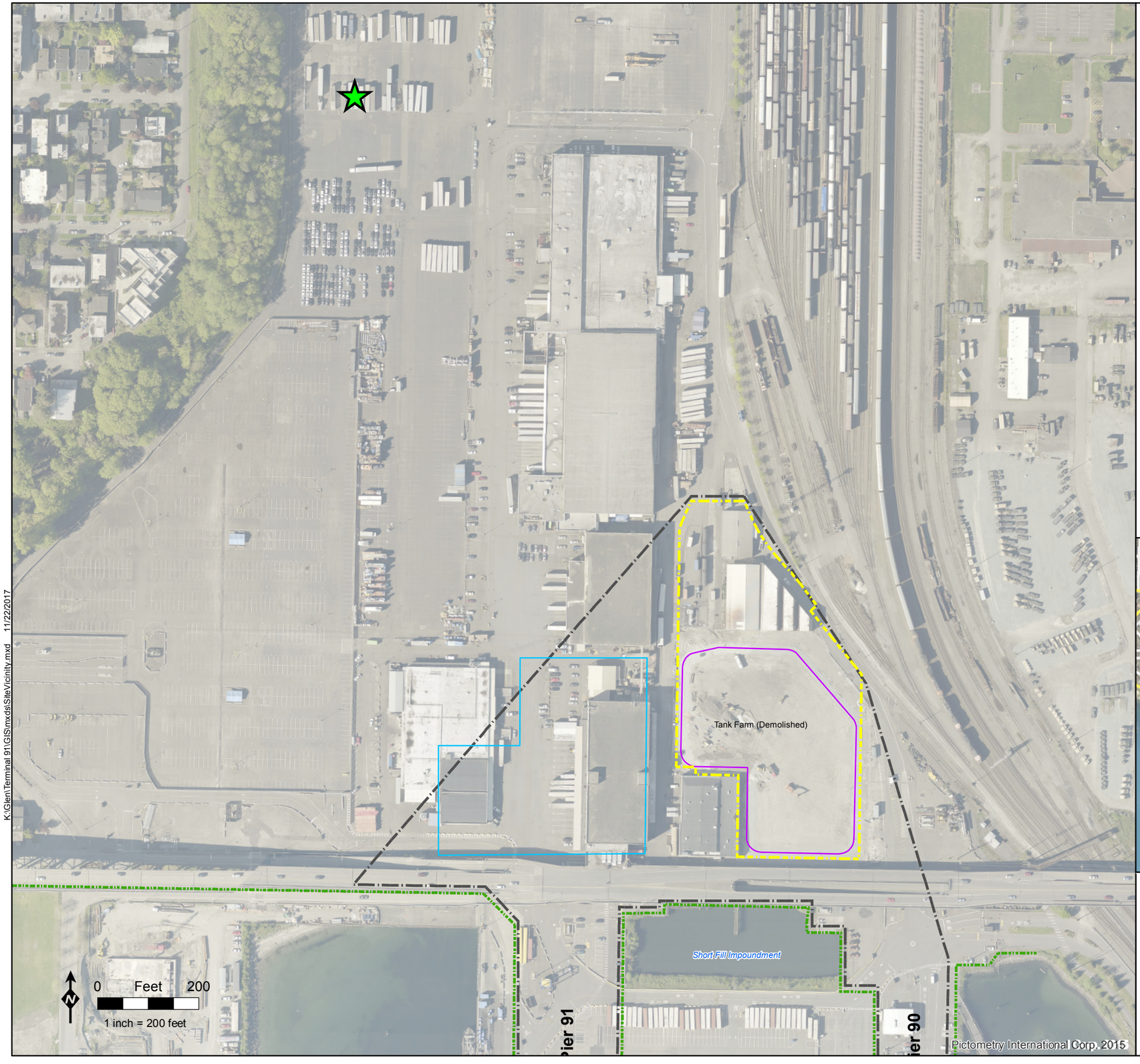
Figure 2. Preliminary Sampling Locations

REFERENCES

OnSite Environmental, 2017. Transmittal Memorandum. Laboratory Reference Number 1709-270. SD01- Sampling Support; T91-Navy. September 25, 2017.

Pinnacle Geosciences, 2007. Summary Report, EPA Brownfields Assessment Non-RCRA Area, Port of Seattle Terminal 91, Seattle, Washington. August 17, 2007.

Pinnacle Geosciences, 2011. Locomotive fueling area and Building 136 investigation. April 27, 2011.



Hoist Location

Bulkhead

Tank Farm

Tank Farm Affected Area (TFAA) Boundary

Bentonite Cutoff Wall

AOC 11 (Old Tank Farm)

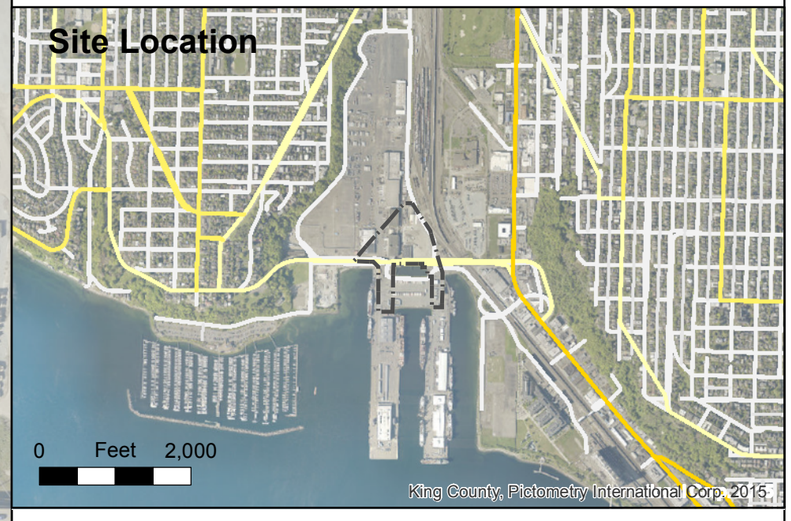


Figure 1
Hoist Location

Port of Seattle Terminal 91

PgG

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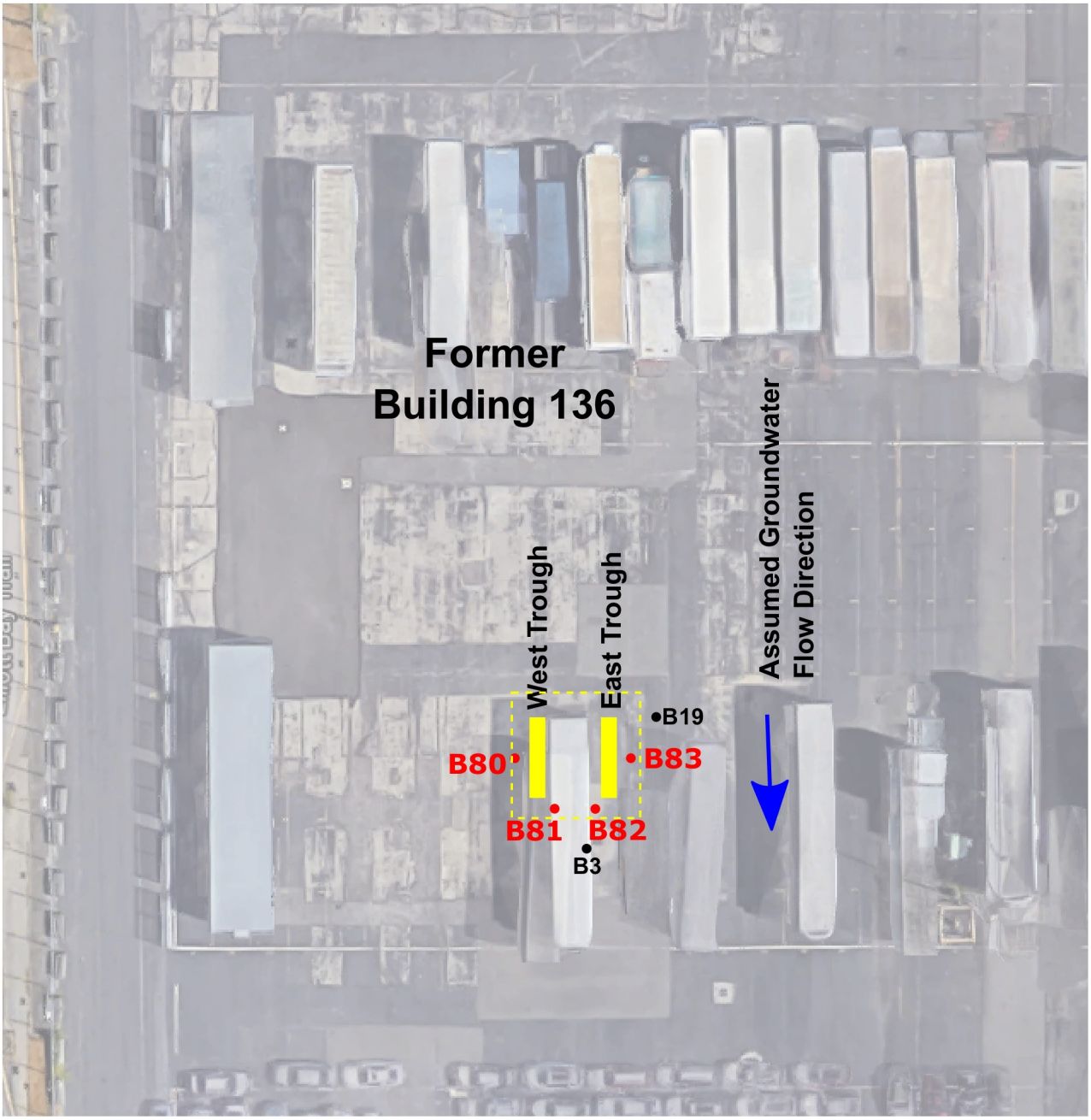

Trough locations shown by yellow rectangles are schematic and approximate. The dashed yellow line is the approximate extent of the pavement repair area.

B3 Prior Boring Location (Approximate)

B3 Proposed Boring Location

Figure 2.
Preliminary Sampling Locations

Terminal 91

PgG