



April 9, 2024

Zak Wall
Washington State Department of Ecology
Toxics Cleanup Program
Northwest Regional Office
15700 Dayton Avenue North
Shoreline, Washington 98133

**RE: GROUNDWATER MONITORING WORK PLAN
UNION STATION PROPERTY
FACILITY SITE ID NO.: 2060
411 SOUTH JACKSON STREET
SEATTLE, WASHINGTON
FARALLON PN: 2644-001**

Dear Zak Wall:

Farallon Consulting, L.L.C. (Farallon) has prepared this work plan on behalf of Union Station Associates, LLC (Union Station) for the Union Station Property at 411 South Jackson Street in Seattle, Washington (herein referred to as the Site) (Figure 1). The groundwater monitoring work plan presented herein is in response to the Washington State Department of Ecology (Ecology) comment letter dated January 24, 2024 (January 2024 Ecology Letter).¹ The January 2024 Ecology Letter requires Union Station to perform contingency groundwater monitoring activities per Table 3 of the Cleanup Action Plan (CAP).²

The summary of the Site background and scope of work and methodology for groundwater monitoring are provided below.

SITE DESCRIPTION AND BACKGROUND

The Site consists of King County Parcel Nos. 8809700000, 5247801292, and 7669800004, and is developed with a commercial building, including office and retail use. The Site spans six city blocks and includes portions of the grade level, which is beneath elevated viaduct portions of South Jackson Street, South Airport Way, and 4th Avenue South.

¹ Washington State Department of Ecology. 2024. Letter Regarding Ecology Review of Response to Ecology Comments on Periodic Review, dated March 28, 2022; Union Station Facility ID#: 2060, 411 South Jackson Street, Seattle, Washington. From Zak Wall. To Kevin Daniels, Union Station. January 24 (January 2024 Ecology Letter).

² Landau Associates, Inc. 1997. Cleanup Action Plan, Union Station Property, Seattle, Washington. Prepared for Union Station and Marten & Brown, LLP. July 28 (CAP).



The Site was originally part of the South Seattle industrial neighborhood. Existing structures at the Property include the Union Station historical building on the north; Metro International Transit Station, lid constructed above the Metro transit lanes, Metro bus tunnel south portal, and portions of elevated viaducts for adjacent streets on the east; and commercial buildings and parking garages constructed in the early 2000s on the west and south.

According to the CAP, the Property was originally part of the South Seattle industrial neighborhood. The Property was originally developed in 1874 as the Seattle Gaslight Company, a coal gasification plant that was constructed on pilings over the tide flats.

Cleanup at the Site was implemented under the Model Toxics Control Act Cleanup Regulation (MTCA), Chapter 173-340 Washington Administrative Code (WAC). Cleanup activities at the Site were completed under Prospective Purchaser Consent Decree 97-2-18936-5SEA, King County Superior Court. The cleanup actions resulted in carcinogenic polycyclic aromatic hydrocarbons (cPAHs) and metals in soil; and polycyclic aromatic hydrocarbons (PAHs), petroleum hydrocarbons, benzene, and arsenic detected at concentrations exceeding MTCA cleanup levels in groundwater remaining at the Site. The MTCA cleanup levels for soil are established under WAC 173-340-740. The MTCA cleanup levels for groundwater are established under WAC 173-340-720. WAC 173-340-420 (2) requires that Ecology conduct a periodic review of a Site every 5 years.

GROUNDWATER MONITORING

In accordance with Prospective Purchaser Consent Decree No. 97-2-18963-5 SEA and the CAP, periodic groundwater monitoring is required at down-gradient wells MW-101R, MW-102R, MW-104, MW-105, MW-107R, and MW-108R, and up-gradient wells B-4R and B-6R. Based on the 2019 Groundwater Monitoring Compliance Report,³ constituents of concern were detected at concentrations exceeding the cleanup levels established for the Site and triggered the requirements in the CAP for a groundwater monitoring event. In October 2021, Farallon conducted a subsequent groundwater monitoring event for monitoring wells B-4R, B-6R, MW-101R, MW-102R, MW-105, and MW-107R. Constituents of concern were detected at concentrations exceeding the cleanup levels established for the Site in groundwater samples collected from four of the six monitoring wells sampled.

³ Landau Associates, Inc. 2020. *2019 Groundwater Monitoring Compliance Report, Union Station Property, Seattle, Washington*. Prepared for Union Station. January 6 (2019 Groundwater Monitoring Compliance Report).



Based on Table 3 of the CAP, “if the second sample is less than the cleanup levels, return to annual groundwater monitoring” or “if the second sample exceeds cleanup levels commence quarterly monitoring for 1 year.” In accordance with the CAP, Ecology is requiring that quarterly monitoring be conducted for 1 year.

A Site-specific Health and Safety Plan (HASP) will be prepared for the Site. The purpose of the HASP is to outline the Site-specific health and safety requirements for the compliance monitoring activities. The HASP includes guidelines for Farallon personnel to reduce the potential for injury during implementation of the compliance monitoring activities. The HASP includes Site-specific drug, alcohol, and weapons policies; incident preparedness and response procedures; emergency response and evacuation procedures; local and project emergency contact information; appropriate precautions for potential airborne contaminants and Site hazards; and expected characteristics of the waste generated by the compliance monitoring.

MONITORING WELL SAMPLING FREQUENCY

Monitoring wells will be sampled quarterly for 1 year. This will allow for a total of four sampling events to evaluate seasonal variations within the groundwater table.

GROUNDWATER MONITORING AND LABORATORY ANALYSIS

The groundwater monitoring event will include measuring the depth to water in the network of monitoring wells present on the Site and in three down-gradient wells (MW-16D, MW-21, and MW-22) located in the right-of-way west of the west-adjacent Amtrak property (Figure 2). The monitoring event will include collecting groundwater samples from the network of eight monitoring wells at the Site.

Prior to recording groundwater levels, Farallon field personnel will remove the locking well cap from each monitoring well to be sampled and allow groundwater levels to equilibrate to atmospheric pressure for at least 15 minutes. The depth to groundwater will be measured in each monitoring well to the nearest 0.01 foot using an electronic water-level measuring device from the top of the well casing. The total depth of each monitoring well will be measured to evaluate siltation of the well-screen interval and to calculate the submerged well-casing volume. Reusable equipment will be decontaminated between uses at each location. During the first quarterly monitoring event, Farallon will attempt to retrieve well tags from monitoring wells MW-16D, MW-21, and MW-22 in order to review well construction information.



Groundwater samples will be collected in accordance with standard U.S. Environmental Protection Agency (EPA) low-flow groundwater sampling procedures, if sufficient water column is present. Each monitoring well will be purged at a low-flow rate ranging from 100 to 300 milliliters per minute using a peristaltic or bladder pump and dedicated tubing. Temperature, pH, specific conductance, dissolved oxygen, and oxidation-reduction potential will be monitored during purging to determine when stabilization of these parameters occurs. Following stabilization of the parameters, groundwater samples will be collected directly from the low-flow pump outlet.

Laboratory-prepared sample containers will be filled directly from the pump outlet, with care taken to minimize turbulence and not handle the seal or lid of the container when the samples are placed into the containers. The samples will be placed on ice in a cooler under standard chain-of-custody protocols.

Farallon staff will use field analytical kits to analyze for ferrous iron and manganese.

Samples will be retained for laboratory analysis for one or more of the following analytes (Table 1):

- Diesel-range organics and oil-range organics by NWTPH-Dx, with and without silica gel cleanup;
- Gasoline-range organics by NWTPH-Gx;
- PAHs by EPA Method 8270E;
- cPAHs by EPA Method 8270E/SIM;
- Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8260D with speciation of xylenes;
- Total and dissolved arsenic by EPA Method 6020B/200.8;
- Total dissolved solids by Standard Method 2540C;
- Total suspended solids by Standard Method 2540D;
- Methane by RSK 175 method;
- Ferrous iron and manganese with field test kits;
- Alkalinity by Standard Method 2320B; Nitrate and sulfate by EPA Method 300 Series; and



- Groundwater quality parameters such as dissolved oxygen, oxidation reduction potential, and pH.

WASTE DISPOSAL

Wastewater generated during the purging of the monitoring wells along with equipment decontamination wastewater will be stored temporarily in labeled steel drums on the Site pending receipt of the analytical results for waste profiling. The wastewater will be removed from the Site by a subcontractor and transported for proper disposal.

REPORTING

Following each of the quarterly groundwater monitoring events, a progress report will be provided to Ecology. The progress report will include the following:

- Summary of groundwater monitoring event;
- Laboratory analytical reports; and
- Figures showing locations of relevant monitoring wells and Site features, groundwater contours, and groundwater analytical results.

Progress reports documenting the quarterly monitoring events will be submitted to Ecology approximately 14 days following receipt and review of the final analytical results from the analytical laboratory.

An annual groundwater monitoring report will be prepared summarizing the four quarterly events and will include the following:

- Summary of the groundwater monitoring event;
- Figures showing locations of relevant monitoring wells and Site features, groundwater contours, and groundwater analytical results;
- Tables providing analytical results and water level elevations;
- Evaluation of monitored natural attenuation parameters;
- Discussion of the groundwater sample analytical results and comparison to MTCA cleanup levels; and
- Laboratory analytical reports.

The annual groundwater monitoring report will be submitted to Ecology within 60 days of receipt of the laboratory analytical report for the fourth quarterly sampling event.



CLOSING

Farallon appreciates the opportunity to provide environmental consulting services for this project. Please contact Suzy Stumpf at (425) 295-0800 if you have questions or need additional information.

Sincerely,

Farallon Consulting, L.L.C.

Courtney van Stolk, L.G.
Project Geologist

Suzy Stumpf, P.E.
Principal Engineer

Attachments: Figure 1, *Site Plan*
Figure 2, *Site Plan with Monitoring Well Locations*
Table 1, *Summary of Groundwater Monitoring Activities and Objectives*

cc: Kevin Daniels, Union Station Associates, LLC
Bradley Marten, Marten Law
Emma Lautanen, Marten Law

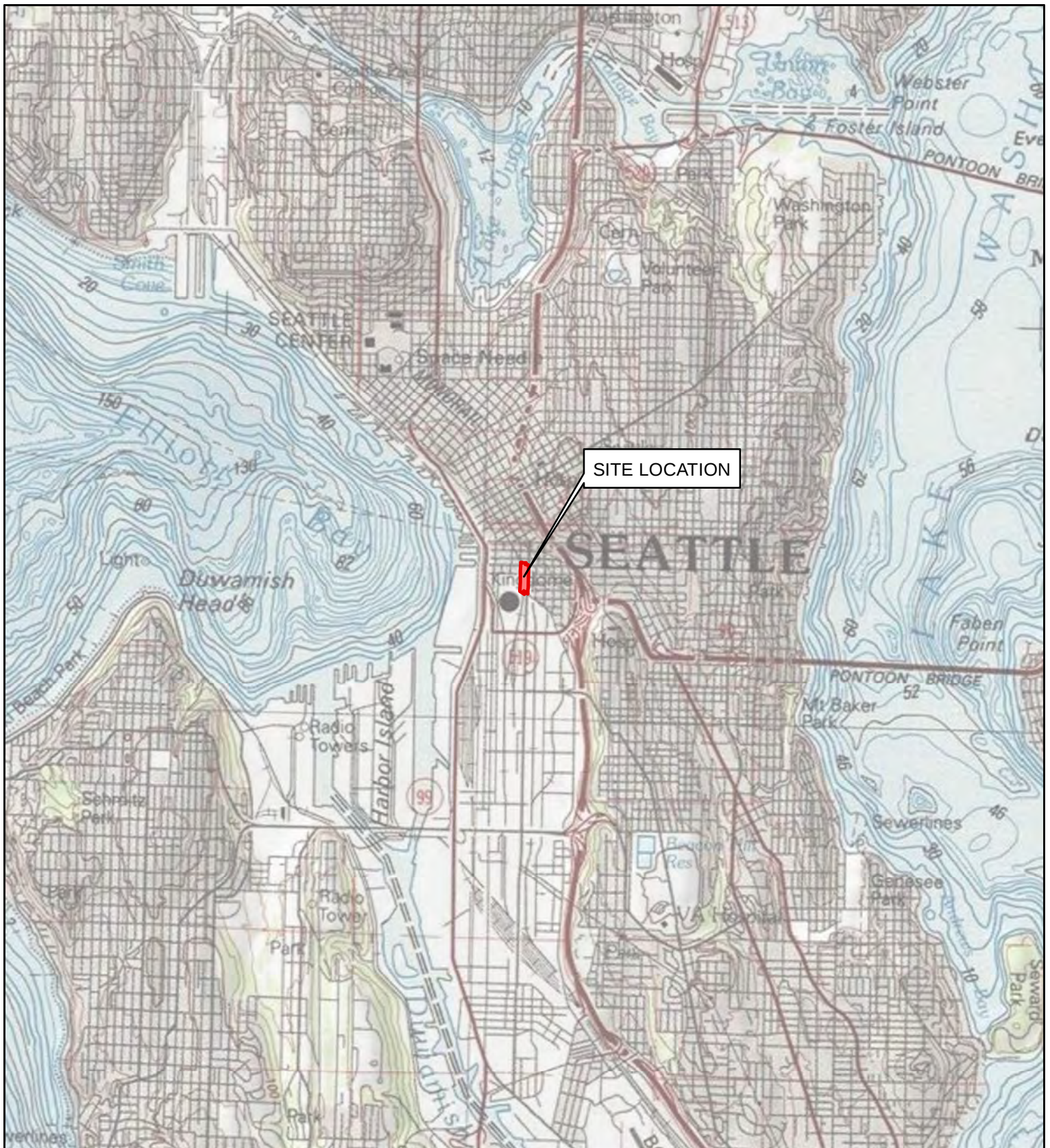
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FIGURES

COMPLIANCE GROUNDWATER MONITORING PLAN

Union Station Property
Facility Site ID No.: 2060
411 South Jackson Street
Seattle, Washington

Farallon PN: 2644-001



REFERENCE: 7.5 MINUTE USGS QUADRANGLE SEATTLE SOUTH, WASHINGTON, DATED 2013



0 5,000
SCALE IN FEET



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Washington
Issaquah | Bellingham | Seattle

Oregon
Portland | Baker City

California
Oakland | Irvine

FIGURE 1

SITE VICINITY PLAN UNION STATION PROPERTY SEATTLE, WASHINGTON

FARALLON PN: 2644-001

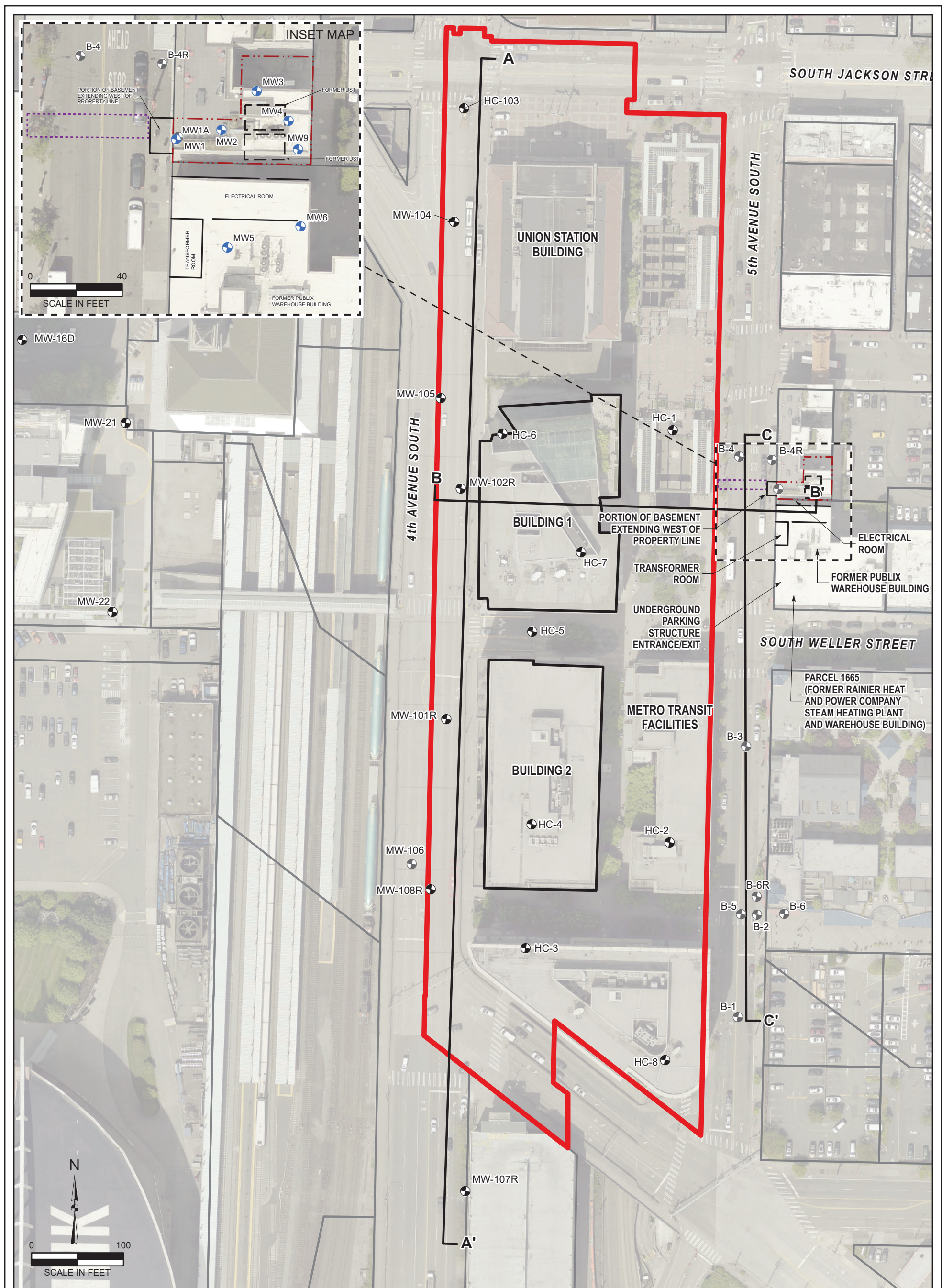
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Checked By: SS

Date: 9/28/2021

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TABLE

COMPLIANCE GROUNDWATER MONITORING PLAN

Union Station Property
Facility Site ID No.: 2060
411 South Jackson Street
Seattle, Washington

Farallon PN: 2644-001

Table 1
Summary of Groundwater Monitoring Activities and Objectives
Union Station Property Facility Site ID No. 2060
411 South Jackson Street, Seattle, Washington
Farallon PN: 2644-001

Well Identification	Well Details				Monitoring and Sampling Details					Monitoring Objectives	
	Total Depth (feet bgs)	Screen interval (feet bgs)	Screen Interval (feet Seattle Datum)	Screen Length (feet)	Water Level	TPH ¹	PAHs ²	Arsenic	MNA ³	Water Level	MNA Evaluation
MW-101R	16.26	6.97 to 16.97	2.8 to -7.2	10	X	X	X	X	X	X	X
MW-102R	22.3	13.67 to 23.67	-3.7 to -13.7	10	X	X	X	X	X	X	X
MW-104	19.69	10.75 to 20.75	-0.1 to -10.1	10	X	X	X	X	X	X	X
MW-105	22.92	14.57 to 24.07	-4.5 to -14.0	10	X	X	X	X	X	X	X
MW-107R	19.43	14.49 to 19.99	-1.5 to -7.0	5	X	X	X	X	X	X	X
MW-108R	22.18	12.96 to 22.96	-3.4 to -13.4	10	X	X	X	X	X	X	X
B-4R	40.61	31.0 to 41.0	5.74 to -4.26	10	X	X	X	X	X	X	X
B-6R	43.98	23.98 to 43.98	10.4 to -9.6	20	X	X	X	X	X	X	X
MW-16D ⁴	---	---	---	---	X					X	
MW-21 ⁴	---	---	---	---	X					X	
MW-22 ⁴	---	---	---	---	X					X	

NOTES:

¹ Total Petroleum Hydrocarbons (TPH) includes diesel-, gasoline-, and oil-range organics, benzene, toluene, ethylbenzene, and xylenes.

² Polycyclic Aromatic Hydrocarbons (PAHs) include both carcinogenic and non-carcinogenic PAHs.

³ Monitored Natural Attenuation (MNA) parameters include total suspended and dissolved solids, methane, nitrate, sulfate, alkalinity, ferrous iron, manganese, dissolved oxygen, oxidation reduction potential, and pH.

⁴ Farallon does not currently have access to well construction information for these off-site wells installed by other consultants.

bgs = below ground surface